



## **Cisco Security Appliance Command Reference**

For the Cisco ASA 5500 Series and Cisco PIX 500 Series

Software Version 7.2(2)

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## About This Guide

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This preface introduces the *Cisco Security Appliance Command Reference*.

This preface includes the following sections:

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## Document Objectives

This guide contains the commands available for use with the security appliance to protect your network from unauthorized use and to establish Virtual Private Networks to connect remote sites and users to your network.

You can also configure and monitor the security appliance by using ASDM, a web-based GUI application. ASDM includes configuration wizards to guide you through some common configuration scenarios, and online Help for less common scenarios. For more information, see:  
<http://www.cisco.com/univercd/cc/td/doc/product/netsec/secmgmt/asdm/index.htm>.

This guide applies to the Cisco PIX 500 series security appliances (PIX 515/515E, PIX 525, and PIX 535) and the Cisco ASA 5500 series security appliances (ASA 5510, ASA 5520, and ASA 5540). Throughout this guide, the term “security appliance” applies generically to all supported models, unless specified otherwise. The PIX 501, PIX 506E, and PIX 520 security appliances are not supported in software Version 7.0(1).

# Audience

This guide is for network managers who perform any of the following tasks:

- Manage network security
- Install and configure firewall/security appliances
- Configure VPNs
- Configure intrusion detection software

Use this guide with the *Cisco Security Appliance Command Line Configuration Guide*.

# Document Organization

This guide includes the following chapters:

- Chapter 1, “Using the Command-Line Interface,” introduces you to the security appliance commands and access modes.
- Chapter 2, “aaa accounting command through accounting-server-group Commands,” provides detailed descriptions of the **aaa accounting** through **accounting-server-group** commands.
- Chapter 3, “acl-netmask-convert through auto-update timeout Commands,” provides detailed descriptions of the **activation-key** through **auto-update timeout** commands.
- Chapter 4, “backup interface through browse-networks Commands,” provides detailed descriptions of the **backup-servers** through **boot** commands.
- Chapter 5, “cache through clear compression Commands,” provides detailed descriptions of the **cache-time** through **clear capture** commands.
- Chapter 6, “clear configure through clear configure zonelabs-integrity Commands,” provides detailed descriptions of the **clear configure** through **clear configure virtual** commands.
- Chapter 7, “clear console-output through clear xlate Commands,” provides detailed descriptions of the **clear console-output** through **clear xlate** commands.
- Chapter 8, “client-access-rule through crl configure Commands,” provides detailed descriptions of the **client-access-rule** through **crl-configure** commands.
- Chapter 9, “crypto ca authenticate through customization Commands,” provides detailed descriptions of the **crypto ca authenticate** through **crypto map set** commands.
- Chapter 10, “ddns through debug xdmcp Commands,” provides detailed descriptions of the **debug aaa** through **debug xdmcp** commands.
- Chapter 11, “default through duplex Commands,” provides detailed descriptions of the **default** through **duplex** commands.
- Chapter 12, “email through functions Commands,” provides detailed descriptions of the **email** through **functions** commands.
- Chapter 13, “gateway through hw-module module shutdown Commands,” provides detailed descriptions of the **gateway** through **hw-module module shutdown** commands.
- Chapter 14, “icmp through imap4s Commands,” provides detailed descriptions of the **icmp** through **imap4s** commands.
- Chapter 15, “inspect ctiqbe through inspect xdmcp Commands,” provides detailed descriptions of the **inspect ctiqbe** through **inspect xdmcp** commands.



- Chapter 16, “interface-dhcp through issuer-name Commands,” provides detailed descriptions of the **interface-dhcp** through **issuer-name** commands.
- Chapter 17, “java-trustpoint through kill Commands,” provides detailed descriptions of the **join-failover-group** through **kill** commands.
- Chapter 18, “l2tp tunnel hello through log-adj-changes Commands,” provides detailed descriptions of the **l2tp tunnel hello** through **login** commands.
- Chapter 19, “logging asdm through logout message Commands,” provides detailed descriptions of the **logging asdm** through **logout message** commands.
- Chapter 20, “mac address through multicast-routing Commands,” provides detailed descriptions of the **mac-address** through **multicast-routing** commands.
- Chapter 21, “nac through override-account-disable Commands,” provides detailed descriptions of the **name** through **outstanding** commands.
- Chapter 22, “packet-tracer through pwd Commands,” provides detailed descriptions of the **participate** through **pwd** commands.
- Chapter 23, “queue-limit through rtp-conformance Commands,” provides detailed descriptions of the **queue-limit** through **router ospf** commands.
- Chapter 24, “same-security-traffic through show asdm sessions Commands,” provides detailed descriptions of the **same-security-traffic** through **show asdm sessions** commands.
- Chapter 25, “show asp drop through show curpriv Commands,” provides detailed descriptions of the **show asp drop** through **show curpriv** commands.
- Chapter 26, “show ddns update interface through show ipv6 traffic Commands,” provides detailed descriptions of the **show debug** through **show ipv6 traffic** commands.
- Chapter 27, “show isakmp ipsec-over-tcp stats through show route Commands,” provides detailed descriptions of the **show isakmp sa** through **show route** commands.
- Chapter 28, “show running-config through show running-config isakmp Commands,” provides detailed descriptions of the **show running-config** through **show running-config isakmp** commands.
- Chapter 29, “show running-config ldap through show running-config wccp Commands,” provides detailed descriptions of the **show running-config logging** through **show running-config webvpn** commands.
- Chapter 30, “show service-policy through show webvpn svc Commands,” provides detailed descriptions of the **show service-policy** through **show xlate** commands.
- Chapter 31, “shun through sysopt radius ignore-secret Commands,” provides detailed descriptions of the **shun** through **sysopt uauth allow-http-cache** commands.
- Chapter 32, “tcp-map through type echo Commands,” provides detailed descriptions of the **tcp-map** through **tunnel-limit** commands.
- Chapter 33, “urgent-flag through zonelabs integrity ssl-client-authentication Commands,” provides detailed descriptions of the **urgent-flag** through **write terminal** commands.

## Document Conventions

Command descriptions use these conventions:

- Braces ( { } ) indicate a required choice.
- Square brackets ( [ ] ) indicate optional elements.
- Vertical bars ( | ) separate alternative, mutually exclusive elements.
- **Boldface** indicates commands and keywords that are entered literally as shown.
- *Italics* indicate arguments for which you supply values.

Examples use these conventions:

- Examples depict screen displays and the command line in `screen font`.
- Information you need to enter in examples is shown in **boldface screen font**.



### Note

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Variables for which you must supply a value are shown in *italic screen font*. Means *reader take note*. Notes contain helpful suggestions or references to material not addressed in the manual.

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For information on modes, prompts, and syntax, see Chapter 1, “Using the Command-Line Interface.”

## Related Documentation

For more information, refer to the following documentation:

- *Cisco ASDM Release Notes*
- *Cisco ASA 5500 Series Adaptive Security Appliance Getting Started Guide*
- *Cisco ASA 5500 Series Hardware Installation Guide*
- *Cisco ASA 5500 Series Quick Start Guide*
- *Cisco ASA 5500 Series Release Notes*
- *Cisco PIX Security Appliance Release Notes*
- *Cisco PIX 515E Quick Start Guide*
- *Cisco Security Appliance Command Line Configuration Guide*
- *Cisco Security Appliance System Log Messages*
- *Guide for Cisco PIX 6.2 and 6.3 Users Upgrading to Cisco PIX Software Version 7.0*
- *Regulatory Compliance and Safety Information for the Cisco ASA 5500 Series*
- *Release Notes for Cisco Secure Desktop*
- *Migrating to ASA for VPN 3000 Concentrator Series Administrators*
- *Selected ASDM VPN Configuration Procedures for the Cisco ASA 5500 Series*

## Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. This section explains the product documentation resources that Cisco offers.

## Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/techsupport>

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

[http://www.cisco.com/public/countries\\_languages.shtml](http://www.cisco.com/public/countries_languages.shtml)

## Product Documentation DVD

The Product Documentation DVD is a library of technical product documentation on a portable medium. The DVD enables you to access installation, configuration, and command guides for Cisco hardware and software products. With the DVD, you have access to the HTML documentation and some of the PDF files found on the Cisco website at this URL:

<http://www.cisco.com/univercd/home/home.htm>

The Product Documentation DVD is created and released regularly. DVDs are available singly or by subscription. Registered Cisco.com users can order a Product Documentation DVD (product number DOC-DOCDVD= or DOC-DOCDVD=SUB) from Cisco Marketplace at the Product Documentation Store at this URL:

<http://www.cisco.com/go/marketplace/docstore>

## Ordering Documentation

You must be a registered Cisco.com user to access Cisco Marketplace. Registered users may order Cisco documentation at the Product Documentation Store at this URL:

<http://www.cisco.com/go/marketplace/docstore>

If you do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

## Documentation Feedback

You can provide feedback about Cisco technical documentation on the Cisco Support site area by entering your comments in the feedback form available in every online document.

## Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

[http://www.cisco.com/en/US/products/products\\_security\\_vulnerability\\_policy.html](http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html)

From this site, you will find information about how to do the following:

- Report security vulnerabilities in Cisco products

- Obtain assistance with security incidents that involve Cisco products
- Register to receive security information from Cisco

A current list of security advisories, security notices, and security responses for Cisco products is available at this URL:

<http://www.cisco.com/go/psirt>

To see security advisories, security notices, and security responses as they are updated in real time, you can subscribe to the Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed. Information about how to subscribe to the PSIRT RSS feed is found at this URL:

[http://www.cisco.com/en/US/products/products\\_psirt\\_rss\\_feed.html](http://www.cisco.com/en/US/products/products_psirt_rss_feed.html)

## Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you have identified a vulnerability in a Cisco product, contact PSIRT:

- For emergencies only — [security-alert@cisco.com](mailto:security-alert@cisco.com)

An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- For nonemergencies — [psirt@cisco.com](mailto:psirt@cisco.com)

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532



### Tip

We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.x through 9.x.

Never use a revoked encryption key or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

[http://www.cisco.com/en/US/products/products\\_security\\_vulnerability\\_policy.html](http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html)

The link on this page has the current PGP key ID in use.

If you do not have or use PGP, contact PSIRT to find other means of encrypting the data before sending any sensitive material.

## Product Alerts and Field Notices

Modifications to or updates about Cisco products are announced in Cisco Product Alerts and Cisco Field Notices. You can receive these announcements by using the Product Alert Tool on Cisco.com. This tool enables you to create a profile and choose those products for which you want to receive information.

To access the Product Alert Tool, you must be a registered Cisco.com user. Registered users can access the tool at this URL:

<http://tools.cisco.com/Support/PAT/do/ViewMyProfiles.do?local=en>

To register as a Cisco.com user, go to this URL:

<http://tools.cisco.com/RPF/register/register.do>

## Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Support website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

## Cisco Support Website

The Cisco Support website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day at this URL:

<http://www.cisco.com/en/US/support/index.html>

Access to all tools on the Cisco Support website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>



### Note

Before you submit a request for service online or by phone, use the **Cisco Product Identification Tool** to locate your product serial number. You can access this tool from the Cisco Support website by clicking the **Get Tools & Resources** link, clicking the **All Tools (A-Z)** tab, and then choosing **Cisco Product Identification Tool** from the alphabetical list. This tool offers three search options: by product ID or model name; by tree view; or, for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.



### Tip

#### Displaying and Searching on Cisco.com

If you suspect that the browser is not refreshing a web page, force the browser to update the web page by holding down the Ctrl key while pressing **F5**.

To find technical information, narrow your search to look in technical documentation, not the entire Cisco.com website. After using the Search box on the Cisco.com home page, click the **Advanced Search** link next to the Search box on the resulting page and then click the **Technical Support & Documentation** radio button.

To provide feedback about the Cisco.com website or a particular technical document, click **Contacts & Feedback** at the top of any Cisco.com web page.

## Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests, or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411

Australia: 1 800 805 227

EMEA: +32 2 704 55 55

USA: 1 800 553 2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

## Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

**Severity 1 (S1)**—An existing network is “down” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

**Severity 2 (S2)**—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

**Severity 3 (S3)**—Operational performance of the network is impaired while most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

**Severity 4 (S4)**—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

## Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The Cisco Online Subscription Center is the website where you can sign up for a variety of Cisco e-mail newsletters and other communications. Create a profile and then select the subscriptions that you would like to receive. To visit the Cisco Online Subscription Center, go to this URL:

<http://www.cisco.com/offer/subscribe>

- The *Cisco Product Quick Reference Guide* is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many Cisco products that are sold through channel partners. It is updated twice a year and includes the latest Cisco channel product offerings. To order and find out more about the *Cisco Product Quick Reference Guide*, go to this URL:

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<http://www.cisco.com/ipj>

- Networking products offered by Cisco, as well as customer support services, can be obtained at this URL:

<http://www.cisco.com/en/US/products/index.html>

- Networking Professionals Connection is an interactive website where networking professionals share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

<http://www.cisco.com/discuss/networking>

- “What’s New in Cisco Documentation” is an online publication that provides information about the latest documentation releases for Cisco products. Updated monthly, this online publication is organized by product category to direct you quickly to the documentation for your products. You can view the latest release of “What’s New in Cisco Documentation” at this URL:

<http://www.cisco.com/univercd/cc/td/doc/abtunicd/136957.htm>

- World-class networking training is available from Cisco. You can view current offerings at this URL:

<http://www.cisco.com/en/US/learning/index.html>







# Using the Command-Line Interface

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This describes how to use the CLI on the security appliance, and includes the following topics:

- Firewall Mode and Security Context Mode, page 1-1
- Command Modes and Prompts, page 1-2
- Syntax Formatting, page 1-3
- Abbreviating Commands, page 1-3
- Command-Line Editing, page 1-3
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- Command Output Paging, page 1-5
- Adding Comments, page 1-5
- Text Configuration Files, page 1-6



**Note**

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The CLI uses similar syntax and other conventions to the Cisco IOS CLI, but the security appliance operating system is not a version of Cisco IOS software. Do not assume that a Cisco IOS CLI command works with or has the same function on the security appliance.

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## Firewall Mode and Security Context Mode

The security appliance runs in a combination of the following modes:

- Transparent firewall or routed firewall mode  
The firewall mode determines if the security appliance runs as a Layer 2 or Layer 3 firewall.
- Multiple context or single context mode  
The security context mode determines if the security appliance runs as a single device or as multiple security contexts, which act like virtual devices.

Some commands are only available in certain modes.

# Command Modes and Prompts

The security appliance CLI includes command modes. Some commands can only be entered in certain modes. For example, to enter commands that show sensitive information, you need to enter a password and enter a more privileged mode. Then, to ensure that configuration changes are not entered accidentally, you have to enter a configuration mode. All lower commands can be entered in higher modes, for example, you can enter a privileged EXEC command in global configuration mode.

When you are in the system configuration or in single context mode, the prompt begins with the hostname:

```
hostname
```

When you are within a context, the prompt begins with the hostname followed by the context name:

```
hostname/context
```

The prompt changes depending on the access mode:

- User EXEC mode

User EXEC mode lets you see minimum security appliance settings. The user EXEC mode prompt appears as follows when you first access the security appliance:

```
hostname>
```

```
hostname/context>
```

- Privileged EXEC mode

Privileged EXEC mode lets you see all current settings up to your privilege level. Any user EXEC mode command will work in privileged EXEC mode. Enter the **enable** command in user EXEC mode, which requires a password, to start privileged EXEC mode. The prompt includes the number sign (#):

```
hostname#
```

```
hostname/context#
```

- Global configuration mode

Global configuration mode lets you change the security appliance configuration. All user EXEC, privileged EXEC, and global configuration commands are available in this mode. Enter the **configure terminal** command in privileged EXEC mode to start global configuration mode. The prompt changes to the following:

```
hostname(config)#
```

```
hostname/context(config)#
```

- Command-specific configuration modes

From global configuration mode, some commands enter a command-specific configuration mode. All user EXEC, privileged EXEC, global configuration, and command-specific configuration commands are available in this mode. For example, the **interface** command enters interface configuration mode. The prompt changes to the following:

```
hostname(config-if)#
```

```
hostname/context(config-if)#
```

# Syntax Formatting

Command syntax descriptions use the following conventions:

**Table 1-1**      **Syntax Conventions**

Convention	Description
<b>bold</b>	Bold text indicates commands and keywords that you enter literally as shown.
<i>italics</i>	Italic text indicates arguments for which you supply values.
[x]	Square brackets enclose an optional element (keyword or argument).
	A vertical bar indicates a choice within an optional or required set of keywords or arguments.
[x   y]	Square brackets enclosing keywords or arguments separated by a vertical bar indicate an optional choice.
{x   y}	Braces enclosing keywords or arguments separated by a vertical bar indicate a required choice.
[x {y   z}]	Nested sets of square brackets or braces indicate optional or required choices within optional or required elements. Braces and a vertical bar within square brackets indicate a required choice within an optional element.

## Abbreviating Commands

You can abbreviate most commands down to the fewest unique characters for a command; for example, you can enter **wr t** to view the configuration instead of entering the full command **write terminal**, or you can enter **en** to start privileged mode and **conf t** to start configuration mode. In addition, you can enter **0** to represent **0.0.0.0**.

## Command-Line Editing

The security appliance uses the same command-line editing conventions as Cisco IOS software. You can view all previously entered commands with the **show history** command or individually with the up arrow or **^p** command. Once you have examined a previously entered command, you can move forward in the list with the down arrow or **^n** command. When you reach a command you wish to reuse, you can edit it or press the **Enter** key to start it. You can also delete the word to the left of the cursor with **^w**, or erase the line with **^u**.

The security appliance permits up to 512 characters in a command; additional characters are ignored.

## Command Completion

To complete a command or keyword after entering a partial string, press the **Tab** key. The security appliance only completes the command or keyword if the partial string matches only one command or keyword. For example, if you enter **s** and press the **Tab** key, the security appliance does not complete the command because it matches more than one command. However, if you enter **dis**, the **Tab** key completes the command **disable**.

# Command Help

Help information is available from the command line by entering the following commands:

- **help** *command\_name*  
Shows help for the specific command.
- **help** ?  
Shows commands for which there is help.
- *command\_name* ?  
Shows a list of arguments available.
- *string?* (no space)  
Lists the possible commands that start with the string.
- ? and +?  
Lists all commands available. If you enter ?, the security appliance shows only commands available for the current mode. To show all commands available, including those for lower modes, enter +?.



## Note

If you want to include a question mark (?) in a command string, you must press **Ctrl-V** before typing the question mark so you do not inadvertently invoke CLI help.

# Filtering show Command Output

You can use the vertical bar (|) with any **show** command and include a filter option and filtering expression. The filtering is performed by matching each output line with a regular expression, similar to Cisco IOS software. By selecting different filter options you can include or exclude all output that matches the expression. You can also display all output beginning with the line that matches the expression.

The syntax for using filtering options with the **show** command is as follows:

```
hostname# show command | {include | exclude | begin | grep [-v]} regexp
```

In this command string, the first vertical bar (|) is the operator and must be included in the command. This operator directs the output of the **show** command to the filter. In the syntax diagram, the other vertical bars (|) indicate alternative options and are not part of the command.

The **include** option includes all output lines that match the regular expression. The **grep** option without **-v** has the same effect. The **exclude** option excludes all output lines that match the regular expression. The **grep** option with **-v** has the same effect. The **begin** option shows all the output lines starting with the line that matches the regular expression.

Replace *regexp* with any Cisco IOS regular expression. See The regular expression is not enclosed in quotes or double-quotes, so be careful with trailing white spaces, which will be taken as part of the regular expression.

When creating regular expressions, you can use any letter or number that you want to match. In addition, certain keyboard characters have special meaning when used in regular expressions. Table 1-2 lists the keyboard characters that have special meaning.

**Table 1-2** Using Special Characters in Regular Expressions

Character Type	Character	Special Meaning
period	.	Matches any single character, including white space.
asterisk	*	Matches 0 or more sequences of the pattern.
plus sign	+	Matches 1 or more sequences of the pattern.
question mark	? <sup>1</sup>	Matches 0 or 1 occurrences of the pattern.
caret	^	Matches the beginning of the input string.
dollar sign	\$	Matches the end of the input string.
underscore	_	Matches a comma (,), left brace ({}), right brace (}), left parenthesis, right parenthesis, the beginning of the input string, the end of the input string, or a space.
brackets	[]	Designates a range of single-character patterns.
hyphen	-	Separates the end points of a range.

1. Precede the question mark with **Ctrl-V** to prevent the question mark from being interpreted as a help command.

To use these special characters as single-character patterns, remove the special meaning by preceding each character with a backslash (\).

## Command Output Paging

On commands such as **help** or **?**, **show**, **show xlate**, or other commands that provide long listings, you can determine if the information displays a screen and pauses, or lets the command run to completion. The **pager** command lets you choose the number of lines to display before the More prompt appears.

When paging is enabled, the following prompt appears:

```
<--- More --->
```

The More prompt uses syntax similar to the UNIX **more** command:

- To view another screen, press the Space bar.
- To view the next line, press the **Enter** key.
- To return to the command line, press the **q** key.

## Adding Comments

You can precede a line with a colon (:) to create a comment. However, the comment only appears in the command history buffer and not in the configuration. Therefore, you can view the comment with the **show history** command or by pressing an arrow key to retrieve a previous command, but because the comment is not in the configuration, the **write terminal** command does not display it.

# Text Configuration Files

This section describes how to format a text configuration file that you can download to the security appliance, and includes the following topics:

- How Commands Correspond with Lines in the Text File, page 1-6
- Command-Specific Configuration Mode Commands, page 1-6
- Automatic Text Entries, page 1-6
- Line Order, page 1-7
- Commands Not Included in the Text Configuration, page 1-7
- Passwords, page 1-7
- Multiple Security Context Files, page 1-7

## How Commands Correspond with Lines in the Text File

The text configuration file includes lines that correspond with the commands described in this guide.

In examples, commands are preceded by a CLI prompt. The prompt in the following example is “hostname(config)#”:

```
hostname(config)# context a
```

In the text configuration file you are not prompted to enter commands, so the prompt is omitted:

```
context a
```

## Command-Specific Configuration Mode Commands

Command-specific configuration mode commands appear indented under the main command when entered at the command line. Your text file lines do not need to be indented, as long as the commands appear directly following the main command. For example, the following unindented text is read the same as indented text:

```
interface gigabitethernet0/0  
nameif inside  
interface gigabitethernet0/1  
    nameif outside
```

## Automatic Text Entries

When you download a configuration to the security appliance, the security appliance inserts some lines automatically. For example, the security appliance inserts lines for default settings or for the time the configuration was modified. You do not need to enter these automatic entries when you create your text file.

## Line Order

For the most part, commands can be in any order in the file. However, some lines, such as ACEs, are processed in the order they appear, and the order can affect the function of the access list. Other commands might also have order requirements. For example, you must enter the **nameif** command for an interface first because many subsequent commands use the name of the interface. Also, commands in a command-specific configuration mode must directly follow the main command.

## Commands Not Included in the Text Configuration

Some commands do not insert lines in the configuration. For example, a runtime command such as **show running-config** does not have a corresponding line in the text file.

## Passwords

The login, enable, and user passwords are automatically encrypted before they are stored in the configuration. For example, the encrypted form of the password “cisco” might look like jMorNbK0514fadBh. You can copy the configuration passwords to another security appliance in their encrypted form, but you cannot unencrypt the passwords yourself.

If you enter an unencrypted password in a text file, the security appliance does not automatically encrypt them when you copy the configuration to the security appliance. The security appliance only encrypts them when you save the running configuration from the command line using the **copy running-config startup-config** or **write memory** command.

## Multiple Security Context Files

For multiple security contexts, the entire configuration consists of multiple parts:

- The security context configurations
- The system configuration, which identifies basic settings for the security appliance, including a list of contexts
- The admin context, which provides network interfaces for the system configuration

The system configuration does not include any interfaces or network settings for itself. Rather, when the system needs to access network resources (such as downloading the contexts from the server), it uses a context that is designated as the admin context.

Each context is similar to a single context mode configuration. The system configuration differs from a context configuration in that the system configuration includes system-only commands (such as a list of all contexts) while other typical commands are not present (such as many interface parameters).







## **aaa accounting command through accounting-server-group Commands**

---

# aaa accounting command

To send accounting messages to the TACACS+ accounting server when you enter any command other than **show** commands at the CLI, use the **aaa accounting command** command in global configuration mode. To disable support for command accounting, use the **no** form of this command.

**aaa accounting command** [*privilege level*] *tacacs+-server-tag*

**no aaa accounting command** [*privilege level*] *tacacs+-server-tag*

## Syntax Description

<i>tacacs+-server-tag</i>	Specifies the server or group of TACACS+ servers to which accounting records are sent, as specified by the <b>aaa-server protocol</b> command.
<i>privilege level</i>	If you customize the command privilege level using the <b>privilege</b> command, you can limit which commands the security appliance accounts for by specifying a minimum privilege level. The security appliance does not account for commands that are below the minimum privilege level.

## Defaults

The default privilege level is 0.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

When you configure the **aaa accounting command** command, each command other than **show** commands entered by an administrator is recorded and sent to the accounting server or servers.

## Examples

The following example specifies that accounting records will be generated for any supported command, and that these records are sent to the server from the group named adminserver.

```
hostname(config)# aaa accounting command adminserver
```

## Related Commands

Command	Description
<b>aaa accounting</b>	Enables or disables TACACS+ or RADIUS user accounting (on a server designated by the <b>aaa-server</b> command).
<b>clear configure aaa</b>	Remove/reset the configured AAA accounting values.
<b>show running-config aaa</b>	Display the AAA configuration.

# aaa accounting console

To enable support for AAA accounting for administrative access, use the **aaa accounting console** command in global configuration mode. To disable support for aaa accounting for administrative access, use the **no** form of this command.

```
aaa accounting {http | serial | telnet | ssh | enable} console server-tag
```

```
no aaa accounting {http | serial | telnet | ssh | enable} console server-tag
```

## Syntax Description

<b>enable</b>	Enables the generation of accounting records to mark the entry to and exit from privileged EXEC mode.
<b>http</b>	Enables the generation of accounting records to mark the establishment and termination of admin sessions created over HTTP.
<b>serial</b>	Enables the generation of accounting records to mark the establishment and termination of admin sessions that are established via the serial console interface.
<i>server-tag</i>	Specifies the server group to which accounting records are sent, defined by the <b>aaa-server protocol</b> command. Valid server group protocols are RADIUS and TACACS+.
<b>ssh</b>	Enables the generation of accounting records to mark the establishment and termination of admin sessions created over SSH.
<b>telnet</b>	Enables the generation of accounting records to mark the establishment and termination of admin sessions created over Telnet.

## Defaults

By default, AAA accounting for administrative access is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You must specify the name of the server group, previously specified in an **aaa-server** command.

**Examples**

The following example specifies that accounting records will be generated for all HTTP transactions, and that these records are sent to the server named adminserver.

```
hostname(config)# aaa accounting http console adminserver
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa accounting match</b>	Enables or disables TACACS+ or RADIUS user accounting (on a server designated by the <b>aaa-server</b> command),
<b>aaa accounting command</b>	Specifies that each command, or commands of a specified privilege level or higher, entered by an administrator/user is recorded and sent to the accounting server or servers.
<b>clear configure aaa</b>	Remove/reset the configured AAA accounting values.
<b>show running-config aaa</b>	Display the AAA configuration.

## aaa accounting include, exclude

To enable accounting for TCP or UDP connections through the security appliance, use the **aaa accounting include** command in global configuration mode. To exclude addresses from accounting, use the **aaa accounting exclude** command. To disable accounting, use the **no** form of this command.

```
aaa accounting {include | exclude} service interface_name inside_ip inside_mask [outside_ip
outside_mask] server_tag
```

```
no aaa accounting {include | exclude} service interface_name inside_ip inside_mask [outside_ip
outside_mask] server_tag
```

### Syntax Description

<b>exclude</b>	Excludes the specified service and address from accounting if it was already specified by an <b>include</b> command.
<b>include</b>	Specifies the services and IP addresses that require accounting. Traffic that is not specified by an <b>include</b> statement is not processed.
<i>inside_ip</i>	Specifies the IP address on the higher security interface. This address might be the source or the destination address, depending on the interface to which you apply this command. If you apply the command to the lower security interface, then this address is the destination address. If you apply the command to the higher security interface, then this address is the source address. Use 0 to mean all hosts.
<i>inside_mask</i>	Specifies the network mask for the inside IP address. Use 0 if the IP address is 0. Use 255.255.255.255 for a host.
<i>interface_name</i>	Specifies the interface name from which users require accounting.
<i>outside_ip</i>	(Optional) Specifies the IP address on the lower security interface. This address might be the source or the destination address, depending on the interface to which you apply this command. If you apply the command to the lower security interface, then this address is the source address. If you apply the command to the higher security interface, then this address is the destination address. Use 0 to mean all hosts.
<i>outside_mask</i>	(Optional) Specifies the network mask for the outside IP address. Use 0 if the IP address is 0. Use 255.255.255.255 for a host.
<i>server_tag</i>	Specifies the AAA server group defined by the <b>aaa-server host</b> command.
<i>service</i>	Specifies the services that require accounting. You can specify one of the following values: <ul style="list-style-type: none"> <li>• <b>any</b> or <b>tcp/0</b> (specifies all TCP traffic)</li> <li>• <b>ftp</b></li> <li>• <b>http</b></li> <li>• <b>https</b></li> <li>• <b>ssh</b></li> <li>• <b>telnet</b></li> <li>• <b>tcp/port</b></li> <li>• <b>udp/port</b></li> </ul>

**Defaults**

By default, AAA accounting for administrative access is disabled.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

The security appliance can send accounting information to a RADIUS or TACACS+ server about any TCP or UDP traffic that passes through the security appliance. If that traffic is also authenticated, then the AAA server can maintain accounting information by username. If the traffic is not authenticated, the AAA server can maintain accounting information by IP address. Accounting information includes when sessions start and stop, username, the number of bytes that pass through the security appliance for the session, the service used, and the duration of each session.

Before you can use this command, you must first designate a AAA server with the **aaa-server** command.

To enable accounting for traffic that is specified by an access list, use the **aaa accounting match** command. You cannot use the **match** command in the same configuration as the **include** and **exclude** commands. We suggest that you use the **match** command instead of the **include** and **exclude** commands; the **include** and **exclude** commands are not supported by ASDM.

You cannot use the **aaa accounting include** and **exclude** commands between same-security interfaces. For that scenario, you must use the **aaa accounting match** command.

**Examples**

The following example enables accounting on all TCP connections:

```
hostname(config)# aaa-server mygroup protocol tacacs+
hostname(config)# aaa-server mygroup (inside) host 192.168.10.10 thekey timeout 20
hostname(config)# aaa accounting include any inside 0 0 0 0 mygroup
```

**Related Commands**

Command	Description
<b>aaa accounting match</b>	Enables accounting for traffic specified by an access list.
<b>aaa accounting command</b>	Enables accounting of administrative access.
<b>aaa-server host</b>	Configures the AAA server.
<b>clear configure aaa</b>	Clears the AAA configuration.
<b>show running-config aaa</b>	Displays the AAA configuration.

## aaa accounting match

To enable accounting for TCP and UDP connections through the security appliance, use the **aaa accounting match** command in global configuration mode. To disable accounting for traffic, use the **no** form of this command.

```
aaa accounting match acl_name interface_name server_tag
```

```
no aaa accounting match acl_name interface_name server_tag
```

### Syntax Description

<i>acl_name</i>	Specifies the traffic that requires accounting by matching an <b>access-list</b> name. Permit entries in the access list are accounted, while deny entries are exempt from accounting. This command is only supported for TCP and UDP traffic. A warning message is displayed if you enter this command and it references an access list that permits other protocols.
<i>interface_name</i>	Specifies the interface name from which users require accounting.
<i>server_tag</i>	Specifies the AAA server group tag defined by the <b>aaa-server</b> command.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

The security appliance can send accounting information to a RADIUS or TACACS+ server about any TCP or UDP traffic that passes through the security appliance. If that traffic is also authenticated, then the AAA server can maintain accounting information by username. If the traffic is not authenticated, the AAA server can maintain accounting information by IP address. Accounting information includes when sessions start and stop, username, the number of bytes that pass through the security appliance for the session, the service used, and the duration of each session.

Before you can use this command, you must first designate a AAA server with the **aaa-server** command.

Accounting information is sent only to the active server in a server group unless you enable simultaneous accounting using the **accounting-mode** command in aaa-server protocol configuration mode.



You cannot use the **aaa accounting match** command in the same configuration as the **aaa accounting include** and **exclude** commands. We suggest that you use the **match** command instead of the **include** and **exclude** commands; the **include** and **exclude** commands are not supported by ASDM.

### Examples

The following example enables accounting for traffic matching a specific access list acl2:

```
hostname(config)# access-list acl12 extended permit tcp any any  
hostname(config)# aaa accounting match acl2 outside radserver1
```

### Related Commands

Command	Description
<b>aaa accounting include, exclude</b>	Enables accounting by specifying the IP addresses directly in the command.
<b>access-list extended</b>	Creates an access list.
<b>clear configure aaa</b>	Removes AAA configuration.
<b>show running-config aaa</b>	Displays the AAA configuration.

## aaa authentication include, exclude

To enable authentication for connections through the security appliance, use the **aaa authentication include** command in global configuration mode. To exclude addresses from authentication, use the **aaa authentication exclude** command. To disable authentication, use the **no** form of this command.

```
aaa authentication {include | exclude} service interface_name inside_ip inside_mask [outside_ip
outside_mask] {server_tag | LOCAL}
```

```
no aaa authentication {include | exclude} service interface_name inside_ip inside_mask
[outside_ip outside_mask] {server_tag | LOCAL}
```

### Syntax Description

<b>exclude</b>	Excludes the specified service and address from authentication if it was already specified by an <b>include</b> command.
<b>include</b>	Specifies the services and IP addresses that require authentication. Traffic that is not specified by an <b>include</b> statement is not processed.
<i>inside_ip</i>	Specifies the IP address on the higher security interface. This address might be the source or the destination address, depending on the interface to which you apply this command. If you apply the command to the lower security interface, then this address is the destination address. If you apply the command to the higher security interface, then this address is the source address. Use 0 to mean all hosts.
<i>inside_mask</i>	Specifies the network mask for the inside IP address. Use 0 if the IP address is 0. Use 255.255.255.255 for a host.
<i>interface_name</i>	Specifies the interface name from which users require authentication.
<b>LOCAL</b>	Specifies the local user database.
<i>outside_ip</i>	(Optional) Specifies the IP address on the lower security interface. This address might be the source or the destination address, depending on the interface to which you apply this command. If you apply the command to the lower security interface, then this address is the source address. If you apply the command to the higher security interface, then this address is the destination address. Use 0 to mean all hosts.
<i>outside_mask</i>	(Optional) Specifies the network mask for the outside IP address. Use 0 if the IP address is 0. Use 255.255.255.255 for a host.

<i>server_tag</i>	Specifies the AAA server group defined by the <b>aaa-server</b> command.
<i>service</i>	Specifies the services that require authentication. You can specify one of the following values: <ul style="list-style-type: none"> <li>• <b>any</b> or <b>tcp/0</b> (specifies all TCP traffic)</li> <li>• <b>ftp</b></li> <li>• <b>http</b></li> <li>• <b>https</b></li> <li>• <b>ssh</b></li> <li>• <b>telnet</b></li> <li>• <b>tcp/port[-port]</b></li> <li>• <b>udp/port[-port]</b></li> <li>• <b>icmp/type</b></li> <li>• <i>protocol[/port[-port]]</i></li> </ul> <p>Although you can configure the security appliance to require authentication for network access to any protocol or service, users can authenticate directly with HTTP, HTTPS, Telnet, or FTP only. A user must first authenticate with one of these services before the security appliance allows other traffic requiring authentication. See “Usage Guidelines” for more information.</p>

**Defaults**

No default behavior or values.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

To enable authentication for traffic that is specified by an access list, use the **aaa authentication match** command. You cannot use the **match** command in the same configuration as the **include** and **exclude** commands. We suggest that you use the **match** command instead of the **include** and **exclude** commands; the **include** and **exclude** commands are not supported by ASDM.

You cannot use the **aaa authentication include** and **exclude** commands between same-security interfaces. For that scenario, you must use the **aaa authentication match** command.

TCP sessions might have their sequence numbers randomized even if you disable sequence randomization. This occurs when a AAA server proxies the TCP session to authenticate the user before permitting access.

### One-Time Authentication

A user at a given IP address only needs to authenticate one time for all rules and types, until the authentication session expires. (See the **timeout uauth** command for timeout values.) For example, if you configure the security appliance to authenticate Telnet and FTP, and a user first successfully authenticates for Telnet, then as long as the authentication session exists, the user does not also have to authenticate for FTP.

For HTTP or HTTPS authentication, once authenticated, a user never has to reauthenticate, no matter how low the **timeout uauth** command is set, because the browser caches the string “Basic=Uuhjksdkfhk==” in every subsequent connection to that particular site. This can be cleared only when the user exits *all* instances of the web browser and restarts. Flushing the cache is of no use.

### Applications Required to Receive an Authentication Challenge

Although you can configure the security appliance to require authentication for network access to any protocol or service, users can authenticate directly with HTTP, HTTPS, Telnet, or FTP only. A user must first authenticate with one of these services before the security appliance allows other traffic requiring authentication.

The authentication ports that the security appliance supports for AAA are fixed:

- Port 21 for FTP
- Port 23 for Telnet
- Port 80 for HTTP
- Port 443 for HTTPS

### Security Appliance Authentication Prompts

For Telnet and FTP, the security appliance generates an authentication prompt.

For HTTP, the security appliance uses basic HTTP authentication by default, and provides an authentication prompt. You can optionally configure the security appliance to redirect users to an internal web page where they can enter their username and password (configured with the **aaa authentication listener** command).

For HTTPS, the security appliance generates a custom login screen. You can optionally configure the security appliance to redirect users to an internal web page where they can enter their username and password (configured with the **aaa authentication listener** command).

Redirection is an improvement over the basic method because it provides an improved user experience when authenticating, and an identical user experience for HTTP and HTTPS in both Easy VPN and firewall modes. It also supports authenticating directly with the security appliance.

You might want to continue to use basic HTTP authentication if: you do not want the security appliance to open listening ports; if you use NAT on a router and you do not want to create a translation rule for the web page served by the security appliance; basic HTTP authentication might work better with your network. For example non-browser applications, like when a URL is embedded in email, might be more compatible with basic authentication.

After you authenticate correctly, the security appliance redirects you to your original destination. If the destination server also has its own authentication, the user enters another username and password. If you use basic HTTP authentication and need to enter another username and password for the destination server, then you need to configure the **virtual http** command.

**Note**

If you use HTTP authentication without using the **aaa authentication secure-http-client** command, the username and password are sent from the client to the security appliance in clear text. We recommend that you use the **aaa authentication secure-http-client** command whenever you enable HTTP authentication.

For FTP, a user has the option of entering the security appliance username followed by an at sign (@) and then the FTP username (name1@name2). For the password, the user enters the security appliance password followed by an at sign (@) and then the FTP password (password1@password2). For example, enter the following text.

```
name> jamiiec@jchrichton
password> letmein@he110
```

This feature is useful when you have cascaded firewalls that require multiple logins. You can separate several names and passwords by multiple at signs (@).

The number of login attempts allowed differs between the supported protocols:

Protocol	Number of Login Attempts Allowed
FTP	Incorrect password causes the connection to be dropped immediately.
HTTP	Continual reprompting until successful login.
HTTPS	
Telnet	4 tries before dropping the connection.

**Static PAT and HTTP**

For HTTP authentication, the security appliance checks real ports when static PAT is configured. If it detects traffic destined for real port 80, regardless of the mapped port, the security appliance intercepts the HTTP connection and enforces authentication.

For example, assume that outside TCP port 889 is translated to port 80 (www) and that any relevant access lists permit the traffic:

```
static (inside,outside) tcp 10.48.66.155 889 192.168.123.10 www netmask 255.255.255.255
```

Then when users try to access 10.48.66.155 on port 889, the security appliance intercepts the traffic and enforces HTTP authentication. Users see the HTTP authentication page in their web browsers before the security appliance allows HTTP connection to complete.

If the local port is different than port 80, as in the following example:

```
static (inside,outside) tcp 10.48.66.155 889 192.168.123.10 111 netmask 255.255.255.255
```

Then users do not see the authentication page. Instead, the security appliance sends to the web browser an error message indicating that the user must be authenticated prior using the requested service.

**Authenticating Directly with the Security Appliance**

If you do not want to allow HTTP, HTTPS, Telnet, or FTP through the security appliance but want to authenticate other types of traffic, you can authenticate with the security appliance directly using HTTP or HTTPS by configuring the **aaa authentication listener** command.

You can authenticate directly with the security appliance at the following URLs when you enable AAA for the interface:

```
http://interface_ip[:port]/netaccess/connstatus.html
```

```
https://interface_ip[:port]/netaccess/connstatus.html
```

Alternatively, you can configure virtual Telnet (using the **virtual telnet** command). With virtual Telnet, the user Telnets to a given IP address configured on the security appliance, and the security appliance provides a Telnet prompt.

## Examples

The following example includes for authentication TCP traffic on the outside interface, with an inside IP address of 192.168.0.0 and a netmask of 255.255.0.0, with an outside IP address of all hosts, and using a server group named tacacs+. The second command line excludes Telnet traffic on the outside interface with an inside address of 192.168.38.0, with an outside IP address of all hosts:

```
hostname(config)# aaa authentication include tcp/0 outside 192.168.0.0 255.255.0.0 0 0
tacacs+
hostname(config)# aaa authentication exclude telnet outside 192.168.38.0 255.255.255.0 0 0
tacacs+
```

The following examples demonstrate ways to use the *interface-name* parameter. The security appliance has an inside network of 192.168.1.0, an outside network of 209.165.201.0 (subnet mask 255.255.255.224), and a perimeter network of 209.165.202.128 (subnet mask 255.255.255.224).

This example enables authentication for connections originated from the inside network to the outside network:

```
hostname(config)# aaa authentication include tcp/0 inside 192.168.1.0 255.255.255.0
209.165.201.0 255.255.255.224 tacacs+
```

This example enables authentication for connections originated from the inside network to the perimeter network:

```
hostname(config)#aaa authentication include tcp/0 inside 192.168.1.0 255.255.255.0
209.165.202.128 255.255.255.224 tacacs+
```

This example enables authentication for connections originated from the outside network to the inside network:

```
hostname(config)# aaa authentication include tcp/0 outside 192.168.1.0 255.255.255.0
209.165.201.0 255.255.255.224 tacacs+
```

This example enables authentication for connections originated from the outside network to the perimeter network:

```
hostname(config)# aaa authentication include tcp/0 outside 209.165.202.128 255.255.255.224
209.165.201.0 255.255.255.224 tacacs+
```

This example enables authentication for connections originated from the perimeter network to the outside network:

```
hostname(config)#aaa authentication include tcp/0 perimeter 209.165.202.128
255.255.255.224 209.165.201.0 255.255.255.224 tacacs+
```

## Related Commands

Command	Description
<b>aaa authentication console</b>	Enables or disables authentication on entry to privileged mode or requires authentication verification to access the security appliance via the specified type of connection.

<b>aaa authentication match</b>	Specifies the name of an access list, previously defined in an <b>access-list</b> command, that must be matched, and then provides authentication for that match.
<b>aaa authentication secure-http-client</b>	Provides a secure method for user authentication to the security appliance prior to allowing HTTP requests to traverse the security appliance.
<b>aaa-server protocol</b>	Configures group-related server attributes.
<b>aaa-server host</b>	Configures host-related attributes.

## aaa authentication console

To enable authentication service for access to the security appliance console over an SSH, HTTP, or Telnet connection or from the Console connector on the security appliance, use the **aaa authentication console** command in global configuration mode. This command also lets you enable access to privileged EXEC mode. To disable this authentication service, use the **no** form of this command.

```
aaa authentication {serial | enable | telnet | ssh | http} console {server-tag [LOCAL] | LOCAL}
```

```
no aaa authentication {serial | enable | telnet | ssh | http} console {server-tag [LOCAL] | LOCAL}
```

### Syntax Description

<b>enable</b>	Enables authentication for entry to privileged EXEC mode using the <b>enable</b> command.
<b>http</b>	Enables authentication of ASDM sessions over HTTPS. The SDI server group protocol is not supported for HTTP management authentication.
<b>LOCAL</b>	The keyword <b>LOCAL</b> has two uses. It can designate the use of the local database, or it can specify fallback to the local database if the designated authentication server is unavailable.
<b>serial</b>	Enables authentication of admin sessions established on the serial console interface.
<i>server-tag</i>	Specifies the AAA server group tag defined by the <b>aaa-server protocol</b> command.  You can also use the local user database by specifying the server group tag <b>LOCAL</b> .
<b>ssh</b>	Enables authentication of admin sessions over SSH.
<b>telnet</b>	Enables authentication of admin sessions over Telnet.

### Defaults

By default, fallback to the local database is disabled.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.



**Usage Guidelines**

If you enable CLI authentication, the security appliance prompts you for your username and password to log in. After you enter your information, you have access to user EXEC mode.

To enter privileged EXEC mode, enter the **enable** command or the **login** command (if you are using the local database only).

If you configure enable authentication, the security appliance prompts you for your username and password. If you do not configure enable authentication, enter the system enable password when you enter the **enable** command (set by the **enable password** command). However, if you do not use enable authentication, after you enter the **enable** command, you are no longer logged in as a particular user. To maintain your username, use enable authentication. This feature is particularly useful when you perform command authorization, where usernames are important to determine the commands a user can enter.

For authentication using the local database, you can use the **login** command, which maintains the username but requires no configuration to turn on authentication.

Before the security appliance can authenticate a Telnet, SSH, or HTTP user, you must first configure access to the security appliance using the **telnet**, **ssh**, and **http** commands. These commands identify the IP addresses that are allowed to communicate with the security appliance. Telnet access to the security appliance console is available from any internal interface, and from the outside interface with IPsec configured. SSH access to the security appliance console is available from any interface.

The **http** keyword authenticates the ASDM client that accesses the security appliance using HTTPS. You only need to configure HTTP authentication if you want to use a AAA server. By default, ASDM uses the local database for authentication even if you do not configure this command. HTTP management authentication does not support the SDI protocol for a AAA server group.

If you use a AAA server group for authentication, you can configure the security appliance to use the local database as a fallback method if the AAA server is unavailable. Specify the server group name followed by **LOCAL** (**LOCAL** is case sensitive). We recommend that you use the same username and password in the local database as the AAA server because the security appliance prompt does not give any indication which method is being used.

You can alternatively use the local database as your main method of authentication (with no fallback) by entering **LOCAL** alone.

The maximum username prompt for HTTP authentication is 30 characters. The maximum password length is 16 characters.

As the following table shows, the action of the prompts for authenticated access to the security appliance console differ, depending on the option you choose with this command.

Option	Number of Login Attempts Allowed
Enable	3 tries before access is denied
Serial	Continual until success
SSH	3 tries before access is denied
Telnet	Continual until success
HTTP	Continual until success

If the SSH authentication request times out (which implies the AAA servers may be down or not available), you can gain access to the security appliance using the username **pix** and the enable password (set with the **enable password** command). By default, the enable password is blank. This behavior differs from when you log into the security appliance without AAA configured; in that case, you use the login password (set by the **passwd** command).

If a **aaa authentication http console** command statement is not defined, you can gain access to the security appliance using ASDM with no username and the security appliance enable password (set with the **enable password** command). If the **aaa** commands are defined, but the HTTP authentication requests a time out, which implies the AAA servers might be down or not available, you can gain access to the security appliance using the default administrator username and the enable password. By default, the enable password is not set.

### Examples

The following example shows use of the **aaa authentication console** command for a Telnet connection to a RADIUS server with the server tag “radius”:

```
hostname(config)# aaa authentication telnet console radius
```

The following example identifies the server group “AuthIn” for administrative authentication.

```
hostname(config)# aaa authentication enable console AuthIn
```

The following example shows use of the **aaa authentication console** command with fallback to the LOCAL user database if all the servers in the group “svrgrp1” fail:

```
hostname(config)# aaa-server svrgrp1 protocol tacacs+
hostname(config)# aaa authentication serial console svrgrp1 LOCAL
```

### Related Commands

Command	Description
<b>aaa authentication</b>	Enables or disables user authentication.
<b>aaa-server host</b>	Specifies the AAA server to use for user authentication.
<b>clear configure aaa</b>	Remove/reset the configured AAA accounting values.
<b>show running-config aaa</b>	Display the AAA configuration.

# aaa authentication listener

To enable HTTP(S) listening ports to authenticate network users, use the **aaa authentication listener** command in global configuration mode. When you enable a listening port, the security appliance serves an authentication page for direct connections and/or for through traffic. To disable the listeners, use the **no** form of this command.

```
aaa authentication listener http[s] interface_name [port portnum] [redirect]
```

```
no aaa authentication listener http[s] interface_name [port portnum] [redirect]
```

## Syntax Description

<b>http[s]</b>	Specifies the protocol that you want to listen for, either HTTP or HTTPS. Enter this command separately for each protocol.
<b>port portnum</b>	Specifies the port number that the security appliance listens on; the defaults are 80 (HTTP) and 443 (HTTPS).
<b>redirect</b>	Redirects through traffic to an authentication web page served by the security appliance. Without this keyword, only traffic directed to the security appliance interface can access the authentication web pages.
<i>interface_name</i>	Specifies the interface on which you enable listeners.

## Defaults

By default, no listener services are enabled, and HTTP connections use basic HTTP authentication. If you enable the listeners, the default ports are 80 (HTTP) and 443 (HTTPS).

If you are upgrading from 7.2(1), then the listeners are enabled on ports 1080 (HTTP) and 1443 (HTTPS). The **redirect** option is also enabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(2)	This command was introduced.

## Usage Guidelines

Without the **aaa authentication listener** command, when HTTP(S) users need to authenticate with the security appliance after you configure the **aaa authentication match** or **aaa authentication include** command, the security appliance uses basic HTTP authentication. For HTTPS, the security appliance generates a custom login screen.

If you configure the **aaa authentication listener** command with the **redirect** keyword, the security appliance redirects all HTTP(S) authentication requests to web pages served by the security appliance.

Redirection is an improvement over the basic method because it provides an improved user experience when authenticating, and an identical user experience for HTTP and HTTPS in both Easy VPN and firewall modes. It also supports authenticating directly with the security appliance.

You might want to continue to use basic HTTP authentication if: you do not want the security appliance to open listening ports; if you use NAT on a router and you do not want to create a translation rule for the web page served by the security appliance; basic HTTP authentication might work better with your network. For example non-browser applications, like when a URL is embedded in email, might be more compatible with basic authentication.

If you enter the **aaa authentication listener** command *without* the **redirect** option, then you only enable direct authentication with the security appliance, while letting through traffic use basic HTTP authentication. The **redirect** option enables both direct and through-traffic authentication. Direct authentication is useful when you want to authenticate traffic types that do not support authentication challenges; you can have each user authenticate directly with the security appliance before using any other services.

## Examples

The following example configures the security appliance to redirect HTTP and HTTPS connections to the default ports:

```
hostname(config)# aaa authentication http redirect
hostname(config)# aaa authentication https redirect
```

The following example allows authentication requests directly to the security appliance; through traffic uses basic HTTP authentication:

```
hostname(config)# aaa authentication http
hostname(config)# aaa authentication https
```

The following example configures the security appliance to redirect HTTP and HTTPS connections to non-default ports:

```
hostname(config)# aaa authentication http port 1100 redirect
hostname(config)# aaa authentication https port 1400 redirect
```

## Related Commands

Command	Description
<b>aaa authentication match</b>	configures user authentication for through traffic.
<b>aaa authentication secure-http-client</b>	
<b>clear configure aaa</b>	Removes the configured AAA configuration.
<b>show running-config aaa</b>	Displays the AAA configuration.
<b>virtual http</b>	

## aaa authentication match

To enable authentication for connections through the security appliance, use the **aaa authentication match** command in global configuration mode. To disable authentication, use the **no** form of this command.

```
aaa authentication match acl_name interface_name {server_tag | LOCAL}
no aaa authentication match acl_name interface_name {server_tag | LOCAL}
```

### Syntax Description

<i>acl_name</i>	Specifies an extended access list name.
<i>interface_name</i>	Specifies the interface name from which to authenticate users.
<b>LOCAL</b>	Specifies the local user database.
<i>server_tag</i>	Specifies the AAA server group tag defined by the <b>aaa-server</b> command.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

You cannot use the **aaa authentication match** command in the same configuration as the **include** and **exclude** commands. We suggest that you use the **match** command instead of the **include** and **exclude** commands; the **include** and **exclude** commands are not supported by ASDM.

TCP sessions might have their sequence numbers randomized even if you disable sequence randomization. This occurs when a AAA server proxies the TCP session to authenticate the user before permitting access.

#### One-Time Authentication

A user at a given IP address only needs to authenticate one time for all rules and types, until the authentication session expires. (See the **timeout uauth** command for timeout values.) For example, if you configure the security appliance to authenticate Telnet and FTP, and a user first successfully authenticates for Telnet, then as long as the authentication session exists, the user does not also have to authenticate for FTP.

For HTTP or HTTPS authentication, once authenticated, a user never has to reauthenticate, no matter how low the **timeout uauth** command is set, because the browser caches the string “Basic=Uuhjksdkfhk==” in every subsequent connection to that particular site. This can be cleared only when the user exits *all* instances of the web browser and restarts. Flushing the cache is of no use.

### Applications Required to Receive an Authentication Challenge

Although you can configure the security appliance to require authentication for network access to any protocol or service, users can authenticate directly with HTTP, HTTPS, Telnet, or FTP only. A user must first authenticate with one of these services before the security appliance allows other traffic requiring authentication.

The authentication ports that the security appliance supports for AAA are fixed:

- Port 21 for FTP
- Port 23 for Telnet
- Port 80 for HTTP
- Port 443 for HTTPS

### Security Appliance Authentication Prompts

For Telnet and FTP, the security appliance generates an authentication prompt.

For HTTP, the security appliance uses basic HTTP authentication by default, and provides an authentication prompt. You can optionally configure the security appliance to redirect users to an internal web page where they can enter their username and password (configured with the **aaa authentication listener** command).

For HTTPS, the security appliance generates a custom login screen. You can optionally configure the security appliance to redirect users to an internal web page where they can enter their username and password (configured with the **aaa authentication listener** command).

Redirection is an improvement over the basic method because it provides an improved user experience when authenticating, and an identical user experience for HTTP and HTTPS in both Easy VPN and firewall modes. It also supports authenticating directly with the security appliance.

You might want to continue to use basic HTTP authentication if: you do not want the security appliance to open listening ports; if you use NAT on a router and you do not want to create a translation rule for the web page served by the security appliance; basic HTTP authentication might work better with your network. For example non-browser applications, like when a URL is embedded in email, might be more compatible with basic authentication.

After you authenticate correctly, the security appliance redirects you to your original destination. If the destination server also has its own authentication, the user enters another username and password. If you use basic HTTP authentication and need to enter another username and password for the destination server, then you need to configure the **virtual http** command.



#### Note

If you use HTTP authentication without using the **aaa authentication secure-http-client** command, the username and password are sent from the client to the security appliance in clear text. We recommend that you use the **aaa authentication secure-http-client** command whenever you enable HTTP authentication.

For FTP, a user has the option of entering the security appliance username followed by an at sign (@) and then the FTP username (name1@name2). For the password, the user enters the security appliance password followed by an at sign (@) and then the FTP password (password1@password2). For example, enter the following text.

```
name> jamiec@jchrichton
password> letmein@he110
```

This feature is useful when you have cascaded firewalls that require multiple logins. You can separate several names and passwords by multiple at signs (@).

The number of login attempts allowed differs between the supported protocols:

Protocol	Number of Login Attempts Allowed
FTP	Incorrect password causes the connection to be dropped immediately.
HTTP	Continual reprompting until successful login.
HTTPS	
Telnet	4 tries before dropping the connection.

### Static PAT and HTTP

For HTTP authentication, the security appliance checks real ports when static PAT is configured. If it detects traffic destined for real port 80, regardless of the mapped port, the security appliance intercepts the HTTP connection and enforces authentication.

For example, assume that outside TCP port 889 is translated to port 80 (www) and that any relevant access lists permit the traffic:

```
static (inside,outside) tcp 10.48.66.155 889 192.168.123.10 www netmask 255.255.255.255
```

Then when users try to access 10.48.66.155 on port 889, the security appliance intercepts the traffic and enforces HTTP authentication. Users see the HTTP authentication page in their web browsers before the security appliance allows HTTP connection to complete.

If the local port is different than port 80, as in the following example:

```
static (inside,outside) tcp 10.48.66.155 889 192.168.123.10 111 netmask 255.255.255.255
```

Then users do not see the authentication page. Instead, the security appliance sends to the web browser an error message indicating that the user must be authenticated prior using the requested service.

### Authenticating Directly with the Security Appliance

If you do not want to allow HTTP, HTTPS, Telnet, or FTP through the security appliance but want to authenticate other types of traffic, you can authenticate with the security appliance directly using HTTP or HTTPS by configuring the **aaa authentication listener** command.

You can authenticate directly with the security appliance at the following URLs when you enable AAA for the interface:

```
http://interface_ip[:port]/netaccess/connstatus.html
https://interface_ip[:port]/netaccess/connstatus.html
```

Alternatively, you can configure virtual Telnet (using the **virtual telnet** command). With virtual Telnet, the user Telnets to a given IP address configured on the security appliance, and the security appliance provides a Telnet prompt.

### Examples

The following set of examples illustrates how to use the **aaa authentication match** command:

```
hostname(config)# show access-list
access-list mylist permit tcp 10.0.0.0 255.255.255.0 192.168.2.0 255.255.255.0 (hitcnt=0)
access-list yourlist permit tcp any any (hitcnt=0)
```

```
hostname(config)# show running-config aaa
aaa authentication match mylist outbound TACACS+
```

In this context, the following command:

```
hostname(config)# aaa authentication match yourlist outbound tacacs
```

is equivalent to this command:

```
hostname(config)# aaa authentication include TCP/0 outbound 0.0.0.0 0.0.0.0 0.0.0.0
0.0.0.0 tacacs
```

The **aaa** command statement list is order-dependent between **access-list** command statements. If you enter the following command:

```
hostname(config)# aaa authentication match mylist outbound TACACS+
```

before this command:

```
hostname(config)# aaa authentication match yourlist outbound tacacs
```

the security appliance tries to find a match in the **mylist access-list** command statement group before it tries to find a match in the **yourlist access-list** command statement group.

#### Related Commands

Command	Description
<b>aaa authorization</b>	Enables or disable LOCAL or TACACS+ user authorization services.
<b>access-list extended</b>	Creates an access list or use a downloadable access list.
<b>clear configure aaa</b>	Remove/reset the configured AAA accounting values.
<b>show running-config aaa</b>	Display the AAA configuration.



# aaa authentication secure-http-client

To enable SSL and secure username and password exchange between HTTP clients and the security appliance, use the **aaa authentication secure-http-client** command in global configuration mode. To disable this function, use the **no** form of this command. The **aaa authentication secure-http-client** command offers a secure method for user authentication to the security appliance prior to allowing user HTTP-based web requests to traverse the security appliance.

**aaa authentication secure-http-client**

**no aaa authentication secure-http-client**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines** The **aaa authentication secure-http-client command** secures HTTP client authentication (through SSL). This command is used for HTTP cut-through proxy authentication.

The **aaa authentication secure-http-client** command has the following limitations:

- At runtime, a maximum of 16 HTTPS authentication processes is allowed. If all 16 HTTPS authentication processes are running, the 17th, new HTTPS connection requiring authentication is not allowed.
- When **uauth timeout 0** is configured (the **uauth timeout** is set to 0), HTTPS authentication might not work. If a browser initiates multiple TCP connections to load a web page after HTTPS authentication, the first connection is let through, but the subsequent connections trigger authentication. As a result, users are continuously presented with an authentication page, even if the correct username and password are entered each time. To work around this, set the **uauth timeout** to 1 second with the **timeout uauth 0:0:1** command. However, this workaround opens a 1-second window of opportunity that might allow non-authenticated users to go through the firewall if they are coming from the same source IP address.

- Because HTTPS authentication occurs on the SSL port 443, users must not configure an **access-list** command statement to block traffic from the HTTP client to HTTP server on port 443. Furthermore, if static PAT is configured for web traffic on port 80, it must also be configured for the SSL port. In the following example, the first line configures static PAT for web traffic and the second line must be added to support the HTTPS authentication configuration:

```
static (inside,outside) tcp 10.132.16.200 www 10.130.16.10 www
static (inside,outside) tcp 10.132.16.200 443 10.130.16.10 443
```

### Examples

The following example configures HTTP traffic to be securely authenticated:

```
hostname(config)# aaa authentication secure-http-client
hostname(config)# aaa authentication include http...
```

where “...” represents your values for *authen\_service if\_name local\_ip local\_mask [foreign\_ip foreign\_mask] server\_tag*.

The following command configures HTTPS traffic to be securely authenticated:

```
hostname (config)# aaa authentication include https...
```

where “...” represents your values for *authentication -service interface-name local-ip local-mask [foreign-ip foreign-mask] server-tag*.



### Note

The **aaa authentication secure-https-client** command is not needed for HTTPS traffic.

### Related Commands

Command	Description
<b>aaa authentication</b>	Enables LOCAL, TACACS+, or RADIUS user authentication, on a server designated by the <b>aaa-server</b> command.
<b>virtual telnet</b>	Accesses the security appliance virtual server.

## aaa authorization

To include or exclude user authorization for traffic through the security appliance using a TACACS+ server, use the **aaa authorization** command with the **include** or **exclude** keywords in global configuration mode. To disable user authorization, use the **no** form of this command.

```
aaa authorization {include | exclude} authorization-service interface-name inside-ip inside-mask
[outside-ip outside-mask] tacacs+-server-tag
```

```
no aaa authorization {include | exclude} authorization-service interface-name inside-ip
inside-mask [outside-ip outside-mask] tacacs+-server-tag
```

### Syntax Description

<i>authorization-service</i>	The type of traffic to include or exclude from authorization, including: <ul style="list-style-type: none"> <li><b>any</b>—Authorizes all traffic.</li> <li><b>telnet</b>—Authorizes Telnet traffic.</li> <li><b>ssh</b>—Authorizes SSH traffic.</li> <li><b>ftp</b>—Authorizes FTP traffic.</li> <li><b>http</b>—Authorizes HTTP traffic.</li> <li><b>https</b>—Authorizes HTTPS traffic.</li> <li><b>icmp/type</b>—Authorizes ICMP traffic of the specified type.</li> <li><i>proto</i>—Authorizes an IP protocol, by value or name, for example, <b>ip</b> or <b>igmp</b>.</li> <li><b>tcp/port[-port]</b>—Authorizes TCP traffic of the specified port or port range. Specify <b>0</b> to authorize all TCP traffic.</li> <li><b>udp/port[-port]</b>—Authorizes UDP traffic of the specified port or port range. Specify <b>0</b> to authorize all UDP traffic.</li> </ul> <p><b>Note</b> Specifying a port range might produce unexpected results at the authorization server. The security appliance sends the port range to the server as a string, with the expectation that the server will parse it out into specific ports. Not all servers do this. In addition, you might want users to be authorized on specific services, which does not occur if a range is accepted.</p>
<b>exclude</b>	Creates an exception to a previously stated rule by excluding the specified service from authorization.
<b>include</b>	Authorizes traffic that matches the rule.
<i>inside-ip</i>	Specifies the IP address of the inside (higher security level) host or network that is either the source or destination for connections requiring authorization. You can set this address to <b>0</b> to mean all hosts. Always specify the higher security IP addresses before the lower security IP addresses in this command, regardless of the interface to which you apply authorization.
<i>inside-mask</i>	Specifies the network mask of <i>inside-ip</i> .
<i>interface-name</i>	Specifies the interface where connections originate.

<i>outside-ip</i>	(Optional) Specifies the outside (lower security level) IP address for traffic you want to authorize. Specify <b>0</b> to indicate all hosts. Always specify the higher security IP addresses before the lower security IP addresses in this command, regardless of the interface to which you apply authorization.
<i>outside-mask</i>	(Optional) The network mask of <i>outside-ip</i> .
<i>tacacs+-server-tag</i>	Specifies a TACACS+ server group tag defined by the <b>aaa-server protocol</b> command.

**Defaults**

No default behavior or values.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

**Command History**

Release	Modification
7.0(1)	The <b>exclude</b> parameter now allows the user to specify a port to exclude to a specific host or hosts.

**Usage Guidelines**

You can configure the security appliance to perform network access authorization with TACACS+.

We recommend using the **aaa authorization match** command instead of the **aaa authorization include** or **exclude** command. You cannot use the **aaa authorization include** or **exclude** command and the **aaa authorization match** command in the same configuration. The **aaa authorization match** command uses an access list to match traffic, and is a more robust command for this feature.

You cannot use the **aaa authorization** command between same-security interfaces. For that scenario, you must use the **aaa authorization match** command.

Authentication and authorization statements are independent; however, any unauthenticated traffic matched by an authorization statement will be denied. For authorization to succeed, a user must first authenticate with the security appliance. A specific authorization rule does not require the equivalent authentication. Authentication is required only with FTP, HTTP, or Telnet to provide an interactive way for the user to enter the authorization credentials. Because a user at a given IP address only needs to authenticate one time for all rules and types, if the authentication session has not expired, authorization can occur even if the traffic is matched by an authentication statement.

After a user authenticates, the security appliance checks the authorization rules for matching traffic. If the traffic matches the authorization statement, the security appliance sends the username to the TACACS+ server. The TACACS+ server responds to the security appliance with a permit or a deny for that traffic, based on the user profile. The security appliance enforces the authorization rule in the response.

See the documentation for your TACACS+ server for information about configuring network access authorizations for a user.

If the first attempt at authorization fails and a second attempt causes a timeout, use the **service resetinbound** command to reset the client that failed the authorization so that it will not retransmit any connections. An example authorization timeout message in Telnet follows.

```
Unable to connect to remote host: Connection timed out
```

### Examples

The following example uses the TACACS+ protocol:

```
hostname(config)# aaa-server tplus1 protocol tacacs+
hostname(config)# aaa-server tplus1 (inside) host 10.1.1.10 thekey timeout 20
hostname(config)# aaa authentication include any inside 0 0 0 0 tplus1
hostname(config)# aaa authorization include any inside 0 0 0 0
hostname(config)# aaa accounting include any inside 0 0 0 0 tplus1
hostname(config)# aaa authentication serial console tplus1
```

In this example, the first command statement creates a server group named `tplus1` and specifies the TACACS+ protocol for use with this group. The second command specifies that the authentication server with the IP address 10.1.1.10 resides on the inside interface and is in the `tplus1` server group. The next three command statements specify that any users starting connections through the outside interface to any foreign host will be authenticated using the `tplus1` server group, that the users who are successfully authenticated are authorized to use any service, and that all outbound connection information will be logged in the accounting database. The last command statement specifies that access to the security appliance serial console requires authentication from the `tplus1` server group.

The following example enables authorization for DNS lookups from the outside interface:

```
hostname(config)# aaa authorization include udp/53 outside 0.0.0.0 0.0.0.0
```

The following example enables authorization of ICMP echo-reply packets arriving at the inside interface from inside hosts:

```
hostname(config)# aaa authorization include 1/0 inside 0.0.0.0 0.0.0.0
```

This means that users cannot ping external hosts if they have not been authenticated using Telnet, HTTP, or FTP.

The following example enables authorization only for ICMP echoes (pings) that arrive at the inside interface from an inside host:

```
hostname(config)# aaa authorization include 1/8 inside 0.0.0.0 0.0.0.0
```

### Related Commands

Command	Description
<b>aaa authorization command</b>	Specifies whether command execution is subject to authorization, or configure administrative authorization to support fallback to the local user database if all servers in the specified server group are disabled.
<b>aaa authorization match</b>	Enables or disables the LOCAL or TACACS+ user authorization services for a specific access-list command name.
<b>clear configure aaa</b>	Remove/reset the configured AAA accounting values.
<b>show running-config aaa</b>	Display the AAA configuration.

## aaa authorization command

To configure command authorization for management access, use the **aaa authorization command** command in global configuration mode. To disable command authorization, use the **no** form of this command.

**aaa authorization command** {**LOCAL** | *tacacs+-server-tag* [**LOCAL**]}

**no aaa authorization command** {**LOCAL** | *tacacs+-server-tag* [**LOCAL**]}

### Syntax Description

<b>LOCAL</b>	Specifies the use of the local user database for local command authorization (using privilege levels). If <b>LOCAL</b> is specified after a TACACS+ server group tag, the local user database is used for command authorization only as a fallback when the TACACS+ server group is unavailable.
<i>tacacs+-server-tag</i>	Specifies a predefined server group tag for the TACACS+ authorization server. The AAA server group tag as defined by the <b>aaa-server protocol</b> command.

### Defaults

Fallback to the local database for authorization is disabled by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
7.0(1)(1)	This command was modified to allow configuring administrative authorization to support fallback to the local user database if all servers in the specified group are disabled.

### Usage Guidelines

By default when you log in, you can access user EXEC mode, which offers only minimal commands. When you enter the **enable** command (or the **login** command when you use the local database), you can access privileged EXEC mode and advanced commands, including configuration commands. If you want to control the access to commands, the security appliance lets you configure command authorization, where you can determine which commands that are available to a user.

You can use one of two command authorization methods:

- Local database—Configure the command privilege levels on the security appliance using the **privilege** command. When a local user authenticates with the **enable** command (enabled with the **aaa authenticate enable console** command) or logs in with the **login** command, the security appliance places that user in the privilege level that is defined by the local database. The user can

then access commands at the user's privilege level and below. Local command authorization places each user at a privilege level, and each user can enter any command at their privilege level or below. The security appliance lets you assign commands to one of 16 privilege levels (0 to 15). By default, each command is assigned either to privilege level 0 or 15.



**Note** You can use local command authorization without any users in the local database and without CLI or enable authentication. Instead, when you enter the **enable** command, you enter the system enable password, and the security appliance places you in level 15. You can then create enable passwords for every level, so that when you enter **enable n** (2 to 15), the security appliance places you in level *n*. These levels are not used unless you turn on local command authorization.

- **TACACS+ server**—On the TACACS+ server, configure the commands that a user or group can use after they authenticate for CLI access. Every command that a user enters at the CLI is checked with the TACACS+ server. If you enable TACACS+ command authorization, and a user enters a command at the CLI, the security appliance sends the command and username to the TACACS+ server to determine if the command is authorized.

Before you enable TACACS+ command authorization, be sure that you are logged into the security appliance as a user that is defined on the TACACS+ server, and that you have the necessary command authorization to continue configuring the security appliance. For example, you should log in as an admin user with all commands authorized. Otherwise, you could become unintentionally locked out.

When configuring command authorization with a TACACS+ server, do not save your configuration until you are sure it works the way you want. If you get locked out because of a mistake, you can usually recover access by restarting the security appliance.

Be sure that your TACACS+ system is completely stable and reliable. The necessary level of reliability typically requires that you have a fully redundant TACACS+ server system and fully redundant connectivity to the security appliance. For example, in your TACACS+ server pool, include one server connected to interface 1, and another to interface 2. You can also configure local command authorization as a fallback method if the TACACS+ server is unavailable.

## Examples

The following example shows how to enable command authorization using a TACACS+ server group named `tplus1`:

```
hostname(config)#aaa authorization command tplus1
```

The following example shows how to configure administrative authorization to support fallback to the local user database if all servers in the `tplus1` server group are unavailable.

```
hostname(config)#aaa authorization command tplus1 LOCAL
```

## Related Commands

Command	Description
<b>aaa authorization</b>	Enable or disable user authorization for a LOCAL or a TACACS+ server designated by the <b>aaa-server</b> command, or for ASDM user authentication.
<b>aaa-server host</b>	Configure host-related attributes.
<b>aaa-server protocol</b>	Configure group-related server attributes.

Command	Description
<code>clear configure aaa</code>	Remove/reset the configured AAA accounting values.
<code>show running-config aaa</code>	Display the AAA configuration.



## aaa authorization match

To enable user authorization for traffic through the security appliance using a TACACS+ server, use the **aaa authorization match** command in global configuration mode. To disable authorization, use the **no** form of this command.

**aaa authorization match** *acl-name interface-name server-tag*

**no aaa authorization match** *acl-name interface-name server-tag*

### Syntax Description

<i>acl-name</i>	Specifies the name of an access list to identify the traffic you want to authorize. See the <b>access-list</b> command. The <b>permit</b> ACEs mark matching traffic for authorization, while <b>deny</b> entries exclude matching traffic from authorization.
<i>interface-name</i>	Specifies the interface where connections originate.
<i>server-tag</i>	Specifies the TACACS+ server group tag defined by the <b>aaa-server protocol</b> command.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

You can configure the security appliance to perform network access authorization with TACACS+.

We recommend using the **aaa authorization match** command instead of the **aaa authorization include** or **exclude** command. You cannot use the **aaa authorization include** or **exclude** command and the **aaa authorization match** command in the same configuration. The **aaa authorization match** command uses an access list to match traffic, and is a more robust command for this feature.

Authentication and authorization statements are independent; however, any unauthenticated traffic matched by an authorization statement will be denied. For authorization to succeed, a user must first authenticate with the security appliance. A specific authorization rule does not require the equivalent authentication. Authentication is required only with FTP, HTTP, or Telnet to provide an interactive way for the user to enter the authorization credentials. Because a user at a given IP address only needs to authenticate one time for all rules and types, if the authentication session has not expired, authorization can occur even if the traffic is matched by an authentication statement.

After a user authenticates, the security appliance checks the authorization rules for matching traffic. If the traffic matches the authorization statement, the security appliance sends the username to the TACACS+ server. The TACACS+ server responds to the security appliance with a permit or a deny for that traffic, based on the user profile. The security appliance enforces the authorization rule in the response.

See the documentation for your TACACS+ server for information about configuring network access authorizations for a user.

If the first attempt at authorization fails and a second attempt causes a timeout, use the **service resetinbound** command to reset the client that failed the authorization so that it will not retransmit any connections. An example authorization timeout message in Telnet follows.

```
Unable to connect to remote host: Connection timed out
```

### Examples

The following example uses the `tplus1` server group with the **aaa** commands:

```
hostname(config)#aaa-server tplus1 protocol tacacs+
hostname(config)#aaa-server tplus1 (inside) host 10.1.1.10 thekey timeout 20
hostname(config)#aaa authentication match authen1 inside tplus1
hostname(config)#aaa accounting match acct1 inside tplus1
hostname(config)#aaa authorization match myacl inside tplus1
```

In this example, the first command statement defines the `tplus1` server group as a TACACS+ group. The second command specifies that the authentication server with the IP address 10.1.1.10 resides on the `inside` interface and is in the `tplus1` server group. The next two command statements specify that any connections traversing the `inside` interface to any foreign host are authenticated using the `tplus1` server group, and that all these connections are logged in the accounting database. The last command statement specifies that any connections that match the ACEs in `myacl` are authorized by the AAA servers in the `tplus1` server group.

### Related Commands

Command	Description
<b>aaa authorization</b>	Enable or disable user authorization for a LOCAL or a TACACS+ server designated by the <b>aaa-server</b> command, or for ASDM user authentication.
<b>clear configure aaa</b>	Reset all aaa configuration parameters to the default values.
<b>clear uauth</b>	Delete one user or all users' AAA authorization and authentication caches, which forces the user to reauthenticate the next time that he or she creates a connection.
<b>show running-config aaa</b>	Display the AAA configuration.
<b>show uauth</b>	Display the username provided to the authorization server for authentication and authorization purposes, the IP address to which the username is bound, and whether the user is only authenticated or has cached services.

# aaa local authentication attempts max-fail

To limit the number of consecutive failed local login attempts that the security appliance allows any given user account, use the **aaa local authentication attempts max-fail** command in global configuration mode. This command only affects authentication with the local user database. To disable this feature and allow an unlimited number of consecutive failed local login attempts, use the **no** form of this command.

**aaa local authentication attempts max-fail** *number*

## Syntax Description

<i>number</i>	The maximum number of times a user can enter a wrong password before being locked out. This number can be in the range 1-16.
---------------	--

## Defaults

No default behavior or values..

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If you omit this command, there is no limit on the number of times a user can enter an incorrect password.

After a user makes the configured number of attempts with the wrong password, the user is locked out and cannot log in successfully until the administrator unlocks the username. Locking or unlocking a username results in a syslog message.

The administrator cannot be locked out of the device.

The number of failed attempts resets to zero and the lockout status resets to No when the user successfully authenticates or when the security appliance reboots.

## Examples

The following example shows use of the **aaa local authentication attempts max-limits** command to set the maximum number of failed attempts allowed to 2:

```
hostname(config)# aaa local authentication attempts max-limits 2
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear aaa local user lockout</b>	Clears the lockout status of the specified users and set their failed-attempts counter to 0.
<b>clear aaa local user fail-attempts</b>	Resets the number of failed user authentication attempts to zero without modifying the user's locked-out status.
<b>show aaa local user</b>	Shows the list of usernames that are currently locked.

## aaa mac-exempt

To specify the use of a predefined list of MAC addresses to exempt from authentication and authorization, use the **aaa mac-exempt** command in global configuration mode. You can only add one **aaa mac-exempt** command. To disable the use of a list of MAC addresses, use the **no** form of this command.

```
aaa mac-exempt match id
```

```
no aaa mac-exempt match id
```

### Syntax Description

*id* Specifies a MAC list number configured with the **mac-list** command.

### Defaults

No default behaviors or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

Configure the MAC list number using the **mac-list** command before using the **aaa mac-exempt** command. Permit entries in the MAC list exempt the MAC addresses from authentication and authorization, while deny entries require authentication and authorization for the MAC address, if enabled. Because you can only add one instance of the **aaa mac-exempt** command, be sure that your MAC list includes all the MAC addresses you want to exempt.

### Examples

The following example bypasses authentication for a single MAC address:

```
hostname(config)# mac-list abc permit 00a0.c95d.0282 ffff.ffff.ffff
hostname(config)# aaa mac-exempt match abc
```

The following entry bypasses authentication for all Cisco IP Phones, which have the hardware ID 0003.E3:

```
hostname(config)# mac-list acd permit 0003.E300.0000 FFFF.FF00.0000
hostname(config)# aaa mac-exempt match acd
```

The following example bypasses authentication for a group of MAC addresses except for 00a0.c95d.02b2:

## ■ aaa mac-exempt

```
hostname(config)# mac-list 1 deny 00a0.c95d.0282 ffff.ffff.ffff
hostname(config)# mac-list 1 permit 00a0.c95d.0000 ffff.ffff.0000
hostname(config)# aaa mac-exempt match 1
```

## Related Commands

Command	Description
<b>aaa authentication</b>	Enables user authentication.
<b>aaa authorization</b>	Enables user authorization services.
<b>aaa mac-exempt</b>	Exempts a list of MAC addresses from authentication and authorization.
<b>show running-config mac-list</b>	Displays a list of MAC addresses previously specified in the <b>mac-list</b> command.
<b>mac-list</b>	Specifies a list of MAC addresses to be used to exempt MAC addresses from authentication and/or authorization.

## aaa proxy-limit

To manually configure the uauth session limit by setting the maximum number of concurrent proxy connections allowed per user, use the **aaa proxy-limit** command in global configuration mode. To disable proxies, use the **disable** parameter. To return to the default proxy-limit value (16), use the **no** form of this command.

**aaa proxy-limit** *proxy\_limit*

**aaa proxy-limit disable**

**no aaa proxy-limit**

### Syntax Description

<b>disable</b>	No proxies allowed.
<i>proxy_limit</i>	Specify the number of concurrent proxy connections allowed per user, from 1 to 128.

### Defaults

The default proxy-limit value is 16.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

If a source address is a proxy server, consider excluding this IP address from authentication or increasing the number of allowable outstanding AAA requests.

### Examples

The following example shows how to set the maximum number of outstanding authentication requests allowed per user:

```
hostname(config)# aaa proxy-limit 6
```

### Related Commands

Command	Description
<b>aaa authentication</b>	Enable, disable, or view LOCAL, TACACS+, or RADIUS user authentication, on a server designated by the <b>aaa-server</b> command, or ASDM user authentication
<b>aaa authorization</b>	Enable or disable LOCAL or TACACS+ user authorization services.
<b>aaa-server host</b>	Specifies a AAA server.
<b>clear configure aaa</b>	Remove/reset the configured AAA accounting values.
<b>show running-config aaa</b>	Display the AAA configuration.



## aaa-server host

To configure a AAA server as part of a AAA server group and to configure AAA server parameters that are host-specific, use the **aaa-server host** command in global configuration mode. When you use the **aaa-server host** command, you enter the aaa-server host configuration mode, from which you can specify and manage host-specific AAA server connection data. To remove a host configuration, use the **no** form of this command:

```
aaa-server server-tag [(interface-name)] host {server-ip | name} [key] [timeout seconds]
```

```
no aaa-server server-tag [(interface-name)] host {server-ip | name} [key] [timeout seconds]
```

### Syntax Description

<i>(interface-name)</i>	(Optional) Specifies the network interface where the authentication server resides. The parentheses are required in this parameter. If you do not specify an interface, the default is <b>inside</b> , if available.
<i>key</i>	(Optional) Specifies a case-sensitive, alphanumeric keyword of up to 127 characters that is the same value as the key on the RADIUS or TACACS+ server. Any characters entered past 127 are ignored. The key is used between the security appliance and the server for encrypting data between them. The key must be the same on both the security appliance and server systems. Spaces are not permitted in the key, but other special characters are allowed. You can add or modify the key using the <b>key</b> command in host mode.
<i>name</i>	Specifies the name of the server using either a name assigned locally using the <b>name</b> command or a DNS name. Maximum characters is 128 for DNS names and 63 characters for names assigned using the <b>name</b> command.
<i>server-ip</i>	Specifies the IP address of the AAA server.
<i>server-tag</i>	Specifies a symbolic name of the server group, which is matched by the name specified by the <b>aaa-server protocol</b> command.
<b>timeout seconds</b>	(Optional) The timeout interval for the request. This is the time after which the security appliance gives up on the request to the primary AAA server. If there is a standby AAA server, the security appliance sends the request to the backup server. You can modify the timeout interval using the <b>timeout</b> command in host mode.

### Defaults

The default timeout value is 10 seconds.

The default interface is inside.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

**Command History**

Release	Modification
7.2(1)	Support for DNS names was added.

**Usage Guidelines**

You control AAA server configuration by defining a AAA server group protocol with the **aaa-server protocol** command, and then you add servers to the group using the **aaa-server host** command.

You can have up to 15 server groups in single mode or 4 server groups per context in multiple mode. Each group can have up to 16 servers in single mode or 4 servers in multiple mode. When a user logs in, the servers are accessed one at a time starting with the first server you specify in the configuration, until a server responds.

After you enter the **aaa-server host** command, you can configure host-specific parameters.

**Examples**

The following example configures a Kerberos AAA server group named “watchdogs”, adds a AAA server to the group, and defines the Kerberos realm for the server.

**Note**

Kerberos realm names use numbers and upper-case letters only. Although the security appliance accepts lower-case letters for a realm name, it does not translate lower-case letters to upper-case letters. Be sure to use upper-case letters only.

```
hostname(config)# aaa-server watchdogs protocol kerberos
hostname(config-aaa-server-group)# exit
hostname(config)# aaa-server watchdogs host 192.168.3.4
hostname(config-aaa-server-host)# kerberos-realm EXAMPLE.COM
```

The following example configures an SDI AAA server group named “svrgrp1”, and then adds a AAA server to the group, sets the timeout interval to 6 seconds, sets the retry interval to 7 seconds, and configures the SDI version to version 5.

```
hostname(config)# aaa-server svrgrp1 protocol sdi
hostname(config-aaa-server-group)# exit
hostname(config)# aaa-server svrgrp1 host 192.168.3.4
hostname(config-aaa-server-host)# timeout 6
hostname(config-aaa-server-host)# retry-interval 7
hostname(config-aaa-server-host)# sdi-version sdi-5
```

**Related Commands**

Command	Description
<b>aaa-server protocol</b>	Creates and modifies AAA server groups.
<b>clear configure aaa-server</b>	Removes all AAA-server configuration.
<b>show running-config aaa-server</b>	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol

# aaa-server protocol

To create a AAA server group and configure AAA server parameters that are group-specific and common to all group hosts, use the **aaa-server protocol** command in global configuration mode to enter the AAA-server group mode, from which you can configure these group parameters. To remove the designated group, use the **no** form of this command.

```
aaa-server server-tag protocol server-protocol
```

```
no aaa-server server-tag protocol server-protocol
```

## Syntax Description

<i>server-tag</i>	Specifies the server group name, which is matched by the name specified by the <b>aaa-server host</b> commands. Other AAA commands make reference to the AAA server group name.
<i>server-protocol</i>	The AAA protocol that the servers in the group support: <b>kerberos</b> , <b>ldap</b> , <b>nt</b> , <b>radius</b> , <b>sdi</b> , or <b>tacacs+</b> .

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

You control AAA server configuration by defining a AAA server group protocol with the **aaa-server protocol** command, and then you add servers to the group using the **aaa-server host** command.

You can have up to 15 server groups in single mode or 4 server groups per context in multiple mode. Each group can have up to 16 servers in single mode or 4 servers in multiple mode. When a user logs in, the servers are accessed one at a time starting with the first server you specify in the configuration, until a server responds.

After you enter the **aaa-server protocol** command, you can configure host-specific parameters. For example, if AAA accounting is in effect, the accounting information goes only to the active server unless you have configured simultaneous accounting using the **accounting-mode** command.

**Examples**

The following example shows the use of the **aaa-server protocol** command to modify details of a TACACS+ server group configuration:

```
hostname(config)# aaa-server svrgrp1 protocol tacacs+
hostname(config-aaa-server-group)# accounting-mode simultaneous
hostname(config-aaa-server-group)# reactivation mode timed
hostname(config-aaa-server-group)# max-failed attempts 2
```

**Related Commands**

Command	Description
<b>accounting-mode</b>	Indicates whether accounting messages are sent to a single server (single mode) or sent to all servers in the group (simultaneous mode).
<b>reactivation-mode</b>	Specifies the method by which failed servers are reactivated.
<b>max-failed-attempts</b>	Specifies the number of failures that will be tolerated for any given server in the server group before that server is deactivated.
<b>clear configure aaa-server</b>	Removes all AAA server configurations.
<b>show running-config aaa-server</b>	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

# absolute

To define an absolute time when a time range is in effect, use the **absolute** command in time-range configuration mode. To disable, use the **no** form of this command.

**absolute** [**end** *time date*] [**start** *time date*]

**no absolute**

## Syntax Description

<i>date</i>	Specifies the date in the format day month year; for example, 1 January 2006. The valid range of years is 1993 through 2035.
<i>time</i>	Specifies the time in the format HH:MM. For example, 8:00 is 8:00 a.m. and 20:00 is 8:00 p.m.

## Defaults

If no start time and date are specified, the permit or deny statement is in effect immediately and always on. Similarly, the maximum end time is 23:59 31 December 2035. If no end time and date are specified, the associated permit or deny statement is in effect indefinitely.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Time-range configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

To implement a time-based ACL, use the **time-range** command to define specific times of the day and week. Then use the with the **access-list extended time-range** command to bind the time range to an ACL.

## Examples

The following example activates an ACL at 8:00 a.m. on 1 January 2006:

```
hostname(config-time-range)# absolute start 8:00 1 January 2006
```

Because no end time and date are specified, the associated ACL is in effect indefinitely.

## Related Commands

Command	Description
<b>access-list extended</b>	Configures a policy for permitting or denying IP traffic through the security appliance.
<b>default</b>	Restores default settings for the <b>time-range</b> command <b>absolute</b> and <b>periodic</b> keywords.
<b>periodic</b>	Specifies a recurring (weekly) time range for functions that support the time-range feature.
<b>time-range</b>	Defines access control to the security appliance based on time.

# accept-subordinates

To configure the security appliance to accept subordinate CA certificates if delivered during phase one IKE exchange when not previously installed on the device, use the **accept-subordinates** command in `crypto ca trustpoint` configuration mode. To restore the default setting, use the **no** form of the command.

**accept-subordinates**

**no accept-subordinates**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default setting is on (subordinate certificates are accepted).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto ca trustpoint configuration	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

During phase 1 processing, an IKE peer might pass both a subordinate certificate and an identity certificate. The subordinate certificate might not be installed on the security appliance. This command lets an administrator support subordinate CA certificates that are not configured as trustpoints on the device without requiring that all subordinate CA certificates of all established trustpoints be acceptable; in other words, this command lets the device authenticate a certificate chain without installing the entire chain locally.

## Examples

The following example enters `crypto ca trustpoint` configuration mode for `trustpoint central`, and allows the security appliance to accept subordinate certificates for `trustpoint central`:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# accept-subordinates
hostname(ca-trustpoint)#
```

## Related Commands

Command	Description
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.
<b>default enrollment</b>	Returns enrollment parameters to their defaults.

## access-group

To bind an access list to an interface, use the **access-group** command in global configuration mode. To unbind an access list from the interface, use the **no** form of this command.

```
access-group access-list {in | out} interface interface_name [per-user-override]
```

```
no access-group access-list {in | out} interface interface_name
```

### Syntax Description

<i>access-list</i>	Access list <i>id</i> .
<b>in</b>	Filters the inbound packets at the specified interface.
<b>interface</b> <i>interface-name</i>	Name of the network interface.
<b>out</b>	Filters the outbound packets at the specified interface.
<i>per-user-override</i>	(Optional) Allows downloadable user access lists to override the access list applied to the interface.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

The **access-group** command binds an access list to an interface. The access list is applied to traffic inbound to an interface. If you enter the **permit** option in an **access-list** command statement, the security appliance continues to process the packet. If you enter the **deny** option in an **access-list** command statement, the security appliance discards the packet and generates the following syslog message.

```
%hostname-4-106019: IP packet from source_addr to destination_addr, protocol protocol received from interface interface_name deny by access-group id
```

The *per-user-override* option allows downloaded access lists to override the access list applied to the interface. If the *per-user-override* optional argument is not present, the security appliance preserves the existing filtering behavior. When *per-user-override* is present, the security appliance allows the **permit** or **deny** status from the per-user access-list (if one is downloaded) associated to a user to override the permit or deny status from the **access-group** command associated access list. Additionally, the following rules are observed:



- At the time a packet arrives, if there is no per-user access list associated with the packet, the interface access list will be applied.
- The per-user access list is governed by the timeout value specified by the **uauth** option of the **timeout** command but it can be overridden by the AAA per-user session timeout value.
- Existing access list log behavior will be the same. For example, if user traffic is denied because of a per-user access list, syslog message 109025 will be logged. If user traffic is permitted, no syslog message is generated. The log option in the per-user access-list will have no effect.

Always use the **access-list** command with the **access-group** command.

The **access-group** command binds an access list to an interface. The **in** keyword applies the access list to the traffic on the specified interface. The **out** keyword applies the access list to the outbound traffic.



#### Note

If all of the functional entries (the permit and deny statements) are removed from an access list that is referenced by one or more **access-group** commands, the **access-group** commands are automatically removed from the configuration. The **access-group** command cannot reference empty access lists or access lists that contain only a remark.

The **no access-group** command unbinds the access list from the interface *interface\_name*.

The **show running config access-group** command displays the current access list bound to the interfaces.

The **clear configure access-group** command removes all the access lists from the interfaces.

#### Examples

The following example shows how to use the **access-group** command:

```
hostname(config)# static (inside,outside) 209.165.201.3 10.1.1.3
hostname(config)# access-list acl_out permit tcp any host 209.165.201.3 eq 80
hostname(config)# access-group acl_out in interface outside
```

The **static** command provides a global address of 209.165.201.3 for the web server at 10.1.1.3. The **access-list** command lets any host access the global address using port 80. The **access-group** command specifies that the **access-list** command applies to traffic entering the outside interface.

#### Related Commands

Command	Description
<b>access-list extended</b>	Creates an access list, or uses a downloadable access list.
<b>clear configure access-group</b>	Removes access groups from all the interfaces.
<b>show running-config access-group</b>	Displays the context group members.

## access-list alert-interval

To specify the time interval between deny flow maximum messages, use the **access-list alert-interval** command in global configuration mode. To return to the default settings, use the **no** form of this command.

**access-list alert-interval** *secs*

**no access-list alert-interval**

### Syntax Description

*secs* Time interval between deny flow maximum message generation; valid values are from 1 to 3600 seconds.

### Defaults

The default is 300 seconds.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global Configuration	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

The **access-list alert-interval** command sets the time interval for generating the syslog message 106101. The syslog message 106101 alerts you that the security appliance has reached a deny flow maximum. When the deny flow maximum is reached, another 106101 message is generated if at least *secs* seconds have occurred since the last 106101 message.

See the **access-list deny-flow-max** command for information about the deny flow maximum message generation.

### Examples

The following example shows how to specify the time interval between deny flow maximum messages:

```
hostname(config)# access-list alert-interval 30
```

### Related Commands

<b>Command</b>	<b>Description</b>
<b>access-list deny-flow-max</b>	Specifies the maximum number of concurrent deny flows that can be created.
<b>access-list extended</b>	Adds an access list to the configuration and is used to configure policy for IP traffic through the security appliance.
<b>clear access-group</b>	Clears an access list counter.
<b>clear configure access-list</b>	Clears access lists from the running configuration.
<b>show access-list</b>	Displays the access list entries by number.

# access-list deny-flow-max

To specify the maximum number of concurrent deny flows that can be created, use the **access-list deny-flow-max** command in global configuration mode. To return to the default settings, use the **no** form of this command.

**access-list deny-flow-max**

**no access-list deny-flow-max**

**Syntax Description** This command has no arguments or keywords.

**Defaults** The default is 4096.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global Configuration	•	•	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** Syslog message 106101 is generated when the security appliance has reached the maximum number, *n*, of ACL deny flows.

**Examples** The following example shows how to specify the maximum number of concurrent deny flows that can be created:

```
hostname(config)# access-list deny-flow-max 256
```

Related Commands	Command	Description
	<b>access-list extended</b>	Adds an access list to the configuration and used to configure policy for IP traffic through the security appliance.
	<b>clear access-group</b>	Clears an access list counter.
	<b>clear configure access-list</b>	Clears access lists from the running configuration.

<b>Command</b>	<b>Description</b>
<b>show access-list</b>	Displays the access list entries by number.
<b>show running-config access-list</b>	Displays the current running access-list configuration.

## access-list ethertype

To configure an access list that controls traffic based on its EtherType, use the **access-list ethertype** command in global configuration mode. To remove the access list, use the **no** form of this command.

```
access-list id ethertype {deny | permit} {ipx | bpdud | mpls-unicast | mpls-multicast | any |
  hex_number}
```

```
no access-list id ethertype {deny | permit} {ipx | bpdud | mpls-unicast | mpls-multicast | any |
  hex_number}
```

### Syntax Description

<b>any</b>	Specifies access to anyone.
<b>bpdud</b>	Specifies access to bridge protocol data units. By default, BPDUs are denied.
<b>deny</b>	Denies access if the conditions are matched.
<i>hex_number</i>	A 16-bit hexadecimal number greater than or equal to 0x600 by which an EtherType can be identified.
<i>id</i>	Name or number of an access list.
<b>ipx</b>	Specifies access to IPX.
<b>mpls-multicast</b>	Specifies access to MPLS multicast.
<b>mpls-unicast</b>	Specifies access to MPLS unicast.
<b>permit</b>	Permits access if the conditions are matched.

### Defaults

The defaults are as follows:

- The security appliance denies all packets on the originating interface unless you specifically permit access.
- ACL logging generates syslog message 106023 for denied packets—Deny packets must be present to log denied packets.

When the **log** optional keyword is specified, the default level for syslog message 106100 is 6 (informational).

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	—	•	•	•	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

The security appliance can control any EtherType identified by a 16-bit hexadecimal number. EtherType ACLs support Ethernet V2 frames. 802.3-formatted frames are not handled by the ACL because they use a length field as opposed to a type field. Bridge protocol data units, which are handled by the ACL, are the only exception; they are SNAP-encapsulated, and the security appliance is designed to specifically handle BPDUs.

Because EtherTypes are connectionless, you need to apply the ACL to both interfaces if you want traffic to pass in both directions.

If you allow MPLS, ensure that LDP and TDP TCP connections are established through the security appliance by configuring both MPLS routers connected to the security appliance to use the IP address on the security appliance interface as the router-id for LDP or TDP sessions. (LDP and TDP allow MPLS routers to negotiate the labels (addresses) used to forward packets.)

You can apply only one ACL of each type (extended and EtherType) to each direction of an interface. You can also apply the same ACLs on multiple interfaces.

**Note**

If an EtherType access list is configured to **deny all**, all ethernet frames are discarded. Only physical protocol traffic, such as auto-negotiation, for instance, is still allowed.

**Examples**

The following example shows how to add an EtherType access list:

```
hostname(config)# access-list ETHER ethertype permit ipx
hostname(config)# access-list ETHER ethertype permit bpdu
hostname(config)# access-list ETHER ethertype permit mpls-unicast
hostname(config)# access-group ETHER in interface inside
```

**Related Commands**

Command	Description
<b>access-group</b>	Binds the access list to an interface.
<b>clear access-group</b>	Clears access list counters.
<b>clear configure access-list</b>	Clears an access list from the running configuration.
<b>show access-list</b>	Displays the access list entries by number.
<b>show running-config access-list</b>	Displays the current running access-list configuration.

## access-list extended

To add an Access Control Entry, use the **access-list extended** command in global configuration mode. An access list is made up of one or more ACEs with the same access list ID. Access lists are used to control network access or to specify traffic for many feature to act upon. To remove the ACE, use the **no** form of this command. To remove the entire access list, use the **clear configure access-list** command.

```
access-list id [line line-number] [extended] {deny | permit}
    {protocol | object-group protocol_obj_grp_id}
    {src_ip mask | interface ifc_name | object-group network_obj_grp_id}
    [operator port | object-group service_obj_grp_id]
    {dest_ip mask | interface ifc_name | object-group network_obj_grp_id}
    [operator port | object-group service_obj_grp_id | object-group icmp_type_obj_grp_id]
    [log [[level] [interval secs] | disable | default]]
    [inactive | time-range time_range_name]
```

```
no access-list id [line line-number] [extended] {deny | permit} {tcp | udp}
    {src_ip mask | interface ifc_name | object-group network_obj_grp_id}
    [operator port] | object-group service_obj_grp_id]
    {dest_ip mask | interface ifc_name | object-group network_obj_grp_id}
    [operator port | object-group service_obj_grp_id | object-group icmp_type_obj_grp_id]
    [log [[level] [interval secs] | disable | default]]
    [inactive | time-range time_range_name]
```

### Syntax Description

<b>default</b>	(Optional) Sets logging to the default method, which is to send system log message 106023 for each denied packet.
<b>deny</b>	Denies a packet if the conditions are matched. In the case of network access (the <b>access-group</b> command), this keyword prevents the packet from passing through the security appliance. In the case of applying application inspection to a class map (the <b>class-map</b> and <b>inspect</b> commands), this keyword exempts the traffic from inspection. Some features do not allow deny ACEs to be used, such as NAT. See the command documentation for each feature that uses an access list for more information.
<i>dest_ip</i>	Specifies the IP address of the network or host to which the packet is being sent. Enter the <b>host</b> keyword before the IP address to specify a single address. In this case, do not enter a mask. Enter the <b>any</b> keyword instead of the address and mask to specify any address.
<b>disable</b>	(Optional) Disables logging for this ACE.
<i>icmp_type</i>	(Optional) If the protocol is <b>icmp</b> , specifies the ICMP type.
<i>id</i>	Specifies the access list ID, as a string or integer up to 241 characters in length. The ID is case-sensitive. Tip: Use all capital letters so you can see the access list ID better in your configuration.
<b>inactive</b>	(Optional) Disables an ACE. To reenab it, enter the entire ACE without the <b>inactive</b> keyword. This feature lets you keep a record of an inactive ACE in your configuration to make reenabling easier.
<b>interface ifc_name</b>	Specifies the interface address as the source or destination address.
<b>interval secs</b>	(Optional) Specifies the log interval at which to generate a 106100 system log message. Valid values are from 1 to 600 seconds. The default is 300.



<i>level</i>	(Optional) Sets the 106100 system log message level from 0 to 7. The default level is 6.
<b>line</b> <i>line-num</i>	(Optional) Specifies the line number at which to insert the ACE. If you do not specify a line number, the ACE is added to the end of the access list. The line number is not saved in the configuration; it only specifies where to insert the ACE.
<b>log</b>	(Optional) Sets logging options when a deny ACE matches a packet for network access (an access list applied with the <b>access-group</b> command). If you enter the <b>log</b> keyword without any arguments, you enable system log message 106100 at the default level (6) and for the default interval (300 seconds). If you do not enter the log keyword, then the default logging occurs, using system log message 106023.
<i>mask</i>	The subnet mask for the IP address. When you specify a network mask, the method is different from the Cisco IOS software <b>access-list</b> command. The security appliance uses a network mask (for example, 255.255.255.0 for a Class C mask). The Cisco IOS mask uses wildcard bits (for example, 0.0.0.255).
<b>object-group</b> <i>icmp_type_obj_grp_id</i>	(Optional) If the protocol is <b>icmp</b> , specifies the identifier of an ICMP-type object group. See the <b>object-group icmp-type</b> command to add an object group.
<b>object-group</b> <i>network_obj_grp_id</i>	Specifies the identifier of a network object group. See the <b>object-group network</b> command to add an object group.
<b>object-group</b> <i>protocol_obj_grp_id</i>	Specifies the identifier of a protocol object group. See the <b>object-group protocol</b> command to add an object group.
<b>object-group</b> <i>service_obj_grp_id</i>	(Optional) If you set the protocol to <b>tcp</b> or <b>udp</b> , specifies the identifier of a service object group. See the <b>object-group service</b> command to add an object group.
<i>operator</i>	(Optional) Matches the port numbers used by the source or destination. The permitted operators are as follows: <ul style="list-style-type: none"> <li>• <b>lt</b>—less than</li> <li>• <b>gt</b>—greater than</li> <li>• <b>eq</b>—equal to</li> <li>• <b>neq</b>—not equal to</li> <li>• <b>range</b>—an inclusive range of values. When you use this operator, specify two port numbers, for example: <b>range 100 200</b></li> </ul>
<b>permit</b>	Permits a packet if the conditions are matched. In the case of network access (the <b>access-group</b> command), this keyword lets the packet pass through the security appliance. In the case of applying application inspection to a class map (the <b>class-map</b> and <b>inspect</b> commands), this keyword applies inspection to the packet.
<i>port</i>	(Optional) If you set the protocol to <b>tcp</b> or <b>udp</b> , specifies the integer or name of a TCP or UDP port. DNS, Discard, Echo, Ident, NTP, RPC, SUNRPC, and Talk each require one definition for TCP and one for UDP. TACACS+ requires one definition for port 49 on TCP.

<i>protocol</i>	Specifies the IP protocol name or number. For example, UDP is 17, TCP is 6, and EGP is 47.
<i>src_ip</i>	Specifies the IP address of the network or host from which the packet is being sent. Enter the <b>host</b> keyword before the IP address to specify a single address. In this case, do not enter a mask. Enter the <b>any</b> keyword instead of the address and mask to specify any address.
<b>time-range</b> <i>time_range_name</i>	(Optional) Schedules each ACE to be activated at specific times of the day and week by applying a time range to the ACE. See the <b>time-range</b> command for information about defining a time range.

### Defaults

The defaults are as follows:

- ACE logging generates syslog message 106023 for denied packets. A deny ACE must be present to log denied packets.
- When the **log** keyword is specified, the default level for syslog message 106100 is 6 (informational) and the default interval is 300 seconds.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

Each ACE that you enter for a given access list name is appended to the end of the access list unless you specify the line number in the ACE.

The order of ACEs is important. When the security appliance decides whether to forward or drop a packet, the security appliance tests the packet against each ACE in the order in which the entries are listed. After a match is found, no more ACEs are checked. For example, if you create an ACE at the beginning of an access list that explicitly permits all traffic, no further statements are ever checked.

Access lists have an implicit deny at the end of the list, so unless you explicitly permit it, traffic cannot pass. For example, if you want to allow all users to access a network through the security appliance except for particular addresses, then you need to deny the particular addresses and then permit all others.

When you use NAT, the IP addresses you specify for an access list depend on the interface to which the access list is attached; you need to use addresses that are valid on the network connected to the interface. This guideline applies for both inbound and outbound access groups: the direction does not determine the address used, only the interface does.

For TCP and UDP connections, you do not need an access list to allow returning traffic, because the FWSM allows all returning traffic for established, bidirectional connections. For connectionless protocols such as ICMP, however, the security appliance establishes unidirectional sessions, so you

either need access lists to allow ICMP in both directions (by applying access lists to the source and destination interfaces), or you need to enable the ICMP inspection engine. The ICMP inspection engine treats ICMP sessions as bidirectional connections.

Because ICMP is a connectionless protocol, you either need access lists to allow ICMP in both directions (by applying access lists to the source and destination interfaces), or you need to enable the ICMP inspection engine. The ICMP inspection engine treats ICMP sessions as stateful connections. To control ping, specify **echo-reply (0)** (security appliance to host) or **echo (8)** (host to security appliance). See Table 1 for a list of ICMP types.

You can apply only one access list of each type (extended and EtherType) to each direction of an interface. You can apply the same access lists on multiple interfaces. See the **access-group** command for more information about applying an access list to an interface.

**Note**

If you change the access list configuration, and you do not want to wait for existing connections to time out before the new access list information is used, you can clear the connections using the **clear local-host** command.

Table 1 lists the possible ICMP types values.

**Table 2-1** ICMP Type Literals

ICMP Type	Literal
0	echo-reply
3	unreachable
4	source-quench
5	redirect
6	alternate-address
8	echo
9	router-advertisement
10	router-solicitation
11	time-exceeded
12	parameter-problem
13	timestamp-request
14	timestamp-reply
15	information-request
16	information-reply
17	mask-request
18	mask-reply
30	traceroute
31	conversion-error
32	mobile-redirect

**Examples**

The following access list allows all hosts (on the interface to which you apply the access list) to go through the security appliance:

```
hostname(config)# access-list ACL_IN extended permit ip any any
```

The following sample access list prevents hosts on 192.168.1.0/24 from accessing the 209.165.201.0/27 network. All other addresses are permitted.

```
hostname(config)# access-list ACL_IN extended deny tcp 192.168.1.0 255.255.255.0
209.165.201.0 255.255.255.224
hostname(config)# access-list ACL_IN extended permit ip any any
```

If you want to restrict access to only some hosts, then enter a limited permit ACE. By default, all other traffic is denied unless explicitly permitted.

```
hostname(config)# access-list ACL_IN extended permit ip 192.168.1.0 255.255.255.0
209.165.201.0 255.255.255.224
```

The following access list restricts all hosts (on the interface to which you apply the access list) from accessing a website at address 209.165.201.29. All other traffic is allowed.

```
hostname(config)# access-list ACL_IN extended deny tcp any host 209.165.201.29 eq www
hostname(config)# access-list ACL_IN extended permit ip any any
```

The following access list that uses object groups restricts several hosts on the inside network from accessing several web servers. All other traffic is allowed.

```
hostname(config-network)# access-list ACL_IN extended deny tcp object-group denied
object-group web eq www
hostname(config)# access-list ACL_IN extended permit ip any any
hostname(config)# access-group ACL_IN in interface inside
```

To temporarily disable an access list that permits traffic from one group of network objects (A) to another group of network objects (B):

```
hostname(config)# access-list 104 permit ip host object-group A object-group B inactive
```

To implement a time-based access list, use the **time-range** command to define specific times of the day and week. Then use the **access-list extended** command to bind the time range to an access list. The following example binds an access list named “Sales” to a time range named “New\_York\_Minute”:

```
hostname(config)# access-list Sales line 1 extended deny tcp host 209.165.200.225 host
209.165.201.1 time-range New_York_Minute
hostname(config)#
```

See the **time-range** command for more information about how to define a time range.

**Related Commands**

Command	Description
<b>access-group</b>	Binds the access list to an interface.
<b>clear access-group</b>	Clears an access list counter.
<b>clear configure access-list</b>	Clears an access list from the running configuration.
<b>show access-list</b>	Displays ACEs by number.
<b>show running-config access-list</b>	Displays the current running access-list configuration.

# access-list remark

To specify the text of the remark to add before or after an **access-list extended** command, use the **access-list remark** command in global configuration mode. To delete the remark, use the **no** form of this command.

```
access-list id [line line-num] remark text
```

```
no access-list id [line line-num] remark [text]
```

## Syntax Description

<i>id</i>	Name of an access list.
<b>line</b> <i>line-num</i>	(Optional) The line number at which to insert a remark or an access control element (ACE).
<b>remark</b> <i>text</i>	Text of the remark to add before or after an <b>access-list extended</b> command.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global Configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The remark text can be up to 100 characters in length, including spaces and punctuation. The remark text must contain at least 1 non-space character; you cannot enter an empty remark.

You cannot use the **access-group** command on an ACL that includes a remark only.

## Examples

The following example shows how to specify the text of the remark to add before or after an **access-list** command:

```
hostname(config)# access-list 77 remark checklist
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>access-list extended</b>	Adds an access list to the configuration and used to configure policy for IP traffic through the security appliance.
<b>clear access-group</b>	Clears an access list counter.
<b>clear configure access-list</b>	Clears access lists from the running configuration.
<b>show access-list</b>	Displays the access list entries by number.
<b>show running-config access-list</b>	Displays the current running access-list configuration.

## access-list standard

To add an access list to identify the destination IP addresses of OSPF routes, which can be used in a route map for OSPF redistribution, use the **access-list standard** command in global configuration mode. To remove the access list, use the **no** form of this command.

```
access-list id standard [line line-num] {deny | permit} {any | host ip_address | ip_address
  subnet_mask}
```

```
no access-list id standard [line line-num] {deny | permit} {any | host ip_address | ip_address
  subnet_mask}
```

### Syntax Description

<b>any</b>	Specifies access to anyone.
<b>deny</b>	Denies access if the conditions are matched. See the “Usage Guidelines” section for the description.
<i>host ip_address</i>	Specifies access to a host IP address.
<i>id</i>	Name or number of an access list.
<i>ip_address ip_mask</i>	Specifies access to a specific IP address and subnet mask.
<b>line line-num</b>	(Optional) The line number at which to insert an ACE.
<b>permit</b>	Permits access if the conditions are matched. See the “Usage Guidelines” section for the description.

### Defaults

The defaults are as follows:

- The security appliance denies all packets on the originating interface unless you specifically permit access.
- ACL logging generates syslog message 106023 for denied packets—Deny packets must be present to log denied packets.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

When used with the **access-group** command, the **deny** optional keyword does not allow a packet to traverse the security appliance. By default, the security appliance denies all packets on the originating interface unless you specifically permit access.

When you specify the *protocol* to match any Internet protocol, including TCP and UDP, use the **ip** keyword.

Refer to the **object-group** command for information on how to configure object groups.

You can use the **object-group** command to group access lists.

Use the following guidelines for specifying a source, local, or destination address:

- Use a 32-bit quantity in four-part, dotted-decimal format.
- Use the keyword **any** as an abbreviation for an address and mask of 0.0.0.0 0.0.0.0. We do not recommend that you use this keyword with IPSec.

Use **host address** as an abbreviation for a mask of 255.255.255.255.

### Examples

The following example shows how to deny IP traffic through the firewall:

```
hostname(config)# access-list 77 standard deny
```

The following example shows how to permit IP traffic through the firewall if conditions are matched:

```
hostname(config)# access-list 77 standard permit
```

### Related Commands

Command	Description
<b>access-group</b>	Defines object groups that you can use to optimize your configuration.
<b>clear access-group</b>	Clears an access list counter.
<b>clear configure access-list</b>	Clears access lists from the running configuration.
<b>show access-list</b>	Displays the access list entries by number.
<b>show running-config access-list</b>	Displays the current running access-list configuration.



## access-list webtype

To add an access list to the configuration that supports filtering for WebVPN, use the **access-list webtype** command in global configuration mode. To remove the access list, use the **no** form of this command.

```
access-list id webtype {deny | permit} url [url_string | any] [log [[disable | default] | level] [interval secs] [time_range name]]
```

```
no access-list id webtype {deny | permit} url [url_string | any] [log [[disable | default] | level] [interval secs] [time_range name]]
```

```
access-list id webtype {deny | permit} tcp [host ip_address | ip_address subnet_mask | any] [oper port [port]] [log [[disable | default] | level] [interval secs] [time_range name]]
```

```
no access-list id webtype {deny | permit} tcp [host ip_address | ip_address subnet_mask | any] [oper port [port]] [log [[disable | default] | level] [interval secs] [time_range name]]
```

### Syntax Description

<b>any</b>	Specifies all IP addresses.
<b>any</b>	(Optional) Specifies all urls.
<b>deny</b>	Denies access if the conditions are matched.
<i>host ip_address</i>	Specifies a host IP address.
<i>id</i>	Name or number of an access list.
<b>interval</b> <i>secs</i>	(Optional) Specifies the time interval at which to generate an 106100 syslog message; valid values are from 1 to 600 seconds.
<i>ip_address ip_mask</i>	Specifies a specific IP address and subnet mask.
<b>log</b> [[ <b>disable</b>   <b>default</b> ]   <i>level</i> ]	(Optional) Specifies that a syslog message 106100 is generated for the ACE. See the <b>log</b> command for information.
<i>oper</i>	Compares <i>ip_address</i> ports. Possible operands include lt (less than), gt (greater than), eq (equal), neq (not equal), and range (inclusive range).
<b>permit</b>	Permits access if the conditions are matched.
<i>port</i>	Specifies the decimal number or name of a TCP or UDP port.
<b>time_range</b> <i>name</i>	(Optional) Specifies a keyword for attaching the time-range option to this access list element.
<b>url</b>	Specifies that a url be used for filtering.
<i>url_string</i>	(Optional) Specifies the url to be filtered.

### Defaults

The defaults are as follows:

- The security appliance denies all packets on the originating interface unless you specifically permit access.
- ACL logging generates syslog message 106023 for denied packets—Deny packets must be present to log denied packets.
- When the **log** optional keyword is specified, the default level for syslog message 106100 is 6 (informational).

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global Configuration	•	•	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

The **access-list webtype** command is used to configure WebVPN filtering. The url specified may be full or partial (no file specified), may include wildcards for the server, or may specify a port.

Valid protocol identifiers are: http, https, cifs, imap4, pop3, and smtp. The url may also contain the keyword **any** to refer to any url. An asterisk may be used to refer to a subcomponent of a DNS name.

**Examples**

The following example shows how to deny access to a specific company url:

```
hostname(config)# access-list acl_company webtype deny url http://*.company.com
```

The following example shows how to deny access to a specific file:

```
hostname(config)# access-list acl_file webtype deny url
https://www.company.com/dir/file.html
```

The following example shows how to deny http access to anywhere through port 8080:

```
hostname(config)# access-list acl_company webtype deny url http://my-server:8080/*
```

**Related Commands**

Command	Description
<b>access-group</b>	Defines object groups that you can use to optimize your configuration.
<b>access-list ethertype</b>	Configures an access list that controls traffic based on its EtherType.
<b>access-list extended</b>	Adds an access list to the configuration and configures policy for IP traffic through the firewall.
<b>clear access-group</b>	Clears an access list counter.
<b>show running-config access-list</b>	Displays the access list configuration running on the security appliance.

# accounting-mode

To indicate whether accounting messages are sent to a single server (single mode) or sent to all servers in the group (simultaneous mode), use the **accounting-mode** command in AAA-server group mode. To remove the accounting mode specification, use the **no** form of this command:

```
accounting-mode { simultaneous | single }
```

## Syntax Description

<b>simultaneous</b>	Sends accounting messages to all servers in the group.
<b>single</b>	Sends accounting messages to a single server.

## Defaults

The default value is single mode

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
AAA-server group	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the keyword **single** to send accounting messages to a single server. Use the keyword **simultaneous** to send accounting messages to all servers in the server group.

This command is meaningful only when the server group is used for accounting (RADIUS or TACACS+).

## Examples

The following example shows the use of the **accounting-mode** command to send accounting messages to all servers in the group:

```
hostname(config)# aaa-server svrgrp1 protocol tacacs+
hostname(config-aaa-server-group)# accounting-mode simultaneous
hostname(config-aaa-server-group)# exit
hostname(config)#
```

## Related Commands

Command	Description
<b>aaa accounting</b>	Enables or disables accounting services.

---

<b>aaa-server protocol</b>	Enters AAA server group configuration mode, so you can configure AAA server parameters that are group-specific and common to all hosts in the group.
<b>clear configure aaa-server</b>	Removes all AAA server configuration.
<b>show running-config aaa-server</b>	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

---

# accounting-port

To specify the port number used for RADIUS accounting for this host, use the **accounting-port** command in AAA-server host mode. To remove the authentication port specification, use the **no** form of this command. This command specifies the destination TCP/UDP port number of the remote RADIUS server hosts to which you want to send accounting records:

**accounting-port** *port*

**no accounting-port**

## Syntax Description

*port* A port number, in the range 1-65535, for RADIUS accounting.

## Defaults

By default, the device listens for RADIUS on port 1646 for accounting (in compliance with RFC 2058). If the port is not specified, the RADIUS accounting default port number (1646) is used.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
AAA-server host	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If your RADIUS accounting server uses a port other than 1646, you must configure the security appliance for the appropriate port prior to starting the RADIUS service with the **aaa-server** command. This command is valid only for server groups that are configured for RADIUS.

## Examples

The following example configures a RADIUS AAA server named “svrgrp1” on host “1.2.3.4”, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures accounting port 2222.

```
hostname(config)# aaa-server svrgrp1 protocol radius
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry-interval 7
hostname(config-aaa-server-host)# accounting-port 2222
hostname(config-aaa-server-host)# exit
hostname(config)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>aaa accounting</b>	Keeps a record of which network services a user has accessed.
<b>aaa-server host</b>	Enters AAA server host configuration mode, so you can configure AAA server parameters that are host-specific.
<b>clear configure aaa-server</b>	Removes all AAA command statements from the configuration.
<b>show running-config aaa-server</b>	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

# accounting-server-group

To specify the aaa-server group for sending accounting records, use the **accounting-server-group** command in tunnel-group general-attributes configuration mode. To return this command to the default, use the **no** form of this command.

**accounting-server-group** *server-group*

**no accounting-server-group**

## Syntax Description

*server-group* Specifies the name of the aaa-server group, which defaults to **NONE**.

## Defaults

The default setting for this command is **NONE**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Tunnel-group general attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Moved this command to the tunnel-group general-attributes configuration mode from the webvpn configuration mode.

## Usage Guidelines

You can apply this attribute to all tunnel-group types.

## Examples

The following example entered in tunnel-group-general attributes configuration mode, configures an accounting server group named “aaa-server123” for an IPSec LAN-to-LAN tunnel group “xyz”:

```
hostname(config)# tunnel-group xyz type IPSec_L2L
hostname(config)# tunnel-group xyz general-attributes
hostname(config-tunnel-general)# accounting-server-group aaa-server123
hostname(config-tunnel-general)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>clear configure tunnel-group</b>	Clears all configured tunnel groups.
<b>show running-config tunnel-group</b>	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
<b>tunnel-group general-attributes</b>	Specifies the general attributes for the named tunnel-group.



## accounting-server-group (webvpn)

To specify the set of accounting servers to use with WebVPN or e-mail proxy, use the **accounting-server-group** command. For WebVPN, use this command in webvpn mode. For e-mail proxies (IMAP4S, POP3S, SMTPS), use this command in the applicable e-mail proxy mode. To remove accounting servers from the configuration, use the **no** form of this command.

The security appliance uses accounting to keep track of the network resources that users access.

**accounting-server-group** *group tag*

**no accounting-server-group**

### Syntax Description

group tag	Identifies the previously configured accounting server or group of servers. Use the <b>aaa-server</b> command to configure accounting servers. Maximum length of the group tag is 16 characters.
-----------	--

### Defaults

No accounting servers are configured by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn	•	•	—	—	•
Imap4s	•	•	—	—	•
Pop3s	•	•	—	—	•
SMTPS	•	•	—	—	•

### Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was deprecated. The accounting-server-group command is now available in tunnel-group general-attributes configuration mode.

### Usage Guidelines

In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group general-attributes mode.

### Examples

The following example shows how to configure WebVPN services to use the set of accounting servers named WEBVPNACCT:

## ■ accounting-server-group (webvpn)

```
hostname(config)# webvpn
hostname(config-webvpn)# accounting-server-group WEBVPNACCT
```

The following example shows how to configure POP3S e-mail proxy to use the set of accounting servers named POP3SSVRS:

```
hostname(config)# pop3s
hostname(config-pop3s)# accounting-server-group POP3SSVRS
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa-server host</b>	Configures authentication, authorization, and accounting servers.







## **acl-netmask-convert through auto-update timeout Commands**

---

# acl-netmask-convert

To specify how the security appliance treats netmasks received in a downloadable ACL from a RADIUS server, use the **acl-netmask-convert** command in AAA-server host mode, which is accessed by using the **aaa-server host** command. Use the **no** form of this command to remove the command.

**acl-netmask-convert** { **auto-detect** | **standard** | **wildcard** }

**no acl-netmask-convert**

## Syntax Description

<b>auto-detect</b>	Specifies that the security appliance should attempt to determine the type of netmask expression used. If it detects a wildcard netmask expression, it converts it to a standard netmask expression. See “Usage Guidelines” for more information about this keyword.
<b>standard</b>	Specifies that the security appliance assumes downloadable ACLs received from the RADIUS server contain only standard netmask expressions. No translation from wildcard netmask expressions is performed.
<b>wildcard</b>	Specifies that the security appliance assumes downloadable ACLs received from the RADIUS server contain only wildcard netmask expressions and it converts them all to standard netmask expressions when the ACLs are downloaded.

## Defaults

By default, no conversion from wildcard netmask expressions is performed.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
AAA-server host	•	•	•	•	—

## Command History

Release	Modification
7.0(4)	This command was introduced.

## Usage Guidelines

Use the **acl-netmask-convert** command with the wildcard or auto-detect keywords when a RADIUS server provides downloadable ACLs that contain netmasks in wildcard format. The security appliance expects downloadable ACLs to contain standard netmask expressions whereas Cisco Secure VPN 3000 Series Concentrators expect downloadable ACLs to contain wildcard netmask expressions, which are the reverse of a standard netmask expression. A wildcard mask has ones in bit positions to ignore, zeros in bit positions to match. The **acl-netmask-convert** command helps minimize the effects of these differences upon how you configure downloadable ACLs on your RADIUS servers.

The **auto-detect** keyword is helpful when you are uncertain how the RADIUS server is configured; however, wildcard netmask expressions with “holes” in them cannot be unambiguously detected and converted. For example, the wildcard netmask 0.0.255.0 permits anything in the third octet and can be used validly on Cisco VPN 3000 Series Concentrators, but the security appliance may not detect this expression as a wildcard netmask.

### Examples

The following example configures a RADIUS AAA server named “svrgrp1” on host “192.168.3.4”, enables conversion of downloadable ACL netmasks, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures authentication port 1650.

```
hostname(config)# aaa-server svrgrp1 protocol radius
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 192.168.3.4
hostname(config-aaa-server-host)# acl-netmask-convert wildcard
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry-interval 7
hostname(config-aaa-server-host)# authentication-port 1650
hostname(config-aaa-server-host)# exit
hostname(config)#
```

### Related Commands

Command	Description
<b>aaa authentication</b>	Enables or disables LOCAL, TACACS+, or RADIUS user authentication, on a server designated by the <b>aaa-server</b> command, or ASDM user authentication.
<b>aaa-server host</b>	Enters AAA server host configuration mode, so you can configure AAA server parameters that are host-specific.
<b>clear configure aaa-server</b>	Removes all AAA command statements from the configuration.
<b>show running-config aaa-server</b>	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol

# action-uri

To specify a web server URI to receive a username and password for single sign-on authentication, use the **action-uri** command in aaa-server-host configuration mode. This is an SSO with HTTP Forms command.

To reset the URI parameter value, use the **no** form of the command. Use the **action-uri** command again to enter a new value.

**action-uri** *string*

**no action-uri**



## Note

To configure SSO with the HTTP protocol correctly, you must have a thorough working knowledge of authentication and HTTP protocol exchanges.

## Syntax Description

<i>string</i>	The URI for an authentication program. You can enter it on multiple lines. The maximum number of characters for each line is 255. The maximum number of characters for the complete URI is 2048 characters.
---------------	---

## Defaults

No default value or behavior.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Aaa-server-host configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

A URI or Uniform Resource Identifier is a compact string of characters that identifies a point of content on the Internet, whether it be a page of text, a video or sound clip, a still or animated image, or a program. The most common form of URI is the Web page address, which is a particular form or subset of URI called a Uniform Resource Locator (URL).

The WebVPN server of the security appliance can use a POST request to submit a single sign-on authentication request to an authenticating web server. To accomplish this, configure the security appliance to pass a username and a password to an action URI on an authenticating web server using an HTTP POST request. The **action-uri** command specifies the location and name of the authentication program on the web server to which the security appliance sends the POST request.



You can discover the action URI on the authenticating web server by connecting to the web server's login page directly with a browser. The URL of the login web page displayed in your browser is the action URI for the authenticating web server.

For ease of entry, you can enter URIs on multiple, sequential lines. The security appliance then concatenates the lines into the URI as you enter them. While the maximum characters per action-uri line is 255 characters, you can enter fewer characters on each line.

**Note**

Any question mark in the string must be preceded by a CTRL-v escape sequence.

**Examples**

In the following example, the URI to receive authentication data is as follows:

```
http://www.example.com/auth/index.html/appdir/authc/forms/MCOlogin.fcc?TYPE=33554433&REALMOID=06-000a1311-a828-1185-ab41-8333b16a0008&GUID=&SMAUTHREASON=0&METHOD=GET&SMAGENTNAME=$SM$5FZmjnk3DRNwNjk2KcqVCFbIrNT9%2bJ0H0KPshFtg6rB1UV2P
xkHqLw%3d%3d&TARGET=https%3A%2F%2Fauth.example.com
```

The following example, entered in aaa-server-host configuration mode, specifies the preceding URI on www.example.com:

```
hostname(config)# aaa-server testgrp1 host www.example.com
hostname(config-aaa-server-host)# action-uri http://www.example.com/auth/index.htm
hostname(config-aaa-server-host)# action-uri l/appdir/authc/forms/MCOlogin.fcc?TYP
hostname(config-aaa-server-host)# action-uri 554433&REALMOID=06-000a1311-a828-1185
hostname(config-aaa-server-host)# action-uri -ab41-8333b16a0008&GUID=&SMAUTHREASON
hostname(config-aaa-server-host)# action-uri =0&METHOD=GET&SMAGENTNAME=$SM$5FZmjnk
hostname(config-aaa-server-host)# action-uri 3DRNwNjk2KcqVCFbIrNT9%2bJ0H0KPshFtg6r
hostname(config-aaa-server-host)# action-uri B1UV2PxxkHqLw%3d%3d&TARGET=https%3A%2F
hostname(config-aaa-server-host)# action-uri %2Fauth.example.com
hostname(config-aaa-server-host)#
```

**Note**

You must include the host name and protocol in the action URI. In the preceding example, these are included in http://www.example.com at the start of the URI.

**Related Commands**

Command	Description
<b>auth-cookie-name</b>	Specifies a name for the authentication cookie.
<b>hidden-parameter</b>	Creates hidden parameters for exchange with the SSO server.
<b>password-parameter</b>	Specifies the name of the HTTP POST request parameter in which a user password must be submitted for SSO authentication.
<b>start-url</b>	Specifies the URL at which to retrieve a pre-login cookie.
<b>user-parameter</b>	Specifies the name of the HTTP POST request parameter in which a username must be submitted for SSO authentication.

# activation-key

To change the activation key on the security appliance and check the activation key running on the security appliance against the activation key that is stored as a hidden file in the Flash partition of the security appliance, use the **activation-key** command in global configuration mode.

**activation-key** [*activation-key-four-tuple* | *activation-key-five-tuple*]

## Syntax Description

<i>activation-key-four-tuple</i>	Activation key; see the “Usage Guidelines” section for formatting guidelines.
<i>activation-key-five-tuple</i>	Activation key; see the “Usage Guidelines” section for formatting guidelines.

## Defaults

This command has no default settings.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•		•

## Command History

Release	Modification
7.0(1)	Support for this command was introduced on the security appliance.

## Usage Guidelines

Enter the *activation-key-four-tuple* as a four-element hexadecimal string with one space between each element, or *activation-key-five-tuple* as a five-element hexadecimal string with one space between each element as follows:

```
0xe02888da 0x4ba7bed6 0xf1c123ae 0xffd8624e
```

The leading 0x specifier is optional; all values are assumed to be hexadecimal.

The key is not stored in the configuration file. The key is tied to the serial number.

## Examples

This example shows how to change the activation key on the security appliance:

```
hostname(config)# activation-key 0xe02888da 0x4ba7bed6 0xf1c123ae 0xffd8624e
```

## Related Commands

Command	Description
<b>show activation-key</b>	Displays the activation key.

# address-pool

To specify a list of address pools for allocating addresses to remote clients, use the **address-pool** command in tunnel-group general-attributes configuration mode. To eliminate address pools, use the **no** form of this command.

```
address-pool [(interface name)] address_pool1 [...address_pool6]
```

```
no address-pool [(interface name)] address_pool1 [...address_pool6]
```

## Syntax Description

<i>address_pool</i>	Specifies the name of the address pool configured with the <b>ip local pool</b> command. You can specify up to 6 local address pools.
interface name	(Optional) Specifies the interface to be used for the address pool.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group general attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You can enter multiples of each of these commands, one per interface. If an interface is not specified, then the command specifies the default for all interfaces that are not explicitly referenced.

The address-pools settings in the group-policy **address-pools** command override the local pool settings in the tunnel group **address-pool** command.

The order in which you specify the pools is significant. The security appliance allocates addresses from these pools in the order in which the pools appear in this command.

## Examples

The following example entered in config-general configuration mode, specifies a list of address pools for allocating addresses to remote clients for an IPSec remote-access tunnel group xyz:

```
hostname(config)# tunnel-group xyz
hostname(config)# tunnel-group xyz general
hostname(config-general)# address-pool (inside) addrpool1 addrpool2 addrpool3
hostname(config-general)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>ip local pool</b>	Configures IP address pools to be used for VPN remote-access tunnels.
<b>clear configure tunnel-group</b>	Clears all configured tunnel groups.
<b>show running-config tunnel-group</b>	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
<b>tunnel-group-map default-group</b>	Associates the certificate map entries created using the <b>crypto ca certificate map</b> command with tunnel groups.

## address-pools (group policy)

To specify a list of address pools for allocating addresses to remote clients, use the **address-pools** command in group-policy attributes configuration mode. To remove the attribute from the group policy and enable inheritance from other sources of group policy, use the **no** form of this command.

**address-pools value** *address\_pool1* [...*address\_pool6*]

**no address-pools value** *address\_pool1* [...*address\_pool6*]

**address-pools none**

**no address-pools none**

### Syntax Description

<i>address_pool</i>	Specifies the name of the address pool configured with the <b>ip local pool</b> command. You can specify up to 6 local address pools.
<b>none</b>	Specifies that no address pools are configured and disables inheritance from other sources of group policy.
<b>value</b>	Specifies a list of up to 6 address pools from which to assign addresses.

### Defaults

By default, the address pool attribute allows inheritance.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
group-policy attributes configuration	•	—	•	—	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

The address-pools settings in this command override the local pool settings in the group. You can specify a list of up to six local address pools to use for local address allocation.

The order in which you specify the pools is significant. The security appliance allocates addresses from these pools in the order in which the pools appear in this command.

The command **address-pools none** disables this attribute from being inherited from other sources of policy, such as the DefaultGrpPolicy. The command **no address pools none** removes the **address-pools none** command from the configuration, restoring the default value, which is to allow inheritance.

**Examples**

The following example entered in config-general configuration mode, configures pool 1 and pool20 as lists of address pools to use for allocating addresses to remote clients for GroupPolicy1:

```
hostname(config)# ip local pool pool 192.168.10.1-192.168.10.100 mask 255.255.0.0
hostname(config)# ip local pool pool20 192.168.20.1-192.168.20.200 mask 255.255.0.0
hostname(config)# group-policy GroupPolicy1 attributes
hostname(config-group-policy)# address-pools value pool1 pool20
hostname(config-group-policy)#
```

**Related Commands**

Command	Description
<b>ip local pool</b>	Configures IP address pools to be used for VPN group policies.
<b>clear configure group-policy</b>	Clears all configured group policies.
<b>show running-config group-policy</b>	Shows the configuration for all group-policies or for a particular group-policy .

# alias

To manually translate an address and perform DNS reply modification, use the **alias** command in global configuration mode. To remove an **alias** command, use the **no** form of this command. This command functionality has been replaced by outside NAT commands, including the **nat** and **static** commands with the **dns** keyword. We recommend that you use outside NAT instead of the **alias** command.

```
alias interface_name mapped_ip real_ip [netmask]
```

```
[no] alias interface_name mapped_ip real_ip [netmask]
```

## Syntax Description

<i>interface_name</i>	Specifies the ingress interface name for traffic destined for the mapped IP address (or the egress interface name for traffic from the mapped IP address).
<i>mapped_ip</i>	Specifies the IP address to which you want to translate the real IP address.
<i>real_ip</i>	Specifies the real IP address.
<i>netmask</i>	(Optional) Specifies the subnet mask for both IP addresses. Enter <b>255.255.255.255</b> for a host mask.

## Defaults

This command has no default settings.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

You can also use this command to perform address translation on a destination address. For example, if a host sends a packet to 209.165.201.1, you can use the **alias** command to redirect traffic to another address, such as 209.165.201.30.



### Note

If the **alias** command is used for DNS rewrite and not for other address translation, disable **proxy-arp** on the alias-enabled interface. Use the **sysopt noproxyarp** command to prevent the security appliance from pulling traffic toward itself via **proxy-arp** for generic NAT processing.

After changing or removing an **alias** command, use the **clear xlate** command.

You must have an A (address) record in the DNS zone file for the “dnat” address in the **alias** command.

The **alias** command has two uses that can be summarized in the following ways:

- If the security appliance gets a packet that is destined for the *mapped\_ip*, you can configure the **alias** command to send it to the *real\_ip*.
- If the security appliance gets a DNS packet that is returned to the security appliance destined for *real\_ip*, you can configure the **alias** command to alter the DNS packet to change the destination network address to *mapped\_ip*.

The **alias** command automatically interacts with the DNS servers on your network to ensure that domain name access to the aliased IP address is handled transparently.

You can specify a net alias by using network addresses for the *real\_ip* and *mapped\_ip* IP addresses. For example, the **alias 192.168.201.0 209.165.201.0 255.255.255.224** command creates aliases for each IP address between 209.165.201.1 and 209.165.201.30.

To access an **alias** *mapped\_ip* address with **static** and **access-list** commands, specify the *mapped\_ip* address in the **access-list** command as the address from which traffic is permitted as follows:

```
hostname(config)# alias (inside) 192.168.201.1 209.165.201.1 255.255.255.255
hostname(config)# static (inside,outside) 209.165.201.1 192.168.201.1 netmask
255.255.255.255
hostname(config)# access-list acl_out permit tcp host 192.168.201.1 host 209.165.201.1 eq
ftp-data
hostname(config)# access-group acl_out in interface outside
```

An alias is specified with the inside address 192.168.201.1 mapping to the destination address 209.165.201.1.

When the inside network client 209.165.201.2 connects to example.com, the DNS response from an external DNS server to the internal client's query would be altered by the security appliance to be 192.168.201.29. If the security appliance uses 209.165.200.225 through 209.165.200.254 as the global pool IP addresses, the packet goes to the security appliance with SRC=209.165.201.2 and DST=192.168.201.29. The security appliance translates the address to SRC=209.165.200.254 and DST=209.165.201.29 on the outside.

## Examples

This example shows that the inside network contains the IP address 209.165.201.29, which on the Internet belongs to example.com. When inside clients try to access example.com, the packets do not go to the security appliance because the client assumes that the 209.165.201.29 is on the local inside network.

To correct this, use the **alias** command as follows:

```
hostname(config)# alias (inside) 192.168.201.0 209.165.201.0 255.255.255.224

hostname(config)# show running-config alias
alias 192.168.201.0 209.165.201.0 255.255.255.224
```

This example shows a web server that is on the inside at 10.1.1.11 and the **static** command that was created at 209.165.201.11. The source host is on the outside with address 209.165.201.7. A DNS server on the outside has a record for www.example.com as follows:

```
dns-server# www.example.com. IN A 209.165.201.11
```

You must include the period at the end of the www.example.com. domain name.

This example shows how to use the **alias** command:

```
hostname(config)# alias 10.1.1.11 209.165.201.11 255.255.255.255
```



The security appliance changes the name server replies to 10.1.1.11 for inside clients to directly connect to the web server.

To provide access you also need the following commands:

```
hostname(config)# static (inside,outside) 209.165.201.11 10.1.1.11
```

```
hostname(config)# access-list acl_grp permit tcp host 209.165.201.7 host 209.165.201.11 eq telnet
```

```
hostname(config)# access-list acl_grp permit tcp host 209.165.201.11 eq telnet host 209.165.201.7
```

#### Related Commands

Command	Description
<b>access-list extended</b>	Creates an access list.
<b>clear configure alias</b>	Removes all <b>alias</b> commands from the configuration.
<b>show running-config alias</b>	Displays the overlapping addresses with dual NAT commands in the configuration.
<b>static</b>	Configures a one-to-one address translation rule by mapping a local IP address to a global IP address, or a local port to a global port.

# allocate-interface

To allocate interfaces to a security context, use the **allocate-interface** command in context configuration mode. To remove an interface from a context, use the **no** form of this command.

**allocate-interface** *physical\_interface* [*map\_name*] [**visible** | **invisible**]

**no allocate-interface** *physical\_interface*

**allocate-interface** *physical\_interface.subinterface*[-*physical\_interface.subinterface*]  
[*map\_name*[-*map\_name*]] [**visible** | **invisible**]

**no allocate-interface** *physical\_interface.subinterface*[-*physical\_interface.subinterface*]

Syntax	Description
<b>invisible</b>	(Default) Allows context users to only see the mapped name (if configured) in the <b>show interface</b> command.
<i>map_name</i>	(Optional) Sets a mapped name.  The <i>map_name</i> is an alphanumeric alias for the interface that can be used within the context instead of the interface ID. If you do not specify a mapped name, the interface ID is used within the context. For security purposes, you might not want the context administrator to know which interfaces are being used by the context.  A mapped name must start with a letter, end with a letter or digit, and have as interior characters only letters, digits, or an underscore. For example, you can use the following names:  <b>int0</b>  <b>inta</b>  <b>int_0</b>  For subinterfaces, you can specify a range of mapped names.  See the “Usage Guidelines” section for more information about ranges.
<i>physical_interface</i>	Sets the interface ID, such as <b>gigabitethernet0/1</b> . See the <b>interface</b> command for accepted values.
<i>subinterface</i>	Sets the subinterface number. You can identify a range of subinterfaces.
<b>visible</b>	(Optional) Allows context users to see physical interface properties in the <b>show interface</b> command even if you set a mapped name.

## Defaults

The interface ID is invisible in the **show interface** command output by default if you set a mapped name.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Context configuration	•	•	—	—	•

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

You can enter this command multiple times to specify different ranges. To change the mapped name or visible setting, reenter the command for a given interface ID, and set the new values; you do not need to enter the **no allocate-interface** command and start over. If you remove the **allocate-interface** command, the security appliance removes any interface-related configuration in the context.

Transparent firewall mode allows only two interfaces to pass through traffic; however, on the ASA adaptive security appliance, you can use the dedicated management interface, Management 0/0, (either the physical interface or a subinterface) as a third interface for management traffic.

**Note**

The management interface for transparent mode does not flood a packet out the interface when that packet is not in the MAC address table.

You can assign the same interfaces to multiple contexts in routed mode, if desired. Transparent mode does not allow shared interfaces.

If you specify a range of subinterfaces, you can specify a matching range of mapped names. Follow these guidelines for ranges:

- The mapped name must consist of an alphabetic portion followed by a numeric portion. The alphabetic portion of the mapped name must match for both ends of the range. For example, enter the following range:

```
int0-int10
```

If you enter **gigabitethernet0/1.1-gigabitethernet0/1.5 happy1-sad5**, for example, the command fails.

- The numeric portion of the mapped name must include the same quantity of numbers as the subinterface range. For example, both ranges include 100 interfaces:

```
gigabitethernet0/0.100-gigabitethernet0/0.199 int1-int100
```

If you enter **gigabitethernet0/0.100-gigabitethernet0/0.199 int1-int15**, for example, the command fails.

**Examples**

The following example shows gigabitethernet0/1.100, gigabitethernet0/1.200, and gigabitethernet0/2.300 through gigabitethernet0/1.305 assigned to the context. The mapped names are int1 through int8.

```
hostname(config-ctx)# allocate-interface gigabitethernet0/1.100 int1
```

## ■ allocate-interface

```
hostname(config-ctx)# allocate-interface gigabitethernet0/1.200 int2
hostname(config-ctx)# allocate-interface gigabitethernet0/2.300-gigabitethernet0/2.305
int3-int8
```

### Related Commands

Command	Description
<b>context</b>	Creates a security context in the system configuration and enters context configuration mode.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show context</b>	Shows a list of contexts (system execution space) or information about the current context.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.
<b>vlan</b>	Assigns a VLAN ID to a subinterface.

# apcf

To enable an Application Profile Customization Framework profile, use the **apcf** command in webvpn mode. To disable a particular APCF script, use the **no** version of the command. To disable all APCF scripts, use the **no** version of the command without arguments.

**apcf** URL/filename.ext

**no apcf** [URL/filename.ext]

## Syntax Description

URL	Specifies the location of the APCF profile to load and use on the security appliance. Use one of the following URLs: http://, https://, tftp://, ftp://; flash:/, disk#:'
	The URL might include a server, port, and path. If you provide only the filename, the default URL is flash:/. You can use the <b>copy</b> command to copy an APCF profile to flash memory.
filename.extension	Specifies the name of the APCF customization script. These scripts are always in XML format. The extension might be .xml, .txt, .doc or one of many others

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Webvpn mode	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The Application Profile Customization Framework option enables the security appliance to handle non-standard web applications and web resources so that they render correctly over a WebVPN connection. An APCF profile contains a script that specifies when (pre, post), where (header, body, request, response), and what data to transform for a particular application.

You can use multiple APCF profiles on the security appliance. When you do, the security appliance applies each one of them in the order of oldest to newest.

We recommend that you use the apcf command only with the support of the Cisco TAC.

## Examples

The following example shows how to enable an APCF named apcf1, located on flash memory at /apcf.

```
hostname(config)# webvpn
hostname(config-webvpn)# apcf flash:/apcf/apcf1.xml
hostname(config-webvpn)#
```

This example shows how to enable an Apcf named apcf2.xml, located on an https server called myserver, port 1440 with the path being /apcf.

```
hostname(config)# webvpn
hostname(config-webvpn)# apcf https://myserver:1440/apcf/apcf2.xml
hostname(config-webvpn)#
```

#### Related Commands

Command	Description
<b>proxy-bypass</b>	Configures minimal content rewriting for a particular application.
<b>rewrite</b>	Determines whether traffic travels through the security appliance.
<b>show running config webvpn apcf</b>	Displays the Apcf configuration.

# application-access

To customize the Application Access box of the WebVPN Home page that is displayed to authenticated WebVPN users, and the Application Access window that is launched when the user selects an application, use the **application-access** command from webvpn customization mode:

```
application-access { title | message | window } { text | style } value
```

```
[no] application-access { title | message | window } { text | style } value
```

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>title</b>	Specifies you are changing the title of the Application Access box.
<b>message</b>	Specifies you are changing message displayed under the title of the Application Access box.
<b>window</b>	Specifies you are changing the Application Access window.
<b>text</b>	Specifies you are changing the text.
<b>style</b>	Specifies you are changing the style.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default title text of the Application Access box is “Application Access”.

The default title style of the Application Access box is:

```
background-color:#99CCCC;color:black;font-weight:bold;text-transform:uppercase
```

The default message text of the Application Access box is “Start Application Client”.

The default message style of the Application Access box is:

```
background-color:#99CCCC;color:maroon;font-size:smaller.
```

The default window text of the Application Access window is:

```
“Close this window when you finish using Application Access. Please wait for the table to be displayed before starting applications.”.
```

The default window style of the Application Access window is:

```
background-color:#99CCCC;color:black;font-weight:bold.
```

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

**Command History**

Release	Modification
7.1(1)	This command was introduced.

**Usage Guidelines**

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

The following example customizes the background color of the Application Access box to the RGB hex value 66FFFF, a shade of green:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# application-access title style background-color:#66FFFF
```

**Related Commands**

Command	Description
<b>application-access</b>	Enable or disables the display of the application details in the Application Access window.
<b>hide-details</b>	
<b>browse-networks</b>	Customizes the Browse Networks box of the WebVPN Home page.
<b>file-bookmarks</b>	Customizes the File Bookmarks title or links on the WebVPN Home page.
<b>web-applications</b>	Customizes the Web Application box of the WebVPN Home page.
<b>web-bookmarks</b>	Customizes the Web Bookmarks title or links on the WebVPN Home page.



# application-access hide-details

To hide application details that are displayed in the WebVPN Applications Access window, use the **application-access hide-details** command from webvpn customization mode:

```
application-access hide-details {enable | disable}
```

```
[no] application-access hide-details {enable | disable}
```

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>enable</b>	Hides application details in the Application Access window.
<b>disable</b>	Does not hide application details in the Application Access window.

## Defaults

The default is disabled. Application details display in the Application Access window.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Examples

The following example disables the display of application details:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# application-access hide-details disable
```

## Related Commands

Command	Description
<b>application-access</b>	Customizes the Application Access box of the WebVPN Home page.
<b>browse-networks</b>	Customizes the Browse Networks box of the WebVPN Home page.
<b>web-applications</b>	Customizes the Web Application box of the WebVPN Home page.

## area

To create an OSPF area, use the **area** command in router configuration mode. To remove the area, use the **no** form of this command.

```
area area_id
```

```
no area area_id
```

### Syntax Description

<i>area_id</i>	The ID of the area being created. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
----------------	--

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Router configuration	•	—	•	—	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

The area that you create does not have any parameters set. Use the related area commands to set the area parameters.

### Examples

The following example shows how to create an OSPF area with an area ID of 1:

```
hostname(config-router)# area 1
hostname(config-router)#
```

### Related Commands

Command	Description
<b>area authentication</b>	Enables authentication for the OSPF area.
<b>area nssa</b>	Defines the area as a not-so-stubby area.
<b>area stub</b>	Defines the area as a stub area.

<b>Command</b>	<b>Description</b>
<b>router ospf</b>	Enters router configuration mode.
<b>show running-config router</b>	Displays the commands in the global router configuration.

# area authentication

To enable authentication for an OSPF area, use the **area authentication** command in router configuration mode. To disable area authentication, use the **no** form of this command.

**area** *area\_id* **authentication** [**message-digest**]

**no area** *area\_id* **authentication** [**message-digest**]

## Syntax Description

<i>area_id</i>	The identifier of the area on which authentication is to be enabled. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
<b>message-digest</b>	(Optional) Enables Message Digest 5 (MD5) authentication on the area specified by the <i>area_id</i> .

## Defaults

Area authentication is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

If the specified OSPF area does not exist, it is created when this command is entered. Entering the **area authentication** command without the **message-digest** keyword enables simple password authentication. Including the **message-digest** keyword enables MD5 authentication.

## Examples

The following example shows how to enable MD5 authentication for area 1:

```
hostname(config-router)# area 1 authentication message-digest
hostname(config-router)#
```

## Related Commands

Command	Description
<code>router ospf</code>	Enters router configuration mode.
<code>show running-config router</code>	Displays the commands in the global router configuration.

## area default-cost

To specify a cost for the default summary route sent into a stub or NSSA, use the **area default-cost** command in router configuration mode. To restore the default cost value, use the **no** form of this command.

```
area area_id default-cost cost
```

```
no area area_id default-cost
```

### Syntax Description

<i>area_id</i>	The identifier of the stub or NSSA whose default cost is being changed. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
<i>cost</i>	Specifies the cost for the default summary route that is used for a stub or NSSA. Valid values range from 0 to 65535

### Defaults

The default value of *cost* is 1.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

If the specified area has not been previously defined using the **area** command, this command creates the area with the specified parameters.

### Examples

The following example show how to specify a default cost for summary route sent into a stub or NSSA:

```
hostname(config-router)# area 1 default-cost 5
hostname(config-router)#
```

### Related Commands

Command	Description
<b>area nssa</b>	Defines the area as a not-so-stubby area.
<b>area stub</b>	Defines the area as a stub area.

Command	Description
<code>router ospf</code>	Enters router configuration mode.
<code>show running-config router</code>	Displays the commands in the global router configuration.

## area filter-list prefix

To filter prefixes advertised in type 3 LSAs between OSPF areas of an ABR, use the **area filter-list prefix** command in router configuration mode. To change or cancel the filter, use the **no** form of this command.

```
area area_id filter-list prefix list_name {in | out}
```

```
no area area_id filter-list prefix list_name {in | out}
```

### Syntax Description

<i>area_id</i>	Identifier of the area for which filtering is configured. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
<b>in</b>	Applies the configured prefix list to prefixes advertised inbound to the specified area.
<i>list_name</i>	Specifies the name of a prefix list.
<b>out</b>	Applies the configured prefix list to prefixes advertised outbound from the specified area.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Router configuration	•	—	•	—	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

If the specified area has not been previously defined using the **area** command, this command creates the area with the specified parameters.

Only type 3 LSAs can be filtered. If an ASBR is configured in the private network, then it will send type 5 LSAs (describing private networks) which are flooded to the entire AS including the public areas.

### Examples

The following example filters prefixes that are sent from all other areas to area 1:

```
hostname(config-router)# area 1 filter-list prefix-list AREA_1 in
hostname(config-router)#
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<code>router ospf</code>	Enters router configuration mode.
<code>show running-config router</code>	Displays the commands in the global router configuration.

## area nssa

To configure an area as an NSSA, use the **area nssa** command in router configuration mode. To remove the NSSA designation from the area, use the **no** form of this command.

```
area area_id nssa [no-redistribution] [default-information-originate [metric-type {1 | 2}]
[metric value]] [no-summary]
```

```
no area area_id nssa [no-redistribution] [default-information-originate [metric-type {1 | 2}]
[metric value]] [no-summary]
```

### Syntax Description

<b>area_id</b>	Identifier of the area being designated as an NSSA. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
<b>default-information-originate</b>	Used to generate a Type 7 default into the NSSA area. This keyword only takes effect on an NSSA ABR or an NSSA ASBR.
<b>metric metric_value</b>	(Optional) Specifies the OSPF default metric value. Valid values range from 0 to 16777214.
<b>metric-type {1   2}</b>	(Optional) the OSPF metric type for default routes. Valid values are the following: <ul style="list-style-type: none"> <li>• <b>1</b>—type 1</li> <li>• <b>2</b>—type 2.</li> </ul> The default value is 2.
<b>no-redistribution</b>	(Optional) Used when the router is an NSSA ABR and you want the <b>redistribute</b> command to import routes only into the normal areas, but not into the NSSA area.
<b>no-summary</b>	(Optional) Allows an area to be a not-so-stubby area but not have summary routes injected into it.

### Defaults

The defaults are as follows:

- No NSSA area is defined.
- The **metric-type** is 2.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

If the specified area has not been previously defined using the **area** command, this command creates the area with the specified parameters.

If you configure one option for an area, and later specify another option, both options are set. For example, entering the following two command separately results in a single command with both options set in the configuration:

```
area 1 nssa no-redistribution
area area_id nssa default-information-originate
```

**Examples**

The following example shows how setting two options separately results in a single command in the configuration:

```
hostname(config-router)# area 1 nssa no-redistribution
hostname(config-router)# area 1 nssa default-information-originate
hostname(config-router)# exit
hostname(config-router)# show running-config router ospf 1
router ospf 1
  area 1 nssa no-redistribution default-information-originate
```

**Related Commands**

Command	Description
<b>area stub</b>	Defines the area as a stub area.
<b>router ospf</b>	Enters router configuration mode.
<b>show running-config router</b>	Displays the commands in the global router configuration.

## area range

To consolidate and summarize routes at an area boundary, use the **area range** command in router configuration mode. To disable this function, use the **no** form of this command.

```
area area_id range address mask [advertise | not-advertise]
```

```
no area area_id range address mask [advertise | not-advertise]
```

### Syntax Description

<i>address</i>	IP address of the subnet range.
advertise	(Optional) Sets the address range status to advertise and generates type 3 summary link-state advertisements (LSAs).
<i>area_id</i>	Identifier of the area for which the range is configured. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
<i>mask</i>	IP address subnet mask.
not-advertise	(Optional) Sets the address range status to DoNotAdvertise. The type 3 summary LSA is suppressed, and the component networks remain hidden from other networks.

### Defaults

The address range status is set to advertise.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

If the specified area has not been previously defined using the **area** command, this command creates the area with the specified parameters.

The **area range** command is used only with ABRs. It is used to consolidate or summarize routes for an area. The result is that a single summary route is advertised to other areas by the ABR. Routing information is condensed at area boundaries. External to the area, a single route is advertised for each address range. This behavior is called *route summarization*. You can configure multiple **area range** commands for an area. Thus, OSPF can summarize addresses for many different sets of address ranges.

The **no area area\_id range ip\_address netmask not-advertise** command removes only the **not-advertise** optional keyword.

---

**Examples**

The following example specifies one summary route to be advertised by the ABR to other areas for all subnets on network 10.0.0.0 and for all hosts on network 192.168.110.0:

```
hostname(config-router)# area 10.0.0.0 range 10.0.0.0 255.0.0.0  
hostname(config-router)# area 0 range 192.168.110.0 255.255.255.0  
hostname(config-router)#
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>router ospf</b>	Enters router configuration mode.
<b>show running-config router</b>	Displays the commands in the global router configuration.

---

# area stub

To define an area as a stub area, use the **area stub** command in router configuration mode. To remove the stub area function, use the **no** form of this command.

```
area area_id [no-summary]
```

```
no area area_id [no-summary]
```

## Syntax Description

<i>area_id</i>	Identifier for the stub area. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
<b>no-summary</b>	Prevents an ABR from sending summary link advertisements into the stub area.

## Defaults

The default behaviors are as follows:

- No stub areas are defined.
- Summary link advertisements are sent into the stub area.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The command is used only on an ABR attached to a stub or NSSA.

There are two stub area router configuration commands: the **area stub** and **area default-cost** commands. In all routers and access servers attached to the stub area, the area should be configured as a stub area using the **area stub** command. Use the **area default-cost** command only on an ABR attached to the stub area. The **area default-cost** command provides the metric for the summary default route generated by the ABR into the stub area.

## Examples

The following example configures the specified area as a stub area:

```
hostname(config-router)# area 1 stub
hostname(config-router)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>area default-cost</b>	Specifies a cost for the default summary route sent into a stub or NSSA
<b>area nssa</b>	Defines the area as a not-so-stubby area.
<b>router ospf</b>	Enters router configuration mode.
<b>show running-config router</b>	Displays the commands in the global router configuration.

## area virtual-link

To define an OSPF virtual link, use the **area virtual-link** command in router configuration mode. To reset the options or remove the virtual link, use the **no** form of this command.

```
area area_id virtual-link router_id [authentication [message-digest | null]] [hello-interval
seconds] [retransmit-interval seconds] [transmit-delay seconds] [dead-interval seconds
[[authentication-key key] | [message-digest-key key_id md5 key]]
```

```
no area area_id virtual-link router_id [authentication [message-digest | null]] [hello-interval
seconds] [retransmit-interval seconds] [transmit-delay seconds] [dead-interval seconds
[[authentication-key key] | [message-digest-key key_id md5 key]]
```

### Syntax Description

<b>area_id</b>	Area ID of the transit area for the virtual link. You can specify the identifier as either a decimal number or an IP address. Valid decimal values range from 0 to 4294967295.
<b>authentication</b>	(Optional) Specifies the authentication type.
<b>authentication-key</b> <i>key</i>	(Optional) Specifies an OSPF authentication password for use by neighboring routing devices.
<b>dead-interval</b> <i>seconds</i>	(Optional) Specifies the interval before declaring a neighboring routing device is down if no hello packets are received; valid values are from 1 to 65535 seconds.
<b>hello-interval</b> <i>seconds</i>	(Optional) Specifies the interval between hello packets sent on the interface; valid values are from 1 to 65535 seconds.
<b>md5</b> <i>key</i>	(Optional) Specifies an alphanumeric key up to 16 bytes.
<b>message-digest</b>	(Optional) Specifies that message digest authentication is used.
<b>message-digest-key</b> <i>key_id</i>	(Optional) Enables the Message Digest 5 (MD5) authentication and specifies the numerical authentication key ID number; valid values are from 1 to 255.
<b>null</b>	(Optional) Specifies that no authentication is used. Overrides password or message digest authentication if configured for the OSPF area.
<b>retransmit-interval</b> <i>seconds</i>	(Optional) Specifies the time between LSA retransmissions for adjacent routers belonging to the interface; valid values are from 1 to 65535 seconds.
<b>router_id</b>	The router ID associated with the virtual link neighbor. The router ID is internally derived by each router from the interface IP addresses. This value must be entered in the format of an IP address. There is no default.
<b>transmit-delay</b> <i>seconds</i>	(Optional) Specifies the delay time between when OSPF receives a topology change and when it starts a shortest path first (SPF) calculation in seconds from 0 to 65535. The default is 5 seconds.

### Defaults

The defaults are as follows:

- *area\_id*: No area ID is predefined.
- *router\_id*: No router ID is predefined.
- **hello-interval** *seconds*: 10 seconds.
- **retransmit-interval** *seconds*: 5 seconds.



- **transmit-delay** *seconds*: 1 second.
- **dead-interval** *seconds*: 40 seconds.
- **authentication-key** *key*: No key is predefined.
- **message-digest-key** *key\_id md5 key*: No key is predefined.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

In OSPF, all areas must be connected to a backbone area. If the connection to the backbone is lost, it can be repaired by establishing a virtual link.

The smaller the hello interval, the faster topological changes are detected, but more routing traffic ensues.

The setting of the retransmit interval should be conservative, or needless retransmissions occur. The value should be larger for serial lines and virtual links.

The transmit delay value should take into account the transmission and propagation delays for the interface.

The specified authentication key is used only when authentication is enabled for the backbone with the **area area\_id authentication** command.

The two authentication schemes, simple text and MD5 authentication, are mutually exclusive. You can specify one or the other or neither. Any keywords and arguments you specify after **authentication-key key** or **message-digest-key key\_id md5 key** are ignored. Therefore, specify any optional arguments before such a keyword-argument combination.

If the authentication type is not specified for an interface, the interface uses the authentication type specified for the area. If no authentication type has been specified for the area, the area default is null authentication.



#### Note

Each virtual link neighbor must include the transit area ID and the corresponding virtual link neighbor router ID for a virtual link to be properly configured. Use the **show ospf** command to see the router ID.

To remove an option from a virtual link, use the **no** form of the command with the option that you want removed. To remove the virtual link, use the **no area area\_id virtual-link** command.

**Examples**

The following example establishes a virtual link with MD5 authentication:

```
hostname(config-router)# area 10.0.0.0 virtual-link 10.3.4.5 message-digest-key 3 md5
sa5721bk47
```

**Related Commands**

Command	Description
<b>area authentication</b>	Enables authentication for an OSPF area.
<b>router ospf</b>	Enters router configuration mode.
<b>show ospf</b>	Displays general information about the OSPF routing processes.
<b>show running-config router</b>	Displays the commands in the global router configuration.

# arp

To add a static ARP entry to the ARP table, use the **arp** command in global configuration mode. To remove the static entry, use the **no** form of this command. A static ARP entry maps a MAC address to an IP address and identifies the interface through which the host is reached. Static ARP entries do not time out, and might help you solve a networking problem. In transparent firewall mode, the static ARP table is used with ARP inspection (see the **arp-inspection** command).

```
arp interface_name ip_address mac_address [alias]
```

```
no arp interface_name ip_address mac_address
```

## Syntax Description

<b>alias</b>	(Optional) Enables proxy ARP for this mapping. If the security appliance receives an ARP request for the specified IP address, then it responds with the security appliance MAC address. When the security appliance receives traffic destined for the host belonging to the IP address, the security appliance forwards the traffic to the host MAC address that you specify in this command. This keyword is useful if you have devices that do not perform ARP, for example.  In transparent firewall mode, this keyword is ignored; the security appliance does not perform proxy ARP.
<i>interface_name</i>	The interface attached to the host network.
<i>ip_address</i>	The host IP address.
<i>mac_address</i>	The host MAC address.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Although hosts identify a packet destination by an IP address, the actual delivery of the packet on Ethernet relies on the Ethernet MAC address. When a router or host wants to deliver a packet on a directly connected network, it sends an ARP request asking for the MAC address associated with the IP address, and then delivers the packet to the MAC address according to the ARP response. The host or router keeps an ARP table so it does not have to send ARP requests for every packet it needs to deliver.

The ARP table is dynamically updated whenever ARP responses are sent on the network, and if an entry is not used for a period of time, it times out. If an entry is incorrect (for example, the MAC address changes for a given IP address), the entry times out before it can be updated.

**Note**

In transparent firewall mode, dynamic ARP entries are used for traffic to and from the security appliance, such as management traffic.

**Examples**

The following example creates a static ARP entry for 10.1.1.1 with the MAC address 0009.7cbe.2100 on the outside interface:

```
hostname(config)# arp outside 10.1.1.1 0009.7cbe.2100
```

**Related Commands**

Command	Description
<b>arp timeout</b>	Sets the time before the security appliance rebuilds the ARP table.
<b>arp-inspection</b>	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
<b>show arp</b>	Shows the ARP table.
<b>show arp statistics</b>	Shows ARP statistics.
<b>show running-config arp</b>	Shows the current configuration of the ARP timeout.

# arp timeout

To set the time before the security appliance rebuilds the ARP table, use the **arp timeout** command in global configuration mode. To restore the default timeout, use the **no** form of this command. Rebuilding the ARP table automatically updates new host information and removes old host information. You might want to reduce the timeout because the host information changes frequently.

**arp timeout** *seconds*

**no arp timeout** *seconds*

## Syntax Description

*seconds* The number of seconds between ARP table rebuilds, from 60 to 4294967.

## Defaults

The default value is 14,400 seconds (4 hours).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example changes the ARP timeout to 5,000 seconds:

```
hostname(config)# arp timeout 5000
```

## Related Commands

Command	Description
<b>arp</b>	Adds a static ARP entry.
<b>arp-inspection</b>	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
<b>show arp statistics</b>	Shows ARP statistics.
<b>show running-config arp timeout</b>	Shows the current configuration of the ARP timeout.

# arp-inspection

To enable ARP inspection for transparent firewall mode, use the **arp-inspection** command in global configuration mode. To disable ARP inspection, use the **no** form of this command. ARP inspection checks all ARP packets against static ARP entries (see the **arp** command) and blocks mismatched packets. This feature prevents ARP spoofing.

**arp-inspection** *interface\_name* **enable** [**flood** | **no-flood**]

**no arp-inspection** *interface\_name* **enable**

## Syntax Description

<b>enable</b>	Enables ARP inspection.
<b>flood</b>	(Default) Specifies that packets that do not match any element of a static ARP entry are flooded out all interfaces except the originating interface. If there is a mismatch between the MAC address, the IP address, or the interface, then the security appliance drops the packet.  <b>Note</b> The management-specific interface, if present, never floods packets even if this parameter is set to flood.
<i>interface_name</i>	The interface on which you want to enable ARP inspection.
<b>no-flood</b>	(Optional) Specifies that packets that do not exactly match a static ARP entry are dropped.

## Defaults

By default, ARP inspection is disabled on all interfaces; all ARP packets are allowed through the security appliance. When you enable ARP inspection, the default is to flood non-matching ARP packets.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	—	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Configure static ARP entries using the **arp** command before you enable ARP inspection.

When you enable ARP inspection, the security appliance compares the MAC address, IP address, and source interface in all ARP packets to static entries in the ARP table, and takes the following actions:

- If the IP address, MAC address, and source interface match an ARP entry, the packet is passed through.

- If there is a mismatch between the MAC address, the IP address, or the interface, then the security appliance drops the packet.
- If the ARP packet does not match any entries in the static ARP table, then you can set the security appliance to either forward the packet out all interfaces (flood), or to drop the packet.



**Note** The dedicated management interface, if present, never floods packets even if this parameter is set to flood.

ARP inspection prevents malicious users from impersonating other hosts or routers (known as ARP spoofing). ARP spoofing can enable a “man-in-the-middle” attack. For example, a host sends an ARP request to the gateway router; the gateway router responds with the gateway router MAC address. The attacker, however, sends another ARP response to the host with the attacker MAC address instead of the router MAC address. The attacker can now intercept all the host traffic before forwarding it on to the router.

ARP inspection ensures that an attacker cannot send an ARP response with the attacker MAC address, so long as the correct MAC address and the associated IP address are in the static ARP table.



**Note**

In transparent firewall mode, dynamic ARP entries are used for traffic to and from the security appliance, such as management traffic.

### Examples

The following example enables ARP inspection on the outside interface and sets the security appliance to drop any ARP packets that do not match the static ARP entry:

```
hostname(config)# arp outside 209.165.200.225 0009.7cbe.2100
hostname(config)# arp-inspection outside enable no-flood
```

### Related Commands

Command	Description
<b>arp</b>	Adds a static ARP entry.
<b>clear configure arp-inspection</b>	Clears the ARP inspection configuration.
<b>firewall transparent</b>	Sets the firewall mode to transparent.
<b>show arp statistics</b>	Shows ARP statistics.
<b>show running-config arp</b>	Shows the current configuration of the ARP timeout.

# asdm disconnect

To terminate an active ASDM session, use the **asdm disconnect** command in privileged EXEC mode.

**asdm disconnect** *session*

## Syntax Description

<i>session</i>	The session ID of the active ASDM session to be terminated. You can display the session IDs of all active ASDM sessions using the <b>show asdm sessions</b> command.
----------------	--

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was changed from the <b>pdm disconnect</b> command to the <b>asdm disconnect</b> command.

## Usage Guidelines

Use the **show asdm sessions** command to display a list of active ASDM sessions and their associated session IDs. Use the **asdm disconnect** command to terminate a specific session.

When you terminate an ASDM session, any remaining active ASDM sessions keep their associated session ID. For example, if there are three active ASDM sessions with the session IDs of 0, 1, and 2, and you terminate session 1, the remaining active ASDM sessions keep the session IDs 0 and 2. The next new ASDM session in this example would be assigned a session ID of 1, and any new sessions after that would begin with the session ID 3.

## Examples

The following example terminates an ASDM session with a session ID of 0. The **show asdm sessions** commands display the active ASDM sessions before and after the **asdm disconnect** command is entered.

```
hostname# show asdm sessions
0 192.168.1.1
1 192.168.1.2
hostname# asdm disconnect 0
hostname# show asdm sessions
1 192.168.1.2
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show asdm sessions</b>	Displays a list of active ASDM sessions and their associated session ID.

# asdm disconnect log\_session

To terminate an active ASDM logging session, use the **asdm disconnect log\_session** command in privileged EXEC mode.

**asdm disconnect log\_session** *session*

## Syntax Description

*session* The session ID of the active ASDM logging session to be terminated. You can display the session IDs of all active ASDM sessions using the **show asdm log\_sessions** command.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the **show asdm log\_sessions** command to display a list of active ASDM logging sessions and their associated session IDs. Use the **asdm disconnect log\_session** command to terminate a specific logging session.

Each active ASDM session has one or more associated ASDM logging sessions. ASDM uses the logging session to retrieve syslog messages from the security appliance. Terminating a log session may have an adverse effect on the active ASDM session. To terminate an unwanted ASDM session, use the **asdm disconnect** command.



### Note

Because each ASDM session has at least one ASDM logging session, the output for the **show asdm sessions** and **show asdm log\_sessions** may appear to be the same.

When you terminate an ASDM logging session, any remaining active ASDM logging sessions keep their associated session ID. For example, if there are three active ASDM logging sessions with the session IDs of 0, 1, and 2, and you terminate session 1, the remaining active ASDM logging sessions keep the session IDs 0 and 2. The next new ASDM logging session in this example would be assigned a session ID of 1, and any new logging sessions after that would begin with the session ID 3.

---

**Examples**

The following example terminates an ASDM session with a session ID of 0. The **show asdm log\_sessions** commands display the active ASDM sessions before and after the **asdm disconnect log\_sessions** command is entered.

```
hostname# show asdm log_sessions

0 192.168.1.1
1 192.168.1.2
hostname# asdm disconnect 0
hostname# show asdm log_sessions

1 192.168.1.2
```

---

**Related Commands**

Command	Description
<b>show asdm log_sessions</b>	Displays a list of active ASDM logging sessions and their associated session ID.

---

# asdm group



## Caution

Do not manually configure this command. ASDM adds **asdm group** commands to the running configuration and uses them for internal purposes. This command is included in the documentation for informational purposes only.

```
asdm group real_grp_name real_if_name
```

```
asdm group ref_grp_name ref_if_name reference real_grp_name
```

## Syntax Description

<i>real_grp_name</i>	The name of an ASDM object group.
<i>real_if_name</i>	The name of the interface to which the specified object group is associated.
<i>ref_grp_name</i>	The name of an object group that contains translated IP addresses of the object group specified by the <i>real_grp_name</i> argument.
<i>ref_if_name</i>	The name of the interface from which the destination IP address of inbound traffic is translated.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was changed from the <b>pdm group</b> command to the <b>asdm group</b> command.

## Usage Guidelines

Do not manually configure or remove this command.

# asdm history enable

To enable ASDM history tracking, use the **asdm history enable** command in global configuration mode. To disable ASDM history tracking, use the **no** form of this command.

**asdm history enable**

**no asdm history enable**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was changed from the <b>pdm history enable</b> command to the <b>asdm history enable</b> command.

**Usage Guidelines** The information obtained by enabling ASDM history tracking is stored in the ASDM history buffer. You can view this information using the **show asdm history** command. The history information is used by ASDM for device monitoring.

**Examples** The following example enables ASDM history tracking:

```
hostname(config)# asdm history enable
hostname(config)#
```

Related Commands	Command	Description
	<b>show asdm history</b>	Displays the contents of the ASDM history buffer.

# asdm image

To specify the location of the ASDM software image in Flash memory, use the **asdm image** command in global configuration mode. To remove the image location, use the **no** form of this command.

**asdm image** *url*

**no asdm image** [*url*]

## Syntax Description

<i>url</i>	<p>Sets the location of the ASDM image in Flash memory. See the following URL syntax:</p> <ul style="list-style-type: none"> <li>• <b>disk0:</b>/<i>[path]/filename</i> For the ASA 5500 series adaptive security appliance, this URL indicates the internal Flash memory. You can also use <b>flash</b> instead of <b>disk0</b>; they are aliased.</li> <li>• <b>disk1:</b>/<i>[path]/filename</i> For the ASA 5500 series adaptive security appliance, this URL indicates the external Flash memory card.</li> <li>• <b>flash:</b>/<i>[path]/filename</i> This URL indicates the internal Flash memory.</li> </ul>
------------	--

## Defaults

If you do not include this command in your startup configuration, the security appliance uses the first ASDM image it finds at startup. It searches the root directory of internal Flash memory and then external Flash memory. The security appliance then inserts the **asdm image** command into the running configuration if it discovered an image.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You can store more than one ASDM software image in Flash memory. If you enter the **asdm image** command to specify a new ASDM software image while there are active ASDM sessions, the new command does not disrupt the active sessions; active ASDM sessions continue to use the ASDM

software image they started with. New ASDM sessions use the new software image. If you enter the **no asdm image** command, the command is removed from the configuration. However, you can still access ASDM from the security appliance using the last-configured image location.

If you do not include this command in your startup configuration, the security appliance uses the first ASDM image it finds at startup. It searches the root directory of internal Flash memory and then external Flash memory. The security appliance then inserts the **asdm image** command into the running configuration if it discovered an image. Be sure to save the running configuration to the startup configuration using the **write memory** command. If you do not save the **asdm image** command to the startup configuration, every time you reboot, the security appliance searches for an ASDM image and inserts the **asdm image** command into your running configuration. If you are using Auto Update, the automatic addition of this command at startup causes the configuration on the security appliance not to match the configuration on the Auto Update Server. This mismatch causes the security appliance to download the configuration from the Auto Update Server. To avoid unnecessary Auto Update activity, save the **asdm image** command to the startup configuration.

---

**Examples**

The following example sets the ASDM image to asdm.bin:

```
hostname(config)# asdm image flash:/asdm.bin
hostname(config)#
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show asdm image</b>	Displays the current ASDM image file.
<b>boot</b>	Sets the software image and startup configuration files.

# asdm location



## Caution

Do not manually configure this command. ASDM adds **asdm location** commands to the running configuration and uses them for internal communication. This command is included in the documentation for informational purposes only.

**asdm location** *ip\_addr netmask if\_name*

**asdm location** *ipv6\_addr/prefix if\_name*

## Syntax Description

<i>ip_addr</i>	IP address used internally by ASDM to define the network topology.
<i>netmask</i>	The subnet mask for <i>ip_addr</i> .
<i>if_name</i>	The name of the interface through which ASDM is accessed.
<i>ipv6_addr/prefix</i>	The IPv6 address and prefix used internally by ASDM to define the network topology.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was changed from the <b>pdm location</b> command to the <b>asdm location</b> command.

## Usage Guidelines

Do not manually configure or remove this command.



# asr-group

To specify an asymmetrical routing interface group ID, use the **asr-group** command in interface configuration mode. To remove the ID, use the **no** form of this command.

```
asr-group group_id
```

```
no asr-group group_id
```

## Syntax Description

*group\_id* The asymmetric routing group ID. Valid values are from 1 to 32.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	•	—	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

When Active/Active failover is enabled, you may encounter situations where load balancing causes the return traffic for outbound connections to be routed through an active context on the peer unit, where the context for the outbound connection is in the standby group.

The **asr-group** command causes incoming packets to be re-classified with the interface of the same asr-group if a flow with the incoming interface cannot be found. If re-classification finds a flow with another interface, and the associated context is in standby state, then the packet is forwarded to the active unit for processing.

Stateful Failover must be enabled for this command to take effect.

You can view ASR statistics using the **show interface detail** command. These statistics include the number of ASR packets sent, received, and dropped on an interface.

## Examples

The following example assigns the selected interfaces to the asymmetric routing group 1.

Context ctx1 configuration:

```
hostname/ctx1(config)# interface e2
hostname/ctx1(config-if)# nameif outside
hostname/ctx1(config-if)# ip address 192.168.1.11 255.255.255.0 standby 192.168.1.21
hostname/ctx1(config-if)# asr-group 1
```

Context ctx2 configuration:

```
hostname/ctx2(config)# interface e3
hostname/ctx2(config-if)# nameif outside
hostname/ctx2(config-if)# ip address 192.168.1.31 255.255.255.0 standby 192.168.1.41
hostname/ctx2(config-if)# asr-group 1
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>interface</b>	Enters interface configuration mode.
<b>show interface</b>	Displays interface statistics.

---

# auth-cookie-name

To specify the name of an authentication cookie, use the **auth-cookie-name** command in aaa-server-host configuration mode. This is an SSO with HTTP Forms command.

## auth-cookie-name

### Syntax Description

<i>name</i>	The name of the authentication cookie. The maximum name size is 128 characters.
-------------	---

### Defaults

There is no default value or behavior.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Aaa-server-host configuration	•	—	•	—	—

### Command History

Release	Modification
7.1(1)	This command was introduced.

### Usage Guidelines

The WebVPN server of the security appliance uses an HTTP POST request to submit a single sign-on authentication request to an SSO server. If authentication succeeds, the authenticating web server passes back an authentication cookie to the client browser. The client browser then authenticates to other Web servers in the SSO domain by presenting the authentication cookie. The **auth-cookie-name** command configures name of the authentication cookie to be used for SSO by the security appliance.

A typical authentication cookie format is Set-Cookie: <cookie name>=<cookie value> [<cookie attributes>]. In the following authentication cookie example, SMSESSION is the name that would be configured with the **auth-cookie-name** command:

```
Set-Cookie:
SMSESSION=yN4Yp5hHVNDgs4FT8dn7+Rwev41hsE49XlKc+ltwie0gqnjbhkTkUnR8XWP3hvDH6PZPbHIHtWLDKtA8
ngDB/lbYTjIxrDx8WPWwaG3CxVa3ad0xHFR8yjD55GevK3ZF4ujgU1lh06fta0dSS0SepWvnsCb7IFxCw+MGiw0o8
8uHa2t4l+SillqfJvcpuXfiIA006D/dapWriHjNoi41lJOgCst33wEhxFxcWy2UWxs4EZSjsI5GyBnefSQTPVfma5d
c/emWor9vWr0HnTQaHP5rg5dTNqunkDEdMIHfbebP3F90cZejVzihM6igiS6P/CEJAjE;Domain=.example.com;Pa
th=/
```

The following example, entered in aaa-server-host configuration mode, specifies the authentication cookie name of SMSESSION for the authentication cookie received from a web server named example.com:

```
hostname(config)# aaa-server testgrp1 host example.com
hostname(config-aaa-server-host)# auth-cookie-name SMSESSION
hostname(config-aaa-server-host)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>action-uri</b>	Specifies a web server URI to receive a username and password for single sign-on authentication.
<b>hidden-parameter</b>	Creates hidden parameters for exchange with the authenticating web server.
<b>password-parameter</b>	Specifies the name of the HTTP POST request parameter in which a user password must be submitted for SSO authentication.
<b>start-url</b>	Specifies the URL at which to retrieve a pre-login cookie.
<b>user-parameter</b>	Specifies that a username parameter must be submitted as part of the HTTP POST request used for SSO authentication.

# authentication

To configure authentication methods for WebVPN or e-mail proxy, use the **authentication** command. For WebVPN, use this command in webvpn mode. For e-mail proxies (IMAP4S, POP3S, SMTPS), use this command in the applicable e-mail proxy mode. To restore the default, AAA, use the **no** form of this command.

The security appliance authenticates users to verify their identity.

```
authentication {aaa | certificate | mailhost | piggyback }
```

```
no authentication
```

## Syntax Description

<b>aaa</b>	Provides a username and password that the security appliance checks against a previously configured AAA server.
<b>certificate</b>	Provides a certificate during SSL negotiation.
<b>mailhost</b>	Authenticates via the remote mail server. You can configure mailhost for SMTPS only. For the IMAP4S and POP3S, mailhost authentication is mandatory, and not displayed as a configurable option.
<b>piggyback</b>	Requires that an HTTPS WebVPN session already exists. Piggyback authentication is available for e-mail proxies only.

## Defaults

The following table shows the default authentication method for WebVPN and e-mail proxies:

Protocol	Default Authentication Method
WebVPN	AAA
IMAP4S	Mailhost (required)
POP3S	Mailhost (required)
SMTPS	AAA

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn	•	—	•	—	—
Imap4s	•	—	•	—	—
Pop3s	•	—	•	—	—
SMTPS	•	—	•	—	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was deprecated in webvpn mode and moved to tunnel-group webvpn-attributes mode.

**Usage Guidelines**

In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group webvpn-attributes mode.

For WebVPN, you can require both AAA and certificate authentication, in which case users must provide both a certificate *and* a username and password.

For e-mail proxy authentication, you can require more than one authentication method.

Specifying the command again overwrites the current configuration.

**Examples**

The following example shows how to require that WebVPN users provide certificates for authentication:

```
hostname(config)# webvpn
hostname(config-webvpn)# authentication certificate
```

## authentication (crypto isakmp policy configuration mode)

To specify an authentication method within an IKE policy, use the **authentication** command in crypto isakmp policy configuration mode. IKE policies define a set of parameters for IKE negotiation. To remove the ISAKMP authentication method, use the related **clear configure** command.

**authentication** { **crack** | **pre-share** | **rsa-sig** }

Syntax Description		
<b>crack</b>	Specifies IKE Challenge/Response for Authenticated Cryptographic Keys (CRACK) as the authentication method.	
<b>pre-share</b>	Specifies preshared keys as the authentication method.	
<i>priority</i>	Uniquely identifies the IKE policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.	
<b>rsa-sig</b>	Specifies RSA signatures as the authentication method.  RSA signatures provide non-repudiation for the IKE negotiation. This basically means you can prove to a third party whether you had an IKE negotiation with the peer.	

### Defaults

The default ISAKMP policy authentication is **pre-share**.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto isakmp policy configuration	•	—	•	—	—

### Command History

Release	Modification
7.0(1)(1)	The <b>isakmp policy authentication</b> command was preexisting.
7.2.(1)	The <b>authentication</b> command replaces the <b>isakmp policy authentication</b> command.

### Usage Guidelines

If you specify RSA signatures, you must configure the security appliance and its peer to obtain certificates from a certification authority (CA). If you specify preshared keys, you must separately configure these preshared keys within the security appliance and its peer.

**Examples**

The following example, entered in global configuration mode, shows how to use the **authentication** command. This example sets the authentication method of RSA Signatures to be used for the IKE policy with the priority number of 40.

```
hostname(config)# crypto isakmp policy 40
hostname(config-isakmp-policy)# authentication rsa-sig
```

**Related Commands**

Command	Description
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config crypto isakmp</b>	Displays all the active configuration.



# authentication (tunnel-group webvpn configuration mode)

To specify the authentication method for a tunnel-group, use the **authentication** command in tunnel-group webvpn configuration mode.

**authentication aaa** [certificate]

**authentication certificate** [aaa]

## Syntax Description

<b>aaa</b>	Specifies the use of a username and password for authentication for this tunnel group.
<b>certificate</b>	Specifies the use of a digital certificate for authentication.

## Defaults

The default authentication method is AAA.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group webvpn configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was moved from webvpn configuration mode to tunnel-group webvpn-attributes configuration mode.

## Usage Guidelines

At least one authentication method is required. You can specify AAA authentication, certificate authentication, or both. You can specify these in either order. If you omit the command, the security appliance uses the default authentication method, AAA.

WebVPN certificate authentication requires that HTTPS user certificates be required for the respective interfaces. That is, for this selection to be operational, before you can specify certificate authentication, you must have specified the interface in an **http authentication-certificate** command.

In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group webvpn-attributes mode.

## Examples

The following example shows an **authentication** command in tunnel-group-webvpn configuration mode that specifies that the members of the tunnel group “test” must use a username and password for authentication:

```
hostname(config)# tunnel-group test type webvpn
```

## ■ authentication (tunnel-group webvpn configuration mode)

```
hostname(config)# tunnel-group test webvpn-attributes
hostname(config-webvpn)# authentication aaa
```

The following example shows an **authentication** command that specifies that the members of the tunnel group “docs” must use a digital certificate for authentication:

```
hostname(config)# tunnel-group docs type webvpn
hostname(config)# tunnel-group docs webvpn-attributes
hostname(config-webvpn)# authentication certificate
```

---

**Related Commands**

Command	Description
<b>clear configure tunnel-group</b>	Removes all tunnel-group configuration.
<b>show running-config tunnel-group</b>	Displays the current tunnel-group configuration.
<b>tunnel-group webvpn-attributes</b>	Enters the config-webvpn mode for configuring WebVPN tunnel-group attributes.

# authentication eap-proxy

For L2TP over IPsec connections, to enable EAP and permit the security appliance to proxy the PPP authentication process to an external RADIUS authentication server, use the **authentication eap-proxy** command in tunnel-group ppp-attributes configuration mode.

To return the command to its default setting (permit CHAP and MS-CHAP), use the **no** form of this command.

**authentication eap-proxy**

**no authentication eap-proxy**

## Syntax Description

This command has no keywords or arguments.

## Defaults

By default, EAP is not a permitted authentication protocol.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group PPP attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

You can apply this attribute only to the L2TP/IPsec tunnel-group type.

## Examples

The following example entered in config-ppp configuration mode, permits EAP for PPP connections for the tunnel group named pppremotegrp:

```
hostname(config)# tunnel-group pppremotegrp type IPsec/IPsec
hostname(config)# tunnel-group pppremotegrp ppp-attributes
hostname(config-ppp)# authentication eap
hostname(config-ppp)#
```

## Related Commands

Command	Description
<b>clear configure tunnel-group</b>	Clears all configured tunnel groups.

Command	Description
<b>show running-config tunnel-group</b>	Shows the indicated certificate map entry.
<b>tunnel-group-map default-group</b>	Associates the certificate map entries created using the <b>crypto ca certificate map</b> command with tunnel groups.

# authentication ms-chap-v1

For L2TP over IPSec connections, to enable Microsoft CHAP, Version 1 authentication for PPP, use the **authentication ms-chap-v1** command in tunnel-group ppp-attributes configuration mode. This protocol is similar to CHAP but more secure in that the server stores and compares only encrypted passwords rather than cleartext passwords as in CHAP. This protocol also generates a key for data encryption by MPPE.

To return the command to its default setting (permit CHAP and MS-CHAP), use the **no** form of this command.

To disable Microsoft CHAP, Version 1, use the **no** form of this command.

**authentication ms-chap-v1**

**no authentication ms-chap-v1**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group ppp-attributes	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** You can apply this attribute only to the L2TP/IPSec tunnel-group type.

Related Commands	Command	Description
	<b>clear configure tunnel-group</b>	Clears the entire tunnel-group database or just the specified tunnel-group.
	<b>show running-config tunnel-group</b>	Displays the currently running tunnel-group configuration for a specified tunnel group or for all tunnel groups.
	<b>tunnel-group</b>	Creates and manages the database of connection-specific records for IPSec and WebVPN tunnels.

# authentication ms-chap-v2

For L2TP over IPSec connections, to enable Microsoft CHAP, Version 2 authentication for PPP, use the **authentication ms-chap-v1** command in tunnel-group ppp-attributes configuration mode. This protocol is similar to CHAP but more secure in that the server stores and compares only encrypted passwords rather than cleartext passwords as in CHAP. This protocol also generates a key for data encryption by MPPE.

To return the command to its default setting (permit CHAP and MS-CHAP), use the **no** form of this command.

To disable Microsoft CHAP, Version 2, use the **no** form of this command.

**authentication ms-chap-v1**

**no authentication ms-chap-v1**

## Syntax Description

This command has no arguments or keywords.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group ppp-attributes	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

You can apply this attribute only to the L2TP/IPSec tunnel-group type.

## Related Commands

Command	Description
<b>clear configure tunnel-group</b>	Clears the entire tunnel-group database or just the specified tunnel-group.
<b>show running-config tunnel-group</b>	Displays the currently running tunnel-group configuration for a specified tunnel group or for all tunnel groups.
<b>tunnel-group</b>	Creates and manages the database of connection-specific records for IPSec and WebVPN tunnels.

# authentication pap

For L2TP over IPsec connections, to permit PAP authentication for PPP, use the **authentication pap** command in tunnel-group ppp-attributes configuration mode. This protocol passes cleartext username and password during authentication and is not secure.

To return the command to its default setting (permit CHAP and MS-CHAP), use the **no** form of this command.

**authentication pap**

**no authentication pap**

**Syntax Description** This command has no keywords or arguments.

**Defaults** By default, PAP is not a permitted authentication protocol.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group PPP attributes configuration	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** You can apply this attribute only to the L2TP/IPsec tunnel-group type.

**Examples** The following example entered in config-ppp configuration mode, permits PAP for PPP connections for a tunnel group named pppremotegrps:

```
hostname(config)# tunnel-group pppremotegrp type IPsec/IPsec
hostname(config)# tunnel-group pppremotegrp ppp-attributes
hostname(config-ppp)# authentication pap
hostname(config-ppp)#
```

Related Commands	Command	Description
	<b>clear configure tunnel-group</b>	Clears all configured tunnel groups.

Command	Description
<b>show running-config tunnel-group</b>	Shows the indicated certificate map entry.
<b>tunnel-group-map default-group</b>	Associates the certificate map entries created using the <b>crypto ca certificate map</b> command with tunnel groups.



# authentication-port

To specify the port number used for RADIUS authentication for this host, use the **authentication-port** command in AAA-server host mode. To remove the authentication port specification, use the **no** form of this command. This command specifies the destination TCP/UDP port number of the remote RADIUS server hosts to which you want to assign authentication functions:

**authentication-port** *port*

**no authentication-port**

## Syntax Description

*port* A port number, in the range 1-65535, for RADIUS authentication.

## Defaults

By default, the device listens for RADIUS on port 1645 (in compliance with RFC 2058). If the port is not specified, the RADIUS authentication default port number (1645) is used.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
AAA-server host	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	Semantic change to the command to support the specification of server ports on a per-host basis for server groups that contain RADIUS servers.

## Usage Guidelines

If your RADIUS authentication server uses a port other than 1645, you must configure the security appliance for the appropriate port prior to starting the RADIUS service with the **aaa-server** command. This command is valid only for server groups that are configured for RADIUS.

## Examples

The following example configures a RADIUS AAA server named “svrgrp1” on host “1.2.3.4”, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures authentication port 1650.

```
hostname(config)# aaa-server svrgrp1 protocol radius
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry-interval 7
hostname(config-aaa-server-host)# authentication-port 1650
hostname(config-aaa-server-host)# exit
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa authentication</b>	Enables or disables LOCAL, TACACS+, or RADIUS user authentication, on a server designated by the <b>aaa-server</b> command, or ASDM user authentication.
<b>aaa-server host</b>	Enters AAA server host configuration mode, so you can configure AAA server parameters that are host-specific.
<b>clear configure aaa-server</b>	Removes all AAA command statements from the configuration.
<b>show running-config aaa-server</b>	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol

# authentication-server-group

To specify the aaa-server group to use for user authentication, use the **authentication-server-group** command in tunnel-group general-attributes mode. To return this attribute to the default, use the **no** form of this command.

**authentication-server-group** [(*interface\_name*)] *server\_group* [LOCAL | NONE]

**no authentication-server-group** [(*interface\_name*)] *server\_group*

## Syntax Description

<i>interface_name</i>	(Optional) Specifies the interface where the IPsec tunnel terminates.
<b>LOCAL</b>	(Optional) Specifies authentication to be performed against the local user database if all of the servers in the server group have been deactivated due to communication failures. If the server group name is either <b>LOCAL</b> or <b>NONE</b> , do not use the <b>LOCAL</b> keyword here.
<b>NONE</b>	(Optional) Specifies the server group name as none. To indicate that authentication is not required, use the <b>NONE</b> keyword as the server group name.
<i>server_group</i>	Specifies the name of a previously configured aaa-server group.

## Defaults

The default setting for the server-group in this command is **LOCAL**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Tunnel-group general-attributes	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was deprecated in webvpn configuration mode and moved to tunnel-group general-attributes mode.

## Usage Guidelines

Use the **aaa-server** command to configure authentication servers. Maximum length of the server-group name is 16 characters.

Before entering this command, you must have previously configured the aaa-server group.

In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group general-attributes mode. You can now apply this attribute to all tunnel-group types.

**Examples**

The following example entered in config-general configuration mode, configures an authentication server group named “aaa-server456” for an IPsec remote-access tunnel group named “remotegrp”:

```
hostname(config)# tunnel-group remotegrp type ipsec-ra
hostname(config)# tunnel-group remotegrp general-attributes
hostname(config-tunnel-general)# authentication-server-group aaa-server456
hostname(config-tunnel-general)#
```

**Related Commands**

Command	Description
<b>aaa-server host</b>	Configures AAA-server parameters.
<b>clear configure tunnel-group</b>	Clears all configured tunnel groups.
<b>show running-config tunnel-group</b>	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.

## authentication-server-group (webvpn)

To specify the set of authentication servers to use with WebVPN or one of the e-mail proxies, use the **authentication-server-group** command. For WebVPN, use this command in webvpn mode. For e-mail proxies (IMAP4S, POP3S, or SMTPS), use this command in the applicable e-mail proxy mode. To remove authentication servers from the configuration, use the **no** form of this command.

The security appliance authenticates users to verify their identity.

**authentication-server-group** *group\_tag*

**no authentication-server-group**

### Syntax Description

<i>group_tag</i>	Identifies the previously configured authentication server or group of servers. Use the <b>aaa-server</b> command to configure authentication servers. Maximum length of the group tag is 16 characters.
------------------	--

### Defaults

No authentication servers are configured by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn	•	—	•	—	—
Imap4s	•	—	•	—	—
Pop3s	•	—	•	—	—
SMTPS	•	—	•	—	—

### Command History

Release	Modification
7.0(1)(1)	This command was introduced.
7.1(1)	This command was deprecated and moved to tunnel-group general-attributes configuration mode.

### Usage Guidelines

If you configure AAA authentication, you must configure this attribute as well. Otherwise, authentication always fails.

In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group general-attributes mode.

**Examples**

The following example shows how to configure WebVPN services to use the set of authentication servers named “WEBVPNAUTH”:

```
hostname(config)# webvpn
hostname(config-webvpn)# authentication-server-group WEBVPNAUTH
```

The next example shows how to configure IMAP4S e-mail proxy to use the set of authentication servers named “IMAP4SSVRS”:

```
hostname(config)# imap4s
hostname(config-imap4s)# authentication-server-group IMAP4SSVRS
```

**Related Commands**

Command	Description
<b>aaa-server host</b>	Configures authentication, authorization, and accounting servers.

# authorization-dn-attributes (tunnel-group general-attributes mode)

To specify what part of the subject DN field to use as the username for authorization, use the **authorization-dn-attributes** command in tunnel-group general-attributes configuration mode. To return these attributes to their default values, use the **no** form of this command.

```
authorization-dn-attributes {primary-attr [secondary-attr] | use-entire-name}
```

```
no authorization-dn-attributes
```

## Syntax Description

<i>primary-attr</i>	Specifies the attribute to use in deriving a name for an authorization query from a certificate.
<i>secondary-attr</i>	(Optional) Specifies an additional attribute to use in deriving a name for an authorization query from a certificate, if the primary attribute does not exist.
<b>use-entire-name</b>	Specifies that the security appliance should use the entire subject DN (RFC1779) to derive the name.

## Defaults

The default value for the primary attribute is CN (Common Name).

The default value for the secondary attribute is OU (Organization Unit).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group general-attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was deprecated in webvpn configuration mode and moved to tunnel-group general-attributes configuration mode.

## Usage Guidelines

In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group general-attributes mode.

Primary and secondary attributes include the following:

Attribute	Definition
CN	Common Name: the name of a person, system, or other entity
OU	Organizational Unit: the subgroup within the organization (O)

Attribute	Definition
O	Organization: the name of the company, institution, agency, association or other entity
L	Locality: the city or town where the organization is located
SP	State/Province: the state or province where the organization is located
C	Country: the two-letter country abbreviation. These codes conform to ISO 3166 country abbreviations.
EA	E-mail address
T	Title
N	Name
GN	Given Name
SN	Surname
I	Initials
GENQ	Generational Qualifier
DNQ	Domain Name Qualifier
UID	User Identifier
UPN	User Principal Name
SER	Serial Number
use-entire-name	Use entire DN name

### Examples

The following example entered in config-ipsec configuration mode, creates a remote access tunnel group (ipsec\_ra) named “remotegrp”, specifies IPsec group attributes and defines the Common Name to be used as the username for authorization:

```
hostname(config)# tunnel-group remotegrp type ipsec_ra
hostname(config)# tunnel-group remotegrp general-attributes
hostname(config-tunnel-general)# authorization-dn-attributes CN
hostname(config-tunnel-general)#
```

### Related Commands

Command	Description
<b>clear configure tunnel-group</b>	Clears all configured tunnel groups.
<b>show running-config tunnel-group</b>	Shows the indicated certificate map entry.
<b>tunnel-group general-attributes</b>	Specifies the general attributes for the named tunnel-group.



## authorization-dn-attributes (webvpn)

To specify the primary and secondary subject DN fields to use as the username for authorization, use the **authorization-dn-attributes** command.

For WebVPN, use this command in webvpn mode. For e-mail proxies (IMAP4S, POP3S, or SMTPS), use this command in the applicable e-mail proxy mode. To remove the attribute from the configuration and restore default values, use the **no** form of this command.

```
authorization-dn-attributes {primary-attr} [secondary-attr] | use-entire-name}
```

```
no authorization-dn-attributes
```

### Syntax Description

<i>primary-attr</i>	Specifies the attribute to use to derive a name for an authorization query from a digital certificate.
<i>secondary-attr</i>	(Optional) Specifies an additional attribute to use with the primary attribute to derive a name for an authorization query from a digital certificate.
<b>use-entire-name</b>	Specifies that the security appliance should use the entire subject DN to derive a name for an authorization query from a digital certificate.

### Defaults

The default value for the primary attribute is CN (Common Name).

The default value for the secondary attribute is OU (Organization Unit).

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn	•	—	•	—	—
Imap4s	•	—	•	—	—
Pop3s	•	—	•	—	—
SMTPS	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was deprecated in webvpn configuration mode and moved to tunnel-group general-attributes configuration mode.

**Usage Guidelines**

The following table explains the DN fields.

DN Field	Explanation
C	Country
CN	Common Name
DNQ	DN Qualifier
EA	E-mail Address
GENQ	Generational Qualifier
GN	Given Name
I	Initials
L	Locality
N	Name
O	Organization
OU	Organizational Unit
SER	Serial Number
SN	Surname
SP	State/Province
T	Title
UID	User ID
UPN	User Principal Name
use-entire-name	Use entire DN name

In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group general-attributes mode.

**Examples**

The following example shows how to specify that WebVPN users must authorize according to their e-mail address (primary attribute) and organization unit (secondary attribute):

```
hostname(config)# webvpn
hostname(config-webvpn)# authorization-dn-attributes EA OU
```

**Related Commands**

Command	Description
<b>authorization-required</b>	Requires users to authorize successfully prior to connecting.

# authorization-required (tunnel-group general-attributes mode)

To require users to authorize successfully to connect, use the **authorization-required** command in tunnel-group general-attributes configuration mode. To return this attribute to the default, use the **no** form of this command.

**authorization-required**

**no authorization-required**

## Defaults

The default setting of this command is disabled.

## Syntax Description

This command has no arguments or keywords.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group general-attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was deprecated in webvpn configuration mode and moved to tunnel-group general-attributes configuration mode.

## Usage Guidelines

In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group general-attributes mode.

## Examples

The following example, entered in global configuration mode, requires authorization based on the complete DN for users connecting through a remote-access tunnel group named “remotegrp”. The first command configures the tunnel-group type as ipsec\_ra (IPSec remote access) for the remote group named “remotegrp”. The second command enters tunnel-group general-attributes configuration mode for the specified tunnel group, and the last command specifies that authorization is required for the named tunnel group:

```
hostname(config)# tunnel-group remotegrp type ipsec_ra
hostname(config)# tunnel-group remotegrp general-attributes
hostname(config-tunnel-general)# authorization-required
hostname(config-tunnel-general)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>clear configure tunnel-group</b>	Clears all configured tunnel groups.
<b>show running-config tunnel-group</b>	Shows the indicated certificate map entry.
<b>tunnel-group general-attributes</b>	Specifies the general attributes for the named tunnel-group.

## authorization-required (webvpn)

To require WebVPN users or e-mail proxy users to authorize successfully prior to connecting, use the **authorization-required** command. For WebVPN, use this command in webvpn mode. For e-mail proxies (IMAP4S, POP3S, or SMTPS), use this command in the applicable e-mail proxy mode. To remove the attribute from the configuration, use the **no** version of this command.

**authorization-required**

**no authorization-required**

**Syntax Description** This command has no arguments or keywords.

**Defaults** Authorization-required is disabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn	•	—	•	—	—
Imap4s	•	—	•	—	—
Pop3s	•	—	•	—	—
SMTPS	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.
	7.1(1)	This command was deprecated in webvpn configuration mode and moved to tunnel-group general-attributes configuration mode.

**Usage Guidelines** In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group general-attributes mode.

**Examples** The following example shows how to require authorization for WebVPN users:

```
hostname(config)# webvpn
hostname(config-webvpn)# authorization-required
```

**Related Commands**

Command	Description
<b>authorization-dn-attributes (webvpn)</b>	Specifies the primary and secondary subject DN fields to use as the username for authorization

# authorization-server-group (tunnel-group general-attributes mode)

To specify the aaa-server group, and optionally the interface, for user authorization, use the **authorization-server-group** command in tunnel-group general-attributes mode. To return this command to the default, use the **no** form of this command.

```
authorization-server-group [(interface-id)] server_group
```

```
no authorization-server-group [(interface-id)]
```

## Syntax Description

<i>(interface-id)</i>	(Optional) Specifies the interface on which to perform authorization. The parentheses are required if you specify this parameter.
<i>server_group</i>	Specifies the name of the previously configured authorization server or group of servers.

## Defaults

The default setting for this command is **no authorization-server-group**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group general-attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was deprecated in webvpn configuration mode and moved to tunnel-group general-attributes configuration mode. This command is now available for all tunnel-group attribute types.
7.2(2)	This command was enhanced to allow per-interface authorization for IPSec connections.

## Usage Guidelines

When VPN Authorization is defined as LOCAL, the attributes configured in the default group policy DfltGrpPolicy are enforced.

Use the **aaa-server** command to configure authorization server groups and the **aaa-server-host** command to add servers to a previously configured aaa server group.

**Examples**

The following example entered in config-general configuration mode, configures an authorization server group named “aaa-server78” for an IPSec remote-access tunnel group named “remotegrp”:

```
hostname(config)# tunnel-group remotegrp type ipsec-ra
hostname(config)# tunnel-group remotegrp general-attributes
hostname(config-tunnel-general)# authorization-server-group aaa-server78
hostname(config-tunnel-general)#
```

**Related Commands**

Command	Description
<b>aaa-server host</b>	Configures AAA-server parameters.
<b>clear configure tunnel-group</b>	Clears all configured tunnel groups.
<b>show running-config tunnel-group</b>	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
<b>tunnel-group general-attributes</b>	Specifies the general attributes for the named tunnel-group.



## authorization-server-group (webvpn)

To specify the set of authorization servers to use with WebVPN or one of the e-mail proxies, use the **authorization-server-group** command. For WebVPN, use this command in webvpn mode. For e-mail proxies (IMAP4S, POP3S, SMTPS), use this command in the applicable e-mail proxy mode. To remove authorization servers from the configuration, use the **no** form of this command.

The security appliance uses authorization to verify the level of access to network resources that users are permitted.

**authorization-server-group** *group\_tag*

**no authorization-server-group**

### Syntax Description

<i>group_tag</i>	Identifies the previously configured authorization server or group of servers. Use the <b>aaa-server</b> command to configure authorization servers.
------------------	--

### Defaults

No authorization servers are configured by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn	•	—	•	—	—
Imap4s	•	—	•	—	—
Pop3s	•	—	•	—	—
SMTPS	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was deprecated in webvpn configuration mode and moved to tunnel-group general-attributes configuration mode.

### Usage Guidelines

In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group general-attributes mode.

### Examples

The following example shows how to configure WebVPN services to use the set of authorization servers named “WebVPNpermit”:

```
hostname(config)# webvpn
hostname(config-webvpn)# authorization-server-group WebVPNpermit
```

The following example shows how to configure POP3S e-mail proxy to use the set of authorization servers named “POP3Spermit”:

```
hostname(config)# pop3s
hostname(config-pop3s)# authorization-server-group POP3Spermit
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa-server host</b>	Configures authentication, authorization, and accounting servers.

---

# auth-prompt

To specify or change the AAA challenge text for through-the-security appliance user sessions, use the **auth-prompt** command in global configuration mode. To remove the authentication challenge text, use the **no** form of this command.

**auth-prompt prompt** [**prompt** | **accept** | **reject**] *string*

**no auth-prompt prompt** [ **prompt** | **accept** | **reject**]

## Syntax Description

<b>accept</b>	If a user authentication via Telnet is accepted, display the prompt <i>string</i> .
<b>prompt</b>	The AAA challenge prompt string follows this keyword.
<b>reject</b>	If a user authentication via Telnet is rejected, display the prompt <i>string</i> .
<i>string</i>	A string of up to 235 alphanumeric characters or 31 words, limited by whichever maximum is first reached. Special characters, spaces, and punctuation characters are permitted. Entering a question mark or pressing the <b>Enter</b> key ends the string. (The question mark appears in the string.)

## Defaults

If you do not specify an authentication prompt:

- FTP users see `FTP authentication`,
- HTTP users see `HTTP Authentication`
- Telnet users see no challenge text.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	Minor semantic changes.

## Usage Guidelines

The **auth-prompt** command lets you specify the AAA challenge text for HTTP, FTP, and Telnet access through the security appliance when requiring user authentication from TACACS+ or RADIUS servers. This text is primarily for cosmetic purposes and displays above the username and password prompts that users view when logging in.

If the user authentication occurs from Telnet, you can use the **accept** and **reject** options to display different status prompts to indicate that the authentication attempt is accepted or rejected by the AAA server.

If the AAA server authenticates the user, the security appliance displays the **auth-prompt accept** text, if specified, to the user; otherwise it displays the **reject** text, if specified. Authentication of HTTP and FTP sessions displays only the challenge text at the prompt. The **accept** and **reject** text are not displayed.

**Note**

Microsoft Internet Explorer displays up to 37 characters in an authentication prompt. Netscape Navigator displays up to 120 characters, and Telnet and FTP display up to 235 characters in an authentication prompt.

**Examples**

The following example sets the authentication prompt to the string “Please enter your username and password.”:

```
hostname(config)# auth-prompt prompt Please enter your username and password
```

After this string is added to the configuration, users see the following:

```
Please enter your username and password
User Name:
Password:
```

For Telnet users, you can also provide separate messages to display when the security appliance accepts or rejects the authentication attempt; for example:

```
hostname(config)# auth-prompt reject Authentication failed. Try again.
hostname(config)# auth-prompt accept Authentication succeeded.
```

The following example sets the authentication prompt for a successful authentication to the string, “You’re OK.”

```
hostname(config)# auth-prompt accept You’re OK.
```

After successfully authenticating, the user sees the following message:

```
You’re OK.
```

**Related Commands**

Command	Description
<b>clear configure auth-prompt</b>	Removes the previously specified authentication prompt challenge text and reverts to the default value, if any.
<b>show running-config auth-prompt</b>	Displays the current authentication prompt challenge text.

# auto-signon

To configure the security appliance to automatically pass WebVPN user login credentials on to internal servers, use the **auto-signon** command in any of three modes: webvpn configuration, webvpn group configuration, or webvpn username configuration mode. The authentication method can be NTLM (NTLMv1), HTTP Basic authentication, or both. To disable auto-signon to a particular server, use the **no** form of the command with the original **ip**, **uri**, and **auth-type** arguments. To disable auto-signon to all servers, use the **no** form of the command without arguments.

```
auto-signon allow {ip ip-address ip-mask | uri resource-mask} auth-type {basic | ntlm | all}
```

```
no auto-signon [allow {ip ip-address ip-mask | uri resource-mask} auth-type {basic | ntlm | all}]
```

## Syntax Description

<b>all</b>	Specifies both the NTLM and HTTP Basic authentication methods.
<b>allow</b>	Enables authentication to a particular server.
<b>auth-type</b>	Enables selection of an authentication method.
<b>basic</b>	Specifies the HTTP Basic authentication method.
<b>ip</b>	Specifies that an IP address and mask identifies the servers to be authenticated to.
<i>ip-address</i>	In conjunction with <i>ip-mask</i> , identifies the IP address range of the servers to be authenticated to.
<i>ip-mask</i>	In conjunction with <i>ip-address</i> , identifies the IP address range of the servers to be authenticated to.
<b>ntlm</b>	Specifies the NTLMv1 authentication method.
<i>resource-mask</i>	Identifies the URI mask of the servers to be authenticated to.
<b>uri</b>	Specifies that a URI mask identifies the servers to be authenticated to.

## Defaults

By default, this feature is disabled for all servers.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Webvpn configuration	•	—	•	—	—
Webvpn group policy configuration	•	—	•	—	—
Webvpn username configuration	•	—	•	—	—

## Command History

Release	Modification
7.1.1	This command was introduced.

**Usage Guidelines**

The **auto-signon** command is a single sign-on method for WebVPN users. It passes the WebVPN login credentials (username and password) to internal servers for authentication using NTLM authentication, HTTP Basic authentication, or both. Multiple auto-signon commands can be entered and are processed according to the input order (early commands take precedence).

You can use the auto-signon feature in three modes: webvpn configuration, webvpn group configuration, or webvpn username configuration mode. The typical precedence behavior applies where username supersedes group, and group supersedes global. The mode you choose will depend upon the desired scope of authentication:

Mode	Scope
Webvpn configuration	All WebVPN users globally
Webvpn group configuration	A subset of WebVPN users defined by a group policy
Webvpn username configuration	An individual WebVPN user

**Examples**

The following example commands configure auto-signon for all WebVPN users, using NTLM authentication, to servers with IP addresses ranging from 10.1.1.0 to 10.1.1.255:

```
hostname(config)# webvpn
hostname(config-webvpn)# auto-signon allow ip 10.1.1.0 255.255.255.0 auth-type ntlm
```

The following example commands configure auto-signon for all WebVPN users, using HTTP Basic authentication, to servers defined by the URI mask https://\*.example.com/\*:

```
hostname(config)# webvpn
hostname(config-webvpn)# auto-signon allow uri https://*.example.com/* auth-type basic
```

The following example commands configure auto-signon for WebVPN users ExamplePolicy group policy, using either HTTP Basic or NTLM authentication, to servers defined by the URI mask https://\*.example.com/\*:

```
hostname(config)# group-policy ExamplePolicy attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# auto-signon allow uri https://*.example.com/* auth-type all
```

The following example commands configure auto-signon for a user named Anyuser, using HTTP Basic authentication, to servers with IP addresses ranging from 10.1.1.0 to 10.1.1.255:

```
hostname(config)# username Anyuser attributes
hostname(config-username)# webvpn
hostname(config-username-webvpn)# auto-signon allow ip 10.1.1.0 255.255.255.0 auth-type basic
```

**Related Commands**

Command	Description
<b>show running-config webvpn</b>	Displays auto-signon assignments of the running configuration.
<b>auto-signon</b>	

## auto-summary

To reenable RIP route summarization, use the **auto-summary** command in router configuration mode. To disable RIP route summarization, use the **no** form of this command.

**auto-summary**

**no auto-summary**

### Syntax Description

This command has no arguments or keywords.

### Defaults

Route summarization is enabled for RIP Version 1 and RIP Version 2.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

Route summarization reduces the amount of routing information in the routing tables.

RIP Version 1 always uses automatic summarization. You cannot disable automatic summarization for RIP Version 1.

If you are using RIP Version 2, you can turn off automatic summarization by specifying the **no auto-summary** command. Disable automatic summarization if you must perform routing between disconnected subnets. When automatic summarization is disabled, subnets are advertised.

Only the **no** form of this command appears in the running configuration.

### Examples

The following example disables RIP route summarization:

```
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# version 2
hostname(config-router)# no auto-summary
```

### Related Commands

Command	Description
<b>clear configure rip</b>	Clears all RIP commands from the running configuration.
<b>router rip</b>	Enables the RIP routing process and enters RIP router configuration mode.
<b>show running-config rip</b>	Displays the RIP commands in the running configuration.



## auto-update device-id

To configure the security appliance device ID for use with an Auto Update Server, use the **auto-update device-id** command in global configuration mode. To remove the device ID, use the **no** form of this command.

```
auto-update device-id [hardware-serial | hostname | ipaddress [if_name] |
mac-address [if_name] | string text]
```

```
no auto-update device-id [hardware-serial | hostname | ipaddress [if_name] |
mac-address [if_name] | string text]
```

### Syntax Description

<b>hardware-serial</b>	Uses the hardware serial number of the security appliance to uniquely identify the device.
<b>hostname</b>	Uses the hostname of the security appliance to uniquely identify the device.
<b>ipaddress</b> [ <i>if_name</i> ]	Uses the IP address of the security appliance to uniquely identify the security appliance. By default, the security appliance uses the interface used to communicate with the Auto Update Server. If you want to use a different IP address, specify the <i>if_name</i> .
<b>mac-address</b> [ <i>if_name</i> ]	Uses the MAC address of the security appliance to uniquely identify the security appliance. By default, the security appliance uses the MAC address of the interface used to communicate with the Auto Update Server. If you want to use a different MAC address, specify the <i>if_name</i> .
<b>string text</b>	Specifies the text string to uniquely identify the device to the Auto Update Server.

### Command History

Release	Modification
7.0	This command was introduced.

### Defaults

The default ID is the hostname.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

### Examples

The following example sets the device ID to the serial number:

```
hostname(config)# auto-update device-id hardware-serial
```

**Related Commands**

---

<b>auto-update poll-period</b>	Sets how often the security appliance checks for updates from an Auto Update Server.
<b>auto-update server</b>	Identifies the Auto Update Server.
<b>auto-update timeout</b>	Stops traffic from passing through the security appliance if the Auto Update Server is not contacted within the timeout period.
<b>clear configure auto-update</b>	Clears the Auto Update Server configuration
<b>show running-config auto-update</b>	Shows the Auto Update Server configuration.

---

# auto-update poll-at

To schedule a specific time for the security appliance to poll the Auto Update server, use the **auto-update poll-at** command from global configuration mode:

```
auto-update poll-at days-of-the-week time [randomize minutes] [retry_count [retry_period]]
```

```
no auto-update poll-at days-of-the-week time [randomize minutes] [retry_count [retry_period]]
```

## Syntax Description

<i>days-of-the-week</i>	Any single day or combination of days: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday and Sunday. Other possible values are daily (Monday through Sunday), weekdays (Monday through Friday) and weekend (Saturday and Sunday).
<i>time</i>	Specifies the time in the format HH:MM at which to start the poll. For example, 8:00 is 8:00 AM and 20:00 is 8:00 PM
<b>randomize</b> <i>minutes</i>	Specifies the period to randomize the poll time following the specified start time. from from 1 to 1439 minutes
<i>retry_count</i>	Specifies how many times to try reconnecting to the Auto Update Server if the first attempt fails. The default is 0.
<i>retry_period</i>	Specifies how long to wait between connection attempts. The default is 5 minutes. The range is from 1 and 35791 minutes.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **auto-update poll-at** command specifies a time at which to poll for updates. If you enable the **randomize** option, the polling occurs at a random time within the range of the first *time* and the specified number of minutes. The **auto-update poll-at** and **auto-update poll-period** commands are mutually exclusive. Only one of them can be configured.

**Examples**

In the following example the security appliance polls the Auto Update server every Friday and Saturday night at a random time between 10:00 p.m. and 11:00 p.m. If the security appliance is unable to contact the server, it tries 2 more times every 10 minutes.

```
hostname(config)# auto-update poll-at Friday Saturday 22:00 randomize 60 2 10
hostname(config)# auto-update server http://192.168.1.114/aus/autoupdate.asp
```

**Related Commands**

<b>auto-update device-id</b>	Sets the security appliance device ID for use with an Auto Update Server.
<b>auto-update poll-period</b>	Sets how often the security appliance checks for updates from an Auto Update Server.
<b>auto-update timeout</b>	Stops traffic from passing through the security appliance if the Auto Update Server is not contacted within the timeout period.
<b>clear configure auto-update</b>	Clears the Auto Update Server configuration.
<b>management-access</b>	Enables access to an internal management interface on the security appliance.
<b>show running-config auto-update</b>	Shows the Auto Update Server configuration.

# auto-update poll-period

To configure how often the security appliance checks for updates from an Auto Update Server, use the **auto-update poll-period** command in global configuration mode. To reset the parameters to the defaults, use the **no** form of this command.

**auto-update poll-period** *poll\_period* [*retry\_count* [*retry\_period*]]

**no auto-update poll-period** *poll\_period* [*retry\_count* [*retry\_period*]]

## Syntax Description

<i>poll_period</i>	Specifies how often, in minutes, to poll an Auto Update Server, between 1 and 35791. The default is 720 minutes (12 hours).
<i>retry_count</i>	Specifies how many times to try reconnecting to the Auto Update Server if the first attempt fails. The default is 0.
<i>retry_period</i>	Specifies how long to wait, in minutes, between connection attempts, between 1 and 35791. The default is 5 minutes.

## Defaults

The default poll period is 720 minutes (12 hours).

The default number of times to try reconnecting to the Auto Update Server if the first attempt fails is 0.

The default period to wait between connection attempts is 5 minutes.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.0	This command was introduced.

## Usage Guidelines

The **auto-update poll-at** and **auto-update poll-period** commands are mutually exclusive. Only one of them can be configured.

## Examples

The following example sets the poll period to 360 minutes, the retries to 1, and the retry period to 3 minutes:

```
hostname(config)# auto-update poll-period 360 1 3
```

**Related Commands**

---

<b>auto-update device-id</b>	Sets the security appliance device ID for use with an Auto Update Server.
<b>auto-update server</b>	Identifies the Auto Update Server.
<b>auto-update timeout</b>	Stops traffic from passing through the security appliance if the Auto Update Server is not contacted within the timeout period.
<b>clear configure auto-update</b>	Clears the Auto Update Server configuration
<b>show running-config auto-update</b>	Shows the Auto Update Server configuration.

---

## auto-update server

To identify the Auto Update Server, use the **auto-update server** command in global configuration mode. To remove the server, use the **no** form of this command. The security appliance periodically contacts the Auto Update Server for any configuration, operating system, and ASDM updates.

```
auto-update server url [source interface] [verify-certificate]
```

```
no auto-update server url [source interface] [verify-certificate]
```

### Syntax Description

<i>url</i>	Specifies the location of the Auto Update Server using the following syntax: <b>http[s]:[[user:password@]location [:port ]] / pathname</b>
<i>interface</i>	Specifies which interface to use when sending requests to the auto-update server.
<i>verify_certificate</i>	Verifies the certificate returned by the Auto Update Server.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

### Command History

Release	Modification
7.0	This command was introduced.
7.2(1)	The command was modified to add support for multiple servers.

### Usage Guidelines

You can configure multiple servers to work with auto update. When checking for updates, a connection is made to the first server, but if that fails then the next server will be contacted. This will continue until all the servers have been tried. If all of them fail to connect, then a retry starting with the first server is attempted if the auto-update poll-period is configured to retry the connection.

For auto update functionality to work properly, you must use the **boot system configuration** command and ensure it specifies a valid boot image. Likewise, the **asdm image** command must be used with auto update to update the ASDM software image.

If the interface specified in the **source interface** argument is the same interface specified with the **management-access** command, requests to the auto-update server will be sent over the VPN tunnel.

### Examples

The following example sets the Auto Update Server URL and specifies the interface outside:

```
hostname(config)# auto-update server http://10.1.1.1:1741/ source outside
```

**Related Commands**

---

<b>auto-update device-id</b>	Sets the security appliance device ID for use with an Auto Update Server.
<b>auto-update poll-period</b>	Sets how often the security appliance checks for updates from an Auto Update Server.
<b>auto-update timeout</b>	Stops traffic from passing through the security appliance if the Auto Update Server is not contacted within the timeout period.
<b>clear configure auto-update</b>	Clears the Auto Update Server configuration.
<b>management-access</b>	Enables access to an internal management interface on the security appliance.
<b>show running-config auto-update</b>	Shows the Auto Update Server configuration.

---



# auto-update timeout

To set a timeout period in which to contact the Auto Update Server, use the **auto-update timeout** command in global configuration mode. If the Auto Update Server has not been contacted for the timeout period, the security appliance stops all traffic through the security appliance. Set a timeout to ensure that the security appliance has the most recent image and configuration. To remove the timeout, use the **no** form of this command.

**auto-update timeout** *period*

**no auto-update timeout** [*period*]

## Syntax Description

<i>period</i>	Specifies the timeout period in minutes between 1 and 35791. The default is 0, which means there is no timeout. You cannot set the timeout to 0; use the <b>no</b> form of the command to reset it to 0.
---------------	--

## Defaults

The default timeout is 0, which sets the security appliance to never time out.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.0	This command was introduced.

## Usage Guidelines

A timeout condition is reported with system log message 201008.

## Examples

The following example sets the timeout to 24 hours:

```
hostname(config)# auto-update timeout 1440
```

## Related Commands

<b>auto-update device-id</b>	Sets the security appliance device ID for use with an Auto Update Server.
<b>auto-update poll-period</b>	Sets how often the security appliance checks for updates from an Auto Update Server.
<b>auto-update server</b>	Identifies the Auto Update Server.

---

**clear configure auto-update** Clears the Auto Update Server configuration

---

**show running-config auto-update** Shows the Auto Update Server configuration.

---







## **backup interface through browse-networks Commands**

---

# backup interface

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **backup interface** command in interface configuration mode to identify a VLAN interface as a backup interface, for example, to an ISP. This command can be entered in the interface configuration mode for a VLAN interface only. This command blocks all through traffic on the identified backup interface unless the default route through the primary interface goes down. To restore normal operation, use the **no backup interface** command.

**backup interface** *vlan number*

**no backup interface** *vlan number*

## Syntax Description

*vlan number* Specifies the VLAN ID of the backup interface.

## Defaults

By default, the **backup interface** command is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.
7.2(2)	The Security Plus license no longer limits the number of VLAN interfaces to 3 for normal traffic, 1 for a backup interface, and 1 for failover; you can now configure up to 20 interfaces without any other limitations. Therefore the <b>backup interface</b> command is not required to enable more than 3 interfaces.

## Usage Guidelines

When you configure Easy VPN with the **backup interface** command, if the backup interface becomes the primary, then the security appliance moves the VPN rules to the new primary interface. See the **show interface** command to view the state of the backup interface.

Be sure to configure default routes on both the primary and backup interfaces so that the backup interface can be used when the primary fails. For example, you can configure two default routes: one for the primary interface with a lower administrative distance, and one for the backup interface with a higher distance. See the **dhcp client route distance** command to override the administrative distance for default routes acquired from a DHCP server. To configure dual ISP support, see the **sla monitor** and **track rtr** commands for more information.

You cannot configure a backup interface when the **management-only** command is already configured on the interface.

**Examples**

The following example configures four VLAN interfaces. The backup-isp interface only allows through traffic when the primary interface is down. The **route** commands create default routes for the primary and backup interfaces, with the backup route at a lower administrative distance.

```

hostname(config)# interface vlan 100
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# backup interface vlan 400
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 200
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.2.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 300
hostname(config-if)# nameif dmz
hostname(config-if)# security-level 50
hostname(config-if)# ip address 10.3.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 400
hostname(config-if)# nameif backup-isp
hostname(config-if)# security-level 50
hostname(config-if)# ip address 10.1.2.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/2
hostname(config-if)# switchport access vlan 300
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/3
hostname(config-if)# switchport access vlan 400
hostname(config-if)# no shutdown

hostname(config-if)# route outside 0 0 10.1.1.2 1
hostname(config)# route backup-isp 0 0 10.1.2.2 2

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>forward interface</b>	Restricts an interface from initiating traffic to another interface.
<b>interface vlan</b>	Creates a VLAN interface and enters interface configuration mode.
<b>dhcp client route distance</b>	Overrides the administrative distance for default routes acquired from a DHCP server.
<b>sla monitor</b>	Creates an SLA monitoring operation for static route tracking.
<b>track rtr</b>	Tracks the state of an SLA monitoring operation.

# backup-servers

To configure backup servers, use the **backup-servers** command in group-policy configuration mode. To remove a backup server, use the **no** form of this command. To remove the backup-servers attribute from the running configuration, use the **no** form of this command without arguments. This enables inheritance of a value for backup-servers from another group policy.

IPSec backup servers let a VPN client connect to the central site when the primary security appliance is unavailable. When you configure backup servers, the security appliance pushes the server list to the client as the IPSec tunnel is established.

```
backup-servers {server1 server2. . . server10 | clear-client-config | keep-client-config}
```

```
no backup-servers [server1 server2. . . server10 | clear-client-config | keep-client-config]
```

## Syntax Description

<b>clear-client-config</b>	Specifies that the client uses no backup servers. The security appliance pushes a null server list.
<b>keep-client-config</b>	Specifies that the security appliance sends no backup server information to the client. The client uses its own backup server list, if configured.
<b>server1 server 2.... server10</b>	Provides a space delimited, priority-ordered list of servers for the VPN client to use when the primary security appliance is unavailable. Identifies servers by IP address or hostname. The list can be 500 characters long, but can contain only 10 entries.

## Defaults

Backup servers do not exist until you configure them, either on the client or on the primary security appliance.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Group-policy	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Configure backup servers either on the client or on the primary security appliance. If you configure backup servers on the security appliance, it pushes the backup server policy to the clients in the group, replacing the backup server list on the client if one is configured.



**Note**

If you are using hostnames, it is wise to have backup DNS and WINS servers on a separate network from that of the primary DNS and WINS servers. Otherwise, if clients behind a hardware client obtain DNS and WINS information from the hardware client via DHCP, and the connection to the primary server is lost, and the backup servers have different DNS and WINS information, clients cannot be updated until the DHCP lease expires. Further, if you use hostnames and the DNS server is unavailable, significant delays can occur.

**Examples**

The following example shows how to configure backup servers with IP addresses 10.10.10.1 and 192.168.10.14, for the group policy named “FirstGroup”:

```
hostname(config)# group-policy FirstGroup attributes  
hostname(config-group-policy)# backup-servers 10.10.10.1 192.168.10.14
```

# banner

To configure the session, login, or message-of-the-day banner, use the **banner** command in global configuration mode. The **no banner** command removes all lines from the banner keyword specified (**exec**, **login**, or **motd**).

```
banner {exec | login | motd text}
```

```
[no] banner {exec | login | motd [text]}
```

## Syntax Description

<b>exec</b>	Configures the system to display a banner before displaying the enable prompt.
<b>login</b>	Configures the system to display a banner before the password login prompt when accessing the security appliance using Telnet.
<b>motd</b>	Configures the system to display a message-of-the-day banner when you first connect.
<i>text</i>	Line of message text to display.

## Defaults

The default is no login, session, or message-of-the-day banner.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **banner** command configures a banner to display for the keyword specified. The *text* string consists of all characters following the first white space (space) until the end of the line (carriage return or line feed [LF]). Spaces in the text are preserved. However, you cannot enter tabs through the CLI.

Subsequent *text* entries are added to the end of an existing banner unless the banner is cleared first.



### Note

The tokens \$(domain) and \$(hostname) are replaced with the hostname and domain name of the security appliance. When you enter a \$(system) token in a context configuration, the context uses the banner configured in the system configuration.

Multiple lines in a banner are handled by entering a new banner command for each line that you wish to add. Each line is then appended to the end of the existing banner. There is no limit on the length of a banner other than RAM and Flash limits.

When accessing the security appliance through Telnet or SSH, the session closes if there is not enough system memory available to process the banner messages or if a TCP write error occurs. Only the `exec` and `motd` banners support access to the security appliance through SSH. The login banner does not support SSH.

To replace a banner, use the `no banner` command before adding the new lines.

Use the `no banner {exec | login | motd}` command to remove all the lines for the banner keyword specified.

The `no banner` command does not selectively delete text strings, so any *text* that you enter at the end of the `no banner` command is ignored.

### Examples

This example shows how to configure the `exec`, `login`, and `motd` banners:

```
hostname(config)# banner motd Think on These Things
hostname(config)# banner exec Enter your password carefully
hostname(config)# banner login Enter your password to log in
hostname(config)# show running-config banner
exec:
Enter your password carefully

login:
Enter your password to log in

motd:
Think on These Things
```

This example shows how to add a second line to the `motd` banner:

```
hostname(config)# banner motd and Enjoy Today
hostname(config)# show running-config banner motd
Think on These Things and Enjoy Today
```

### Related Commands

Command	Description
<code>clear configure banner</code>	Removes all banners.
<code>show running-config banner</code>	Displays all banners.

# banner (group-policy)

To display a banner, or welcome text, on remote clients when they connect, use the **banner** command in group-policy configuration mode. To delete a banner, use the **no** form of this command. This option allows inheritance of a banner from another group policy. To prevent inheriting a banner, use the **banner none** command.

```
banner { value banner_string | none }
```

```
no banner
```



## Note

If you configure multiple banners under a VPN group-policy, and you delete any one of the banners, all banners will be deleted.

## Syntax Description

<b>none</b>	Sets a banner with a null value, thereby disallowing a banner. Prevents inheriting a banner from a default or specified group policy.
<b>value</b> <i>banner_string</i>	Constitutes the banner text. Maximum string size is 500 characters. Use the “\n” sequence to insert a carriage return.

## Defaults

There is no default banner.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Group-policy	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example shows how to create a banner for the group policy named “FirstGroup”:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# banner value Welcome to Cisco Systems 7.0(1).
```

# blocks

To allocate additional memory to block diagnostics (displayed by the **show blocks** command), use the **blocks** command in privileged EXEC mode. To set the value back to the default, use the **no** form of this command. The amount of memory allocated will be at most 150 KB but never more than 50% of free memory. Optionally, you can specify the memory size manually.

**blocks queue history enable** [*memory\_size*]

**no blocks queue history enable** [*memory\_size*]

## Syntax Description

<i>memory_size</i>	(Optional) Sets the memory size for block diagnostics in Bytes, instead of applying the dynamic value. If this value is greater than free memory, an error message displays and the value is not accepted. If this value is greater than 50% of free memory, a warning message displays, but the value is accepted.
--------------------	---

## Defaults

The default memory assigned to track block diagnostics is 2136 Bytes.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

To view the currently allocated memory, enter the **show blocks queue history** command. If you reload the security appliance, the memory allocation returns to the default.

## Examples

The following example increases the memory size for block diagnostics:

```
hostname# blocks queue history enable
```

The following example increases the memory size to 3000 Bytes:

```
hostname# blocks queue history enable 3000
```

The following example attempts to increase the memory size to 3000 Bytes, but the value is more than free memory:

```
hostname# blocks queue history enable 3000
```

```
ERROR: memory size exceeds current free memory
```

The following example increases the memory size to 3000 Bytes, but the value is more than 50% of free memory:

```
hostname# blocks queue history enable 3000  
WARNING: memory size exceeds 50% of current free memory
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear blocks</b>	Clears the system buffer statistics.
<b>show blocks</b>	Shows the system buffer utilization.

# boot

To specify which system image the system uses at the next reload and which configuration file the system uses at startup, use the **boot** command in global configuration mode. Use the **no** form of this command to restore the default value.

```
boot {config | system} url
```

```
no boot {config | system} url
```

## Syntax Description

<b>config</b>	Specifies which configuration file to use when the system is loaded.
<b>system</b>	Specifies which system image file to use when the system is loaded.
<i>url</i>	<p>Sets the location of the image or configuration. In multiple context mode, all remote URLs must be accessible from the admin context. See the following URL syntax:</p> <ul style="list-style-type: none"> <li>• <b>disk0:</b><i>/[path]/filename</i> For the ASA 5500 series adaptive security appliance, this URL indicates the internal Flash memory. You can also use <b>flash</b> instead of <b>disk0</b>; they are aliased.</li> <li>• <b>disk1:</b><i>/[path]/filename</i> For the ASA 5500 series adaptive security appliance, this URL indicates the external Flash memory card.</li> <li>• <b>flash:</b><i>/[path]/filename</i> This URL indicates the internal Flash memory.</li> <li>• <b>tftp:</b><i>//[user[:password]@]server[:port]/[path]/filename[;int=interface_name]</i> Specify the interface name if you want to override the route to the server address.  This option is available for the <b>boot system</b> command for the ASA 5500 series adaptive security appliance only; the <b>boot config</b> command requires the startup configuration to be on the Flash memory.  Only one <b>boot system tftp:</b> command can be configured, and it must be the first one configured.</li> </ul>

## Defaults

If the **boot config** command is not specified, the startup-config will be saved to a hidden location, and used only with commands that utilize it, such as the **show startup-config** command and the **copy startup-config** command.

For the **boot system** command, there are no defaults. If you do not specify a location, the security appliance searches the internal Flash memory, and then the external Flash memory for the first valid image to boot. If no valid image is found, no system image will be loaded, and the security appliance will boot loop until ROMMON or Monitor mode is broken into.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

**Command History**

Release	Modification
7.0(1)(1)	This command was introduced.

**Usage Guidelines**

When you save this command to the startup configuration using the **write memory** command, you also save the settings to the BOOT and CONFIG\_FILE environment variables, which the security appliance uses to determine the startup configuration and software image to boot when it restarts.

You can enter up to four **boot system** command entries, to specify different images to boot from in order, and the security appliance will boot the first valid image it finds.

If you want to use a startup configuration file at the new location that is different from the current running configuration, then be sure to copy the startup configuration file to the new location after you save the running configuration. Otherwise, the running configuration will overwrite the new startup configuration when you save it.

**Tip**

The ASDM image file is specified by the **asdm image** command.

**Examples**

The following example specifies that at startup the security appliance should load a configuration file called configuration.txt:

```
hostname(config)# boot config disk0:/configuration.txt
```

**Related Commands**

Command	Description
<b>asdm image</b>	Specifies the ASDM software image.
<b>show bootvar</b>	Displays boot file and configuration environment variables.



# border style

To customize the border of the WebVPN Home page that is displayed to authenticated WebVPN users, use the **border style** command from webvpn customization mode:

**border style** *value*

[**no**] **border style** *value*

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

*value* The Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default style of the border is background-color:#669999;color:white.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.



### Note

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

The following example customizes the background color of the border to the RGB color #66FFFF, a shade of green:

```
F1-asa1(config)# webvpn
F1-asa1(config-webvpn)# customization cisco
F1-asa1(config-webvpn-custom)# border style background-color:66FFFF
```

**Related Commands**

Command	Description
<b>application-access</b>	Customizes the Application Access box of the WebVPN Home page.
<b>browse-networks</b>	Customizes the Browse Networks box of the WebVPN Home page.
<b>web-bookmarks</b>	Customizes the Web Bookmarks title or links on the WebVPN Home page.
<b>file-bookmarks</b>	Customizes the File Bookmarks title or links on the WebVPN Home page.

# browse-networks

To customize the Browse Networks box of the WebVPN Home page that is displayed to authenticated WebVPN users, use the **browse-networks** command from webvpn customization mode:

```
browse-networks { title | message | dropdown } { text | style } value
```

```
[no] browse-networks { title | message | dropdown } { text | style } value
```

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>title</b>	Specifies you are changing the title.
<b>message</b>	Specifies you are changing the message displayed under the title.
<b>dropdown</b>	Specifies you are changing the drop-down box.
<b>text</b>	Specifies you are changing the text.
<b>style</b>	Specifies you are changing the style.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default title text is “Browse Networks”.

The default title style is:

```
background-color:#99CCCC;color:black;font-weight:bold;text-transform:uppercase
```

The default message text is “Enter Network Path”.

The default message style is:

```
background-color:#99CCCC;color:maroon;font-size:smaller.
```

The default dropdown text is “File Folder Bookmarks”.

The default dropdown style is:

```
border:1px solid black;font-weight:bold;color:black;font-size:80%.
```

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

**Usage Guidelines**

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

The following example changes the title to “Browse Corporate Networks”, and the text within the style to blue:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# browse-networks title text Browse Corporate Networks
F1-asal(config-webvpn-custom)# browse-networks title style color:blue
```

**Related Commands**

Command	Description
<b>application-access</b>	Customizes the Application Access box of the WebVPN Home page.
<b>file-bookmarks</b>	Customizes the File Bookmarks title or links on the WebVPN Home page.
<b>web-applications</b>	Customizes the Web Application box of the WebVPN Home page.
<b>web-bookmarks</b>	Customizes the Web Bookmarks title or links on the WebVPN Home page.







## cache through clear compression Commands

---

# cache

To enter cache mode and set values for caching attributes, enter the **cache** command in webvpn mode. To remove all cache related commands from the configuration and reset them to default values, enter the **no** version of the command, also in webvpn mode.

**cache**

**no cache**

## Defaults

Enabled with default settings for each cache attribute.

## Command Modes

The following table shows the modes in which you enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn mode	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

Caching stores frequently reused objects in the system cache, which reduces the need to perform repeated rewriting and compressing of content. It reduces traffic between WebVPN and both the remote servers and end-user browsers, with the result that many applications run much more efficiently.

## Examples

The following example shows how to enter cache mode:

```
hostname(config)# webvpn
hostname(config-webvpn)# cache
hostname(config-webvpn-cache)#
```

## Related Commands

Command	Description
<b>cache-compressed</b>	Configures WebVPN cache compression.
<b>disable</b>	Disables caching.
<b>expiry-time</b>	Configures the expiration time for caching objects without revalidating them.
<b>lmfactor</b>	Sets a revalidation policy for caching objects that have only the last-modified timestamp.
<b>max-object-size</b>	Defines the maximum size of an object to cache.
<b>min-object-size</b>	Defines the minimum size of an object to cache.



# cache-compressed

To cache compressed objects for WebVPN sessions, use the **cache-compressed** command in webvpn mode. To disallow caching of compressed content, enter the **no** version of the command.

**cache-compressed enable**

**no cache-compressed**

## Syntax Description

**enable** Enables caching of compressed content over WebVPN sessions.

## Defaults

Caching of compressed content is enabled by default.

## Command Modes

The following table shows the modes in which you enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Cache mode	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

Caching stores frequently reused objects in the system cache. When caching of compressed content is enabled, the security appliance stores compressed objects. When you disable caching of compressed content, the security appliance stores objects prior to invoking the compression routine.

## Examples

The following example shows how to disable caching of compressed content, and how to reenale it.

```
hostname(config)# webvpn
hostname(config-webvpn)# cache
hostname(config-webvpn-cache)# no cache-compressed
hostname(config-webvpn-cache)# cache-compressed enable
```

## Related Commands

Command	Description
<b>cache</b>	Enters WebVPN Cache mode.
<b>disable</b>	Disables caching.
<b>expiry-time</b>	Configures the expiration time for caching objects without revalidating them.
<b>lmfactor</b>	Sets a revalidation policy for caching objects that have only the last-modified timestamp.

<b>Command</b>	<b>Description</b>
<b>max-object-size</b>	Defines the maximum size of an object to cache.
<b>min-object-size</b>	Defines the minimum size of an object to cache.

# cache-time

To specify in minutes how long to allow a CRL to remain in the cache before considering it stale, use the **cache-time** command in ca-crl configuration mode. To return to the default value, use the **no** form of this command.

**cache-time** *refresh-time*

**no cache-time**

## Syntax Description

*refresh-time* Specifies the number of minutes to allow a CRL to remain in the cache. The range is 1 - 1440 minutes. If the NextUpdate field is not present in the CRL, the CRL is not cached.

## Defaults

The default setting is 60 minutes.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
CRL configuration	•	•	•	•	•

## Command History

Release	Modification
7.0	This command was introduced.

## Examples

The following example enters ca-crl configuration mode, and specifies a cache time refresh value of 10 minutes for trustpoint central:

```
hostname(configure)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# cache-time 10
hostname(ca-crl)#
```

## Related Commands

Command	Description
<b>crl configure</b>	Enters crl configuration mode.
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.
<b>enforcenextupdate</b>	Specifies how to handle the NextUpdate CRL field in a certificate.

# call-agent

To specify a group of call agents, use the **call-agent** command in MGCP map configuration mode, which is accessible by using the **mgcp-map** command. To remove the configuration, use the **no** form of this command.

```
call-agent ip_address group_id
```

```
no call-agent ip_address group_id
```

## Syntax Description

<i>ip_address</i>	The IP address of the gateway.
<i>group_id</i>	The ID of the call agent group, from 0 to 2147483647.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the **call-agent** command to specify a group of call agents that can manage one or more gateways. The call agent group information is used to open connections for the call agents in the group (other than the one a gateway sends a command to) so that any of the call agents can send the response. Call agents with the same *group\_id* belong to the same group. A call agent may belong to more than one group. The *group\_id* option is a number from 0 to 4294967295. The *ip\_address* option specifies the IP address of the call agent.

## Examples

The following example allows call agents 10.10.11.5 and 10.10.11.6 to control gateway 10.10.10.115, and allows call agents 10.10.11.7 and 10.10.11.8 to control both gateways 10.10.10.116 and 10.10.10.117:

```
hostname(config)# mgcp-map mgcp_inbound
hostname(config-mgcp-map)# call-agent 10.10.11.5 101
hostname(config-mgcp-map)# call-agent 10.10.11.6 101
hostname(config-mgcp-map)# call-agent 10.10.11.7 102
hostname(config-mgcp-map)# call-agent 10.10.11.8 102
hostname(config-mgcp-map)# gateway 10.10.10.115 101
hostname(config-mgcp-map)# gateway 10.10.10.116 102
```

```
hostname(config-mgcp-map) # gateway 10.10.10.117 102
```

Related Commands	Commands	Description
	<b>debug mgcp</b>	Enables the display of debug information for MGCP.
	<b>mgcp-map</b>	Defines an MGCP map and enables MGCP map configuration mode.
	<b>show mgcp</b>	Displays MGCP configuration and session information.

# call-duration-limit

To configure the call duration for an H.323 call, use the **call-duration-limit** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

**call-duration-limit** *hh:mm:ss*

**no call-duration-limit** *hh:mm:ss*

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Parameters configuration	•	•	•	•	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Examples** The following example...

Related Commands	Command	Description
	<b>class</b>	Identifies a class map name in the policy map.
	<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
	<b>policy-map</b>	Creates a Layer 3/4 policy map.
	<b>show running-config policy-map</b>	Display all current policy map configurations.

# call-party-number

To enforce sending call party number during an H.323 call setup, use the **call-party-number** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

**call-party-number** *hh:mm:ss*

**no call-party-number** *hh:mm:ss*

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Parameters configuration	•	•	•	•	—

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Examples** The following example...

**Related Commands**

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# capture

To enable packet capture capabilities for packet sniffing and network fault isolation, use the **capture** command. To disable packet capture capabilities, use the **no** form of this command.

```
capture capture_name [type {asp-drop [drop-code] | raw-data | isakmp | webvpn user
webvpn-user [url url]}] [access-list access_list_name] [buffer buf_size] [ethernet-type type]
[interface interface_name] [packet-length bytes] [circular-buffer][trace trace_count]
```

```
no capture capture-name [access-list access_list_name] [circular-buffer]
[interface interface_name]
```

## Syntax Description

<b>access-list</b> <i>access_list_name</i>	(Optional) Captures traffic that matches an access list. In multiple context mode, this is only available within a context.
<b>asp-drop</b> <i>drop-code</i>	(Optional) Captures packets dropped by the accelerated security path. The <i>drop-code</i> specifies the type of traffic that is dropped by the accelerated security path. See the <b>show asp drop frame</b> command for a list of drop codes. If you do not enter the <i>drop-code</i> argument, then all dropped packets are captured.  You can enter this keyword with <b>packet-length</b> , <b>circular-buffer</b> , and <b>buffer</b> , but not with <b>interface</b> or <b>ethernet</b> .
<b>buffer</b> <i>buf_size</i>	(Optional) Defines the buffer size used to store the packet in bytes. Once the byte buffer is full, packet capture stops.
<i>capture_name</i>	Specifies the name of the packet capture. Use the same name on multiple <b>capture</b> statements to capture multiple types of traffic. When you view the capture configuration using the <b>show capture</b> command, all options are combined on one line.
<b>circular-buffer</b>	(Optional) Overwrites the buffer, starting from the beginning, when the buffer is full.
<b>ethernet-type</b> <i>type</i>	(Optional) Selects an Ethernet type to capture. The default is IP packets. An exception occurs with the 802.1Q or VLAN type. The 802.1Q tag is automatically skipped and the inner Ethernet type is used for matching.
<b>interface</b> <i>interface_name</i>	Sets the name of the interface on which to use packet capture. You must configure an interface for any packets to be captured. You can configure multiple interfaces using multiple <b>capture</b> commands with the same name. To capture packets on the dataplane of an ASA 5500 series adaptive security appliance, you can use the <b>interface</b> keyword with <b>asa_dataplane</b> as the name of the interface.
<b>isakmp</b>	(Optional) Captures ISAKMP traffic. This is not available in multiple context mode. The ISAKMP subsystem does not have access to the upper layer protocols. The capture is a pseudo capture, with the Physical, IP, and UDP layers combined together to satisfy a PCAP parser. The peer addresses are obtained from the SA exchange and are stored in the IP layer.
<b>packet-length</b> <i>bytes</i>	(Optional) Sets the maximum number of bytes of each packet to store in the capture buffer.
<b>raw-data</b>	(Optional) Captures inbound and outbound packets on one or more interfaces. This setting is the default.
<b>type</b>	(Optional) Lets you specify the type of data captured.



<b>url</b> <i>url</i>	(Optional) Specifies a URL prefix to match for data capture. Use the URL <code>http://server/path</code> to capture HTTP traffic to the server. Use <code>https://server/path</code> to capture HTTPS traffic to the server.
<b>user</b> <i>webvpn-user</i>	(Optional) Specifies a username for a WebVPN capture.
<b>webvpn</b>	(Optional) Captures WebVPN data for a specific WebVPN connection.
<b>trace</b> <i>trace_count</i>	(Optional) Captures packet trace information, and the number of packets to capture. This is used with an access list to insert trace packets into the data path to determine if the packet is processed as expected.

### Defaults

The defaults are as follows:

- The default **type** is **raw-data**.
- The default **buffer size** is 512 KB.
- The default Ethernet type is IP.
- The default **packet-length** is 68 bytes.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged mode	•	•	•	•	•

### Command History

Release	Modification
6.2(1)	This command was introduced.
7.0(1)	This command was modified to include several new keywords, most notably the <b>type asp-drop</b> , <b>type isakmp</b> , <b>type raw-data</b> , and <b>type webvpn</b> keywords.
7.2(1)	This command was modified to include the <b>trace</b> keyword.

### Usage Guidelines

Capturing packets is useful when troubleshooting connectivity problems or monitoring suspicious activity. You can create multiple captures. To view the packet capture, use the **show capture name** command. To save the capture to a file, use the **copy capture** command. Use the `https://security appliance-ip-address/capture/capture_name[/pcap]` command to see the packet capture information with a web browser. If you specify the **pcap** optional keyword, then a libpcap-format file is downloaded to the web browser and can be saved using the web browser. (A libcap file can be viewed with TCPDUMP or Ethereal.)

If you copy the buffer contents to a TFTP server in ASCII format, you will see only the headers, not the details and hexadecimal dump of the packets. To see the details and hexadecimal dump, you need to transfer the buffer in PCAP format and read it with TCPDUMP or Ethereal.

When you enable WebVPN capture, the security appliance creates a pair of matching files: *capture\_name\_ORIGINAL.000* and *capture\_name\_MANGLED.000*. For each subsequent capture, the security appliance generates additional matching pairs of files and increments the file extensions.

**Note**

Enabling WebVPN capture affects the performance of the security appliance. Be sure to disable the capture after you generate the capture files that you need for troubleshooting.

Enter the **no capture** command with either the **access-list** or **interface** optional keyword unless you want to clear the capture itself. Entering **no capture** without optional keywords deletes the capture. If the **access-list** optional keyword is specified, the access list is removed from the capture and the capture is preserved. If the **interface** keyword is specified, the capture is detached from the specified interface and the capture is preserved.

**Note**

The **capture** command is not saved to the configuration, and the **capture** command is not copied to the standby unit during failover.

**Examples**

To enable packet capture, enter the following:

```
hostname# capture captest interface inside
hostname# capture captest interface outside
```

On a web browser, the capture contents for a capture named “captest” can be viewed at the following location:

```
https://171.69.38.95/capture/captest/pcap
```

To download a libpcap file (used in web browsers such as Internet Explorer or Netscape Navigator) to a local machine, enter the following:

```
https://171.69.38.95/capture/http/pcap
```

This example shows that the traffic is captured from an outside host at 171.71.69.234 to an inside HTTP server:

```
hostname# access-list http permit tcp host 10.120.56.15 eq http host 171.71.69.234
hostname# access-list http permit tcp host 171.71.69.234 host 10.120.56.15 eq http
hostname# capture http access-list http packet-length 74 interface inside
```

This example shows how to capture ARP packets:

```
hostname# capture arp ethernet-type arp interface outside
```

This example creates a WebVPN capture designated *hr*, which is configured to capture HTTP traffic for user2 visiting website *wwwin.abcd.com/hr/people*:

```
hostname# capture hr type webvpn user user2 url http://wwwin.abcd.com/hr/people
WebVPN capture started.
  capture name    hr
  user name      user2
  url            /http/0/wwwin.abcd.com/hr/people
```

This example inserts five tracer packets into the data stream, where *access-list 101* defines traffic that matches TCP protocol FTP :

```
hostname# capture ftptrace interface outside access-list 101 trace 5
```

In the preceding case, use the **show capture ftptrace** command to view the traced packets and view information about packet processing in an easily readable manner.

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear capture</b>	Clears the capture buffer.
<b>copy capture</b>	Copies a capture file to a server.
<b>show capture</b>	Displays the capture configuration when no options are specified.

# cd

To change the current working directory to the one specified, use the **cd** command in privileged EXEC mode.

**cd** [**disk0:** | **disk1:** | **flash:**] [*path*]

## Syntax Description

<b>disk0:</b>	Specifies the internal Flash memory, followed by a colon.
<b>disk1:</b>	Specifies the removable, external Flash memory card, followed by a colon.
<b>flash:</b>	Specifies the internal Flash memory, followed by a colon. In the ASA 5500 series, the <b>flash</b> keyword is aliased to <b>disk0</b> .
<i>path</i>	(Optional) The absolute path of the directory to change to.

## Defaults

If you do not specify a directory, the directory is changed to the root directory.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

This example shows how to change to the “config” directory:

```
hostname# cd flash:/config/
```

## Related Commands

Command	Description
<b>pwd</b>	Displays the current working directory.

# certificate

To add the indicated certificate, use the **certificate** command in crypto ca certificate chain mode. When you use this command, the security appliance interprets the data included with it as the certificate in hexadecimal format. A **quit** string indicates the end of the certificate.

To delete the certificate, use the **no** form of the command.

```
certificate [ca | ra-encrypt | ra-sign | ra-general] certificate-serial-number
```

```
no certificate certificate-serial-number
```

## Syntax Description

<i>certificate-serial-number</i>	Specifies the serial number of the certificate in hexadecimal format ending with the word quit.
<b>ca</b>	Indicates that the certificate is a certificate authority (CA) issuing certificate.
<b>ra-encrypt</b>	Indicates that the certificate is a registration authority (RA) key encipherment certificate used in SCEP.
<b>ra-general</b>	Indicates that the certificate is a registration authority (RA) certificate used for digital signing and key encipherment in SCEP messaging.
<b>ra-sign</b>	Indicates that the certificate is an registration authority (RA) digital signature certificate used in SCEP messaging.

## Defaults

This command has no default values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Certificate chain configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

A certificate authority (CA) is an authority in a network that issues and manages security credentials and public key for message encryption. As part of a public key infrastructure, a CA checks with a registration authority (RA) to verify information provided by the requestor of a digital certificate. If the RA verifies the requestor's information, the CA can then issue a certificate.

**Examples**

This example enters ca trustpoint mode for a trustpoint named central, then enters crypto ca certificate chain mode for central, and adds a CA certificate with a serial number 29573D5FF010FE25B45:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# crypto ca certificate chain central
hostname(ca-cert-chain)# certificate ca 29573D5FF010FE25B45
 30820345 308202EF A0030201 02021029 572A3FF2 96EF854F D0D6732F E25B4530
 0D06092A 864886F7 0D010105 05003081 8F311630 1406092A 864886F7 0D010901
 16076140 622E636F 6D310B30 09060355 04061302 55533116 30140603 55040813
 0D6D6173 73616368 75736574 74733111 300F0603 55040713 08667261 6E6B6C69
 6E310E30 0C060355 040A1305 63697363 6F310F30 0D060355 040B1306 726F6F74
 6F75311C 301A0603 55040313 136D732D 726F6F74 2D736861 2D30362D 32303031
 301E170D 30313036 32363134 31313430 5A170D32 32303630 34313430 3133305A
 30818F31 16301406 092A8648 86F70D01 09011607 6140622E 636F6D31 0B300906
 03550406 13025553 31163014 06035504 08130D6D 61737361 63687573 65747473
 3111300F 06035504 07130866 72616E6B 6C696E31 0E300C06 0355040A 13056369
 73636F31 0F300D06 0355040B 1306726F 6F746F75 311C301A 06035504 0313136D
 732D726F 6F742D73 68612D30 362D3230 3031305C 300D0609 2A864886 F70D0101
 01050003 4B003048 024100AA 3EB9859B 8670A6FB 5E7D2223 5C11BCFE 48E6D3A8
 181643ED CF7E75EE E77D83DF 26E51876 97D8281E 9F58E4B0 353FDA41 29FC791B
 1E14219C 847D19F4 A51B7B02 03010001 A3820123 3082011F 300B0603 551D0F04
 04030201 C6300F06 03551D13 0101FF04 05300301 01FF301D 0603551D 0E041604
 14E0D412 3ACC96C2 FBF651F3 3F66C0CE A62AB63B 323081CD 0603551D 1F0481C5
 3081C230 3EA03CA0 3A86386C 6461703A 2F2F7732 6B616476 616E6365 64737276
 2F436572 74456E72 6F6C6C2F 6D732D72 6F6F742D 7368612D 30362D32 3030312E
 63726C30 3EA03CA0 3A863868 7474703A 2F2F7732 6B616476 616E6365 64737276
 2F436572 74456E72 6F6C6C2F 6D732D72 6F6F742D 7368612D 30362D32 3030312E
 63726C30 40A03EA0 3C863A66 696C653A 2F2F5C5C 77326B61 6476616E 63656473
 72765C43 65727445 6E726F6C 6C5C6D73 2D726F6F 742D7368 612D3036 2D323030
 312E6372 6C301006 092B0601 04018237 15010403 02010130 0D06092A 864886F7
 0D010105 05000341 0056221E 03F377B9 E6900BF7 BCB3568E ADBA146F 3B8A71F3
 DF9EB96C BB1873B2 B6268B7C 0229D8D0 FFB40433 C8B3CB41 0E4D212B 2AEECD77
 BEA3C1FE 5EE2AB6D 91
quit
```

**Related Commands**

Command	Description
<b>clear configure crypto map</b>	Clears all configuration for all crypto maps
<b>show running-config crypto map</b>	Displays the crypto map configuration.
<b>crypto ca certificate chain</b>	Enters certificate crypto ca certificate chain mode.
<b>crypto ca trustpoint</b>	Enters ca trustpoint mode.
<b>show running-config crypto map</b>	Displays all configuration for all the crypto maps

# chain

To enable sending of a certificate chain, use the **chain** command in tunnel-group ipsec-attributes configuration mode. This action includes the root certificate and any subordinate CA certificates in the transmission. To return this command to the default, use the **no** form of this command.

**chain**

**no chain**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default setting for this command is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group ipsec attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You can apply this attribute to all IPSec tunnel-group types.

## Examples

The following example entered in tunnel-group-ipsec attributes configuration mode, enables sending a chain for an IPSec LAN-to-LAN tunnel group with the IP address of 209.165.200.225, which includes the root certificate and any subordinate CA certificates:

```
hostname(config)# tunnel-group 209.165.200.225 type IPSec_L2L
hostname(config)# tunnel-group 209.165.200.225 ipsec-attributes
hostname(config-tunnel-ipsec)# chain
hostname(config-tunnel-ipsec)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear-configure tunnel-group</b>	Clears all configured tunnel groups.
<b>show running-config tunnel-group</b>	Shows the current tunnel-group configuration.
<b>tunnel-group ipsec-attributes</b>	Configures the tunnel-group ipsec-attributes for this group.



# changeto

To change between security contexts and the system, use the **changeto** command in privileged EXEC mode.

```
changeto {system | context name}
```

## Syntax Description

<b>context name</b>	Changes to the context with the specified name.
<b>system</b>	Changes to the system execution space.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	—	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If you log into the system execution space or the admin context, you can change between contexts and perform configuration and monitoring tasks within each context. The “running” configuration that you edit in configuration mode, or that is used in the **copy** or **write** commands, depends on which execution space you are in. When you are in the system execution space, the running configuration consists only of the system configuration; when you are in a context execution space, the running configuration consists only of that context. For example, you cannot view all running configurations (system plus all contexts) by entering the **show running-config** command. Only the current configuration appears.

## Examples

The following example changes between contexts and the system in privileged EXEC mode:

```
hostname/admin# changeto system
hostname# changeto context customerA
hostname/customerA#
```

The following example changes between the system and the admin context in interface configuration mode. When you change between execution spaces, and you are in a configuration submenu, the mode changes to the global configuration mode in the new execution space.

```
hostname(config-if)# changeto context admin
hostname/admin(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>admin-context</b>	Sets a context to be the admin context.
<b>context</b>	Creates a security context in the system configuration and enters context configuration mode.
<b>show context</b>	Shows a list of contexts (system execution space) or information about the current context.

# character-encoding

To specify the global character encoding in WebVPN portal pages, use the **character-encoding** command in webvpn configuration mode. The **no** form removes the value of the character-encoding attribute.

**character-encoding** *charset*

**no character-encoding** [*charset*]

## Syntax Description

<i>charset</i>	String consisting of up to 40 characters, and equal to one of the valid character sets identified in <a href="http://www.iana.org/assignments/character-sets">http://www.iana.org/assignments/character-sets</a> . You can use either the name or the alias of a character set listed on that page. Examples include iso-8859-1, shift_jis, and ibm850.
	The string is case-insensitive. The command interpreter converts upper-case to lower-case in the security appliance configuration.

## Defaults

No default behavior or values. The encoding type set on the remote browser determines the character set for WebVPN portal pages when this attribute does not have a value.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
webvpn configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

*Character encoding*, also called “character coding” and “a character set,” is the pairing of raw data (such as 0’s and 1’s) and characters to represent the data. The language determines the character encoding method to use. Some languages use the same method, while others do not. Usually, the geographic region determines the default encoding method used by the browser, but the user can change this. The browser can also detect the encoding specified on the page, and render the document accordingly. The character-encoding attribute lets you specify the value of the character-encoding method into the WebVPN portal page to ensure that the browser renders it properly, regardless of the region in which the user is using the browser, or any changes made to the browser.

The character-encoding attribute is a global setting that, by default, all WebVPN portal pages inherit. However, you can override the file-encoding attribute for Common Internet File System servers that use character encoding that differs from the value of the character-encoding attribute. You can use different file-encoding values for CIFS servers that require different character encodings.

The WebVPN portal pages downloaded from the CIFS server to the WebVPN user encode the value of the WebVPN file-encoding attribute identifying the server, or if one does not, they inherit the value of the character-encoding attribute. The remote user's browser maps this value to an entry in its character encoding set to determine the proper character set to use. The WebVPN portal pages do not specify a value if WebVPN configuration does not specify a file-encoding entry for the CIFS server and the character-encoding attribute is not set. The remote browser uses its own default encoding if the WebVPN portal page does not specify the character encoding or if it specifies a character encoding value that the browser does not support.

The mapping of CIFS servers to their appropriate character encoding, globally with the `webvpn` character-encoding attribute, and individually with file-encoding overrides, provides for the accurate handling and display of CIFS pages when the proper rendering of file names or directory paths, as well as pages, are an issue.

**Note**

The character-encoding and file-encoding values do not exclude the font family to be used by the browser. You need to complement the setting of one these values with the **page style** command in `webvpn` customization command mode to replace the font family if you are using Japanese Shift\_JIS character encoding, as shown in the following example, or enter the **no page style** command in `webvpn` customization command mode to remove the font family.

**Examples**

The following example sets the character-encoding attribute to support Japanese Shift\_JIS characters, removes the font family, and retains the default background color:

```
hostname(config)# webvpn
hostname(config-webvpn)# character-encoding shift_jis
F1-asal(config-webvpn)# customization DfltCustomization
F1-asal(config-webvpn-custom)# page style background-color:white
F1-asal(config-webvpn-custom)#
```

**Related Commands**

Command	Description
<b>file-encoding</b>	Specifies CIFS servers and associated character encoding to override the value of this attribute.
<b>show running-config [all] webvpn</b>	Displays the running configuration for WebVPN. Use the <b>all</b> keyword to include the default configuration.
<b>debug webvpn cifs</b>	Displays debug messages about the CIFS.

# checkheaps

To configure checkheaps verification intervals, use the **checkheaps** command in global configuration mode. To set the value to the default, use the **no** form of this command. Checkheaps is a periodic process that verifies the sanity of the heap memory buffers (dynamic memory is allocated from the system heap memory region) and the integrity of the code region.

**checkheaps** {**check-interval** | **validate-checksum**} *seconds*

**no checkheaps** {**check-interval** | **validate-checksum**} [*seconds*]

## Syntax Description

<b>check-interval</b>	Sets the buffer verification interval. The buffer verification process checks the sanity of the heap (allocated and freed memory buffers). During each invocation of the process, the security appliance checks the entire heap, validating each memory buffer. If there is a discrepancy, the security appliance issues either an “allocated buffer error” or a “free buffer error.” If there is an error, the security appliance dumps traceback information when possible and reloads.
<b>validate-checksum</b>	Sets the code space checksum validation interval. When the security appliance first boots up, the security appliance calculates a hash of the entire code. Later, during the periodic check, the security appliance generates a new hash and compares it to the original. If there is a mismatch, the security appliance issues a “text checksum checkheaps error.” If there is an error, the security appliance dumps traceback information when possible and reloads.
<i>seconds</i>	Sets the interval in seconds between 1 and 2147483.

## Defaults

The default intervals are 60 seconds each.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example sets the buffer allocation interval to 200 seconds and the code space checksum interval to 500 seconds:

```
hostname(config)# checkheaps check-interval 200
hostname(config)# checkheaps validate-checksum 500
```

## ■ checkheaps

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show checkheaps</b>	Shows checkheaps statistics.

---

# check-retransmission

To prevent against TCP retransmission style attacks, use the **check-retransmission** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

**check-retransmission**

**no check-retransmission**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tcp-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. To prevent against TCP retransmission style attacks that arise from end-system interpretation of inconsistent retransmissions, use the **check-retransmission** command in tcp-map configuration mode.

The security appliance will make efforts to verify if the data in retransmits are the same as the original. If the data doesn't match, then the connection is dropped by the security appliance. When this feature is enabled, packets on the TCP connection are only allowed in order. For more details, see the **queue-limit** command.

## Examples

The following example enables the TCP check-retransmission feature on all TCP flows:

```
hostname(config)# access-list TCP extended permit tcp any any
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# check-retransmission
hostname(config)# class-map cmap
hostname(config-cmap)# match access-list TCP
hostname(config)# policy-map pmap
```

```
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class</b>	Specifies a class map to use for traffic classification.
<b>help</b>	Shows syntax help for the <b>policy-map</b> , <b>class</b> , and <b>description</b> commands.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>set connection</b>	Configures connection values.
<b>tcp-map</b>	Creates a TCP map and allows access to tcp-map configuration mode.



# checksum-verification

To enable or disable TCP checksum verification, use the **checksum-verification** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

**checksum-verification**

**no checksum-verification**

## Syntax Description

This command has no arguments or keywords.

## Defaults

Checksum verification is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tcp-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **checksum-verification** command in tcp-map configuration mode to enable TCP checksum verification. If the check fails, the packet is dropped.

## Examples

The following example enables TCP checksum verification on TCP connections from 10.0.0.0 to 20.0.0.0:

```
hostname(config)# access-list TCP1 extended permit tcp 10.0.0.0 255.0.0.0 20.0.0.0 255.0.0.0
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# checksum-verification

hostname(config)# class-map cmap
hostname(config-cmap)# match access-list TCP1

hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
```

```
hostname(config-pmap)# set connection advanced-options tmap
```

```
hostname(config)# service-policy pmap global
```

---

**Related Commands**

Command	Description
<b>class</b>	Specifies a class map to use for traffic classification.
<b>help</b>	Shows syntax help for the <b>policy-map</b> , <b>class</b> , and <b>description</b> commands.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>set connection</b>	Configures connection values.
<b>tcp-map</b>	Creates a TCP map and allows access to tcp-map configuration mode.

# class

To create a resource class to which to assign a security context, use the **class** command in global configuration mode. To remove a class, use the **no** form of this command.

**class** *name*

**no class** *name*

## Syntax Description

<i>name</i>	Specifies the name as a string up to 20 characters long. To set the limits for the default class, enter <b>default</b> for the name.
-------------	--

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	—	—	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

By default, all security contexts have unlimited access to the resources of the security appliance, except where maximum limits per context are enforced. However, if you find that one or more contexts use too many resources, and they cause other contexts to be denied connections, for example, then you can configure resource management to limit the use of resources per context.

The security appliance manages resources by assigning contexts to resource classes. Each context uses the resource limits set by the class.

When you create a class, the security appliance does not set aside a portion of the resources for each context assigned to the class; rather, the security appliance sets the maximum limit for a context. If you oversubscribe resources, or allow some resources to be unlimited, a few contexts can “use up” those resources, potentially affecting service to other contexts. See the **limit-resource** command to set the resources for the class.

All contexts belong to the default class if they are not assigned to another class; you do not have to actively assign a context to the default class.

If a context belongs to a class other than the default class, those class settings always override the default class settings. However, if the other class has any settings that are not defined, then the member context uses the default class for those limits. For example, if you create a class with a 2 percent limit for all

concurrent connections, but no other limits, then all other limits are inherited from the default class. Conversely, if you create a class with limits for all resources, the class uses no settings from the default class.

By default, the default class provides unlimited access to resources for all contexts, except for the following limits, which are by default set to the maximum allowed per context:

- Telnet sessions—5 sessions.
- SSH sessions—5 sessions.
- MAC addresses—65,535 entries.

### Examples

The following example sets the default class limit for conns to 10 percent instead of unlimited:

```
hostname(config)# class default
hostname(config-class)# limit-resource conns 10%
```

All other resources remain at unlimited.

To add a class called gold, enter the following commands:

```
hostname(config)# class gold
hostname(config-class)# limit-resource mac-addresses 10000
hostname(config-class)# limit-resource conns 15%
hostname(config-class)# limit-resource rate conns 1000
hostname(config-class)# limit-resource rate inspects 500
hostname(config-class)# limit-resource hosts 9000
hostname(config-class)# limit-resource asdm 5
hostname(config-class)# limit-resource ssh 5
hostname(config-class)# limit-resource rate syslogs 5000
hostname(config-class)# limit-resource telnet 5
hostname(config-class)# limit-resource xlates 36000
```

### Related Commands

Command	Description
<b>clear configure class</b>	Clears the class configuration.
<b>context</b>	Configures a security context.
<b>limit-resource</b>	Sets the resource limit for a class.
<b>member</b>	Assigns a context to a resource class.
<b>show class</b>	Shows the contexts assigned to a class.

## class (policy-map)

To assign a class map to a policy map where you can assign actions to the class map traffic, use the **class** command in policy-map configuration mode. To remove a class map from a policy map, use the **no** form of this command.

**class** *classmap-name*

**no class** *classmap-name*

### Syntax Description

*classmap-name* Specifies the name for the class map. For a Layer 3/4 policy map (the **policy-map** command), you must specify a Layer 3/4 class map name (the **class-map** or **class-map type management** command). For an inspection policy map (the **policy-map type inspect** command), you must specify an inspection class map name (the **class-map type inspect** command).

### Defaults

No default behaviors or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Policy-map configuration	•	•	•	•	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

The configuration always includes a class map called “class-default” that matches all traffic. At the end of every Layer 3/4 policy map, the configuration includes the class-default class map with no actions defined. This is for internal use only, and cannot be modified.

Including the class-default class map, up to 63 **class** and **match** commands can be configured in a policy map.

After you add the class map to the policy map with the **class** command, you can define one or more actions to be performed on the traffic. Features supported in class configuration mode of a Layer 3/4 policy map include:

- TCP normalization, TCP and UDP connection limits and timeouts, and TCP sequence number randomization
- CSC
- Application inspection
- IPS

- QoS policing
- QoS priority queue

Features supported in class configuration mode of an inspection policy map include:

- Dropping a packet
- Dropping a connection
- Resetting a connection
- Login
- Rate-limiting of messages
- Masking content

## Examples

The following is an example of a **policy-map** command for connection policy that includes the **class** command. It limits the number of connections allowed to the web server 10.1.1.1:

```
hostname(config)# access-list http-server permit tcp any host 10.1.1.1
hostname(config)# class-map http-server
hostname(config-cmap)# match access-list http-server

hostname(config)# policy-map global-policy
hostname(config-pmap)# description This policy map defines a policy concerning connection
to http server.
hostname(config-pmap)# class http-server
hostname(config-pmap-c)# set connection conn-max 256
```

The following example shows how multi-match works in a policy map:

```
hostname(config)# class-map inspection_default
hostname(config-cmap)# match default-inspection-traffic
hostname(config)# class-map http_traffic
hostname(config-cmap)# match port tcp eq 80

hostname(config)# policy-map outside_policy
hostname(config-pmap)# class inspection_default
hostname(config-pmap-c)# inspect http http_map
hostname(config-pmap-c)# inspect sip
hostname(config-pmap)# class http_traffic
hostname(config-pmap-c)# set connection timeout tcp 0:10:0
```

The following example shows how traffic matches the first available class map, and will not match any subsequent class maps that specify actions in the same feature domain:

```
hostname(config)# class-map telnet_traffic
hostname(config-cmap)# match port tcp eq 23
hostname(config)# class-map ftp_traffic
hostname(config-cmap)# match port tcp eq 21
hostname(config)# class-map tcp_traffic
hostname(config-cmap)# match port tcp range 1 65535
hostname(config)# class-map udp_traffic
hostname(config-cmap)# match port udp range 0 65535
hostname(config)# policy-map global_policy
hostname(config-pmap)# class telnet_traffic
hostname(config-pmap-c)# set connection timeout tcp 0:0:0
hostname(config-pmap-c)# set connection conn-max 100
hostname(config-pmap)# class ftp_traffic
hostname(config-pmap-c)# set connection timeout tcp 0:5:0
hostname(config-pmap-c)# set connection conn-max 50
hostname(config-pmap)# class tcp_traffic
```

```
hostname(config-pmap-c)# set connection timeout tcp 2:0:0
hostname(config-pmap-c)# set connection conn-max 2000
```

When a Telnet connection is initiated, it matches **class telnet\_traffic**. Similarly, if an FTP connection is initiated, it matches **class ftp\_traffic**. For any TCP connection other than Telnet and FTP, it will match **class tcp\_traffic**. Even though a Telnet or FTP connection can match **class tcp\_traffic**, the security appliance does not make this match because they previously matched other classes.

#### Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>class-map type management</b>	Creates a Layer 3/4 class map for management traffic.
<b>clear configure policy-map</b>	Removes all policy-map configuration, except for any policy-map that is in use in a service-policy command.
<b>match</b>	Defines the traffic-matching parameters.
<b>policy-map</b>	Configures a policy; that is, an association of one or more traffic classes, each with one or more actions.

# class-map

When using the Modular Policy Framework, identify Layer 3 or 4 traffic to which you want to apply actions by using the **class-map** command (without the **type** keyword) in global configuration mode. To delete a class map, use the **no** form of this command.

```
class-map class_map_name
```

```
no class-map class_map_name
```

## Syntax Description

<i>class_map_name</i>	Specifies the class map name up to 40 characters in length. The names “class-default” and any name that begins with “_internal” or “_default” are reserved. All types of class maps use the same name space, so you cannot reuse a name already used by another type of class map.
-----------------------	--

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This type of class map is for Layer 3/4 through traffic only. For management traffic destined to the security appliance, see the **class-map type management** command.

The configuration always includes a class map called “class-default” that matches all traffic. At the end of every Layer 3/4 policy map, the configuration includes the class-default class map with no actions defined. This is for internal use only, and cannot be modified.

A Layer 3/4 class map identifies Layer 3 and 4 traffic to which you want to apply actions. The maximum number of class maps of all types is 255 in single mode or per context in multiple mode. The configuration includes a default Layer 3/4 class map that the security appliance uses in the default global policy. It is called **inspection\_default** and matches the default inspection traffic:

```
class-map inspection_default
  match default-inspection-traffic
```

You can create multiple Layer 3/4 class maps for each Layer 3/4 policy map.



Configuring Modular Policy Framework consists of four tasks:

1. Identify the Layer 3 and 4 traffic to which you want to apply actions using the **class-map** or **class-map type management** command.
2. (Application inspection only) Define special actions for application inspection traffic using the **policy-map type inspect** command.
3. Apply actions to the Layer 3 and 4 traffic using the **policy-map** command.
4. Activate the actions on an interface using the **service-policy** command.

Use the **class-map** command to enter class-map configuration mode. From class-map configuration mode, you can define the traffic to include in the class using the **match** command. A Layer 3/4 class map contains, at most, one **match** command (with the exception of the **match tunnel-group** and **match default-inspection-traffic** commands) that identifies the traffic included in the class map.

### Examples

The following example creates four Layer 3/4 class maps:

```
hostname(config)# access-list udp permit udp any any
hostname(config)# access-list tcp permit tcp any any
hostname(config)# access-list host_foo permit ip any 10.1.1.1 255.255.255.255

hostname(config)# class-map all_udp
hostname(config-cmap)# description "This class-map matches all UDP traffic"
hostname(config-cmap)# match access-list udp

hostname(config-cmap)# class-map all_tcp
hostname(config-cmap)# description "This class-map matches all TCP traffic"
hostname(config-cmap)# match access-list tcp

hostname(config-cmap)# class-map all_http
hostname(config-cmap)# description "This class-map matches all HTTP traffic"
hostname(config-cmap)# match port tcp eq http

hostname(config-cmap)# class-map to_server
hostname(config-cmap)# description "This class-map matches all traffic to server 10.1.1.1"
hostname(config-cmap)# match access-list host_foo
```

### Related Commands

Command	Description
<b>class-map type management</b>	Creates a class map for traffic to the security appliance.
<b>policy-map</b>	Creates a policy map by associating the traffic class with one or more actions.
<b>policy-map type inspect</b>	Defines special actions for application inspection.
<b>service-policy</b>	Creates a security policy by associating the policy map with one or more interfaces.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# class-map type inspect

When using the Modular Policy Framework, match criteria that is specific to an inspection application by using the **class-map type inspect** command in global configuration mode. To delete an inspection class map, use the **no** form of this command.

**class-map type inspect** *application* [**match-all**] *class\_map\_name*

**no class-map** [**type inspect** *application* [**match-all**]] *class\_map\_name*

## Syntax Description

<i>application</i>	Specifies the type of application traffic you want to match. Available types include: <ul style="list-style-type: none"> <li>• <b>dns</b></li> <li>• <b>ftp</b></li> <li>• <b>h323</b></li> <li>• <b>http</b></li> <li>• <b>im</b></li> <li>• <b>sip</b></li> </ul>
<i>class_map_name</i>	Specifies the class map name up to 40 characters in length. The names “class-default” and any name that begins with “_internal” or “_default” are reserved. All types of class maps use the same name space, so you cannot reuse a name already used by another type of class map.
<b>match-all</b>	(Optional) Specifies that traffic must match all criteria to match the class map. <b>match-all</b> is the default and only option.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Modular Policy Framework lets you configure special actions for many application inspections. When you enable an inspection engine in the Layer 3/4 policy map, you can also optionally enable actions as defined in an *inspection policy map* (see the **policy-map type inspect** command).

In the inspection policy map, you can identify the traffic you want to act upon by creating an inspection class map. The class map contains one or more **match** commands. (You can alternatively use **match** commands directly in the inspection policy map if you want to pair a single criterion with an action). You can match criteria that is specific to an application. For example, for DNS traffic, you can match the domain name in a DNS query.

A class map groups multiple traffic matches. Traffic must match *all* of the **match** commands to match the class map. The difference between creating a class map and defining the traffic match directly in the inspection policy map is that the class map lets you group multiple matches, and you can reuse class maps. For the traffic that you identify in this class map, you can specify actions such as dropping, resetting, and/or logging the connection in the inspection policy map.

### Examples

The following example creates an inspection class map for HTTP:

```
hostname(config)# class-map type inspect http match-all test
hostname(config-cmap)# match req-resp content-type mismatch
hostname(config-cmap)# match request body length gt 1000
hostname(config-cmap)# match not request args regex regex1
```

### Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map for through traffic.
<b>policy-map</b>	Creates a policy map by associating the traffic class with one or more actions.
<b>policy-map type inspect</b>	Defines special actions for application inspection.
<b>service-policy</b>	Creates a security policy by associating the policy map with one or more interfaces.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# class-map type management

When using the Modular Policy Framework, identify Layer 3 or 4 management traffic destined for the security appliance to which you want to apply actions by using the **class-map type management** command in global configuration mode. To delete a class map, use the **no** form of this command.

**class-map type management** *class\_map\_name*

**no class-map type management** *class\_map\_name*

## Syntax Description

<i>class_map_name</i>	Specifies the class map name up to 40 characters in length. The names “class-default” and any name that begins with “_internal” or “_default” are reserved. All types of class maps use the same name space, so you cannot reuse a name already used by another type of class map.
-----------------------	--

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This type of class map is for management traffic only. For through traffic, see the **class-map** command (without the **type** keyword).

For management traffic to the security appliance, you might want to perform actions specific to this kind of traffic. The types of actions available for a management class map in the policy map are specialized for management traffic. For example, this type of class map lets you inspect RADIUS accounting traffic.

A Layer 3/4 class map identifies Layer 3 and 4 traffic to which you want to apply actions. The maximum number of class maps of all types is 255 in single mode or per context in multiple mode.

You can create multiple Layer 3/4 class maps (management or through traffic) for each Layer 3/4 policy map.

Configuring Modular Policy Framework consists of four tasks:

1. Identify the Layer 3 and 4 traffic to which you want to apply actions using the **class-map** and **class-map type management** commands.
2. (Application inspection only) Define special actions for application inspection traffic using the **policy-map type inspect** command.

3. Apply actions to the Layer 3 and 4 traffic using the **policy-map** command.
4. Activate the actions on an interface using the **service-policy** command.

Use the **class-map type management** command to enter class-map configuration mode. From class-map configuration mode, you can define the traffic to include in the class using the **match** command. You can specify a management class map that can match TCP or UDP ports only. A Layer 3/4 class map contains, at most, one **match** command that identifies the traffic included in the class map.

### Examples

The following example creates a Layer 3/4 management class map:

```
hostname(config)# class-map type management radius_acct
hostname(config-cmap)# match port tcp eq 10000
```

### Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map for through traffic.
<b>policy-map</b>	Creates a policy map by associating the traffic class with one or more actions.
<b>policy-map type inspect</b>	Defines special actions for application inspection.
<b>service-policy</b>	Creates a security policy by associating the policy map with one or more interfaces.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

## class-map type regex

When using the Modular Policy Framework, group regular expressions for use with matching text by using the **class-map type regex** command in global configuration mode. To delete a regular expression class map, use the **no** form of this command.

```
class-map type regex match-any class_map_name
```

```
no class-map [type regex match-any] class_map_name
```

### Syntax Description

<i>class_map_name</i>	Specifies the class map name up to 40 characters in length. The names “class-default” and any name that begins with “_internal” or “_default” are reserved. All types of class maps use the same name space, so you cannot reuse a name already used by another type of class map.
<b>match-any</b>	Specifies that the traffic matches the class map if it matches only one of the regular expressions. <b>match-any</b> is the only option.

### Defaults

No default behaviors or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

Modular Policy Framework lets you configure special actions for many application inspections. When you enable an inspection engine in the Layer 3/4 policy map, you can also optionally enable actions as defined in an *inspection policy map* (see the **policy-map type inspect** command).

In the inspection policy map, you can identify the traffic you want to act upon by creating an inspection class map containing one or more **match** commands or you can use **match** commands directly in the inspection policy map. Some **match** commands let you identify text in a packet using a regular expression; for example, you can match URL strings inside HTTP packets. You can group regular expressions in a regular expression class map.

Before you create a regular expression class map, create the regular expressions using the **regex** command. Then, identify the named regular expressions in class-map configuration mode using the **match regex** command.

**Examples**

The following example creates two regular expressions, and adds them to a regular expression class map. Traffic matches the class map if it includes the string “example.com” or “example2.com.”

```
hostname(config)# regex url_example example\.com
hostname(config)# regex url_example2 example2\.com
hostname(config)# class-map type regex match-any URLs
hostname(config-cmap)# match regex example
hostname(config-cmap)# match regex example2
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a policy map by associating the traffic class with one or more actions.
<b>policy-map type inspect</b>	Defines special actions for application inspection.
<b>service-policy</b>	Creates a security policy by associating the policy map with one or more interfaces.
<b>regex</b>	Creates a regular expression.

# clear aaa local user fail-attempts

To reset the number of failed user authentication attempts to zero without modifying the user's locked-out status, use the **clear aaa local user fail-attempts** command in privileged EXEC mode.

```
clear aaa local user authentication fail-attempts {username name | all}
```

Syntax Description	all	Resets the failed-attempts counter to 0 for all users.
	<i>name</i>	Specifies a specific username for which the failed-attempts counter is reset to 0.
	<b>username</b>	Indicates that the following parameter is a username, for which the failed-attempts counter is reset to 0.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Use this command when a user fails authentication a few times, but you want to reset to counter to zero, for example, when the configuration has recently been modified.

After the configured number of failed authentication attempts, the user is locked out of the system and cannot successfully log in until either a system administrator unlocks the username or the system reboots.

The number of failed attempts resets to zero and the lockout status resets to No when the user successfully authenticates or when the security appliance reboots.

Locking or unlocking a username results in a syslog message.

A system administrator with a privilege level of 15 cannot be locked out.

**Examples** The following example shows use of the **clear aaa local user authentication fail-attempts** command to reset the failed-attempts counter to 0 for the username anyuser:

```
hostname(config)# clear aaa local user authentication fail-attempts username anyuser
hostname(config)#
```



The following example shows use of the **clear aaa local user authentication fail-attempts** command to reset the failed-attempts counter to 0 for all users:

```
hostname(config)# clear aaa local user authentication fail-attempts all
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa local authentication attempts max-fail</b>	Configures a limit on the number of failed user authentication attempts allowed.
<b>clear aaa local user lockout</b>	Resets the number of failed user authentication attempts to zero without modifying the user's locked-out status.
<b>show aaa local user [locked]</b>	Shows the list of usernames that are currently locked.

# clear aaa local user lockout

To clear the lockout status of the specified users and set their failed-attempts counter to 0, use the **clear aaa local user lockout** command in privileged EXEC mode.

```
clear aaa local user lockout {username name | all}
```

Syntax Description	Parameter	Description
	<b>all</b>	Resets the failed-attempts counter to 0 for all users.
	<i>name</i>	Specifies a specific username for which the failed-attempts counter is reset to 0.
	<b>username</b>	Indicates that the following parameter is a username, for which the failed-attempts counter is reset to 0.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines**

- You can specify a single user by using the **username** option or all users with the **all** option.
- This command affects only the status of users that are locked out.
- The administrator cannot be locked out of the device.
- Locking or unlocking a username results in a syslog message.

**Examples** The following example shows use of the **clear aaa local user lockout** command to clear the lockout condition and reset the failed-attempts counter to 0 for the username anyuser:

```
hostname(config)# clear aaa local user lockout username anyuser
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa local authentication attempts max-fail</b>	Configures a limit on the number of failed user authentication attempts allowed.
<b>clear aaa local user fail-attempts</b>	Resets the number of failed user authentication attempts to zero without modifying the user's locked-out status.
<b>show aaa local user [locked]</b>	Shows the list of usernames that are currently locked.

# clear aaa-server statistics

To reset the statistics for AAA servers, use the **clear aaa-server statistics** command in privileged EXEC mode.

```
clear aaa-server statistics [LOCAL | groupname [host hostname] | protocol protocol]
```

Syntax Description	LOCAL	(Optional) Clears statistics for the LOCAL user database.
	<i>groupname</i>	(Optional) Clears statistics for servers in a group.
	<b>host</b> <i>hostname</i>	(Optional) Clears statistics for a particular server in the group.
	<b>protocol</b> <i>protocol</i>	(Optional) Clears statistics for servers of the specified protocol: <ul style="list-style-type: none"> <li>• <b>kerberos</b></li> <li>• <b>ldap</b></li> <li>• <b>nt</b></li> <li>• <b>radius</b></li> <li>• <b>sdi</b></li> <li>• <b>tacacs+</b></li> </ul>

**Defaults** Remove all AAA-server statistics across all groups.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was modified to adhere to CLI guidelines. In the protocol values, <b>nt</b> replaces the older <b>nt-domain</b> , and <b>sdi</b> replaces the older <b>rsa-ace</b> .

**Examples** The following command shows how to reset the AAA statistics for a specific server in a group:

```
hostname(config)# clear aaa-server statistics svrgrp1 host 1.2.3.4
```

The following command shows how to reset the AAA statistics for an entire server group:

```
hostname(config)# clear aaa-server statistics svrgrp1
```

The following command shows how to reset the AAA statistics for all server groups:

```
hostname(config)# clear aaa-server statistics
```

The following command shows how to reset the AAA statistics for a particular protocol (in this case, TACACS+):

```
hostname(config)# clear aaa-server statistics protocol tacacs+
```

Related Commands	Command	Description
	<b>aaa-server protocol</b>	Specifies and manages the grouping of AAA server connection data.
	<b>clear configure aaa-server</b>	Removes all non-default aaa server groups or clear the specified group
	<b>show aaa-server</b>	Displays AAA server statistics.
	<b>show running-config aaa-server</b>	Displays the current AAA server configuration values.

# clear access-group

To remove access groups from all the interfaces, use the **clear access-group** command.

**clear access-group**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** The following example shows how to remove all access groups:

```
hostname(config)# clear access-group
```

Related Commands	Command	Description
	<b>access-group</b>	Binds an access list to an interface.
	<b>show running-config access-group</b>	Displays the current access group configuration.

# clear access-list

To clear an access-list counter, use the **clear access-list** command in global configuration mode.

**clear access-list** [*id*] counters

Syntax Description	counters	Clears access list counters.
	<i>id</i>	(Optional) Name or number of an access list.

**Defaults** All the access list counters are cleared.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** When you enter the **clear access-list** command, all the access list counters are cleared if you do not specify an *id*.

**Examples** The following example shows how to clear a specific access list counter:

```
hostname# clear access-list inbound counters
```

Related Commands	Command	Description
	<b>access-list extended</b>	Adds an access list to the configuration and configures policy for IP traffic through the firewall.
	<b>access-list standard</b>	Adds an access list to identify the destination IP addresses of OSPF routes, which can be used in a route map for OSPF redistribution.
	<b>clear configure access-list</b>	Clears an access list from the running configuration.
	<b>show access-list</b>	Displays the access list entries by number.
	<b>show running-config access-list</b>	Displays the access list configuration that is running on the security appliance.

# clear arp

To clear dynamic ARP entries or ARP statistics, use the **clear arp** command in privileged EXEC mode.

**clear arp** [statistics]

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** The following example clears all ARP statistics:

```
hostname# clear arp statistics
```

Related Commands	Command	Description
	<b>arp</b>	Adds a static ARP entry.
	<b>arp-inspection</b>	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
	<b>show arp statistics</b>	Shows ARP statistics.
	<b>show running-config arp</b>	Shows the current configuration of the ARP timeout.



# clear asp drop

To clear accelerated security path drop statistics, use the **clear asp drop** command in privileged EXEC mode.

```
clear asp drop [flow type | frame type]
```

## Syntax Description

<b>flow</b>	(Optional) Clears the dropped flow statistics.
<b>frame</b>	(Optional) Clears the dropped packet statistics.
<i>type</i>	(Optional) Clears the dropped flow or packets statistics for a particular process. See “Usage Guidelines” for a list of types.

## Defaults

By default, this command clears all drop statistics.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Process types include the following:

```
acl-drop
audit-failure
closed-by-inspection
conn-limit-exceeded
fin-timeout
flow-reclaimed
fo-primary-closed
fo-standby
fo_rep_err
host-removed
inspect-fail
ips-fail-close
ips-request
ipsec-spoof-detect
loopback
mcast-entry-removed
mcast-intrf-removed
mgmt-lockdown
nat-failed
nat-rpf-failed
need-ike
```

## ■ clear asp drop

```

no-ipv6-ipsec
non_tcp_syn
out-of-memory
parent-closed
pinhole-timeout
recurse
reinject-punt
reset-by-ips
reset-in
reset-out
shunned
syn-timeout
tcp-fins
tcp-intecept-no-response
tcp-intercept-kill
tcp-intercept-unexpected
tcpnorm-invalid-syn
tcpnorm-rexmit-bad
tcpnorm-win-variation
timeout
tunnel-pending
tunnel-torn-down
xlate-removed

```

**Examples**

The following example clears all drop statistics:

```
hostname# clear asp drop
```

**Related Commands**

Command	Description
<b>show asp drop</b>	Shows the accelerated security path counters for dropped packets.

# clear blocks

To reset the packet buffer counters such as the low watermark and history information, use the **clear blocks** command in privileged EXEC mode.

## clear blocks

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** Resets the low watermark counters to the current available blocks in each pool. Also clears the history information stored during the last buffer allocation failure.

**Examples** The following example clears the blocks:

```
hostname# clear blocks
```

Related Commands	Command	Description
	<b>blocks</b>	Increases the memory assigned to block diagnostics
	<b>show blocks</b>	Shows the system buffer utilization.

# clear-button

To customize the Clear button of the WebVPN page login box that is displayed to WebVPN users when they connect to the security appliance, use the **clear-button** command from webvpn customization mode:

**clear-button** {text | style} *value*

[no] **clear-button** {text | style} *value*

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>text</b>	Specifies you are changing the text.
<b>style</b>	Specifies you are changing the style.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default text is “Clear”.

The default style is border:1px solid black;background-color:white;font-weight:bold;font-size:80%.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.

- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

The following example changes the default background color of the Clear button from black to blue:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# clear-button style background-color:blue
```

**Related Commands**

Command	Description
<b>login-button</b>	Customizes the login button of the WebVPN page Login box.
<b>login-title</b>	Customizes the title of the WebVPN page Login box.
<b>group-prompt</b>	Customizes the group prompt of the WebVPN page Login box.
<b>password-prompt</b>	Customizes the password prompt of the WebVPN page Login box.
<b>username-prompt</b>	Customizes the username prompt of the WebVPN page Login box.

# clear capture

To clear the capture buffer, use the **clear capture** *capture\_name* command.

**clear capture** *capture\_name*

<b>Syntax Description</b>	<i>capture_name</i> Name of the packet capture.
---------------------------	---

<b>Defaults</b>	This command has no default settings.
-----------------	---------------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged Mode	•	•	•	•	•

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.0	Support for this command was introduced.

<b>Usage Guidelines</b>	The shortened form of the <b>clear capture</b> (for example, <b>cl cap</b> or <b>clear cap</b> ) is not supported to prevent accidental destruction of all the packet captures.
-------------------------	---

<b>Examples</b>	This example shows how to clear the capture buffer for the capture buffer “trudy”: <pre>hostname(config)# clear capture trudy</pre>
-----------------	--

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>capture</b>	Enables packet capture capabilities for packet sniffing and network fault isolation.
	<b>show capture</b>	Displays the capture configuration when no options are specified.

# clear compression

To clear compression statistics for all SVC and WebVPN connections, use the **clear compression** command from privileged EXEC mode:

```
clear compression {all | svc | http-comp}
```

## Defaults

There is no default behavior for this command.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
global configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Examples

In the following example, the user clears the compression configuration:

```
hostname# (config) clear configure compression
```

## Related Commands

Command	Description
<b>compression</b>	Enables compression for all SVC and WebVPN connections.
<b>svc compression</b>	Enables compression of data over an SVC connection for a specific group or user.







## **clear configure through clear configure zonelabs-integrity Commands**

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# clear configure

To clear the running configuration, use the **clear configure** command in global configuration mode.

**clear configure** {**primary** | **secondary** | **all** | *command*}

Syntax Description	<i>command</i>	Clears the configuration for a specified command. For more information, see individual entries in this guide for each <b>clear configure</b> <i>command</i> command.
<b>primary</b>		Clears commands related to connectivity, including the following commands: <ul style="list-style-type: none"> <li>• <b>tftp-server</b></li> <li>• <b>shun</b></li> <li>• <b>route</b></li> <li>• <b>ip address</b></li> <li>• <b>mtu</b></li> <li>• <b>failover</b></li> <li>• <b>monitor-interface</b></li> <li>• <b>boot</b></li> </ul>
<b>secondary</b>		Clears commands not related to connectivity (that are cleared using the <b>primary</b> keyword).
<b>all</b>		Clears the entire running configuration.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** When you enter this command in a security context, you clear only the context configuration. If you enter this command in the system execution space, you clear the system running configuration as well as all context running configurations. Because you cleared all context entries in the system configuration (see the **context** command), the contexts are no longer running, and you cannot change to a context execution space.

Before clearing the configuration, make sure you save any changes to the **boot config** command (which specifies the startup configuration location) to the startup configuration; if you changed the startup configuration location only in the running configuration, then when you restart, the configuration loads from the default location.

### Examples

The following example clears the entire running configuration:

```
hostname(config)# clear configure all
```

### Related Commands

Command	Description
<b>configure http</b>	Merges a configuration file from the specified HTTP(S) URL with the running configuration.
<b>configure memory</b>	Merges the startup configuration with the running configuration.
<b>configure net</b>	Merges a configuration file from the specified TFTP URL with the running configuration.
<b>configure factory-default</b>	Adds commands you enter at the CLI to the running configuration.
<b>show running-config</b>	Shows the running configuration.

# clear configure aaa

To clear the aaa configuration, use the **clear configure aaa** command in global configuration mode. The **clear configure aaa** command removes the AAA command statements from the configuration.

**clear configure aaa**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was modified for consistency within the CLI.

**Usage Guidelines** This command also resets the AAA parameters to their default values, if any.  
There is no undo.

**Examples** `hostname(config)# clear configure aaa`

Related Commands	Command	Description
	<b>aaa accounting</b>	Enable, disable, or view the keeping of records about which network services a user has accessed.
	<b>aaa authentication</b>	Enable or view LOCAL, TACACS+, or RADIUS user authentication, on a server designated by the <b>aaa-server</b> command, or ASDM user authentication
	<b>aaa authorization</b>	Enable or disable user authorization for a LOCAL or a TACACS+ server designated by the <b>aaa-server</b> command, or for ASDM user authentication.
	<b>show running-config aaa</b>	Display the AAA configuration.

# clear configure aaa-server

To remove all AAA server groups or to clear the specified group, use the **clear configure aaa-server** command in global configuration mode.

```
clear configure aaa-server [server-tag]
```

```
clear configure aaa-server [server-tag] host server-ip
```

## Syntax Description

<i>server-ip</i>	The IP address of the AAA server.
<i>server-tag</i>	(Optional) Symbolic name of the server group to be cleared.

## Defaults

Remove all AAA server groups.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	—	—	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

You can specify a particular AAA server group or, by default, all AAA server groups.

Use the **host** keyword to specify a particular server within a server group.

This command also resets the AAA server parameters to their default values, if any.

## Examples

```
hostname(config)# aaa-server svrgrp1 protocol sdi
hostname(config)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server)# timeout 9
hostname(config-aaa-server)# retry 7
hostname(config-aaa-server)# sdi-version sdi-5
hostname(config-aaa-server)# exit
```

Given the preceding configuration, the following command shows how to remove a specific server from a group:

```
hostname(config)# clear config aaa-server svrgrp1 host 1.2.3.4
```

The following command shows how to remove a server group:

```
hostname(config)# clear config aaa-server svrgrp1
```

The following command shows how to remove all server groups:

```
hostname(config)# clear config aaa-server
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa-server host</b>	Specifies and manages host-specific AAA server connection data.
<b>aaa-server protocol</b>	Allows you to configure AAA server parameters that are group-specific and common to all hosts.
<b>show running-config aaa</b>	Display the current maximum number of concurrent proxy connections allowed per user, along with other AAA configuration values.

# clear configure access-group

To remove access groups from all the interfaces, use the **clear configure access-group** command.

## clear configure access-group

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	Added keyword <b>configure</b> .

**Examples** The following example shows how to remove all access groups:

```
hostname(config)# clear configure access-group
```

Related Commands	Command	Description
	<b>access-group</b>	Binds an access list to an interface.
	<b>show running-config access-group</b>	Displays the current access group configuration.

# clear configure access-list

To clear an access list from the running configuration, use the **clear configure access list** command in global configuration mode.

**clear configure access-list** [*id*]

<b>Syntax Description</b>	<i>id</i> (Optional) Name or number of an access list.
---------------------------	--

<b>Defaults</b>	All the access lists are cleared from the running configuration.
-----------------	--

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Preexisting	This command was preexisting.

<b>Usage Guidelines</b>	The <b>clear configure access-list</b> command automatically unbinds an access list from a <b>crypto map</b> command or interface. The unbinding of an access list from a <b>crypto map</b> command can lead to a condition that discards all packets because the <b>crypto map</b> commands referencing the access list are incomplete. To correct the condition, either define other <b>access-list</b> commands to complete the <b>crypto map</b> commands or remove the <b>crypto map</b> commands that pertain to the <b>access-list</b> command. Refer to the <b>crypto map client</b> command for more information.
-------------------------	--

<b>Examples</b>	This example shows how to clear the access lists from the running configuration:
-----------------	--

```
hostname(config)# clear configure access-list
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>access-list extended</b>	Adds an access list to the configuration and configures policy for IP traffic through the firewall.
	<b>access-list standard</b>	Adds an access list to identify the destination IP addresses of OSPF routes, which can be used in a route map for OSPF redistribution.
	<b>clear access-list</b>	Clears access list counters.



<b>Command</b>	<b>Description</b>
<b>show access-list</b>	Displays counters for an access list.
<b>show running-config access-list</b>	Displays the access list configuration running on the security appliance.

# clear configure alias

To remove all **alias** commands from the configuration, use the **clear configure alias** command in global configuration mode.

## clear configure alias

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** This example shows how to remove all **alias** commands from the configuration:

```
hostname(config)# clear configure alias
```

Related Commands	Command	Description
	<b>alias</b>	Translates one address into another.
	<b>show running-config alias</b>	Displays the overlapping addresses with dual NAT commands in the configuration.

# clear configure arp

To clear static ARP entries added by the **arp** command, use the **clear configure arp** command in global configuration mode.

## clear configure arp

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	—	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example clears static ARP entries from the configuration:

```
hostname# clear configure arp
```

Related Commands	Command	Description
	<b>arp</b>	Adds a static ARP entry.
	<b>arp-inspection</b>	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
	<b>firewall transparent</b>	Sets the firewall mode to transparent.
	<b>show arp statistics</b>	Shows ARP statistics.
	<b>show running-config arp</b>	Shows the current configuration of the ARP timeout.

# clear configure arp-inspection

To clear the ARP inspection configuration, use the **clear configure arp-inspection** command in global configuration mode.

## clear configure arp-inspection

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	—	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example clears the ARP inspection configuration:

```
hostname# clear configure arp-inspection
```

Related Commands	Command	Description
	<b>arp</b>	Adds a static ARP entry.
	<b>arp-inspection</b>	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
	<b>firewall transparent</b>	Sets the firewall mode to transparent.
	<b>show arp statistics</b>	Shows ARP statistics.
	<b>show running-config arp</b>	Shows the current configuration of the ARP timeout.

# clear configure asdm

To remove all **asdm** commands from the running configuration, use the **clear configure asdm** command in global configuration mode.

**clear configure asdm** [**location** | **group** | **image**]

## Syntax Description

<b>group</b>	(Optional) Clears only the <b>asdm group</b> commands from the running configuration.
<b>image</b>	(Optional) Clears only the <b>asdm image</b> command from the running configuration.
<b>location</b>	(Optional) Clears only the <b>asdm location</b> commands from the running configuration.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was changed from the <b>clear pdm</b> command to the <b>clear configure asdm</b> command.

## Usage Guidelines

To view the **asdm** commands in the running configuration, use the **show running-config asdm** command.

Clearing the **asdm image** command from the configuration disables ASDM access. Clearing the **asdm location** and **asdm group** commands from the configuration causes ASDM to regenerate those commands the next time ASDM is accessed, but may disrupt active ASDM sessions.



### Note

On security appliances running in multiple context mode, the **clear configure asdm image** command is only available in the system execution space, while the **clear configure asdm group** and **clear configure asdm location** commands are only available in the user contexts.

## Examples

The following example clears the **asdm group** commands from the running configuration:

```
hostname(config)# clear configure asdm group
```

```
hostname(config)#
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>asdm group</b>	Used by ASDM to associate object group names with interfaces.
<b>asdm image</b>	Specifies the ASDM image file.
<b>asdm location</b>	Used by ASDM to record IP address to interface associations.
<b>show running-config asdm</b>	Displays the <b>asdm</b> commands in the running configuration.

# clear configure auth-prompt

To remove the previously specified authentication prompt challenge text and revert to the default value, if any, use the **clear configure auth-prompt** command in global configuration mode.

**clear configure auth-prompt**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	—	—	•

Command History	Release	Modification
	7.0(1)	This command was modified to conform with CLI standards.

**Usage Guidelines** After you clear the authentication prompt, the prompt users see when they log in depends on the protocol they use:

- Users who log in using HTTP see `HTTP Authentication`.
- Users who log in using FTP see `FTP Authentication`.
- Users who log in using Telnet see no prompt.

**Examples** This example shows how to clear the auth-prompt:

```
hostname(config)# clear configure auth-prompt
```

Related Commands	Command	Description
	<b>auth-prompt</b>	Sets the user authorization prompts.
	<b>show running-config auth-prompt</b>	Displays the user authorization prompts.

# clear configure banner

To remove all the banners, use the **clear configure banner** command in global configuration mode.

**clear configure banner**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** This example shows how to clear banners:

```
hostname(config)# clear configure banner
```

Related Commands	Command	Description
	<b>banner</b>	Configures the session, login, or message-of-the-day banner.
	<b>show running-config banner</b>	Displays all banners.



# clear configure ca certificate map

To remove all certificate map entries or to remove a specified certificate map entry, use the **clear configure ca certificate map** command in global configuration mode.

```
clear configure ca certificate map [sequence-number]
```

## Syntax Description

*sequence-number* (Optional) Specifies a number for the certificate map rule you are removing. The range is 1 through 65535.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example removes all certificate map entries.

```
hostname(config)# clear configure ca certificate map
hostname(config)#
```

## Related Commands+

Command	Description
<b>crypto ca certificate map</b>	Enters CA certificate map mode.

# clear configure class

To clear the resource class configuration, use the **clear configure class** command in global configuration mode.

## clear configure class

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	—	—	•

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Examples** The following example clears the class configuration:

```
hostname(config)# clear configure class
```

Related Commands	Command	Description
	<b>class</b>	Configures a resource class.
	<b>context</b>	Configures a security context.
	<b>limit-resource</b>	Sets the resource limit for a class.
	<b>member</b>	Assigns a context to a resource class.
	<b>show class</b>	Shows the contexts assigned to a class.

# clear configure class-map

To remove all class maps, use the **clear configure class-map** command in global configuration mode.

```
clear configure class-map [type {management | regex | inspect [protocol]}
```

Syntax Description	
<b>inspect</b>	(Optional) Clears inspection class maps.
<b>management</b>	(Optional) Clears management class maps.
<i>protocol</i>	(Optional) Specifies the type of application map you want to clear. Available types include: <ul style="list-style-type: none"> <li>• dns</li> <li>• ftp</li> <li>• h323</li> <li>• http</li> <li>• im</li> <li>• p2p-donkey</li> <li>• sip</li> </ul>
<b>regex</b>	(Optional) Clears regular expression class maps.
<b>type</b>	(Optional) Specifies the type of class map you want to clear. To clear Layer 3/4 class maps, to not specify the type.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** To clear the class map for a specific class map name, use the **no** form of the **class-map** command.

**Examples** The following example shows how to clear all configured class maps:

```
hostname(config)# clear configure class-map
```

Related Commands	Command	Description
	<b>class-map</b>	Applies a traffic class to an interface.
	<b>show running-config class-map</b>	Displays the information about the class map configuration.

# clear configure client-update

To remove from the configuration the ability to force a client update, use the **clear configure client-update** command in global configuration mode or tunnel-group ipsec-attributes configuration mode.

**clear config client-update**

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Added tunnel-group ipsec-attributes configuration mode.

## Examples

The following example entered in global configuration mode, removes the client-update capability from the configuration:

```
hostname(config)# clear config client-update
hostname(config)#
```

The following example entered in tunnel-group ipsec-attributes configuration mode, removes the client-update capability from the configuration of the tunnel group named test:

```
hostname(config)# tunnel-group test ipsec-attributes
hostname(config-tunnel-ipsec)# clear config client-update
hostname(config-tunnel-ipsec)#
```

## Related Commands

Command	Description
<b>client-update</b>	Configures client-update.
<b>show running-config client-update</b>	Shows the current client-update configuration.

# clear configure clock

To clear the clock configuration, use the **clear configure clock** command in global configuration mode.

**clear configure clock**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was changed from <b>clear clock</b> .

**Usage Guidelines** This command clears all **clock** configuration commands. The **clock set** command is not a configuration command, so this command does not reset the clock. To reset the clock, you need to set a new time for the **clock set** command.

**Examples** The following example clears all clock commands:

```
hostname# clear configure clock
```

Related Commands	Command	Description
	<b>clock set</b>	Manually sets the time.
	<b>clock summer-time</b>	Sets the date range to show daylight savings time.
	<b>clock timezone</b>	Sets the time zone.

# clear configure command-alias

To remove all non-default command aliases, use the **clear configure command-alias** command in global configuration mode.

## clear configure command-alias

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** This command has no usage guidelines.

**Examples** The following example shows how to remove all non-default command aliases:

```
hostname(config)# clear configure command-alias
```

Related Commands	Command	Description
	<b>command-alias</b>	Creates a command alias.
	<b>show running-config command-alias</b>	Displays all non-default command aliases.

# clear configure compression

To reset the global compression configuration to the default (all compression techniques enabled), use the **clear configure compression** command from global configuration mode:

```
clear configure compression
```

## Defaults

There is no default behavior for this command.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
global configuration	•	—	•	—	—

## Command History

Release	Modification
7.1.1	This command was introduced.

## Examples

In the following example, the compression configuration is cleared:

```
hostname#(config) clear configure compression
```

## Related Commands

Command	Description
<b>compression</b>	Enables compression for all SVC, WebVPN, and Port Forwarding connections.
<b>svc compression</b>	Enables compression of http data over an SVC connection for a specific group or user.



# clear configure console

To reset the console connection settings to defaults, use the **clear configure console** command in global configuration mode.

## clear configure console

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example shows how to reset the console connection settings to defaults:

```
hostname(config)# clear configure console
```

Related Commands	Command	Description
	<b>console timeout</b>	Sets the idle timeout for a console connection to the security appliance.
	<b>show running-config console timeout</b>	Displays the idle timeout for a console connection to the security appliance.

# clear configure context

To clear all context configurations in the system configuration, use the **clear configure context** command in global configuration mode.

**clear configure context [noconfirm]**

<b>Syntax Description</b>	<b>noconfirm</b>	(Optional) Removes all contexts without prompting you for confirmation. This option is useful for automated scripts.
---------------------------	------------------	--

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	—	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** This command lets you remove all contexts, including the admin context. The admin context cannot be removed using the **no context** command, but can be removed using the **clear configure context** command.

**Examples** The following example removes all contexts from the system configuration, and does not confirm the deletion:

```
hostname(config)# clear configure context noconfirm
```

Related Commands	Command	Description
	<b>admin-context</b>	Sets the admin context.
	<b>changeto</b>	Changes between contexts or the system execution space.
	<b>context</b>	Creates a security context in the system configuration and enters context configuration mode.

<b>Command</b>	<b>Description</b>
<b>mode</b>	Sets the context mode to single or multiple.
<b>show context</b>	Shows a list of contexts (system execution space) or information about the current context.

# clear configure crypto

To remove the entire crypto configuration, including IPsec, crypto maps, dynamic crypto maps, CA trustpoints, all certificates, certificate map configurations, and ISAKMP, use the **clear configure crypto** command in global configuration. To remove specific configurations, use this command with keywords as shown in the syntax. Take caution when using this command.

**clear configure crypto** [**ca** | **dynamic-map** | **ipsec** | **isakmp** | **map**]

## Syntax Description

<b>ca</b>	Removes certification authority policy.
<b>dynamic-map</b>	Removes dynamic crypto map configuration.
<b>ipsec</b>	Removes IPsec configuration.
<b>isakmp</b>	Removes ISAKMP configuration.
<b>map</b>	Removes crypto map configuration.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example issued in global configuration mode, removes all of the crypto configuration from the security appliance:

```
hostname(config)# clear configure crypto
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure crypto</b> <b>dynamic-map</b>	Clears all or specified crypto dynamic maps from the configuration.
<b>clear configure crypto map</b>	Clears all or specified crypto maps from the configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>show running-config crypto</b>	Displays the entire crypto configuration, including IPsec, crypto maps, dynamic crypto maps, and ISAKMP.

# clear configure crypto ca trustpoint

To remove all trustpoints from the configuration, use the **clear configure crypto ca trustpoint** command in global configuration.

**clear configure crypto ca trustpoint**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example entered in global configuration mode, removes all trustpoints from the configuration:

```
hostname(config)# clear configure crypto ca trustpoint
hostname(config)#
```

Related Commands	Command	Description
	<b>crypto ca trustpoint</b>	Enters the trustpoint subconfiguration level for the indicated trustpoint.

# clear configure crypto dynamic-map

To remove all or specified crypto dynamic maps from the configuration, use the **clear configure crypto dynamic-map** command in global configuration.

**clear configure crypto dynamic-map** *dynamic-map-name* *dynamic-seq-num*

## Syntax Description

<i>dynamic-map-name</i>	Specifies the name of a specific crypto dynamic map.
<i>dynamic-seq-num</i>	Specifies the sequence number of the crypto dynamic map.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example entered in global configuration mode, removes the crypto dynamic map mymaps with sequence number 3 from the configuration:

```
hostname(config)# clear configure crypto dynamic-map mymaps 3
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure crypto map</b>	Clears the configuration of all or specified crypto maps.
<b>show running-config crypto dynamic-map</b>	Displays all the active configuration for all dynamic crypto maps.
<b>show running-config crypto map</b>	Displays all the active configuration for all crypto maps.

# clear configure crypto isakmp

To remove all of the ISAKMP configuration, use the **clear configure crypto isakmp** command in global configuration mode.

**clear configure crypto isakmp**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	The <b>clear configure isakmp</b> command was introduced.
	7.2(1)	This command was deprecated. The <b>clear configure crypto isakmp</b> command replaces it.

**Examples** The following command, issued in global configuration mode, removes all of the ISAKMP configuration from the security appliance:

```
hostname(config)# clear configure crypto isakmp
hostname(config)#
```

Related Commands	Command	Description
	<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
	<b>crypto isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the security appliance.
	<b>show crypto isakmp stats</b>	Displays runtime statistics.
	<b>show crypto isakmp sa</b>	Displays IKE runtime SA database with additional information.
	<b>show running-config crypto isakmp</b>	Displays all the active configuration.

# clear configure crypto isakmp policy

To remove all of the ISAKMP policy configuration, use the **clear configure isakmp policy** command in global configuration mode.

**clear configure crypto isakmp policy** *priority*

## Syntax Description

*priority* Specifies the priority of the ISAKMP priority to be cleared.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	The <b>clear configure isakmp policy</b> command was introduced.
7.2(1)	The <b>clear configure crypto isakmp policy</b> command replaces the <b>clear configure isakmp policy</b> command.

## Examples

The following example removes the ISAKMP policy with priority 3 from the configuration:

```
hostname(config)# clear configure isakmp policy 3
hostname(config)#
```

## Related Commands

Command	Description
<b>isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the security appliance.
<b>show isakmp stats</b>	Displays runtime statistics.
<b>show isakmp sa</b>	Displays IKE runtime SA database with additional information.
<b>show running-config isakmp</b>	Displays all the active configuration.



# clear configure crypto map

To remove all or specified crypto maps from the configuration, use the **clear configure crypto map** command in global configuration.

**clear configure crypto map** *map-name seq-num*

## Syntax Description

<i>map-name</i>	Specifies the name of a specific crypto map.
<i>seq-num</i>	Specifies the sequence number of the crypto map.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example entered in global configuration mode, removes the crypto map mymaps with sequence number 3 from the configuration:

```
hostname(config)# clear configure crypto map mymaps 3
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure crypto dynamic-map</b>	Clears the configuration of all or specified crypto dynamic maps.
<b>crypto map interface</b>	Applies a crypto map to an interface.
<b>show running-config crypto map</b>	Displays the active configuration for all crypto maps.
<b>show running-config crypto dynamic-map</b>	Displays the active configuration for all dynamic crypto maps.

# clear configure ddns

To clear all DDNS commands, use the **clear configure ddns** command in global configuration mode.

**clear configure ddns**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	—

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

**Examples** The following example clears all DDNS commands:

```
hostname(config)# clear configure ddns
```

Command	Description
<b>ddns (DDNS-update-method mode)</b>	Specifies a DDNS update method type for a created DDNS method.
<b>ddns update (interface config mode)</b>	Associates a security appliance interface with a DDNS update method or a DDNS update hostname.
<b>ddns update method (global config mode)</b>	Creates a method for dynamically updating DNS resource records.
<b>show ddns update interface</b>	Displays the interfaces associated with each configured DDNS method.
<b>show ddns update method</b>	Displays the type and interval for each configured DDNS method. a DHCP server to perform DDNS updates.
<b>show running-config ddns</b>	Displays the type and interval of all configured DDNS methods in the running configuration.

# clear configure dhcpd

To clear all of the DHCP server commands, binding, and statistics, use the **clear configure dhcpd** command in global configuration mode.

## clear configure dhcpd

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was changed from <b>clear dhcpd</b> to <b>clear configure dhcpd</b> .

**Usage Guidelines** The **clear configure dhcpd** command clears all of the **dhcpd** commands, bindings, and statistical information. To clear only the statistic counters or binding information, use the **clear dhcpd** command.

**Examples** The following example shows how to clear all **dhcpd** commands:

```
hostname(config)# clear configure dhcpd
```

Related Commands	Command	Description
	<b>clear dhcpd</b>	Clears the DHCP server bindings and statistic counters.
	<b>show running-config dhcpd</b>	Displays the current DHCP server configuration.

# clear configure dhcprelay

To clear all of the DHCP relay configuration, use the **clear configure dhcprelay** command in global configuration mode.

**clear configure dhcprelay**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	This command was changed from <b>clear dhcprelay</b> to <b>clear configure dhcprelay</b> .

**Usage Guidelines** The **clear configure dhcprelay** command clears the DHCP relay statistics and configuration. To clear only the DHCP statistic counters, use the **clear dhcprelay statistics** command.

**Examples** The following example shows how to clear the DHCP relay configuration:

```
hostname(config)# clear configure dhcprelay
```

Related Commands	Command	Description
	<b>clear dhcprelay statistics</b>	Clears the DHCP relay agent statistic counters.
	<b>debug dhcprelay</b>	Displays debug information for the DHCP relay agent.
	<b>show dhcprelay statistics</b>	Displays DHCP relay agent statistic information.
	<b>show running-config dhcprelay</b>	Displays the current DHCP relay agent configuration.

# clear configure dns

To clear all DNS commands, use the **clear configure dns** command in global configuration mode.

**clear configure dns**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example clears all DNS commands:

```
hostname(config)# clear configure dns
```

Related Commands	Command	Description
	<b>dns domain-lookup</b>	Enables the security appliance to perform a name lookup.
	<b>dns name-server</b>	Configures a DNS server address.
	<b>dns retries</b>	Specifies the number of times to retry the list of DNS servers when the security appliance does not receive a response.
	<b>dns timeout</b>	Specifies the amount of time to wait before trying the next DNS server.
	<b>show dns-hosts</b>	Shows the DNS cache.

# clear configure established

To remove all established commands, use the **clear configure established** command in global configuration mode.

## clear configure established

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	The keyword <b>configure</b> was added.

**Usage Guidelines** To remove an established connection created by the **established** command, enter the **clear xlate** command.

**Examples** This example shows how to remove established commands:

```
hostname(config)# clear configure established
```

Related Commands	Command	Description
	<b>established</b>	Permits return connections on ports that are based on an established connection.
	<b>show running-config established</b>	Displays the allowed inbound connections that are based on established connections.
	<b>clear xlate</b>	Clears the current translation and connection slot information.

# clear configure failover

To remove **failover** commands from the configuration and restore the defaults, use the **clear configure failover** command in global configuration mode.

## clear configure failover

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	Command was changed from <b>clear failover</b> to <b>clear configure failover</b> .

**Usage Guidelines** This command clears all **failover** commands from the running configuration and restores the defaults. If you use the **all** keyword with the **show running-config failover** command, you will see the default failover configuration.

The **clear configure failover** command is not available in a security context in multiple configuration mode; you must enter the command in the system execution space.

**Examples** The following example clears all failover commands from the configuration:

```
hostname(config)# clear configure failover
hostname(config)# show running-configuration failover
no failover
```

Related Commands	Command	Description
	<b>show running-config failover</b>	Displays the <b>failover</b> commands in the running configuration.

# clear configure filter

To clear URL, FTP, and HTTPS filtering configuration, use the **clear configure filter** command in global configuration mode.

## clear configure filter

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

The **clear configure filter** command clears the URL, FTP, and HTTPS filtering configuration.

### Examples

The following example clears the URL, FTP, and HTTPS filtering configuration:

```
hostname# clear configure filter
```

### Related Commands

Commands	Description
<b>filter ftp</b>	Identifies the FTP traffic to be filtered by a URL filtering server.
<b>filter https</b>	Identifies the HTTPS traffic to be filtered by a Websense server.
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>show running-config filter</b>	Displays the filtering configuration.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.



# clear configure fips

To clear the system or module FIPS configuration information stored in NVRAM, use the **clear configure fips** command.

**clear configure fips**

<b>Syntax Description</b>	<b>fips</b>	FIPS-2 compliance information
---------------------------	-------------	-------------------------------

**Defaults** This command has no default settings.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	—	—	•	—	—

Command History	Release	Modification
	7.0(4)	This command was introduced.

**Examples** sw8-ASA(config)# **clear configure fips**

Related Commands	Command	Description
	<b>crashinfo console disable</b>	Disables the reading, writing and configuration of crash write info to flash.
	<b>fips enable</b>	Enables or disablea policy-checking to enforce FIPS compliance on the system or module.
	<b>fips self-test poweron</b>	Executes power-on self-tests.
	<b>show crashinfo console</b>	Reads, writes, and configures crash write to flash.
	<b>show running-config fips</b>	Displays the FIPS configuration that is running on the security appliance.

# clear configure firewall

To set the firewall mode to the default routed mode, use the **clear configure firewall** command in global configuration mode.

## clear configure firewall

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	•

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following example sets the firewall mode to the default:

```
hostname(config)# clear configure firewall
```

**Related Commands**

Command	Description
<b>arp</b>	Adds a static ARP entry.
<b>firewall transparent</b>	Sets the firewall mode to transparent.
<b>show arp statistics</b>	Shows ARP statistics.
<b>show running-config arp</b>	Shows the current configuration of the ARP timeout.

# clear configure fixup

To clear the fixup configuration, use the **clear configure fixup** command in global configuration mode.

## clear configure fixup

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

The **clear configure fixup** command removes the fixup configuration.

### Examples

The following example clears the fixup configuration:

```
hostname# clear configure fixup
```

### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>policy-map</b>	Associates a class map with specific security actions.

# clear configure fragment

To reset all the IP fragment reassembly configurations to defaults, use the **clear configure fragment** command in global configuration mode.

**clear configure fragment** [*interface*]

## Syntax Description

*interface* (Optional) Specifies the security appliance interface.

## Defaults

If an *interface* is not specified, the command applies to all interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	The <b>configure</b> keyword and optional <i>interface</i> argument were added. The command was also separated into two commands, <b>clear fragment</b> and <b>clear configure fragment</b> , to separate clearing of the configuration data from the operational data.

## Usage Guidelines

The **clear configure fragment** command resets all the IP fragment reassembly configurations to defaults. In addition, the the **chain**, **size**, and **timeout** keywords are reset to their default values, which are as follows:

- **chain** is 24 packets
- **size** is 200
- **timeout** is 5 seconds

## Examples

This example shows how to reset all the IP fragment reassembly configurations to defaults:

```
hostname(config)# clear configure fragment
```

## Related Commands

Command	Description
<b>clear fragment</b>	Clears the operational data of the IP fragment reassembly module.
<b>fragment</b>	Provides additional management of packet fragmentation and improves compatibility with NFS.

<b>Command</b>	<b>Description</b>
<b>show fragment</b>	Displays the operational data of the IP fragment reassembly module.
<b>show running-config fragment</b>	Displays the IP fragment reassembly configuration.

# clear configure ftp

To clear the FTP configuration, use the **clear configure ftp** command in global configuration mode.

**clear configure ftp**

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **clear configure ftp** command clears the FTP configuration.

## Examples

The following example clears the FTP configuration:

```
hostname# clear configure filter
```

## Related Commands

Commands	Description
<b>filter ftp</b>	Identifies the FTP traffic to be filtered by a URL filtering server.
<b>filter https</b>	Identifies the HTTPS traffic to be filtered by a Websense server.
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>show running-config filter</b>	Displays the filtering configuration.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# clear configure global

To remove the **global** commands from the configuration, use the **clear configure global** command in global configuration mode.

## clear configure global

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	Added keyword <b>configure</b> .

**Examples** The following example shows how to remove the **global** commands from the configuration:

```
hostname(config)# clear configure global
```

Related Commands	Command	Description
	<b>global</b>	Creates entries from a pool of global addresses.
	<b>show running-config global</b>	Displays the <b>global</b> commands in the configuration.

# clear configure group-delimiter

To remove from the configuration the group delimiter the delimiter used when parsing group names from the user names that are received when tunnels are being negotiated, use the **clear configure group-delimiter** command in global configuration mode. This disables group-name parsing.

**clear config group-delimiter**

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The delimiter is used to parse tunnel group names from user names when tunnels are negotiated. If no delimiter is specified, group-name parsing is disabled.

## Examples

The following example entered in global configuration mode, removes the group delimiter from the configuration:

```
hostname(config)# clear config group-delimiter
hostname(config)#
```

## Related Commands

Command	Description
<b>group-delimiter</b>	Enables group-name parsing and specifies the group delimiter for an IPSec remote access tunnel group.
<b>show running-config group-delimiter</b>	Shows the current configured group delimiter.



# clear configure group-policy

To remove the configuration for a particular group policy, use the **clear configure group-policy** command in global configuration mode, and append the name of the group policy. To remove all group-policy commands from the configuration except the default group policy, use this command without arguments.

**clear configure group-policy** [*name*]

## Syntax Description

<i>name</i>	Specifies the name of the group policy.
-------------	---

## Defaults

Remove all group-policy commands from the configuration, except the default group policy.

## Command Modes

The following table shows the modes in which you can enter the command:

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example shows how to clear the configuration for the group policy named FirstGroup.

```
hostname(config)# clear configure group-policy FirstGroup
```

## Related Commands

Command	Description
<b>group-policy</b>	Creates, edits, or removes a group policy.
<b>group-policy attributes</b>	Enters group-policy attributes mode, which lets you configure AVPs for a specified group policy.
<b>show running-config group-policy</b>	Displays the running configuration for a particular group policy or for all group policies.

# clear configure hostname

To reset the hostname to the default, use the **clear configure hostname** command in global configuration mode.

**clear configure hostname**

**Syntax Description** This command has no arguments or keywords.

**Defaults** The default value depends on your platform.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example clears the hostname:

```
hostname(config)# clear configure hostname
```

Related Commands	Command	Description
	<b>banner</b>	Sets a login, message of the day, or enable banner.
	<b>domain-name</b>	Sets the default domain name.
	<b>hostname</b>	Sets the hostname for the security appliance.

# clear configure http

To disable the HTTP server and to remove configured hosts that can access the HTTP server, use the **clear configure http** command in global configuration mode.

## clear configure http

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Examples

The following example shows how to clear the HTTP configuration.

```
hostname(config)# clear configure http
```

### Related Commands

Command	Description
<b>http</b>	Specifies hosts that can access the HTTP server by IP address and subnet mask. Specifies the security appliance interface through which the host accesses the HTTP server.
<b>http authentication-certificate</b>	Requires authentication via certificate from users who are establishing HTTPS connections to the security appliance.
<b>http redirect</b>	Specifies that the security appliance redirect HTTP connections to HTTPS.
<b>http server enable</b>	Enables the HTTP server.
<b>show running-config http</b>	Displays the hosts that can access the HTTP server, and whether or not the HTTP server is enabled.

# clear configure icmp

To clear the configured access rules for ICMP traffic, use the **clear configure icmp** command in global configuration mode.

## clear configure icmp

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

The **clear configure icmp** command clears the configured access rules for ICMP traffic.

### Examples

The following example clears the clear configured access rules for ICMP traffic:

```
hostname# clear configure icmp
```

### Related Commands

Commands	Description
<b>clear configure icmp</b>	Clears the ICMP configuration.
<b>debug icmp</b>	Enables the display of debug information for ICMP.
<b>show icmp</b>	Displays ICMP configuration.
<b>timeout icmp</b>	Configures the idle timeout for ICMP.

# clear configure imap4s

To remove all IMAP4S commands from the configuration, reverting to default values, use the **clear configure imap4s** command in global configuration mode.

**clear configure imap4s**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)(1)	This command was introduced.

**Examples** The following example shows how to remove the IMAP4S configuration:

```
hostname(config)# clear configure imap4s
hostname(config)#
```

Related Commands	Command	Description
	<b>show running-configuration imap4s</b>	Displays the running configuration for IMAP4S.
	<b>imap4s</b>	Creates or edits an IMAP4S e-mail proxy configuration.

# clear configure interface

To clear the interface configuration, use the **clear configure interface** command in global configuration mode.

```
clear configure interface [physical_interface[.subinterface] | mapped_name | interface_name]
```

## Syntax Description

<i>interface_name</i>	(Optional) Identifies the interface name set with the <b>nameif</b> command.
<i>mapped_name</i>	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the <b>allocate-interface</b> command.
<i>physical_interface</i>	(Optional) Identifies the interface ID, such as <b>gigabitethernet0/1</b> . See the <b>interface</b> command for accepted values.
<i>subinterface</i>	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.

## Defaults

If you do not specify an interface, the security appliance clears all interface configuration.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was changed from <b>clear interface</b> . This command was also modified to include the new interface numbering scheme.

## Usage Guidelines

When you clear the interface configuration for main physical interfaces, the security appliance uses the default settings.

You cannot use the interface name in the system execution space, because the **nameif** command is only available within a context. Similarly, if you mapped the interface ID to a mapped name using the **allocate-interface** command, you can only use the mapped name in a context.

## Examples

The following example clears the GigabitEthernet0/1 configuration:

```
hostname(config)# clear configure interface gigabitethernet0/1
```

The following example clears the inside interface configuration:

```
hostname(config)# clear configure interface inside
```

The following example clears the int1 interface configuration in a context. “int1” is a mapped name.

```
hostname/contexta(config)# clear configure interface int1
```

The following example clears all interface configuration.

```
hostname(config)# clear configure interface
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>allocate-interface</b>	Assigns interfaces and subinterfaces to a security context.
<b>clear interface</b>	Clears counters for the <b>show interface</b> command.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.

# clear configure ip

To clear all IP addresses set by the **ip address** command, use the **clear configure ip** command in global configuration mode.

## clear configure ip

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines** In transparent firewall mode, this command clears the management IP address and the Management 0/0 IP address, if configured.

If you want to stop all current connections that use the old IP addresses, enter the **clear xlate** command. Otherwise, the connections time out as usual.

**Examples** The following example clears all IP addresses:

```
hostname(config)# clear configure ip
```

Related Commands	Command	Description
	<b>allocate-interface</b>	Assigns interfaces and subinterfaces to a security context.
	<b>clear configure interface</b>	Clears all configuration for an interface.
	<b>interface</b>	Configures an interface and enters interface configuration mode.
	<b>ip address</b>	Sets the IP address for the interface.
	<b>show running-config interface</b>	Displays the interface configuration.



# clear configure ip audit

To clear the entire audit policy configuration, use the **clear configure ip audit** command in global configuration mode.

**clear configure ip audit [configuration]**

<b>Syntax Description</b>	<b>configuration</b> (Optional) You can enter this keyword, but the effect is the same without it.
---------------------------	--

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.0(1)	This command was changed from <b>clear ip audit</b> .

<b>Examples</b>	The following example clears all <b>ip audit</b> commands:
-----------------	--

```
hostname# clear configure ip audit
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>ip audit attack</b>	Sets the default actions for packets that match an attack signature.
	<b>ip audit info</b>	Sets the default actions for packets that match an informational signature.
	<b>ip audit interface</b>	Assigns an audit policy to an interface.
	<b>ip audit name</b>	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
	<b>ip audit signature</b>	Disables a signature.

# clear configure ip local pool

To remove IP address pools, use the **clear configure ip local pool** command in global configuration mode.

```
clear ip local pool [poolname]
```

<b>Syntax Description</b>	<i>poolname</i> (Optional) Specifies the name of the IP address pool.
---------------------------	---

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.0(1)	This command was introduced.

<b>Examples</b>	The following example removes all IP address pools from the running configuration:
-----------------	--

```
hostname(config)# clear config ip local pool
hostname(config)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>clear configure ip local pool</b>	Removes all ip local pools.
	<b>ip local pool</b>	Configures an IP address pool.

# clear configure ip verify reverse-path

To clear the **ip verify reverse-path** configuration, use the **clear configure ip verify reverse-path** command in global configuration mode.

**clear configure ip verify reverse-path**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	This command was changed from <b>clear ip verify reverse-path</b> .

**Examples** The following example clears the **ip verify reverse-path** configuration for all interfaces:

```
hostname(config)# clear configure ip verify reverse-path
```

Related Commands	Command	Description
	<b>clear ip verify statistics</b>	Clears the Unicast RPF statistics.
	<b>ip verify reverse-path</b>	Enables the Unicast Reverse Path Forwarding feature to prevent IP spoofing.
	<b>show ip verify statistics</b>	Shows the Unicast RPF statistics.
	<b>show running-config ip verify reverse-path</b>	Shows the <b>ip verify reverse-path</b> configuration.

# clear configure ipv6

To clear the global IPv6 commands from the running configuration, use the **clear configure ipv6** command in global configuration mode.

**clear configure ipv6 [route | access-list]**

## Syntax Description

<b>route</b>	(Optional) Clears the commands that statically define routes in the IPv6 routing table from the running configuration.
<b>access-list</b>	(Optional) Clears the IPv6 access list commands from the running configuration.

## Defaults

Without keywords, this command clears all IPv6 commands from the running configuration.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command only clears the global IPv6 commands from the running configuration; it does not clear the IPv6 commands entered in interface configuration mode.

## Examples

The following example shows how to clear statically defined IPv6 routes from the IPv6 routing table:

```
hostname(config)# clear configure ipv6 route
hostname(config)#
```

## Related Commands

Command	Description
<b>ipv6 route</b>	Defines a static route in the IPv6 routing table.
<b>show ipv6 route</b>	Displays the contents of the IPv6 routing table.
<b>show running-config ipv6</b>	Displays the IPv6 commands in the running configuration.

# clear configure isakmp

To remove all of the ISAKMP configuration, use the **clear configure isakmp** command in global configuration mode.

**clear configure isakmp**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	The <b>clear configure isakmp</b> command was introduced.
	7.2(1)	This command was deprecated. The <b>clear configure crypto isakmp</b> command replaces it.

**Examples** The following example issued in global configuration mode, removes all of the ISAKMP configuration from the security appliance:

```
hostname(config)# clear configure isakmp
hostname(config)#
```

Related Commands	Command	Description
	<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
	<b>isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPSec peer communicates with the security appliance.
	<b>show isakmp stats</b>	Displays runtime statistics.
	<b>show isakmp sa</b>	Displays IKE runtime SA database with additional information.
	<b>show running-config isakmp</b>	Displays all the active configuration.

# clear configure isakmp policy

To remove all of the ISAKMP policy configuration, use the **clear configure isakmp policy** command in global configuration mode.

**clear configure isakmp policy** *priority*

## Syntax Description

*priority* Specifies the priority of the ISAKMP priority to be cleared.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	The <b>clear configure isakmp policy</b> command was introduced.
7.2(1)	This command was deprecated. The <b>clear configure crypto isakmp policy</b> command replaces it.

## Examples

The following example removes the ISAKMP policy with priority 3 from the configuration:

```
hostname(config)# clear configure isakmp policy 3
hostname(config)#
```

## Related Commands

Command	Description
<b>isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the security appliance.
<b>show isakmp stats</b>	Displays runtime statistics.
<b>show isakmp sa</b>	Displays IKE runtime SA database with additional information.
<b>show running-config isakmp</b>	Displays all the active configuration.

# clear configure ldap attribute-map

To remove all the LDAP attribute maps from the security appliance's running configuration, use the **clear configure ldap attribute-map** command in global configuration mode.

## clear configure ldap attribute-map

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
global configuration	•	•	•	•	—

Command History	Release	Modification
	7.1(1)	This command was introduced.

**Usage Guidelines** Use this command to remove the LDAP attribute maps from the security appliance's running configuration.

**Examples** The following example, entered in global configuration mode, removes all LDAP attributes map from the running configuration and then confirms the removal:

```
hostname(config)# clear configuration ldap attribute-map
hostname(config)# show running-config ldap attribute-map
hostname(config)#
```

Related Commands	Command	Description
	<b>ldap attribute-map (global config mode)</b>	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.
	<b>ldap-attribute-map (aaa-server host mode)</b>	Binds an LDAP attribute map to an LDAP server.
	<b>map-name</b>	Maps a user-defined LDAP attribute name with a Cisco LDAP attribute name.
	<b>map-value</b>	Maps a user-defined attribute value to a Cisco attribute.
	<b>show running-config ldap attribute-map</b>	Displays a specific running LDAP attribute map or all running attribute maps.

# clear configure logging

To clear logging configuration, use the **clear configure logging** command in global configuration mode.

**clear configure logging** [**disabled** | **level**]

Syntax Description	disabled	(Optional) Indicates that all disabled system log messages should be re-enabled. When you use this option, no other logging configuration is cleared.
	<b>level</b>	(Optional) Indicates that the severity level assignments for system log messages should be reset to their default values. When you use this option, no other logging configuration is cleared.
	(no option specified)	Returns all configuration settings to their default values.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)(1)	This command was introduced.

**Usage Guidelines** You can use the **show running-config logging** command to view all logging configuration. If you use the **clear configure logging** command without either the **disabled** or **level** keyword, all logging configuration settings are cleared and returned to their default values.

**Examples** The following example shows how to clear logging configuration. The output of the **show logging** command indicates that all logging features are disabled.

```
hostname(config)# clear configure logging
hostname(config)# show logging
Syslog logging: disabled
  Facility: 20
  Timestamp logging: disabled
  Standby logging: disabled
  Deny Conn when Queue Full: disabled
  Console logging: disabled
  Monitor logging: disabled
```



```
Buffer logging: disabled
Trap logging: disabled
History logging: disabled
Device ID: disabled
Mail logging: disabled
ASDM logging: disabled
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.

# clear configure logging rate-limit

To reset the logging rate limit, use the **clear configure logging rate-limit** command.

**clear configure logging rate-limit**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command has no default settings.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	7.0(4)	This command was introduced.

**Examples** The following example shows how to reset the logging rate limit:

```
hostname(config)# clear configure logging rate-limit
```

After the information is cleared, nothing more displays until the hosts reestablish their connections.

Related Commands	Command	Description
	<b>logging rate limit</b>	Limits the rate at which system log messages are generated.
	<b>show running config logging rate-limit</b>	Shows the current logging rate limit setting.

# clear configure mac-address-table

To clear the **mac-address-table static** and **mac-address-table aging-time** configuration, use the **clear configure mac-address-table** command in global configuration mode.

**clear configure mac-address-table**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	—	•	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following example clears the **mac-address-table static** and **mac-address-table aging-time** configuration:

```
hostname# clear configure mac-address-table
```

**Related Commands**

Command	Description
<b>firewall transparent</b>	Sets the firewall mode to transparent.
<b>mac-address-table aging-time</b>	Sets the timeout for dynamic MAC address entries.
<b>mac-address-table static</b>	Adds static MAC address entries to the MAC address table.
<b>mac-learn</b>	Disables MAC address learning for an interface.
<b>show mac-address-table</b>	Shows the MAC address table, including dynamic and static entries.

# clear configure mac-learn

To clear the **mac-learn** configuration, use the **clear configure mac-learn** command in global configuration mode.

**clear configure mac-learn**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	—	•	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following example clears the **mac-learn** configuration:

```
hostname# clear configure mac-learn
```

**Related Commands**

Command	Description
<b>firewall transparent</b>	Sets the firewall mode to transparent.
<b>mac-address-table static</b>	Adds static MAC address entries to the MAC address table.
<b>mac-learn</b>	Disables MAC address learning for an interface.
<b>show mac-address-table</b>	Shows the MAC address table, including dynamic and static entries.

# clear configure mac-list

To remove the indicated list of MAC addresses, previously specified the **mac-list** command, use the **clear configure mac-list** command in global configuration mode:

```
clear configure mac-list id
```

## Syntax Description

*id* A MAC address list name.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was modified to conform with CLI standards.

## Usage Guidelines

To remove a list of MAC addresses, use the **clear mac-list** command.

## Examples

The following example shows how to clear a MAC address list:

```
hostname(config)# clear configure mac-list firstmaclist
```

## Related Commands

Command	Description
<b>mac-list</b>	Adds a list of MAC addresses using a first-match search.
<b>show running-config mac-list</b>	Displays the MAC addresses in the MAC address list indicated by the <i>id</i> value.

# clear configure management-access

To remove the configuration of an internal interface for management access of the security appliance, use the **clear configure management-access** command in global configuration mode.

**clear configure management-access**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	The keyword <b>configure</b> was added.

**Usage Guidelines** The **management-access** command lets you define an internal management interface using the IP address of the firewall interface specified in *mgmt\_if*. (The interface names are defined by the **nameif** command and displayed in quotes, “”, in the output of the **show interface** command.) The **clear configure management-access** command removes the configuration of the internal management interface specified with the **management-access** command.

**Examples** The following example removes the configuration of an internal interface for management access of the security appliance:

```
hostname(config)# clear configure management-access
```

Related Commands	Command	Description
	<b>management-access</b>	Configures an internal interface for management access.
	<b>show running-config management-access</b>	Displays the name of the internal interface configured for management access.

# clear configure monitor-interface

To remove all **monitor-interface** commands from the running configuration and restore the default interface health monitoring, use the **clear configure monitor-interface** command in global configuration mode.

## clear configure monitor-interface

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** By default, physical interfaces are monitored for failover. Using the **clear monitor-interface** command clears the **no monitor-interface** commands from the running configuration and restores default interface health monitoring. To view the **monitor-interface** commands in the running configuration, use the **show running-config all monitor-interface** command.

**Examples** The following example clears the **monitor-interface** commands from the running configuration:

```
hostname(config)# clear configure monitor-interface
hostname(config)#
```

Related Commands	Command	Description
	<b>monitor-interface</b>	Enables health monitoring of a designated interface for failover purposes.
	<b>show running-config monitor-interface</b>	Displays the <b>monitor-interface</b> commands in the running configuration.

# clear configure mroute

To remove the **mroute** commands from the running configuration, use the **clear configure mroute** command in global configuration mode.

**clear configure mroute**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example shows how to remove the **mroute** commands from the configuration:

```
hostname(config)# clear configure mroute
hostname(config)#
```

Related Commands	Command	Description
	<b>mroute</b>	Configures a static multicast route.
	<b>show mroute</b>	Displays IPv4 multicast routing table.
	<b>show running-config mroute</b>	Displays the <b>mroute</b> commands in the running configuration.



# clear configure mtu

To clear the configured maximum transmission unit values on all interfaces, use the **clear configure mtu** command in global configuration mode.

## clear configure mtu

**Syntax Description** This command has no arguments or keywords.

**Defaults** Using the **clear configure mtu command** sets the maximum transmission unit to the default of 1500 for all ethernet interfaces.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	—	•	•	•	—

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Examples** The following example clears the current maximum transmission unit values on all interfaces:

```
hostname(config)# clear configure mtu
```

**Related Commands**

Command	Description
<b>mtu</b>	Specifies the maximum transmission unit for an interface.
<b>show running-config mtu</b>	Displays the current maximum transmission unit block size.

# clear configure multicast-routing

To remove the **multicast-routing** command from the running configuration, use the **clear configure multicast-routing** command in global configuration mode.

## clear configure multicast-routing

**Syntax Description** There are no keywords or arguments for this command.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **clear configure multicast-routing** command removes the **multicast-routing** from the running configuration. The **no multicast-routing** command also removes the multicast-routing command from the running configuration.

**Examples** The following example shows how to remove the **multicast-routing** command from the running configuration:

```
hostname(config)# clear configure multicast-routing
```

Related Commands	Command	Description
	<b>multicast-routing</b>	Enables multicast routing on the security appliance.

# clear configure name

To clear the list of names from the configuration, use the **clear configure name** command in global configuration mode.

## clear configure name

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	The keyword <b>configure</b> was added.

**Usage Guidelines** This command has no usage guidelines.

**Examples** The following example shows how to clear the name list:

```
hostname(config)# clear configure name
```

Related Commands	Command	Description
	<b>name</b>	Associates a name with an IP address.
	<b>show running-config name</b>	Displays the list of names associated with IP addresses.

# clear configure nat

To remove the NAT configuration, use the **clear configure nat** command in privileged EXEC mode.

**clear configure nat**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	Added keyword <b>configure</b> .

**Usage Guidelines** The following applies to transparent firewall mode:



**Note**

In transparent firewall mode, only NAT id 0 is valid.

**Examples** The following example shows how to remove the NAT configuration:

```
hostname(config)# clear configure nat
```

Related Commands	Command	Description
	<b>nat</b>	Associates a network with a pool of global IP addresses.
	<b>show running-config nat</b>	Displays a pool of global IP addresses that are associated with the network.

# clear configure nat-control

To disable the NAT configuration requirement, use the **clear configure nat-control** command in global configuration mode.

## clear configure nat-control

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following example disables the NAT configuration requirement:

```
hostname(config)# clear configure nat-control
```

Related Commands	Command	Description
	<b>nat</b>	Defines an address on one interface that is translated to a global address on another interface.
	<b>nat-control</b>	Enforces NAT control. Disabling NAT control allows inside hosts to communicate with outside networks without configuring a NAT rule.
	<b>show running-config nat-control</b>	Displays the NAT configuration requirement.

# clear configure ntp

To clear the NTP configuration, use the **clear configure ntp** command in global configuration mode.

**clear configure ntp**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was changed from <b>clear ntp</b> .

**Examples** The following example clears all **ntp** commands:

```
hostname# clear configure ntp
```

Related Commands	Command	Description
	<b>ntp authenticate</b>	Enables NTP authentication.
	<b>ntp authentication-key</b>	Sets the NTP authentication key.
	<b>ntp server</b>	Identifies an NTP server to set the time on the security appliance.
	<b>ntp trusted-key</b>	Specifies the NTP trusted key.
	<b>show running-config ntp</b>	Shows the NTP configuration.

# clear configure object-group

To remove all the **object group** commands from the configuration, use the **clear configure object-group** command in global configuration mode.

```
clear configure object-group [{protocol | service | icmp-type | network}]
```

## Syntax Description

<b>icmp-type</b>	(Optional) Clears all ICMP groups.
<b>network</b>	(Optional) Clears all network groups.
<b>protocol</b>	(Optional) Clears all protocol groups.
<b>service</b>	(Optional) Clears all service groups.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example shows how to remove all the **object-group** commands from the configuration:

```
hostname(config)# clear configure object-group
```

## Related Commands

Command	Description
<b>group-object</b>	Adds network object groups.
<b>network-object</b>	Adds a network object to a network object group.
<b>object-group</b>	Defines object groups to optimize your configuration.
<b>port-object</b>	Adds a port object to a service object group.
<b>show running-config object-group</b>	Displays the current object groups.

# clear configure passwd

To clear the login password configuration and restore the default setting of “cisco,” use the **clear configure passwd** command in global configuration mode.

```
clear configure {passwd | password}
```

<b>Syntax Description</b>	<b>passwd   password</b> You can enter either command; they are aliased to each other.
---------------------------	--

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.0(1)	This command was changed from <b>clear passwd</b> .

<b>Examples</b>	The following example clears the login password and restores it to the default of “cisco”:
-----------------	--

```
hostname(config)# clear configure passwd
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>enable</b>	Enters privileged EXEC mode.
	<b>enable password</b>	Sets the enable password.
	<b>passwd</b>	Sets the login password.
	<b>show curpriv</b>	Shows the currently logged in username and the user privilege level.
	<b>show running-config passwd</b>	Shows the login password in encrypted form.



# clear configure pim

To clear all of the global **pim** commands from the running configuration, use the **clear configure pim** command in global configuration mode.

## clear configure pim

### Syntax Description

There are no keywords or arguments for this command.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

The **clear configure pim** command clears all of the **pim** commands from the running configuration. To clear PIM traffic counters and topology information, use the **clear pim counters** and the **clear pim topology** commands.

The **clear configure pim** command only clears the **pim** commands entered in global configuration mode; it does not clear the interface-specific **pim** commands.

### Examples

The following example shows how to clear all **pim** commands from the running configuration:

```
hostname(config)# clear configure pim
```

### Related Commands

Command	Description
<b>clear pim topology</b>	Clears the PIM topology table.
<b>clear pim counters</b>	Clears the PIM traffic counters.
<b>show running-config pim</b>	Displays the <b>pim</b> commands in the running configuration.

# clear configure policy-map

To remove the all **policy-map** commands, use the **clear configure policy-map** command in global configuration mode.

```
clear configure policy-map [type inspect [protocol]]
```

## Syntax Description

<b>type inspect</b>	(Optional) Clears inspection policy maps.
<i>protocol</i>	(Optional) Specifies the type of inspection policy map you want to clear. Available types include: <ul style="list-style-type: none"> <li>• dcerpc</li> <li>• dns</li> <li>• esmtp</li> <li>• ftp</li> <li>• gtp</li> <li>• h323</li> <li>• http</li> <li>• im</li> <li>• mgcp</li> <li>• netbios</li> <li>• p2p</li> <li>• radius-accounting</li> <li>• sip</li> <li>• skinny</li> <li>• snmp</li> </ul>

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

---

**Usage Guidelines**

To clear the policy map for a specific policy map name, use the **no** form of the **policy-map** command.

---

**Examples**

This example shows the **clear configure policy-map** command:

```
hostname(config)# clear configure policy-map
```

---

**Related Commands**

Command	Description
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>show running-config policy-map</b>	Displays the entire policy configuration.

# clear configure pop3s

To remove all POP3S commands from the configuration, reverting to default values, use the **clear configure pop3s** command in global configuration mode.

**clear configure pop3s**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)(1)	This command was introduced.

**Examples** The following example shows how to remove the POP3S configuration:

```
hostname(config)# clear configure pop3s
hostname(config)#
```

Related Commands	Command	Description
	<b>show running-configuration pop3s</b>	Displays the running configuration for POP3S.
	<b>pop3s</b>	Creates or edits a POP3S e-mail proxy configuration.

# clear configure port-forward

To remove a configured set of applications that WebVPN users access over forwarded TCP ports, use the **clear configure port-forward** command in global configuration mode. To remove all configured applications, use this command without the *listname* argument. To remove only the applications for a specific list, use this command with that *listname*.

**clear configure port-forward** [*listname*]

## Syntax Description

<i>listname</i>	Groups the set of applications (forwarded TCP ports) WebVPN users can access. Maximum 64 characters.
-----------------	--

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Examples

The following example shows how to remove the portforwarding list called *SalesGroupPorts*.

```
hostname(config)# clear configure port-forward SalesGroupPorts
```

## Related Commands

Command	Description
<b>port-forward</b>	Use this command in webvpn configuration mode to configure the set of applications that WebVPN users can access.
<b>port-forward</b>	Use this command in webvpn mode to enable WebVPN application access for a user or group policy.
<b>show running-configuration port-forward</b>	Displays the current set of configured <b>port-forward</b> commands.

# clear configure prefix-list

To remove the **prefix-list** commands from the running configuration, use the **clear configure prefix-list** command in global configuration mode.

```
clear configure prefix-list [prefix-list-name]
```

## Syntax Description

*prefix-list-name* (Optional) The name of a prefix list. When a prefix list name is specified, only the commands for that prefix list are removed from the configuration.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was changed from <b>clear prefix-list</b> to <b>clear configure prefix-list</b> .

## Usage Guidelines

The **clear configure prefix-list** command removes the **prefix-list** commands and the **prefix-list description** commands from the running configuration. If a prefix list name is specified, then the **prefix-list** command and **prefix-list description** command, if present, for that prefix list only are removed from the running configuration.

This command does not remove the **no prefix-list sequence** command from the running configuration.

## Examples

The following example removes all **prefix-list** commands from the running configuration for a prefix list named MyPrefixList:

```
hostname# clear configure prefix-list MyPrefixList
```

## Related Commands

Command	Description
<b>show running-config prefix-list</b>	Displays the <b>prefix-list</b> commands in the running configuration.

# clear configure priority-queue

To remove the priority queue specification from the configuration, use the **clear configure priority-queue** command in global configuration mode.

**clear configure priority queue** *interface-name*

## Syntax Description

<i>interface-name</i>	Specifies the name of the interface for which you want to show the priority queue details
-----------------------	---

This command has no arguments or keywords.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

This example shows the use of the **clear configure priority-queue** command to remove the priority-queue configuration on the interface named test:

```
hostname(config)# clear configure priority-queue test
```

## Related Commands

Command	Description
<b>priority-queue</b>	Configures priority queuing on an interface.
<b>show running-config priority-queue</b>	Displays the current priority-queue configuration for the named interface.

# clear configure privilege

To remove the configured privilege levels for commands, use the **clear configure privilege** command in global configuration mode.

## clear configure privilege

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was modified to conform to CLI guidelines.

**Usage Guidelines** There is no undo.

**Examples** This example shows how to reset the configured privilege levels for the commands:

```
hostname(config)# clear configure privilege
```

Related Commands	Command	Description
	<b>privilege</b>	Configures the command privilege levels.
	<b>show curpriv</b>	Displays current privilege level
	<b>show running-config privilege</b>	Displays privilege levels for commands.



# clear configure regex

To remove all regular expressions, use the **clear configure regex** command in global configuration mode.

## clear configure regex

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** To clear the regular expression for a specific regular expression name, use the **no** form of the **regex** command.

**Examples** The following example shows how to clear all configured regular expressions:

```
hostname(config)# clear configure regex
```

Related Commands	Command	Description
	<b>class-map type regex</b>	Creates a regular expression class map.
	<b>regex</b>	Creates a regular expression.
	<b>show running-config regex</b>	Shows all regular expressions.
	<b>test regex</b>	Tests a regular expression.

# clear configure route

To remove the **route** commands from the configuration that do not contain the **connect** keyword, use the **clear configure route** command in global configuration mode.

```
clear configure route [interface_name ip_address [netmask gateway_ip]]
```

## Syntax Description

<i>gateway_ip</i>	(Optional) Specifies the IP address of the gateway router (the next hop address for this route).
<i>interface_name</i>	(Optional) Internal or external network interface name.
<i>ip_address</i>	(Optional) Internal or external network IP address.
<i>netmask</i>	(Optional) Specifies a network mask to apply to the <i>ip_address</i> .

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	Added keyword <b>configure</b> .

## Usage Guidelines

Use **0.0.0.0** to specify a default route. You can abbreviate the 0.0.0.0 IP address as **0** and the 0.0.0.0 *netmask* as **0**.

## Examples

The following example shows how to remove the **route** commands from the configuration that do not contain the **connect** keyword:

```
hostname(config)# clear configure route
```

## Related Commands

Command	Description
<b>route</b>	Specifies a static or default route for the an interface.
<b>show route</b>	Displays route information.
<b>show running-config route</b>	Displays configured routes.

# clear configure route-map

To remove all of the route maps, use the **clear configure route-map** command in global configuration mode.

## clear configure route-map

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** Use the **clear configure route-map** command in global configuration mode to remove all **route-map** commands in the configuration. The **route-map** command is used to configure conditions of redistributing the routes from one routing protocol into another routing protocol.

To remove individual **route-map** commands, use the **no route-map** command.

**Examples** The following example shows how to remove the conditions of redistributing routes from one routing protocol into another routing protocol:

```
hostname(config)# clear configure route-map
```

Related Commands	Command	Description
	<b>route-map</b>	Defines the conditions for redistributing routes from one routing protocol into another.
	<b>show running-config route-map</b>	Displays the information about the route map configuration.

# clear configure router

To clear the router configuration commands from the running configuration, use the **clear configure router** command in global configuration mode.

**clear configure router** [*ospf* [*id*] | *rip*]

## Syntax Description

<i>id</i>	(Optional) Clears the configuration commands for the specified OSPF process ID. If not specified, the configuration commands for all OSPF processes are cleared.
<b>ospf</b>	(Optional) Specifies that only OSPF configuration commands are removed from the configuration.
<b>rip</b>	Specifies that only RIP configuration commands are removed from the configuration.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was changed from the <b>clear router</b> command to the <b>clear configure router</b> command.
7.2(1)	The <b>rip</b> keyword was added to the command.

## Examples

The following example clears all OSPF commands associated with OSPF process 1 from the running configuration:

```
hostname(config)# clear configure router ospf 1
```

The following example clears all global configuration mode commands associated with RIP routing process from the running configuration. It does not clear RIP commands entered in interface configuration mode.

```
hostname(config)# clear configure router rip
```

## Related Commands

Command	Description
<code>show running-config router</code>	Displays the commands in the global router configuration.

# clear configure same-security-traffic

To clear the same-security-traffic configuration, use the **clear configure same-security-traffic** command in global configuration mode.

**clear configure same-security-traffic**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example clears the **same-security-traffic** configuration:

```
hostname(config)# clear configure same-security-traffic
```

Related Commands	Command	Description
	<b>same-security-traffic</b>	Permits communication between interfaces with equal security levels.
	<b>show running-config same-security-traffic</b>	Displays the <b>same-security-traffic</b> configuration.

# clear configure service-policy

To clear the service policy configuration, use the **clear configure service-policy** command in global configuration mode.

## clear configure service-policy

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following is an example of the **clear configure service-policy** command:

```
hostname(config)# clear configure service-policy
```

Related Commands	Command	Description
	<b>show service-policy</b>	Displays the service policy.
	<b>show running-config service-policy</b>	Displays the service policies configured in the running configuration.
	<b>service-policy</b>	Configures the service policy.
	<b>clear service-policy</b>	Clears service policy statistics.

# clear configure sla monitor

To remove the **sla monitor** commands and subcommands from the running configuration, use the **clear configure sla monitor** command in global configuration mode.

**clear configure sla monitor** [*sla-id*]

## Syntax Description

*sla-id* (Optional) The ID of the SLA operation. Valid values are from 1 to 2147483647.

## Defaults

If the *sla-id* is not specified, all SLA operation configurations are cleared.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command clears the **sla monitor** command, associated SLA monitor configuration mode commands, and the associated **sla monitor** schedule command, if present. It does not remove the **track rtr** commands from the configuration.

To view the sla monitor commands in the running configuration, use the **show running-config sla monitor** command.

## Examples

The following example clears all **sla monitor** commands from the configuration:

```
hostname(config)# clear configure sla monitor
```

The following example clears the **sla monitor** commands associated with the SLA operation ID 5:

```
hostname(config)# clear configure sla monitor 5
```

## Related Commands

Command	Description
<b>show running-config sla monitor</b>	Displays the sla monitor commands in the running configuration.



# clear configure smtps

To remove all SMTPS commands from the configuration, reverting to default values, use the **clear configure smtps** command in global configuration mode.

## clear configure smtps

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example shows how to remove the SMTPS configuration:

```
hostname(config)# clear configure smtps
hostname(config)#
```

Related Commands	Command	Description
	<b>show running-configuration smtps</b>	Displays the running configuration for SMTPS.
	<b>smtps</b>	Creates or edits an SMTPS e-mail proxy configuration

# clear configure smtp-server

To clear all of the SMTP server commands and statistics, use the **clear configure smtp-server** command in global configuration mode.

**clear configure smtp-server**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.1(1)	Support for this command was introduced.

**Usage Guidelines** The **clear configure smtp-server** command clears all of the **smtp** commands and statistical information.

**Examples** The following example shows how to clear all **smtp-server** commands:

```
hostname(config)# clear configure smtp-server
```

Related Commands	Command	Description
	<b>show running-config smtp-server</b>	Displays the current DHCP server configuration.

# clear configure snmp-map

To clear the SNMP map configuration, use the **clear configure snmp-map** command in global configuration mode.

## clear configure snmp-map

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

The **clear configure snmp-map** command removes the SNMP map configuration.

### Examples

The following example clears the SNMP map configuration:

```
hostname# clear configure snmp-map
```

### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>deny version</b>	Disallows traffic using a specific version of SNMP.
<b>inspect snmp</b>	Enable SNMP application inspection.
<b>snmp-map</b>	Defines an SNMP map and enables SNMP map configuration mode.

# clear configure snmp-server

To disable the Simple Network Management Protocol (SNMP) server, use the **clear configure snmp-server** command in global configuration mode.

**clear configure snmp-server**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command has no default settings.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	Support for this command was introduced on the security appliance.

**Examples** This example shows how to disable the SNMP server:

```
hostname #clear snmp-server
```

Related Commands	Command	Description
	<b>snmp-server</b>	Provides the security appliance event information through SNMP.
	<b>show snmp-server statistics</b>	Displays information about the SNMP server configuration.

# clear configure ssh

To clear all SSH commands from the running configuration, use the **clear configure ssh** command in global configuration mode.

## clear configure ssh

### Syntax Description

This command has no arguments or keywords.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
7.0(1)	This command was changed from the <b>clear ssh</b> command to the <b>clear configure ssh</b> command.

### Usage Guidelines

This command clears all SSH commands from the configuration. To clear specific commands, use the **no** form of those commands.

### Examples

The following example clears all SSH commands from the configuration:

```
hostname(config)# clear configure ssh
```

### Related Commands

Command	Description
<b>show running-config ssh</b>	Displays the current SSH commands in the running configuration.
<b>ssh</b>	Allows SSH connectivity to the security appliance from the specified client or network.
<b>ssh scopy enable</b>	Enables a secure copy server on the security appliance.
<b>ssh timeout</b>	Sets the timeout value for idle SSH sessions.
<b>ssh version</b>	Restricts the security appliance to using either SSH Version 1 or SSH Version 2.

# clear configure ssl

To remove all SSL commands from the configuration, reverting to default values, use the **clear config ssl** command in global configuration mode.

**clear config ssl**

## Defaults

By default:

- Both the SSL client and SSL server versions are **any**.
- SSL encryption is 3des-sha1 | des-sha1 | rc4-md5, in that order.
- There is no trust point association; the security appliance uses the default RSA key-pair certificate.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example shows how to use the **clear config ssl** command:

```
hostname(config)# clear config ssl
```

## Related Commands

Command	Description
<b>show running-config ssl</b>	Displays the current set of configured ssl commands.
<b>ssl client-version</b>	Specifies the SSL/TLS protocol version the security appliance uses when acting as a client.
<b>ssl server-version</b>	Specifies the SSL/TLS protocol version the security appliance uses when acting as a server
<b>ssl trust-point</b>	Specifies the certificate trust point that represents the SSL certificate for an interface

# clear configure static

To remove all the **static** commands from the configuration, use the **clear configure static** command in global configuration mode.

**clear configure static**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	The keyword <b>configure</b> was added.

**Examples** This example shows how to remove all the **static** commands from the configuration:

```
hostname(config)# clear configure static
```

Related Commands	Command	Description
	<b>show running-config static</b>	Displays all <b>static</b> commands in the configuration.
	<b>static</b>	Configures a persistent one-to-one address translation rule by mapping a local IP address to a global IP address.

# clear configure sunrpc-server

To clear the remote processor call services from the security appliance, use the **clear configure sunrpc-server** command in global configuration mode.

```
clear configure sunrpc-server [active]
```

<b>Syntax Description</b>	<b>active</b>	(Optional) Identifies the SunRPC services that are currently active on the security appliance.
---------------------------	---------------	--

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **sunrpc-server** command displays the configured **router ospf** commands.



**Note**

If the highest-level IP address on the security appliance is a private address, this address is sent in hello packets and database definitions. To prevent this action, set the **router-id ip\_address** to a global address.

**Examples** The following example shows how to clear the SunRPC services from the security appliance:

```
hostname(config)# clear configure sunrpc-server active
```

Related Commands	Command	Description
	<b>sunrpc-server</b>	Creates the SunRPC services table.
	<b>show running-config sunrpc-server</b>	Displays the information about the SunRPC configuration.



# clear configure sysopt

To clear the configuration for all **sysopt** commands, use the **clear configure sysopt** command in global configuration mode.

## clear configure sysopt

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was changed from <b>clear sysopt</b> .

**Examples** The following example clears all **sysopt** command configuration:

```
hostname(config)# clear configure sysopt
```

Related Commands	Command	Description
	<b>show running-config sysopt</b>	Shows the <b>sysopt</b> command configuration.
	<b>sysopt connection permit-ipsec</b>	Permits any packets that come from an IPSec tunnel without checking any ACLs for interfaces.
	<b>sysopt connection tcpmss</b>	Overrides the maximum TCP segment size or ensures that the maximum is not less than a specified size.
	<b>sysopt connection timewait</b>	Forces each TCP connection to linger in a shortened TIME_WAIT state after the final normal TCP close-down sequence.
	<b>sysopt nodnsalias</b>	Disables alteration of the DNS A record address when you use the <b>alias</b> command.

# clear configure tcp-map

To clear tcp-map configuration, use the **clear configure tcp-map** command in global configuration mode.

## clear configure tcp-map

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example shows how to clear the TCP map configuration:

```
hostname(config)# clear configure tcp-map
```

Related Commands	Command	Description
	<b>tcp-map</b>	Creates a TCP map and allows access to tcp-map configuration mode.
	<b>show running-config tcp-map</b>	Displays the information about the TCP map configuration.

# clear configure telnet

To remove the Telnet connection and idle timeout from the configuration, use the **clear configure telnet** command in global configuration mode.

## clear configure telnet

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	The keyword <b>configure</b> was added.

**Examples** This example shows how to remove the Telnet connection and the idle timeout from the security appliance configuration:

```
hostname(config)# clear configure telnet
```

Related Commands	Command	Description
	<b>show running-config telnet</b>	Displays the current list of IP addresses that are authorized to use Telnet connections to the security appliance.
	<b>telnet</b>	Adds Telnet access to the console and sets the idle timeout.

# clear configure terminal

To clear the terminal display width setting, use the **clear configure terminal** command in global configuration mode.

## clear configure terminal

**Syntax Description** This command has no keywords or arguments.

**Defaults** The default display width is 80 columns.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	The <b>configure</b> keyword was added.

**Examples** The following example clears the display width:

```
hostname# clear configure terminal
```

Related Commands	Command	Description
	<b>terminal</b>	Sets the terminal line parameters.
	<b>terminal width</b>	Sets the terminal display width.
	<b>show running-config terminal</b>	Displays the current terminal settings.

# clear configure timeout

To restore the default idle time durations in the configuration, use the **clear configure timeout** command in global configuration mode.

## clear configure timeout

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** This example shows how to remove the maximum idle time durations from the configuration:

```
hostname(config)# clear configure timeout
```

Related Commands	Command	Description
	<b>show running-config timeout</b>	Displays the timeout value of the designated protocol.
	<b>timeout</b>	Sets the maximum idle time duration.

# clear configure time-range

To clear all configured time ranges, use the **clear configure time-range** command in global configuration mode.

**clear configure time-range**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example clears all configured time ranges:

```
hostname(config)# clear configure time-range
```

Related Commands	Command	Description
	<b>time-range</b>	Enters time-range configuration mode and defines a time range that you can attach to traffic rules, or an action.

# clear configure tunnel-group

To remove all or specified tunnel groups from the configuration, use the **clear config tunnel-group** command in global configuration.

```
clear config tunnel-group [name]
```

## Syntax Description

*name* (Optional) Specifies the name of a tunnel group.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example entered in global configuration mode, removes the toengineering tunnel group from the configuration:

```
hostname(config)# clear config tunnel-group toengineering
hostname(config)#
```

## Related Commands

Command	Description
<b>show running-config tunnel-group</b>	Displays information about all or selected tunnel-groups.
<b>tunnel-group</b>	Enters tunnel-group subconfiguration mode for the specified type.

# clear configure tunnel-group-map

The **clear configure tunnel-group-map** command clears the policy and rules by which the tunnel-group name is derived from the content of the certificate.

## clear configure tunnel-group-map

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The tunnel-group-map commands configure the policy and rules by which certificate-based IKE sessions are mapped to tunnel groups. To associate the certificate map entries, created using the **crypto ca certificate map** command, with tunnel groups, use the **tunnel-group-map** command in global configuration mode. You can invoke this command multiple times as long as each invocation is unique and you do not reference a map index more than once.

The **crypto ca certificate map** command maintains a prioritized list of certificate mapping rules. There can be only one map. But this map can have up to 65535 rules. Refer to the documentation on the **crypto ca certificate map** command for more information.

The processing that derives the tunnel-group name from the certificate ignores entries in the certificate map that are not associated with a tunnel group (any map rule not identified by this command).

**Examples** The following example entered in global configuration mode, specifies a default tunnel group to use when the name cannot be derived by other configured methods. The name of the tunnel group to use is group1:

```
hostname(config)# clear configure tunnel-group-map
hostname(config)#
```

## Related Commands



Command	Description
<b>crypto ca certificate map</b>	Enters crypto ca certificate map mode.
<b>subject-name (crypto ca certificate map)</b>	Identifies the DN from the CA certificate that is to be compared to the rule entry string.
<b>tunnel-group-map default-group</b>	Designates an existing tunnel-group name as the default tunnel group.
<b>tunnel-group-map enable</b>	Configures the policy and rules by which certificate-based IKE sessions are mapped to tunnel groups

# clear configure url-block

To clear clears URL pending block buffer and long URL support configuration, use the **clear configure url-block** command in global configuration mode.

## clear configure url-block

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

The **clear configure url-block** command clears URL pending block buffer and long URL support configuration.

### Examples

The following example clears URL pending block buffer and long URL support configuration:

```
hostname# clear configure url-block
```

### Related Commands

Commands	Description
<b>clear url-block block statistics</b>	Clears the block buffer usage counters.
<b>show url-block</b>	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
<b>url-block</b>	Manage the URL buffers used for web server responses.
<b>url-cache</b>	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# clear configure url-cache

To clear the URL cache, use the **clear configure url-cache** command in global configuration mode.

**clear configure url-cache**

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **clear configure url-cache** command clears the URL cache.

## Examples

The following example clears the URL cache:

```
hostname# clear configure url-cache
```

## Related Commands

Commands	Description
<b>clear url-cache statistics</b>	Removes <b>url-cache</b> command statements from the configuration.
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>show url-cache statistics</b>	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
<b>url-cache</b>	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>sesc</b> command.

# clear configure url-list

To remove a configured set of URLs that WebVPN users can access, use the **clear configure url-list** command in global configuration mode. To remove all configured URLs, use this command without the *listname* argument. To remove only the URLs for a specific list, use this command with that *listname*.

```
clear configure url-list [listname]
```

Syntax Description	<i>listname</i>	Groups the set of URLs WebVPN users can access. Maximum 64 characters.
--------------------	-----------------	--

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example shows how to remove the URL list called *Marketing URLs*.

```
hostname(config)# clear configure url-list Marketing URLs
```

Related Commands	Command	Description
	<b>show running-configuration url-list</b>	Displays the current set of configured <b>url-list</b> commands.
	<b>url-list</b>	Use this command in global configuration mode to configure the set of URLs that WebVPN users can access.
	<b>url-list</b>	Use this command in webvpn mode that you access from group-policy or username mode to enable WebVPN URL access for a specific group policy or user.

# clear configure url-server

To clear the URL filtering server configuration, use the **clear configure url-server** command in global configuration mode.

## clear configure url-server

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

The **clear configure url-server** command clears the URL filtering server configuration.

### Examples

The following example URL filtering server configuration:

```
hostname# clear configure url-server
```

### Related Commands

Commands	Description
<b>clear url-server</b>	Clears the URL filtering server statistics.
<b>show url-server</b>	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
<b>url-cache</b>	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
<b>url-block</b>	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# clear configure username

To clear the username database, use the **clear configure username** command. To clear the configuration for a particular user, use this command and append the username.

**clear configure username** [*name*]

## Syntax Description

*name* (Optional) Provides the name of the user.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The internal user authentication database consists of the users entered with the username command. The login command uses this database for authentication.

## Examples

The following example shows how to clear the configuration for the user named anyuser:

```
hostname(config)# clear configure username anyuser
```

## Related Commands

Command	Description
<b>show running-config username</b>	Displays the running configuration for a particular user or for all users.
<b>username</b>	Adds a user to the security appliance database.
<b>username attributes</b>	Lets you configure AVPs for specific users.

# clear configure virtual

To remove the authentication virtual server from the configuration, use the **clear configure virtual** command in global configuration mode.

## clear configure virtual

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	—	—	•

Command History	Release	Modification
	7.0(1)	This command was modified to conform to CLI guidelines.

**Usage Guidelines** There is no undo.

**Examples** This example shows the **clear configure virtual** command:

```
hostname(config)# clear configure virtual
```

Related Commands	Command	Description
	<b>show running-config virtual</b>	Displays the IP address for the authentication virtual server.
	<b>virtual http</b>	Allows separate authentication with the security appliance and with the HTTP server.
	<b>virtual telnet</b>	Authenticates users with the virtual Telnet server for traffic types for which the security appliance does not supply an authentication prompt.

# clear configure vpdn group

To remove all **vpdn group** commands from the configuration, use the **clear configure vpdn group** command in global configuration mode:

```
clear configure vpdn group
```

## Defaults

No default behavior or values

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Entering the **clear configure vpdn group** command has no affect upon active PPPoE connections.

## Examples

The following example shows how to clear the vpdn group configuration:

```
hostname(config)# clear configure vpdn group
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure vpdn username</b>	Removes all vpdn username commands from the configuration.
<b>show running-config vpdn username</b>	Shows the current configuration for vpdn usernames.



# clear configure vpdn username

To remove all **vpdn username** commands from the configuration, use the **clear configure vpdn username** command in global configuration mode:

```
clear configure vpdn username
```

## Defaults

No default behavior or values

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Entering the **clear configure vpdn username** command has no affect upon active PPPoE connections.

## Examples

The following example shows how to clear the vpdn username configuration:

```
hostname(config)# clear configure vpdn username
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure vpdn group</b>	Removes all vpdn group commands from the configuration.
<b>show running-config vpdn username</b>	Shows the current configuration for vpdn usernames.

# clear configure vpn-load-balancing

To remove the previously specified VPN load-balancing configuration, thus disabling VPN load-balancing, use the **clear configure vpn load-balancing** command in global configuration mode.

**clear configure vpn load-balancing**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced

**Usage Guidelines** The **clear configure vpn load-balancing** command also clears the following related commands: **cluster encryption**, **cluster ip address**, **cluster key**, **cluster port**, **nat**, **participate**, and **priority**.

**Examples** The following command removes vpn load-balancing configuration statements from the configuration:

```
hostname(config)# clear configure vpn load-balancing
```

Related Commands	Command	Description
	<b>show running-config load-balancing</b>	Displays the current VPN load-balancing configuration.
	<b>vpn load-balancing</b>	Enters vpn load-balancing mode.

# clear configure wccp

To remove all WCCP configuration, use the **clear configure wccp** command in global configuration mode.

**clear configure wccp**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Examples** This example shows how to clear the WCCP configuration:

```
hostname(config)# clear configure wccp
```

Related Commands	Command	Description
	<b>show wccp</b>	Displays the WCCP configuration.
	<b>wccp redirect</b>	Enables support of WCCP redirection.

# clear configure zonelabs-integrity

To remove all Zone Labs Integrity Servers from the running configuration, use the **clear configure zonelabs-integrity** command in global configuration mode.

**clear configure zonelabs-integrity**

**Syntax Description** This command has no arguments or keywords.

**Defaults** Remove all Zone Lab Integrity Servers.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	—	—	•

Release	Modification
7.2.(1)	This command was introduced.

**Usage Guidelines** The **clear configure zonelabs-integrity** command removes all Zone Labs Integrity Servers from the running configuration including active and standby Integrity servers.

**Examples** The following example shows the removal of two configured Zone Labs Integrity Servers:

```
hostname(config)# show running-config zonelabs-integrity
zonelabs-integrity server-address 10.0.9.1 10.0.9.2
hostname(config)# clear configure zonelabs-integrity
hostname(config)# show running-config zonelabs-integrity
hostname(config)#
```

Command	Description
<b>show running-config [all] zonelabs-integrity</b>	Display the configured Zone Labs Integrity Servers.







## **clear console-output through clear xlate Commands**

---

# clear console-output

To remove the currently captured console output, use the **clear console-output** command in privileged EXEC mode.

## clear console-output

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** The following example shows how to remove the currently captured console output:

```
hostname# clear console-output
```

Related Commands	Command	Description
	<b>console timeout</b>	Sets the idle timeout for a console connection to the security appliance.
	<b>show console-output</b>	Displays the captured console output.
	<b>show running-config console timeout</b>	Displays the idle timeout for a console connection to the security appliance.



# clear counters

To clear the protocol stack counters, use the **clear counters** command in global configuration mode.

```
clear counters [all | context context-name | summary | top N] [detail] [protocol protocol_name
[:counter_name]] [threshold N]
```

## Syntax Description

<b>all</b>	(Optional) Clears all filter details.
<b>context</b> <i>context-name</i>	(Optional) Specifies the context name.
<i>:counter_name</i>	(Optional) Specifies a counter by name.
<b>detail</b>	(Optional) Clears detailed counters information.
<b>protocol</b> <i>protocol_name</i>	(Optional) Clears the counters for the specified protocol.
<b>summary</b>	(Optional) Clears the counter summary.
<b>threshold</b> <i>N</i>	(Optional) Clears the counters at or above the specified threshold. The range is 1 through 4294967295.
<b>top</b> <i>N</i>	(Optional) Clears the counters at or above the specified threshold. The range is 1 through 4294967295.

## Defaults

**clear counters summary detail**

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

This example shows how to clear the protocol stack counters:

```
hostname(config)# clear counters
```

## Related Commands

Command	Description
<b>show counters</b>	Displays the protocol stack counters.

# clear crashinfo

To delete the contents of the crash file in Flash memory, enter the **clear crashinfo** command in privileged EXEC mode.

**clear crashinfo**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** This command has no usage guidelines.

**Examples** The following command shows how to delete the crash file:

```
hostname# clear crashinfo
```

Related Commands	Command	Description
	<b>crashinfo force</b>	Forces a crash of the security appliance.
	<b>crashinfo test</b>	Tests the ability of the security appliance to save crash information to a file in Flash memory.
	<b>show crashinfo</b>	Displays the contents of the crash file stored in Flash memory.

# clear crypto accelerator statistics

To clear the the global and accelerator-specific statistics from the crypto accelerator MIB, use the **clear crypto accelerator statistics** command in global configuration and privileged EXEC modes.

**clear crypto accelerator statistics**

## Syntax Description

This command has no keywords or variables.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the mode in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example entered in global configuration mode, displays crypto accelerator statistics:

```
hostname(config)# clear crypto accelerator statistics
hostname(config)#
```

## Related Commands

Command	Description
<b>clear crypto protocol statistics</b>	Clears the protocol-specific statistics in the crypto accelerator MIB.
<b>show crypto accelerator statistics</b>	Displays the global and accelerator-specific statistics in the crypto accelerator MIB.
<b>show crypto protocol statistics</b>	Displays the protocol-specific statistics from the crypto accelerator MIB.

# clear crypto ca crls

To remove the CRL cache of all CRLs associated with a specified trustpoint or to remove the CRL cache of all CRLs, use the **clear crypto ca crls** command in global configuration.

```
clear crypto ca crls [trustpointname]
```

## Syntax Description

<i>trustpointname</i>	(Optional) The name of a trustpoint. If you do not specify a name, this command clears all CRLs cached on the system.
-----------------------	---

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example issued in global configuration mode, removes all of the CRL cache from all CRLs from the security appliance:

```
hostname(config)# clear crypto ca crls
hostname(config)#
```

## Related Commands

Command	Description
<b>crypto ca crl request</b>	Downloads the CRL based on the CRL configuration of the trustpoint.
<b>show crypto ca crls</b>	Displays all cached CRLs or CRLs cached for a specified trustpoint.

# clear [crypto] ipsec sa

To remove the IPsec SA counters, entries, crypto maps or peer connections, use the **clear [crypto] ipsec sa** command in global configuration mode. To clear all IPsec SAs, use this command without arguments.

```
clear [crypto] ipsec sa [counters | entry {hostname | IP address} {esp | ah} {SPI}| map {map name}
| peer {hostname | IP address}]
```

Be careful when using this command.

## Syntax Description

<b>ah</b>	Authentication header.
<b>counters</b>	Clears all IPsec per SA statistics.
<b>entry</b>	Deletes the tunnel that matches the specified IP address/hostname, protocol and SPI value.
<b>esp</b>	Encryption security protocol.
<i>hostname</i>	Identified a hostname assigned to an IP address.
<i>IP address</i>	Identifies an IP address.
<b>map</b>	Deletes all tunnels associated with the specified crypto map as identified by map name.
<i>map name</i>	An alphanumeric string that identifies a crypto map. Max 64 characters.
<b>peer</b>	Deletes all IPsec SAs to a peer as identified by the specified hostname or IP address.
<i>SPI</i>	Identifies the Security Parameters Index (a hexadecimal number).

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example, issued in global configuration mode, removes all of the IPsec SAs from the security appliance:

```
hostname(config)# clear ipsec sa
```

```
hostname(config)#
```

The next example, issued in global configuration mode, deletes SAs with a peer IP address of 10.86.1.1.

```
hostname(config)# clear ipsec peer 10.86.1.1
hostname(config)#
```

#### Related Commands

Command	Description
<b>clear configure crypto map</b>	Clears all or specified crypto maps from the configuration.
<b>clear configure isakmp</b>	Clears all ISAKMP policy configuration.
<b>show ipsec sa</b>	Displays information about IPsec SAs, including counters, entry, map name, peer IP address and hostname.
<b>show running-config crypto</b>	Displays the entire crypto configuration, including IPsec, crypto maps, dynamic crypto maps, and ISAKMP.

# clear crypto protocol statistics

To clear the protocol-specific statistics in the crypto accelerator MIB, use the **clear crypto protocol statistics** command in global configuration or privileged EXEC modes.

**clear crypto protocol statistics** *protocol*

## Syntax Description

<i>protocol</i>	Specifies the name of the protocol for which you want to clear statistics. Protocol choices are as follows: <b>ikev1</b> —Internet Key Exchange version 1. <b>ipsec</b> —IP Security Phase-2 protocols. <b>ssl</b> —Secure Socket Layer. <b>other</b> —Reserved for new protocols. <b>all</b> —All protocols currently supported.  In online help for this command, other protocols may appear that will be supported in future releases.
-----------------	--

## Defaults

No default behavior or values.

## Command Modes

The following table shows the mode in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example entered in global configuration mode, clears all crypto accelerator statistics:

```
hostname(config)# clear crypto protocol statistics all
hostname(config)#
```

## Related Commands

Command	Description
<b>clear crypto accelerator statistics</b>	Clears the global and accelerator-specific statistics in the crypto accelerator MIB.

<b>Command</b>	<b>Description</b>
<b>show crypto accelerator statistics</b>	Displays the global and accelerator-specific statistics from the crypto accelerator MIB.
<b>show crypto protocol statistics</b>	Displays the protocol-specific statistics in the crypto accelerator MIB.



# clear dhcpd

To clear the DHCP server bindings and statistics, use the **clear dhcpd** command.

```
clear dhcpd {binding [IP_address] | statistics}
```

## Syntax Description

<b>binding</b>	Clears all the client address bindings.
<i>IP_address</i>	Clears the binding for the specified IP address.
<b>statistics</b>	Clears statistical information counters.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

If you include the optional IP address in the **clear dhcpd binding** command, only the binding for that IP address is cleared.

To clear all of the DHCP server commands, use the **clear configure dhcpd** command.

## Examples

The following example shows how to clear the **dhcpd** statistics:

```
hostname(config)# clear dhcpd statistics
```

## Related Commands

Command	Description
<b>clear configure dhcpd</b>	Removes all DHCP server settings.
<b>show dhcpd</b>	Displays DHCP binding, statistic, or state information.

# clear dhcprelay statistics

To clear the DHCP relay statistic counters, use the **clear dhcprelay statistics** command in privileged EXEC mode.

**clear dhcprelay statistics**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines** The **clear dhcprelay statistics** command only clears the DHCP relay statistic counters. To clear the entire DHCP relay configuration, use the **clear configure dhcprelay** command.

**Examples** The following example shows how to clear the DHCP relay statistics:

```
hostname# clear dhcprelay statistics
hostname#
```

Command	Description
<b>clear configure dhcprelay</b>	Removes all DHCP relay agent settings.
<b>debug dhcprelay</b>	Displays debug information for the DHCP relay agent.
<b>show dhcprelay statistics</b>	Displays DHCP relay agent statistic information.
<b>show running-config dhcprelay</b>	Displays the current DHCP relay agent configuration.

# clear dns-hosts cache

To clear the DNS cache, use the **clear dns-hosts cache** command in privileged EXEC mode. This command does not clear static entries you added with the **name** command.

## clear dns-hosts cache

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example clears the DNS cache:

```
hostname# clear dns-hosts cache
```

Related Commands	Command	Description
	<b>dns domain-lookup</b>	Enables the security appliance to perform a name lookup.
	<b>dns name-server</b>	Configures a DNS server address.
	<b>dns retries</b>	Specifies the number of times to retry the list of DNS servers when the security appliance does not receive a response.
	<b>dns timeout</b>	Specifies the amount of time to wait before trying the next DNS server.
	<b>show dns-hosts</b>	Shows the DNS cache.

# clear failover statistics

To clear the failover statistic counters, use the **clear failover statistics** command in privileged EXEC mode.

## clear failover statistics

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was introduced.

**Usage Guidelines** This command clears the statistics displayed with the **show failover statistics** command and the counters in the Stateful Failover Logical Update Statistics section of the **show failover** command output. To remove the failover configuration, use the **clear configure failover** command.

**Examples** The following example shows how to clear the failover statistic counters:

```
hostname# clear failover statistics
hostname#
```

Related Commands	Command	Description
	<b>debug fover</b>	Displays failover debug information.
	<b>show failover</b>	Displays information about the failover configuration and operational statistics.

# clear fragment

To clear the operational data of the IP fragment reassembly module, enter the **clear fragment** command in privileged EXEC mode. This command clears either the currently queued fragments that are waiting for reassembly (if the **queue** keyword is entered) or clears all IP fragment reassembly statistics (if the **statistics** keyword is entered). The statistics are the counters, which tell how many fragments chains were successfully reassembled, how many chains failed to be reassembled, and how many times the maximum size was crossed resulting in overflow of the buffer.

```
clear fragment {queue | statistics} [interface]
```

## Syntax Description

<i>interface</i>	(Optional) Specifies the security appliance interface.
<b>queue</b>	Clears the IP fragment reassembly queue.
<b>statistics</b>	Clears the IP fragment reassembly statistics.

## Defaults

If an *interface* is not specified, the command applies to all interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	The command was separated into two commands, <b>clear fragment</b> and <b>clear configure fragment</b> , to separate clearing of the configuration data from the operational data.

## Examples

This example shows how to clear the operational data of the IP fragment reassembly module:

```
hostname# clear fragment queue
```

## Related Commands

Command	Description
<b>clear configure fragment</b>	Clears the IP fragment reassembly configuration and resets the defaults.
<b>fragment</b>	Provides additional management of packet fragmentation and improves compatibility with NFS.
<b>show fragment</b>	Displays the operational data of the IP fragment reassembly module.
<b>show running-config fragment</b>	Displays the IP fragment reassembly configuration.

# clear gc

To remove the garbage collection process statistics, use the **clear gc** command in privileged EXEC mode.

```
clear gc
```

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example shows how to remove the garbage collection process statistics:

```
hostname# clear gc
```

Related Commands	Command	Description
	show gc	Displays the garbage collection process statistics.

# clear igmp counters

To clear all IGMP counters, use the **clear igmp counters** command in privileged EXEC mode.

```
clear igmp counters [if_name]
```

<b>Syntax Description</b>	<i>if_name</i>	The interface name, as specified by the <b>nameif</b> command. Including an interface name with this command causes only the counters for the specified interface to be cleared.
---------------------------	----------------	--

This command has no arguments or keywords.

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example clears the IGMP statistical counters:

```
hostname# clear igmp counters
```

Related Commands	Command	Description
	<b>clear igmp group</b>	Clears discovered groups from the IGMP group cache.
	<b>clear igmp traffic</b>	Clears the IGMP traffic counters.

# clear igmp group

To clear discovered groups from the IGMP group cache, use the **clear igmp** command in privileged EXEC mode.

```
clear igmp group [group | interface name]
```

## Syntax Description

<i>group</i>	IGMP group address. Specifying a particular group removes the specified group from the cache.
<b>interface name</b>	Interface name, as specified by the <b>namif</b> command. When specified, all groups associated with the interface are removed.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

If you do not specify a group or an interface, all groups are cleared from all interfaces. If you specify a group, only the entries for that group are cleared. If you specify an interface, then all groups on that interface are cleared. If you specify both a group and an interface, only the specified groups on the specified interface are cleared.

This command does not clear statically configured groups.

## Examples

The following example shows how to clear all discovered IGMP groups from the IGMP group cache:

```
hostname# clear igmp group
```

## Related Commands

Command	Description
<b>clear igmp counters</b>	Clears all IGMP counters.
<b>clear igmp traffic</b>	Clears the IGMP traffic counters.



# clear igmp traffic

To clear the IGMP traffic counters, use the **clear igmp traffic** command in privileged EXEC mode.

**clear igmp traffic**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example clears the IGMP statistical traffic counters:

```
hostname# clear igmp traffic
```

Related Commands	Command	Description
	<b>clear igmp group</b>	Clears discovered groups from the IGMP group cache.
	<b>clear igmp counters</b>	Clears all IGMP counters.

# clear interface

To clear interface statistics, use the **clear interface** command in privileged EXEC mode.

```
clear interface [physical_interface[.subinterface] | mapped_name | interface_name]
```

## Syntax Description

<i>interface_name</i>	(Optional) Identifies the interface name set with the <b>nameif</b> command.
<i>mapped_name</i>	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the <b>allocate-interface</b> command.
<i>physical_interface</i>	(Optional) Identifies the interface ID, such as <b>gigabitethernet0/1</b> . See the <b>interface</b> command for accepted values.
<i>subinterface</i>	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.

## Defaults

By default, this command clears all interface statistics.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **clear interface** command clears all interface statistics except the number of input bytes. See the **show interface** command for detail about interface statistics.

If an interface is shared among contexts, and you enter this command within a context, the security appliance clears only statistics for the current context. If you enter this command in the system execution space, the security appliance clears the combined statistics.

You cannot use the interface name in the system execution space, because the **nameif** command is only available within a context. Similarly, if you mapped the interface ID to a mapped name using the **allocate-interface** command, you can only use the mapped name in a context.

## Examples

The following example clears all interface statistics:

```
hostname# clear interface
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure interface</b>	Clears the interface configuration.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.
<b>show running-config interface</b>	Displays the interface configuration.

# clear ip audit count

To clear the count of signature matches for an audit policy, use the **clear ip audit count** command in privileged EXEC mode.

```
clear ip audit count [global | interface interface_name]
```

## Syntax Description

<b>global</b>	(Default) Clears the number of matches for all interfaces.
<b>interface</b> <i>interface_name</i>	(Optional) Clears the number of matches for the specified interface.

## Defaults

If you do not specify a keyword, this command clears the matches for all interfaces (**global**).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example clears the count for all interfaces:

```
hostname# clear ip audit count
```

## Related Commands

Command	Description
<b>ip audit interface</b>	Assigns an audit policy to an interface.
<b>ip audit name</b>	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
<b>show ip audit count</b>	Shows the count of signature matches for an audit policy.
<b>show running-config ip audit attack</b>	Shows the configuration for the <b>ip audit attack</b> command.

# clear ip verify statistics

To clear the Unicast RPF statistics, use the **clear ip verify statistics** command in privileged EXEC mode. See the **ip verify reverse-path** command to enable Unicast RPF.

```
clear ip verify statistics [interface interface_name]
```

## Syntax Description

**interface** Sets the interface on which you want to clear Unicast RPF statistics.  
*interface\_name*

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example clears the Unicast RPF statistics:

```
hostname# clear ip verify statistics
```

## Related Commands

Command	Description
<b>clear configure ip verify reverse-path</b>	Clears the <b>ip verify reverse-path</b> configuration.
<b>ip verify reverse-path</b>	Enables the Unicast Reverse Path Forwarding feature to prevent IP spoofing.
<b>show ip verify statistics</b>	Shows the Unicast RPF statistics.
<b>show running-config ip verify reverse-path</b>	Shows the <b>ip verify reverse-path</b> configuration.

# clear ipsec sa

To clear IPsec SAs entirely or based on specified parameters, use the **clear ipsec sa** command in global configuration and privileged EXEC modes. You can also use an alternate form: **clear crypto ipsec sa**.

```
clear ipsec sa [counters | entry peer-addr protocol spi | peer peer-addr | map map-name]
```

## Syntax Description

<b>counters</b>	(Optional) Clears all counters.
<b>entry</b>	(Optional) Clears IPsec SAs for a specified IPsec peer, protocol and SPI.
<b>map</b> <i>map-name</i>	(Optional) Clears IPsec SAs for the specified crypto map.
<b>peer</b>	(Optional) Clears IPsec SAs for a specified peer.
<i>peer-addr</i>	Specifies the IP address of an IPsec peer.
<i>protocol</i>	Specifies an IPsec protocol: <b>esp</b> or <b>ah</b> .
<i>spi</i>	Specifies an IPsec SPI.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example, entered in global configuration mode, clears all IPsec SA counters:

```
hostname(config)# clear ipsec sa counters
hostname(config)#
```

## Related Commands

Command	Description
<b>show ipsec sa</b>	Displays IPsec SAs based on specified parameters.
<b>show ipsec stats</b>	Displays global IPsec statistics from the IPsec flow MIB.

# clear ipv6 access-list counters

To clear the IPv6 access list statistical counters, use the **clear ipv6 access-list counters** command in privileged EXEC mode.

**clear ipv6 access-list *id* counters**

<b>Syntax Description</b>	<i>id</i>	The IPv6 access list identifier.
---------------------------	-----------	----------------------------------

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example shows how to clear the statistical data for the IPv6 access list 2:

```
hostname# clear ipv6 access-list 2 counters
hostname#
```

Related Commands	Command	Description
	<b>clear configure ipv6</b>	Clears the <b>ipv6 access-list</b> commands from the current configuration.
	<b>ipv6 access-list</b>	Configures an IPv6 access list.
	<b>show ipv6 access-list</b>	Displays the <b>ipv6 access-list</b> commands in the current configuration.

# clear ipv6 neighbors

To clear the IPv6 neighbor discovery cache, use the **clear ipv6 neighbors** command in privileged EXEC mode.

## clear ipv6 neighbors

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** This command deletes all discovered IPv6 neighbor from the cache; it does not remove static entries.

**Examples** The following example deletes all entries, except static entries, in the IPv6 neighbor discovery cache:

```
hostname# clear ipv6 neighbors
hostname#
```

Related Commands	Command	Description
	<b>ipv6 neighbor</b>	Configures a static entry in the IPv6 discovery cache.
	<b>show ipv6 neighbor</b>	Displays IPv6 neighbor cache information.



# clear ipv6 traffic

To reset the IPv6 traffic counters, use the **clear ipv6 traffic** command in privileged EXEC mode.

**clear ipv6 traffic**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Using this command resets the counters in the output from the show ipv6 traffic command.

**Examples** The following example resets the IPv6 traffic counters. The output from the **ipv6 traffic** command shows that the counters are reset:

```
hostname# clear ipv6 traffic
hostname# show ipv6 traffic
IPv6 statistics:
  Rcvd: 1 total, 1 local destination
        0 source-routed, 0 truncated
        0 format errors, 0 hop count exceeded
        0 bad header, 0 unknown option, 0 bad source
        0 unknown protocol, 0 not a router
        0 fragments, 0 total reassembled
        0 reassembly timeouts, 0 reassembly failures
  Sent: 1 generated, 0 forwarded
        0 fragmented into 0 fragments, 0 failed
        0 encapsulation failed, 0 no route, 0 too big
  Mcast: 0 received, 0 sent

ICMP statistics:
  Rcvd: 1 input, 0 checksum errors, 0 too short
        0 unknown info type, 0 unknown error type
  unreachable: 0 routing, 0 admin, 0 neighbor, 0 address, 0 port
  parameter: 0 error, 0 header, 0 option
  0 hopcount expired, 0 reassembly timeout, 0 too big
```

```

0 echo request, 0 echo reply
0 group query, 0 group report, 0 group reduce
0 router solicit, 0 router advert, 0 redirects
0 neighbor solicit, 1 neighbor advert
Sent: 1 output
unreach: 0 routing, 0 admin, 0 neighbor, 0 address, 0 port
parameter: 0 error, 0 header, 0 option
0 hopcount expired, 0 reassembly timeout, 0 too big
0 echo request, 0 echo reply
0 group query, 0 group report, 0 group reduce
0 router solicit, 0 router advert, 0 redirects
0 neighbor solicit, 1 neighbor advert

UDP statistics:
Rcvd: 0 input, 0 checksum errors, 0 length errors
      0 no port, 0 dropped
Sent: 0 output

TCP statistics:
Rcvd: 0 input, 0 checksum errors
Sent: 0 output, 0 retransmitted

```

**Related Commands**

Command	Description
<b>show ipv6 traffic</b>	Displays IPv6 traffic statistics.

# clear isakmp sa

To remove all of the IKE runtime SA database, use the **clear isakmp sa** command in global configuration or privileged EXEC mode.

**clear isakmp sa**

## Syntax Description

This command has no keywords or arguments.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	The <b>clear isakmp sa</b> command was introduced.
7.2(1)	This command was deprecated. The <b>clear crypto isakmp sa</b> command replaces it.

## Examples

The following example removes the IKE runtime SA database from the configuration:

```
hostname<config># clear isakmp sa
hostname<config>#
```

## Related Commands

Command	Description
<b>clear isakmp</b>	Clears the IKE runtime SA database.
<b>isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPSec peer communicates with the security appliance.
<b>show isakmp stats</b>	Displays runtime statistics.
<b>show isakmp sa</b>	Displays IKE runtime SA database with additional information.
<b>show running-config isakmp</b>	Displays all the active ISAKMP configuration.

# clear local-host

To release network connections from local hosts displayed by entering the **show local-host** command, use the **clear local-host** command in privileged EXEC mode.

**clear local-host** [*ip\_address*] [**all**]

## Syntax Description

<b>all</b>	(Optional) Specifies to clear the local hosts state-made connections, including to the security appliance and from the security appliance.
<i>ip_address</i>	(Optional) Specifies the local host IP address.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **clear local-host** command releases the cleared hosts from the license limit. You can see the number of hosts that are counted toward the license limit by entering the **show local-host** command.



### Caution

Clearing the network state of a local host stops all network connections and xlates that are associated with the local hosts.

---

**Examples**

The following example shows how the **clear local-host** command clears the information about the local hosts:

```
hostname# clear local-host 10.1.1.15
```

After the information is cleared, nothing more displays until the hosts reestablish their connections.

---

**Related Commands**

Command	Description
<b>show local-host</b>	Displays the network states of local hosts.

# clear logging asdm

To clear the ASDM logging buffer, use the **clear logging asdm** command in privileged EXEC mode.

**clear logging asdm**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)(1)	This command was changed from the <b>show pdm logging</b> command to the <b>show asdm log</b> command.

**Usage Guidelines** ASDM system log messages are stored in a separate buffer from the security appliance system log messages. Clearing the ASDM logging buffer only clears the ASDM system log messages; it does not clear the security appliance system log messages. To view the ASDM system log messages, use the **show asdm log** command.

**Examples** The following example clears the ASDM logging buffer:

```
hostname(config)# clear logging asdm
hostname(config)#
```

Related Commands	Command	Description
	<b>show asdm log_sessions</b>	Displays the contents of the ASDM logging buffer.

# clear logging buffer

To clear the logging buffer, use the **clear logging buffer** command in global configuration mode.

**clear logging buffer**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command has no default settings.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)(1)	Support for this command was introduced on the security appliance.

**Examples** This example shows how to clear the contents of the log buffer:

```
hostname # clear logging buffer
```

Related Commands	Command	Description
	logging buffered	Configures logging.
	show logging	Displays logging information.

# clear mac-address-table

To clear dynamic MAC address table entries, use the **clear mac-address-table** command in privileged EXEC mode.

```
clear mac-address-table [interface_name]
```

<b>Syntax Description</b>	<i>interface_name</i> (Optional) Clears the MAC address table entries for the selected interface.
---------------------------	---

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	—	•	•	•	—

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.0(1)	This command was introduced.

<b>Examples</b>	The following example clears the dynamic MAC address table entries:
-----------------	---

```
hostname# clear mac-address-table
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>arp</b>	Adds a static ARP entry.
	<b>firewall transparent</b>	Sets the firewall mode to transparent.
	<b>mac-address-table aging-time</b>	Sets the timeout for dynamic MAC address entries.
	<b>mac-learn</b>	Disables MAC address learning.
	<b>show mac-address-table</b>	Shows MAC address table entries.



# clear memory delayed-free-poisoner

To clear the delayed free-memory poisoner tool queue and statistics, use the **clear memory delayed-free-poisoner** command in privileged EXEC mode.

**clear memory delayed-free-poisoner**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **clear memory delayed-free-poisoner** command returns all memory held in the delayed free-memory poisoner tool queue to the system without validation and clears the related statistical counters.

**Examples** The following example clears the delayed free-memory poisoner tool queue and statistics:

```
hostname# clear memory delayed-free-poisoner
```

Related Commands	Command	Description
	<b>memory delayed-free-poisoner enable</b>	Enables the delayed free-memory poisoner tool.
	<b>memory delayed-free-poisoner validate</b>	Forces validation of the delayed free-memory poisoner tool queue.
	<b>show memory delayed-free-poisoner</b>	Displays a summary of the delayed free-memory poisoner tool queue usage.

# clear memory profile

To clear the memory buffers held by the memory profiling function, use the **clear memory profile** command in privileged EXEC configuration mode.

**clear memory profile [peak]**

## Syntax Description

**peak** (Optional) Clears the contents of the peak memory buffer.

## Defaults

Clears the current “in use” profile buffer by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **clear memory profile** command releases the memory buffers held by the profiling function and therefore requires that profiling stop before it is cleared.

## Examples

The following example clears the memory buffers held by the profiling function:

```
hostname# clear memory profile
```

## Related Commands

Command	Description
<b>memory profile enable</b>	Enables the monitoring of memory usage (memory profiling).
<b>memory profile text</b>	Configures a text range of memory to profile.
<b>show memory profile</b>	Displays information about the memory usage (profiling) of the security appliance.

# clear mfib counters

To clear MFIB router packet counters, use the **clear mfib counters** command in privileged EXEC mode.

```
clear mfib counters [group [source]]
```

Syntax Description	group	(Optional) IP address of the multicast group.
	source	(Optional) IP address of the multicast route source. This is a unicast IP address in four-part dotted-decimal notation.

**Defaults** When this command is used with no arguments, route counters for all routes are cleared.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example clears all MFIB router packet counters:

```
hostname# clear mfib counters
```

Related Commands	Command	Description
	show mfib count	Displays MFIB route and packet count data.

# clear module recover

To clear the AIP SSM recovery network settings set in the **hw-module module recover** command, use the **clear module recover** command in privileged EXEC mode.

**clear module 1 recover**

<b>Syntax Description</b>	<b>1</b>	Specifies the slot number, which is always 1.
---------------------------	----------	---

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.0(1)	This command was introduced.

<b>Examples</b>	The following example clears the recovery settings for the AIP SSM:
-----------------	---

```
hostname# clear module 1 recover
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>hw-module module recover</b>	Recovers an AIP SSM by loading a recovery image from a TFTP server.
	<b>hw-module module reset</b>	Shuts down an SSM and performs a hardware reset.
	<b>hw-module module reload</b>	Reloads the AIP SSM software.
	<b>hw-module module shutdown</b>	Shuts down the SSM software in preparation for being powered off without losing configuration data.
	<b>show module</b>	Shows SSM information.

# clear ospf

To clear OSPF process information, use the **clear ospf** command in privileged EXEC mode.

```
clear ospf [pid] {process | counters [neighbor [neighbor-intf] [neighbor-id]]}
```

## Syntax Description

<b>counters</b>	Clears the OSPF counters.
<b>neighbor</b>	Clears the OSPF neighbor counters.
<i>neighbor-intf</i>	(Optional) Clears the OSPF interface router designation.
<i>neighbor-id</i>	(Optional) Clears the OSPF neighbor router ID.
<i>pid</i>	(Optional) Internally used identification parameter for an OSPF routing process; valid values are from 1 to 65535.
<b>process</b>	Clears the OSPF routing process.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

This command does not remove any part of the configuration. Use the **no** form of the configuration commands to clear specific commands from the configuration or use the **clear configure router ospf** command to remove all global OSPF commands from the configuration.



### Note

The **clear configure router ospf** command does not clear OSPF commands entered in interface configuration mode.

## Examples

The following example shows how to clear the OSPF process counters:

```
hostname# clear ospf process
```

■ clear ospf

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure router</b>	Clears all global router commands from the running configuration.

---

# clear pc

To clear connection, xlate, or local-host information maintained on PC, use the **clear pc** command in global configuration mode.

**clear pc**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example clears PC information:

```
hostname(config)# clear pc
```

Related Commands	Command	Description
	clear pclu	Clears PC logical update statistics.

# clear pclu

To clear PC logical update statistics, use the **clear pclu** command in global configuration mode.

**clear pclu**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example clears PC information:

```
hostname(config)# clear pclu
```

Related Commands	Command	Description
	<b>clear pc</b>	Clears connection, xlate, or local-host information maintained on PC.



# clear pim counters

To clear the PIM traffic counters, use the **clear pim counters** command in privileged EXEC mode.

**clear pim counters**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** This command only clears the traffic counters. To clear the PIM topology table, use the **clear pim topology** command.

**Examples** The following example clears the PIM traffic counters:

```
hostname# clear pim counters
```

Related Commands	Command	Description
	<b>clear pim reset</b>	Forces MRIB synchronization through reset.
	<b>clear pim topology</b>	Clears the PIM topology table.
	<b>show pim traffic</b>	Displays the PIM traffic counters.

# clear pim reset

To force MRIB synchronization through reset, use the **clear pim reset** command in privileged EXEC mode.

## clear pim reset

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** All information from the topology table is cleared and the MRIB connection is reset. This command can be used to synchronize state between the PIM topology table and the MRIB database.

**Examples** The following example clears the topology table and resets the MRIB connection:

```
hostname# clear pim reset
```

Related Commands	Command	Description
	<b>clear pim counters</b>	Clears PIM counters and statistics.
	<b>clear pim topology</b>	Clears the PIM topology table.
	<b>clear pim counters</b>	Clears PIM traffic counters.

# clear pim topology

To clear the PIM topology table, use the **clear pim topology** command in privileged EXEC mode.

```
clear pim topology [group]
```

<b>Syntax Description</b>	<i>group</i>	(Optional) Specifies the multicast group address or name to be deleted from the topology table.
---------------------------	--------------	---

**Defaults** Without the optional *group* argument, all entries are cleared from the topology table.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** This command clears existing PIM routes from the PIM topology table. Information obtained from the MRIB table, such as IGMP local membership, is retained. If a multicast group is specified, only those group entries are cleared.

**Examples** The following example clears the PIM topology table:

```
hostname# clear pim topology
```

Related Commands	Command	Description
	<b>clear pim counters</b>	Clears PIM counters and statistics.
	<b>clear pim reset</b>	Forces MRIB synchronization through reset.
	<b>clear pim counters</b>	Clears PIM traffic counters.

# clear priority-queue statistics

To clear the priority-queue statistics counters for an interface or for all configured interfaces, use the **clear priority-queue statistics** command in either global configuration or privileged EXEC mode.

**clear priority-queue statistics** [*interface-name*]

<b>Syntax Description</b>	<i>interface-name</i>	(Optional) Specifies the name of the interface for which you want to show the best-effort and low-latency queue details.
---------------------------	-----------------------	--

**Defaults** If you omit the interface name, this command clears the priority-queue statistics for all configured interfaces.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
			Context	System	
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** This example shows the use of the **clear priority-queue statistics** command in privileged EXEC mode to remove the priority queue statistics for the interface named “test”.

```
hostname# clear priority-queue statistics test
hostname#
```

Related Commands	Command	Description
	<b>clear configure priority queue</b>	Removes the priority-queue configuration from the named interface.
	<b>priority-queue</b>	Configures priority queueing on an interface.
	<b>show priority-queue statistics</b>	Shows the priority queue statistics for a specified interface or for all interfaces.
	<b>show running-config priority-queue</b>	Shows the current priority-queue configuration on the named interface.



# clear resource usage

To clear resource usage statistics, use the **clear resource usage** command in privileged EXEC mode.

```
clear resource usage [context context_name | all | summary | system] [resource {[rate]
resource_name | all}]
```

## Syntax Description

<b>context</b> <i>context_name</i>	(Multiple mode only) Specifies the context name for which you want to clear statistics. Specify <b>all</b> (the default) for all contexts.
<b>resource</b> [ <b>rate</b> ] <i>resource_name</i>	<p>Clears the usage of a specific resource. Specify <b>all</b> (the default) for all resources. Specify <b>rate</b> to clear the rate of usage of a resource. Resources that are measured by rate include <b>conns</b>, <b>inspects</b>, and <b>syslogs</b>. You must specify the <b>rate</b> keyword with these resource types. The <b>conns</b> resource is also measured as concurrent connections; only use the <b>rate</b> keyword to view the connections per second.</p> <p>Resources include the following types:</p> <ul style="list-style-type: none"> <li>• <b>asdm</b>—ASDM management sessions.</li> <li>• <b>conns</b>—TCP or UDP connections between any two hosts, including connections between one host and multiple other hosts.</li> <li>• <b>inspects</b>—Application inspections.</li> <li>• <b>hosts</b>—Hosts that can connect through the security appliance.</li> <li>• <b>mac-addresses</b>—For transparent firewall mode, the number of MAC addresses allowed in the MAC address table.</li> <li>• <b>ssh</b>—SSH sessions.</li> <li>• <b>syslogs</b>—System log messages.</li> <li>• <b>telnet</b>—Telnet sessions.</li> <li>• <b>xlates</b>—NAT translations.</li> </ul>
<b>summary</b>	(Multiple mode only) Clears the combined context statistics.
<b>system</b>	(Multiple mode only) Clears the system-wide (global) usage statistics.

## Defaults

For multiple context mode, the default context is **all**, which clears resource usage for every context. For single mode, the context name is ignored and all resource statistics are cleared.

The default resource name is **all**, which clears all resource types.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Examples**

The following example clears all resource usage statistics for all contexts, but not the system-wide usage statistics:

```
hostname# clear resource usage
```

The following example clears the system-wide usage statistics:

```
hostname# clear resource usage system
```

**Related Commands**

Command	Description
<b>context</b>	Adds a security context.
<b>show resource types</b>	Shows a list of resource types.
<b>show resource usage</b>	Shows the resource usage of the security appliance.

# clear route

To remove dynamically learned routes from the configuration, use the **clear route** command in privileged EXEC mode.

```
clear route [interface_name]
```

## Syntax Description

*interface\_name* (Optional) Internal or external network interface name.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example shows how to remove dynamically learned routes:

```
hostname# clear route
```

## Related Commands

Command	Description
<b>route</b>	Specifies a static or default route for the an interface.
<b>show route</b>	Displays route information.
<b>show running-config route</b>	Displays configured routes.



# clear service-policy

To clear operational data or statistics (if any) for enabled policies, use the **clear service-policy** command in privileged EXEC mode. To clear service policy statistics for inspection engines, see the **clear service-policy inspect** commands.

```
clear service-policy [global | interface intf ]
```

Syntax Description	global	(Optional) Clears the statistics of the global service policy.
	<b>interface <i>intf</i></b>	(Optional) Clears the service policy statistics of a specific interface.

**Defaults** By default, this command clears all the statistics for all enabled service policies.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example shows the syntax of the **clear service-policy** command:

```
hostname(config)# clear service-policy outside_security_map interface outside
```

Related Commands	Command	Description
	<b>clear service-policy inspect gtp</b>	Clears service policy statistics for the GTP inspection engine.
	<b>clear service-policy inspect radius-accounting</b>	Clears service policy statistics for the RADIUS accounting inspection engine.
	<b>show service-policy</b>	Displays the service policy.
	<b>show running-config service-policy</b>	Displays the service policies configured in the running configuration.
	<b>clear configure service-policy</b>	Clears service policy configurations.
	<b>service-policy</b>	Configures service policies.

# clear service-policy inspect gtp

To clear global GTP statistics, use the **clear service-policy inspect gtp** command in privileged EXEC mode.

```
clear service-policy inspect gtp {pdp-context [all | apn ap_name | imsi IMSI_value | ms-addr
IP_address | tid tunnel_ID | version version_num ] | requests | statistics [gsn IP_address] }
```

## Syntax Description.

<b>all</b>	Clears all GTP PDP contexts.
<b>apn</b>	(Optional) Clears the PDP contexts based on the APN specified.
<i>ap_name</i>	Identifies the specific access point name.
<b>gsn</b>	(Optional) Identifies the GPRS support node, which is the interface between the GPRS wireless data network and other networks.
<b>gtp</b>	(Optional) Clears the service policy for GTP.
<b>imsi</b>	(Optional) Clears the PDP contexts based on the IMSI specified.
<i>IMSI_value</i>	Hexadecimal value that identifies the specific IMSI.
<b>interface</b>	(Optional) Identifies a specific interface.
<i>int</i>	Identifies the interface for which information will be cleared.
<i>IP_address</i>	IP address for which statistics will be cleared.
<b>ms-addr</b>	(Optional) Clears PDP contexts based on the MS Address specified.
<b>pdp-context</b>	(Optional) Identifies the Packet Data Protocol context.
<b>requests</b>	(Optional) Clears GTP requests.
<b>statistics</b>	(Optional) Clears GTP statistics for the <b>inspect gtp</b> command.
<b>tid</b>	(Optional) Clears the PDP contexts based on the TID specified.
<i>tunnel_ID</i>	Hexadecimal value that identifies the specific tunnel.
<b>version</b>	(Optional) Clears the PDP contexts based on the GTP version.
<i>version_num</i>	Specifies the version of the PDP context. The valid range is 0 to 255.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

---

**Usage Guidelines**

The Packet Data Protocol context is identified by the tunnel ID, which is a combination of IMSI and NSAPI. A GTP tunnel is defined by two associated PDP Contexts in different GSN nodes and is identified with a tunnel ID. A GTP tunnel is necessary to forward packets between an external packet data network and a mobile station (MS) user.

---

**Examples**

The following example clears GTP statistics:

```
hostname# clear service-policy inspect gtp statistics
```

---

**Related Commands**

Commands	Description
<b>debug gtp</b>	Displays detailed information about GTP inspection.
<b>gtp-map</b>	Defines a GTP map and enables GTP map configuration mode.
<b>inspect gtp</b>	Applies a GTP map to use for application inspection.
<b>show service-policy inspect gtp</b>	Displays the GTP configuration.
<b>show running-config gtp-map</b>	Shows the GTP maps that have been configured.

# clear service-policy inspect radius-accounting

To clear global GTP statistics, use the **clear service-policy inspect radius-accounting** command in privileged EXEC mode.

```
clear service-policy inspect radius-accounting { }
```

## Syntax Description.

all

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

## Examples

The following example clears RADIUS accounting statistics:

```
hostname# clear service-policy inspect radius-accounting statistics
```

## Related Commands

Commands	Description

# clear shun

To disable all the shuns that are currently enabled and clear the shun statistics, use the **clear shun** command in privileged EXEC mode.

**clear shun** [*statistics*]

<b>Syntax Description</b>	<i>statistics</i> (Optional) Clears the interface counters only.
---------------------------	--

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.0(1)	This command was introduced.

<b>Examples</b>	The following example shows how to disable all the shuns that are currently enabled and clear the shun statistics:
-----------------	--

```
hostname(config)# clear shun
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>shun</b>	Enables a dynamic response to an attacking host by preventing new connections and disallowing packets from any existing connection.
	<b>show shun</b>	Displays the shun information.

# clear startup-config errors

To clear configuration error messages from memory, use the **clear startup-config errors** command in privileged EXEC mode.

## clear startup-config errors

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines** To view configuration errors generated when the security appliance loaded the startup configuration, use the **show startup-config errors** command.

**Examples** The following example clears all configuration errors from memory:

```
hostname# clear startup-config errors
```

Command	Description
<b>show startup-config errors</b>	Shows configuration errors generated when the security appliance loaded the startup configuration.

# clear sunrpc-server active

To clear the pinholes opened by Sun RPC application inspection, use the **clear sunrpc-server active** command in global configuration mode.

**clear sunrpc-server active**

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Use the **clear sunrpc-server active** command to clear the pinholes opened by Sun RPC application inspection that allow service traffic, such as NFS or NIS, to pass through the security appliance.

## Examples

The following example shows how to clear the SunRPC services table:

```
hostname(config)# clear sunrpc-server
```

## Related Commands

Command	Description
<b>clear configure sunrpc-server</b>	Clears the Sun remote processor call services from the security appliance.
<b>inspect sunrpc</b>	Enables or disables Sun RPC application inspection and configures the port used.
<b>show running-config sunrpc-server</b>	Displays information about the SunRPC services configuration.
<b>show sunrpc-server active</b>	Displays information about active Sun RPC services.

# clear traffic

To reset the counters for transmit and receive activity, use the **clear traffic** command in privileged EXEC mode.

## clear traffic

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **clear traffic** command resets the counters for transmit and receive activity that is displayed with the **show traffic** command. The counters indicate the number of packets and bytes moving through each interface since the last clear traffic command was entered or since the security appliance came online. And the number of seconds indicate the duration the security appliance has been online since the last reboot.

**Examples** The following example shows the **clear traffic** command:

```
hostname# clear traffic
```

Related Commands	Command	Description
	<b>show traffic</b>	Displays the counters for transmit and receive activity.



# clear uauth

To delete all the cached authentication and authorization information for a user or for all users, use the **clear uauth** command in privileged EXEC mode.

```
clear uauth [username]
```

## Syntax Description

*username* (Optional) Specifies, by username, the user authentication information to remove.

## Defaults

Omitting username deletes the authentication and authorization information for all users.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	—	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **clear uauth** command deletes the AAA authorization and authentication caches for one user or for all users, which forces the user or users to reauthenticate the next time that they create a connection.

This command is used with the **timeout** command.

Each user host IP address has an authorization cache attached to it. If the user attempts to access a service that has been cached from the correct host, the security appliance considers it preauthorized and immediately proxies the connection. Once you are authorized to access a website, for example, the authorization server is not contacted for each image as it is loaded (assuming the images come from the same IP address). This process significantly increases performance and reduces the load on the authorization server.

The cache allows up to 16 address and service pairs for each user host.



### Note

When you enable Xauth, an entry is added to the uauth table (as shown by the **show uauth** command) for the IP address that is assigned to the client. However, when using Xauth with the Easy VPN Remote feature in Network Extension Mode, the IPSec tunnel is created from network to network, so that the users behind the firewall cannot be associated with a single IP address. For this reason, a uauth entry cannot be created upon completion of Xauth. If AAA authorization or accounting services are required, you can enable the AAA authentication proxy to authenticate users behind the firewall. For more information on AAA authentication proxies, see the AAA commands.

Use the **timeout uauth** command to specify how long the cache should be kept after the user connections become idle. Use the **clear uauth** command to delete all the authorization caches for all the users, which will cause them to have to reauthenticate the next time that they create a connection.

### Examples

This example shows how to cause the user “Lee” to reauthenticate:

```
hostname(config)# clear uauth lee
```

### Related Commands

Command	Description
<b>aaa authentication</b>	Enable, disable, or view LOCAL, TACACS+ or RADIUS user authentication (on a server designated by the <b>aaa-server</b> command).
<b>aaa authorization</b>	Enable, disable, or view TACACS+ or RADIUS user authorization (on a server designated by the <b>aaa-server</b> command).
<b>show uauth</b>	Display current user authentication and authorization information.
<b>timeout</b>	Set the maximum idle time duration.

# clear url-block block statistics

To clear the block buffer usage counters, use the **clear url-block block statistics** command in privileged EXEC mode.

## clear url-block block statistics

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **clear url-block block statistics** command clears the block buffer usage counters, except for the `Current number of packets held (global) counter`.

**Examples** The following example clears the URL block statistics and displays the status of the counters after clearing:

```
hostname# clear url-block block statistics
hostname# show url-block block statistics

URL Pending Packet Buffer Stats with max block 0
-----
Cumulative number of packets held: | 0
Maximum number of packets held (per URL): | 0
Current number of packets held (global): | 38
Packets dropped due to
| exceeding url-block buffer limit: | 0
| HTTP server retransmission: | 0
Number of packets released back to client: | 0
```

## Related Commands

Commands	Description
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>show url-block</b>	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
<b>url-block</b>	Manage the URL buffers used for web server responses.
<b>url-cache</b>	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# clear url-cache statistics

To remove **url-cache** command statements from the configuration, use the **clear url-cache** command in privileged EXEC mode.

## clear url-cache statistics

### Syntax Description

This command has no arguments or keywords.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

The **clear url-cache** command removes **url-cache** statistics from the configuration.

Using the URL cache does not update the Websense accounting logs for Websense protocol Version 1. If you are using Websense protocol Version 1, let Websense run to accumulate logs so you can view the Websense accounting information. After you get a usage profile that meets your security needs, enter the **url-cache** command to increase throughput. Accounting logs are updated for Websense protocol Version 4 and for N2H2 URL filtering while using the **url-cache** command.

### Examples

The following example clears the URL cache statistics:

```
hostname# clear url-cache statistics
```

### Related Commands

Commands	Description
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>show url-cache statistics</b>	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
<b>url-block</b>	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.

---

<b>url-cache</b>	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

---

# clear url-server

To clear URL filtering server statistics, use the **clear url-server** command in privileged EXEC mode.

**clear url-server statistics**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **clear url-server** command removes URL filtering server statistics from the configuration.

**Examples** The following example clears the URL server statistics:

```
hostname# clear url-server statistics
```

Related Commands	Commands	Description
	<b>filter url</b>	Directs traffic to a URL filtering server.
	<b>show url-server</b>	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
	<b>url-block</b>	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.
	<b>url-cache</b>	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
	<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# clear wccp

To reset WCCP information, use the **clear wccp** command in privileged EXEC mode.

```
clear wccp [ web-cache | service_number]
```

Syntax Description	web-cache	Specifies the web-cache service.
	<i>service-number</i>	A dynamic service identifier, which means the service definition is dictated by the cache. The dynamic service number can be from 0 to 254 and up to 255. There is a maximum allowable number of 256 that includes the web-cache service specified with the <b>web-cache</b> keyword.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Examples** The following example shows how to reset the WCCP information for the web-cache service:

```
hostname(config)# clear wccp web-cache
```

Related Commands	Command	Description
	<b>show wccp</b>	Displays the WCCP configuration.
	<b>wccp redirect</b>	Enables support of WCCP redirection.



# clear xlate

To clear current translation and connection information, use the **clear xlate** command in privileged EXEC mode.

```
clear xlate [global ip1[-ip2] [netmask mask]] [local ip1[-ip2] [netmask mask]]
           [gport port1[-port2]] [lport port1[-port2]] [interface if_name] [state state]
```

## Syntax Description

<b>global</b> <i>ip1[-ip2]</i>	(Optional) Clears the active translations by global IP address or range of addresses.
<b>gport</b> <i>port1[-port2]</i>	(Optional) Clears the active translations by the global port or range of ports.
<b>interface</b> <i>if_name</i>	(Optional) Displays the active translations by interface.
<b>local</b> <i>ip1[-ip2]</i>	(Optional) Clears the active translations by local IP address or range of addresses.
<b>lport</b> <i>port1[-port2]</i>	(Optional) Clears the active translations by local port or range of ports.
<b>netmask</b> <i>mask</i>	(Optional) Specifies the network mask to qualify the global or local IP addresses.
<b>state</b> <i>state</i>	(Optional) Clears the active translations by state. You can enter one or more of the following states: <ul style="list-style-type: none"> <li>• <b>static</b>—specifies <b>static</b> translations.</li> <li>• <b>portmap</b>—specifies PAT global translations.</li> <li>• <b>norandomseq</b>—specifies a <b>nat</b> or <b>static</b> translation with the <b>norandomseq</b> setting.</li> <li>• <b>identity</b>—specifies <b>nat 0</b> identity address translations.</li> </ul> When specifying more than one state, separate the states with a space.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

The **clear xlate** command clears the contents of the translation slots (“xlate” refers to the translation slot). Translation slots can persist after key changes have been made. Always use the **clear xlate** command after adding, changing, or removing the **aaa-server**, **access-list**, **alias**, **global**, **nat**, **route**, or **static** commands in your configuration.

An xlate describes a NAT or PAT session. These sessions can be viewed with the **show xlate** command with the **detail** option. There are two types of xlates: static and dynamic.

A static xlate is a persistent xlate that is created using the **static** command. Static xlates can only be removed by removing the **static** command from the configuration; the **clear xlate** does not remove the static translation rule. If you remove a **static** command from the configuration, preexisting connections that use the static rule can still forward traffic. Use the **clear local-host** to deactivate these connections.

A dynamic xlate is an xlate that is created on demand with traffic processing (through the **nat** or **global** command). The **clear xlate** removes dynamic xlates and their associated connections. You can also use the **clear local-host** command to clear the xlate and associated connections. If you remove a **nat** or a **global** command from the configuration, the dynamic xlate and associated connections may remain active. Use the **clear xlate** or the **clear local-host** command to remove these connections.

**Examples**

The following example shows how to clear the current translation and connection slot information:

```
hostname# clear xlate global
```

**Related Commands**

Command	Description
<b>clear local-host</b>	Clears local host network information.
<b>clear uauth</b>	Clears cached user authentication and authorization information.
<b>show conn</b>	Displays all active connections.
<b>show local-host</b>	Displays the local host network information.
<b>show xlate</b>	Displays the current translation information.







## **client-access-rule through cri configure Commands**

---

# client-access-rule

To configure rules that limit the remote access client types and versions that can connect via IPSec through the security appliance, use the **client-access-rule** command in group-policy configuration mode. To delete a rule, use the **no** form of this command.

To delete all rules, use the **no client-access-rule command** with only the priority argument. This deletes all configured rules, including a null rule created by issuing the **client-access-rule none** command.

When there are no client access rules, users inherit any rules that exist in the default group policy. To prevent users from inheriting client access rules, use the **client-access-rule none** command. The result of doing so is that all client types and versions can connect.

**client-access-rule** *priority* {**permit** | **deny**} **type** *type* **version** *version* | **none**

**no client-access-rule** *priority* [{**permit** | **deny**} **type** *type* **version** *version*]

## Syntax Description

<b>deny</b>	Denies connections for devices of a particular type and/or version.
<b>none</b>	Allows no client access rules. Sets client-access-rule to a null value, thereby allowing no restriction. Prevents inheriting a value from a default or specified group policy.
<b>permit</b>	Permits connections for devices of a particular type and/or version.
<b>priority</b>	Determines the priority of the rule. The rule with the lowest integer has the highest priority. Therefore, the rule with the lowest integer that matches a client type and/or version is the rule that applies. If a lower priority rule contradicts, the security appliance ignores it.
<b>type</b> <i>type</i>	Identifies device types via free-form strings, for example VPN 3002. A string must match exactly its appearance in the <b>show vpn-sessiondb remote</b> display, except that you can use the * character as a wildcard.
<b>version</b> <i>version</i>	Identifies the device version via free-form strings, for example 7.0(1). A string must match exactly its appearance in the <b>show vpn-sessiondb remote</b> display, except that you can use the * character as a wildcard.

## Defaults

By default, there are no access rules.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

---

**Usage Guidelines**

Construct rules according to these caveats:

- If you do not define any rules, the security appliance permits all connection types.
- When a client matches none of the rules, the security appliance denies the connection. This means that if you define a deny rule, you must also define at least one permit rule, or the security appliance denies all connections.
- For both software and hardware clients, type and version must match exactly their appearance in the **show vpn-sessiondb remote** display.
- The \* character is a wildcard, which you can use multiple times in each rule. For example, **client-access-rule 3 deny type \* version 3.\*** creates a priority 3 client access rule that denies all client types running release versions 3.x software.
- You can construct a maximum of 25 rules per group policy.
- There is a limit of 255 characters for an entire set of rules.
- You can use n/a for clients that do not send client type and/or version.

---

**Examples**

The following example shows how to create client access rules for the group policy named FirstGroup. These rules permit VPN Clients running software version 4.1, while denying all VPN 3002 hardware clients:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# client-access-rule 1 d t VPN3002 v *
hostname(config-group-policy)# client-access-rule 2 p * v 4.1
```

# client-firewall

To set personal firewall policies that the security appliance pushes to the VPN client during IKE tunnel negotiation, use the **client-firewall** command in group-policy configuration mode. To delete a firewall policy, use the **no** form of this command.

To delete all firewall policies, use the **no client-firewall** command without arguments. This deletes all configured firewall policies, including a null policy created by issuing the **client-firewall none** command.

When there are no firewall policies, users inherit any that exist in the default or other group policy. To prevent users from inheriting such firewall policies, use the **client-firewall none** command.

## client-firewall none

```
client-firewall {opt | req} custom vendor-id num product-id num policy {AYT | CPP acl-in acl
acl-out acl} [description string]
```

```
client-firewall {opt | req} zonelabs-integrity
```



### Note

When the firewall type is **zonelabs-integrity**, do not include arguments. The Zone Labs Integrity Server determines the policies.

```
client-firewall {opt | req} zonelabs-zonealarm policy {AYT | CPP acl-in acl acl-out acl }
```

```
client-firewall {opt | req} zonelabs-zonealarmpro policy {AYT | CPP acl-in acl acl-out acl }
```

```
client-firewall {opt | req} zonelabs-zonealarmpro policy {AYT | CPP acl-in acl acl-out acl }
```

```
client-firewall {opt | req} cisco-integrated acl-in acl acl-out acl }
```

```
client-firewall {opt | req} sygate-personal
```

```
client-firewall {opt | req} sygate-personal-pro
```

```
client-firewall {opt | req} sygate-personal-agent
```

```
client-firewall {opt | req} networkice-blackice
```

```
client-firewall {opt | req} cisco-security-agent
```

### Syntax Description

<b>acl-in</b> <acl>	Provides the policy the client uses for inbound traffic.
<b>acl-out</b> <acl>	Provides the policy the client uses for outbound traffic.
<b>AYT</b>	Specifies that the client PC firewall application controls the firewall policy. The security appliance checks to make sure the firewall is running. It asks, "Are You There?" If there is no response, the security appliance tears down the tunnel.
<b>cisco-integrated</b>	Specifies Cisco Integrated firewall type.
<b>cisco-security-agent</b>	Specifies Cisco Intrusion Prevention Security Agent firewall type.
<b>CPP</b>	Specifies Policy Pushed as source of the VPN Client firewall policy.
<b>custom</b>	Specifies Custom firewall type.



<b>description</b> <string>	Describes the firewall.
<b>networkice-blackice</b>	Specifies Network ICE Black ICE firewall type
<b>none</b>	Indicates that there is no client firewall policy. Sets a firewall policy with a null value, thereby disallowing one. Prevents inheriting a firewall policy from a default or specified group policy.
<b>opt</b>	Indicates an optional firewall type.
<b>product-id</b>	Identifies the firewall product.
<b>req</b>	Indicates a required firewall type.
<b>sygate-personal</b>	Specifies Sygate Personal firewall type.
<b>sygate-personal-pro</b>	Specifies Sygate Personal Pro firewall type.
<b>sygate-security-agent</b>	Specifies Sygate Security Agent firewall type.
<b>vendor-id</b>	Identifies the firewall vendor.
<b>zonelabs-integrity</b>	Specifies Zone Labs Integrity Server firewall type.
<b>zonelabs-zonealarm</b>	Specifies Zone Labs Zone Alarm firewall type.
<b>zonelabs-zonealarmorpro policy</b>	Specifies Zone Labs Zone Alarm or Pro firewall type.
<b>zonelabs-zonealarmpro policy</b>	Specifies Zone Labs Zone Alarm Pro firewall type.

**Defaults**

No default behavior or values.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Group-policy	•	—	•	—	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	The <b>zonelabs-integrity</b> firewall type was added.

**Usage Guidelines**

Only one instance of this command can be configured.

**Examples**

The following example shows how to set a client firewall policy that requires Cisco Intrusion Prevention Security Agent for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# client-firewall req cisco-security-agent
```

# client-update

To issue a client-update for all active remote VPN software and hardware clients and security appliances configured as Auto Update clients, on all tunnel-groups or for a particular tunnel group, use the **client-update** command in privileged EXEC mode.

To configure and change client-update parameters at the global level, including VPN software and hardware clients and security appliances configured as Auto Update clients, use the **client-update** command in global configuration mode.

To configure and change client-update tunnel-group IPsec-attributes parameters for VPN software and hardware clients, use the **client-update** command in tunnel-group ipsec-attributes configuration mode.

If the client is already running a software version on the list of revision numbers, it does not need to update its software. If the client is not running a software version on the list, it should update.

To disable a client update, use the **no** form of this command.

Global configuration mode command:

```
client-update {enable | component {asdm | image} | device-id dev_string |
family family_name | type type} url url-string rev-nums rev-nums}
```

```
no client-update {enable | component {asdm | image} | device-id dev_string |
family family_name | type type} url url-string rev-nums rev-nums}
```

Tunnel-group ipsec-attributes mode command:

```
client-update type type url url-string rev-nums rev-nums
```

```
no client-update type type url url-string rev-nums rev-nums
```

Privileged EXEC mode command:

```
client-update {all | tunnel-group}
```

```
no client-update tunnel-group
```

Syntax	Description
<b>all</b>	(Available only in privileged EXEC mode.) Applies the action to all active remote clients in all tunnel groups. You cannot use the keyword <b>all</b> with the <b>no</b> form of the command.
<b>component</b> { <b>asdm</b>   <b>image</b> }	The software component for security appliances configured as Auto Update clients.
<b>device-id</b> <i>dev_string</i>	If the Auto Update client is configured to identify itself with a unique string, specify the same string that the client uses. The maximum length is 63 characters.
<b>enable</b>	(Available only in global configuration mode). Enables remote client software updates.
<b>family</b> <i>family_name</i>	If the Auto Update client is configured to identify itself by device family, specify the same device family that the client uses. It can be asa, pix, or a text string with a maximum length of 7 characters.

<b>rev-nums</b> <i>rev-nums</i>	(Not available in privileged EXEC mode.) Specifies the software or firmware images for this client. For Windows, WIN9X, WinNT, and vpn3002 clients, enter up to 4, in any order, separated by commas. For security appliances, only one is allowed. The maximum length of the string is 127 characters.
<b>tunnel-group</b>	(Available only in privileged EXEC mode.) Specifies the name of a valid tunnel-group for remote client update.
<b>type</b> <i>type</i>	(Not available in privileged EXEC mode.) Specifies the operating systems of remote PCs or the type of security appliances (configured as Auto Update clients) to notify of a client update. The list comprises the following: <ul style="list-style-type: none"> <li>• pix-515: Cisco PIX 515 Firewall</li> <li>• pix-515e: Cisco PIX 515E Firewall</li> <li>• pix-525: Cisco PIX 525 Firewall</li> <li>• pix-535: Cisco PIX 535 Firewall</li> <li>• asa5505: Cisco 5505 Adaptive Security Appliance</li> <li>• asa5510: Cisco 5510 Adaptive Security Appliance</li> <li>• asa5520: Cisco 5520 Adaptive Security Appliance</li> <li>• asa5540: Cisco Adaptive Security Appliance</li> <li>• Windows: all windows-based platforms</li> <li>• WIN9X: Windows 95, Windows 98, and Windows ME platforms</li> <li>• WinNT: Windows NT 4.0, Windows 2000, and Windows XP platforms</li> <li>• vpn3002: VPN 3002 hardware client</li> <li>• A text string of up to 15 characters</li> </ul>
<b>url</b> <i>url-string</i>	(Not available in privileged EXEC mode.) Specifies the URL for the software/firmware image. This URL must point to a file appropriate for this client. The maximum string length is 255 characters.

**Defaults**

No default behavior or values.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Added tunnel-group ipsec-attributes configuration mode.
7.2(1)	Added the <b>component</b> , <b>device-id</b> , and <b>family</b> keywords and their arguments to support the security appliance configured as an Auto Update server.

**Usage Guidelines**

In tunnel-group ipsec-attributes configuration mode, you can apply this attribute only to the IPsec remote-access tunnel-group type.

The **client-update** command lets you enable the update; specify the types and revision numbers of clients to which the update applies; provide a URL or IP address from which to get the update; and, in the case of Windows clients, optionally notify users that they should update their VPN client version. For Windows clients, you can provide a mechanism for users to accomplish that update. For VPN 3002 Hardware Client users, the update occurs automatically, with no notification. When the client type is another security appliance, this security appliance acts as an Auto Update server.

To configure the client-update mechanism, do the following steps:

**Step 1** In global configuration mode, enable client update by entering the command:

```
hostname(config)# client-update enable
hostname(config)#
```

**Step 2** In global configuration mode, configure the parameters for the client update that you want to apply to all clients of a particular type. That is, specify the type of client and the URL or IP address from which to get the updated image. For Auto Update clients, specify the software component—ASDM or boot image. In addition, you must specify a revision number. If the user's client revision number matches one of the specified revision numbers, there is no need to update the client. This command configures the client-update parameters for all clients of the specified type across the entire security appliance. For example:

```
hostname(config)# client-update type windows url https://support/updates/ rev-nums 4.6.1
hostname(config)#
```

See the Examples section for an illustration of configuring a tunnel group for a VPN 3002 hardware client.

**Note**

For all Windows clients and Auto Update clients, you must use the protocol “http://” or “https://” as the prefix for the URL. For the VPN3002 Hardware Client, you must specify protocol “tftp://” instead.

Alternatively, for Windows clients and VPN3002 Hardware Clients, you can configure client update just for individual tunnel-groups, rather than for all clients of a particular type. (See Step 3.)

**Note**

You can have the browser automatically start an application by including the application name at the end of the URL; for example: **https://support/updates/vpnclient.exe**.

**Step 3** After you have enabled client update, you can define a set of client-update parameters for a particular ipsec-ra tunnel group. To do this, in tunnel-group ipsec-attributes mode, specify the tunnel-group name and its type, and the URL or IP address from which to get the updated image. In addition, you must

specify a revision number. If the user's client revision number matches one of the specified revision numbers, there is no need to update the client; for example, to issue a client update for all Windows clients:

```
hostname(config)# tunnel-group remotegrp type ipsec-ra
hostname(config)# tunnel-group remotegrp ipsec-attributes
hostname(config-tunnel-ipsec)# client-update type windows url https://support/updates/
rev-nums 4.6.1
hostname(config-tunnel-ipsec)#
```

See the Examples section for an illustration of configuring a tunnel group for a VPN 3002 hardware client. VPN 3002 clients update without user intervention, and users receive no notification message.

- Step 4** Optionally, you can send a notice to active users with outdated Windows clients that their VPN client needs updating. For these users, a pop-up window appears, offering the opportunity to launch a browser and download the updated software from the site specified in the URL. The only part of this message that you can configure is the URL. (See Step 2 or 3.) Users who are not active get a notification message the next time they log on. You can send this notice to all active clients on all tunnel groups, or you can send it to clients on a particular tunnel group. For example, to notify all active clients on all tunnel groups, you would enter the following command in privileged EXEC mode:

```
hostname# client-update all
hostname#
```

If the user's client revision number matches one of the specified revision numbers, there is no need to update the client, and users receive no notification message. VPN 3002 clients update without user intervention and users receive no notification message.



#### Note

If you specify the client-update type as **windows** (specifying all Windows-based platforms) and later want to enter a client-update type of **win9x** or **winnt** for the same entity, you must first remove the windows client type with the **no** form of the command, then use new client-update commands to specify the new client types.

#### Examples

The following example, entered in global configuration mode, enables client update for all active remote clients on all tunnel groups:

```
hostname(config)# client-update enable
hostname#
```

The following example applies only to Windows (win9x, winnt, or windows). Entered in global configuration mode, it configures client update parameters for all Windows-based clients. It designates the revision number, 4.7 and the URL for retrieving the update, which is https://support/updates.

```
hostname(config)# client-update type windows url https://support/updates/ rev-nums 4.7
hostname(config)#
```

The following example applies only to VPN 3002 Hardware Clients. Entered in tunnel-group ipsec-attributes configuration mode, it configures client update parameters for the IPsec remote-access tunnel-group "salesgrp". It designates the revision number, 4.7 and uses the TFTP protocol for retrieving the updated software from the site with the IP address 192.168.1.1:

```
hostname(config)# tunnel-group salesgrp type ipsec-ra
hostname(config)# tunnel-group salesgrp ipsec-attributes
hostname(config-tunnel-ipsec)# client-update type vpn3002 url tftp:192.168.1.1 rev-nums
4.7
```

```
hostname(config-tunnel-ipsec)#
```

The following example shows how to issue a client update for clients that are Cisco 5520 Adaptive Security Appliances configured as Auto Update clients:

```
hostname(config)# client-update type asa5520 component asdm url  
http://192.168.1.114/aus/asdm501.bin rev-nums 7.2(1)
```

The following example, entered in privileged EXEC mode, sends a client-update notification to all connected remote clients in the tunnel group named “remotegrp” that need to update their client software. Clients in other groups do not get an update notification:

```
hostname# client-update remotegrp  
hostname#
```

#### Related Commands

Command	Description
<b>clear configure client-update</b>	Clears the entire client-update configuration.
<b>show running-config client-update</b>	Shows the current client-update configuration.
<b>tunnel-group ipsec-attributes</b>	Configures the tunnel-group ipsec-attributes for this group.

# clock set

To manually set the clock on the security appliance, use the **clock set** command in privileged EXEC mode.

```
clock set hh:mm:ss {month day | day month} year
```

## Syntax Description

<i>day</i>	Sets the day of the month, from 1 to 31. You can enter the day and month as <b>april 1</b> or as <b>1 april</b> , for example, depending on your standard date format.
<i>hh:mm:ss</i>	Sets the hour, minutes, and seconds in 24-hour time. For example, set <b>20:54:00</b> for 8:54 pm.
<i>month</i>	Sets the month. Depending on your standard date format, you can enter the day and month as <b>april 1</b> or as <b>1 april</b> .
<i>year</i>	Sets the year using four digits, for example, <b>2004</b> . The year range is 1993 to 2035.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

If you have not entered any **clock** configuration commands, the default time zone for the **clock set** command is UTC. If you change the time zone after you enter the **clock set** command using the **clock timezone** command, the time automatically adjusts to the new time zone. However, if you enter the **clock set** command after you establish the time zone with the **clock timezone** command, then enter the time appropriate for the new time zone and not for UTC. Similarly, if you enter the **clock summer-time** command after the **clock set** command, the time adjusts for daylight saving. If you enter the **clock set** command after the **clock summer-time** command, enter the correct time for daylight saving.

This command sets the time in the hardware chip, and does not save the time in the configuration file. This time endures reboots. Unlike the other **clock** commands, this command is a privileged EXEC command. To reset the clock, you need to set a new time for the **clock set** command.

**Examples**

The following example sets the time zone to MST, the daylight saving time to the default period in the U.S., and the current time for MDT to 1:15 p.m. on July 27, 2004:

```
hostname(config)# clock timezone MST -7
hostname(config)# clock summer-time MDT recurring
hostname(config)# exit
hostname# clock set 13:15:0 jul 27 2004
hostname# show clock
13:15:00.652 MDT Tue Jul 27 2004
```

The following example sets the clock to 8:15 on July 27, 2004 in the UTC time zone, and then sets the time zone to MST and the daylight saving time to the default period in the U.S. The end time (1:15 in MDT) is the same as the previous example.

```
hostname# clock set 20:15:0 jul 27 2004
hostname# configure terminal
hostname(config)# clock timezone MST -7
hostname(config)# clock summer-time MDT recurring
hostname# show clock
13:15:00.652 MDT Tue Jul 27 2004
```

**Related Commands**

Command	Description
<b>clock summer-time</b>	Sets the date range to show daylight saving time.
<b>clock timezone</b>	Sets the time zone.
<b>show clock</b>	Shows the current time.



# clock summer-time

To set the date range for daylight saving time for the display of the security appliance time, use the **clock summer-time** command in global configuration mode. To disable the daylight saving time dates, use the **no** form of this command.

**clock summer-time** *zone* **recurring** [*week weekday month hh:mm week weekday month hh:mm*]  
[*offset*]

**no clock summer-time** [*zone recurring* [*week weekday month hh:mm week weekday month hh:mm*]]  
[*offset*]

**clock summer-time** *zone* **date** {*day month | month day*} *year hh:mm* {*day month | month day*} *year*  
*hh:mm* [*offset*]

**no clock summer-time** [*zone date* {*day month | month day*} *year hh:mm* {*day month | month day*}  
*year hh:mm* [*offset*]]

## Syntax Description

<b>date</b>	Specifies the start and end dates for daylight saving time as a specific date in a specific year. If you use this keyword, you need to reset the dates every year.
<i>day</i>	Sets the day of the month, from 1 to 31. You can enter the day and month as <b>April 1</b> or as <b>1 April</b> , for example, depending on your standard date format.
<i>hh:mm</i>	Sets the hour and minutes in 24-hour time.
<i>month</i>	Sets the month as a string. For the <b>date</b> command, you can enter the day and month as <b>April 1</b> or as <b>1 April</b> , for example, depending on your standard date format.
<i>offset</i>	(Optional) Sets the number of minutes to change the time for daylight saving time. By default, the value is 60 minutes.
<b>recurring</b>	Specifies the start and end dates for daylight saving time, in the form of a day and time of the month, and not a specific date in a year. This keyword lets you set a recurring date range that you do not need to alter yearly. If you do not specify any dates, the security appliance uses the default date range for the United States: 2:00 a.m. on the first Sunday in April to 2:00 a.m. on the last Sunday in October.
<i>week</i>	(Optional) Specifies the week of the month as an integer between 1 and 4 or as the words <b>first</b> or <b>last</b> . For example, if the day might fall in the partial fifth week, then specify <b>last</b> .
<i>weekday</i>	(Optional) Specifies the day of the week: <b>Monday</b> , <b>Tuesday</b> , <b>Wednesday</b> , and so on.
<i>year</i>	Sets the year using four digits, for example, <b>2004</b> . The year range is 1993 to 2035.
<i>zone</i>	Specifies the time zone as a string, for example, <b>PDT</b> for Pacific Daylight Time. When the security appliance shows the daylight saving time according to the date range you set with this command, the time zone changes to the value you set here. See the <b>clock timezone</b> to set the base time zone to a zone other than UTC.

**Defaults**

The default offset is 60 minutes.

The default recurring date range is from 2:00 a.m. on the first Sunday in April to 2:00 a.m. on the last Sunday in October.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

For the Southern Hemisphere, the security appliance accepts the start month to be later in the year than the end month, for example, from October to March.

**Examples**

The following example sets the daylight saving date range for Australia:

```
hostname(config)# clock summer-time PDT recurring last Sunday October 2:00 last Sunday
March 2:00
```

Some countries start daylight saving on a specific date. In the following example, daylight saving time is configured to start on April 1, 2004, at 3 a.m. and end on October 1, 2004, at 4 a.m.

```
hostname(config)# clock summer-time UTC date 1 April 2004 3:00 1 October 2004 4:00
```

**Related Commands**

Command	Description
<b>clock set</b>	Manually sets the clock on the security appliance.
<b>clock timezone</b>	Sets the time zone.
<b>ntp server</b>	Identifies an NTP server.
<b>show clock</b>	Shows the current time.

# clock timezone

To set the time zone for the security appliance clock, use the **clock timezone** command in global configuration mode. To set the time zone back to the default of UTC, use the **no** form of this command. The **clock set** command or the time derived from an NTP server sets the time in UTC. You must set the time zone as an offset of UTC using this command.

**clock timezone** *zone* [-]*hours* [*minutes*]

**no clock timezone** [*zone* [-]*hours* [*minutes*]]

## Syntax Description

<i>zone</i>	Specifies the time zone as a string, for example, <b>PST</b> for Pacific Standard Time.
[-] <i>hours</i>	Sets the number of hours of offset from UTC. For example, PST is <b>-8</b> hours.
<i>minutes</i>	(Optional) Sets the number of minutes of offset from UTC.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To set daylight saving time, see the **clock summer-time** command.

## Examples

The following example sets the time zone to Pacific Standard Time, which is -8 hours from UTC:

```
hostname(config)# clock timezone PST -8
```

## Related Commands

Command	Description
<b>clock set</b>	Manually sets the clock on the security appliance.
<b>clock summer-time</b>	Sets the date range to show daylight saving time.

<b>Command</b>	<b>Description</b>
<b>ntp server</b>	Identifies an NTP server.
<b>show clock</b>	Shows the current time.

# cluster encryption

To enable encryption for messages exchanged on the virtual load-balancing cluster, use the **cluster encryption** command in VPN load-balancing mode. To disable encryption, use the **no** form of this command.

**cluster encryption**

**no cluster encryption**



### Note

VPN load balancing requires an active 3DES/AES license. The security appliance checks for the existence of this crypto license before enabling load balancing. If it does not detect an active 3DES or AES license, the security appliance prevents the enabling of load balancing and also prevents internal configuration of 3DES by the load balancing system unless the license permits this usage.

### Syntax Description

This command has no arguments or variables.

### Defaults

Encryption is disabled by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
VPN load-balancing mode	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

This command turns encryption on or off for messages exchanged on the virtual load-balancing cluster. Before configuring the **cluster encryption** command, you must have first used the **vpn load-balancing** command to enter VPN load-balancing mode. You must also use the **cluster key** command to configure the cluster shared-secret key before enabling cluster encryption.



### Note

When using encryption, you must first configure the command **isakmp enable inside**, where *inside* designates the load-balancing inside interface. If isakmp is not enabled on the load-balancing inside interface, you will get an error message when you try to configure cluster encryption.

**Examples**

The following is an example of a VPN load-balancing command sequence that includes a **cluster encryption** command that enables encryption for the virtual load-balancing cluster:

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# cluster key 123456789
hostname(config-load-balancing)# cluster encryption
hostname(config-load-balancing)# participate
```

**Related Commands**

Command	Description
<b>cluster key</b>	Specifies the shared-secret key for the cluster.
<b>vpn load-balancing</b>	Enters VPN load-balancing mode.

# cluster ip address

To set the IP address of the virtual load-balancing cluster, use the **cluster ip address** command in VPN load-balancing mode. To remove the IP address specification, use the **no** form of this command.

**cluster ip address** *ip-address*

**no cluster ip address** [*ip-address*]

## Syntax Description

*ip-address* The IP address that you want to assign to the virtual load-balancing cluster.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
VPN load-balancing mode	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You must first use the **vpn load-balancing** command to enter VPN load-balancing mode and configure the interface to which the virtual cluster IP address refers.

The cluster ip address must be on the same subnet as the interface for which you are configuring the virtual cluster.

In the **no** form of the command, if you specify the optional *ip-address* value, it must match the existing cluster IP address before the **no cluster ip address** command can be completed.

## Examples

The following is an example of a VPN load-balancing command sequence that includes a **cluster ip address** command that sets the IP address of the virtual load-balancing cluster to 209.165.202.224:

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
```

```
hostname(config-load-balancing)# participate
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>interface</b>	Sets the interfaces of the device.
<b>nameif</b>	Assigns a name to an interface.
<b>vpn load-balancing</b>	Enters VPN load-balancing mode.



# cluster key

To set the shared secret for IPSec site-to-site tunnel exchanges on the virtual load-balancing cluster, use the **cluster key** command in VPN load-balancing mode. To remove this specification, use the **no** form of this command.

**cluster key** *shared-secret*

**no cluster key** [*shared-secret*]

## Syntax Description

*shared-secret* A string defining the shared secret for the VPN load-balancing cluster.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
VPN load-balancing mode	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You must first use the **vpn load-balancing** command to enter VPN load-balancing mode. The secret defined in the **cluster key** command is also used for cluster encryption.

You must use the **cluster key** command to configure the shared secret before enabling cluster encryption.

If you specify a value for *shared-secret* in the **no cluster key** form of the command, the shared secret value must match the existing configuration.

## Examples

The following is an example of a VPN load-balancing command sequence that includes a **cluster key** command that sets the shared secret of the virtual load-balancing cluster to 123456789:

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
```

## ■ cluster key

```
hostname(config-load-balancing)# cluster key 123456789
hostname(config-load-balancing)# cluster encryption
hostname(config-load-balancing)# participate
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>vpn load-balancing</b>	Enters VPN load-balancing mode.

---

# cluster port

To set the UDP port for the virtual load-balancing cluster, use the **cluster port** command in VPN load-balancing mode. To remove the port specification, use the **no** form of this command.

**cluster port** *port*

**no cluster port** [*port*]

## Syntax Description

*port* The UDP port that you want to assign to the virtual load-balancing cluster.

## Defaults

The default cluster port is 9023.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
VPN load-balancing mode	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You must first use the **vpn load-balancing** command to enter VPN load-balancing mode.

You can specify any valid UDP port number. The range is 1-65535.

If you specify a value for *port* in the **no cluster port** form of the command, the port number specified must match the existing configured port number.

## Examples

The following is an example of a VPN load-balancing command sequence that includes a **cluster port address** command that sets the UDP port for the virtual load-balancing cluster to 9023:

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# cluster port 9023
hostname(config-load-balancing)# participate
```

■ cluster port

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>vpn load-balancing</b>	Enters VPN load-balancing mode.

---

# command-alias

To create an alias for a command, use the **command-alias** command in global configuration mode. To remove the alias, use the **no** form of this command. When you enter the command alias, the original command is invoked. You might want to create command aliases to provide shortcuts for long commands, for example.

```
command-alias mode command_alias original_command
```

```
no command-alias mode command_alias original_command
```

## Syntax Description

<i>mode</i>	Specifies the command mode in which you want to create the command alias, for example <b>exec</b> (for user and privileged EXEC modes), <b>configure</b> , or <b>interface</b> .
<i>command_alias</i>	Specifies the new name you want for an existing command.
<i>original_command</i>	Specifies the existing command or command with its keywords for which you want to create the command alias.

## Defaults

By default, the following user EXEC mode aliases are configured:

**h** for **help**

**lo** for **logout**

**p** for **ping**

**s** for **show**

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You can create an alias for the first part of any command and still enter the additional keywords and arguments as normal.

When you use CLI help, command aliases are indicated by an asterisk (\*), and displayed in the following format:

```
*command-alias=original-command
```

For example, the **lo** command alias displays along with other privileged EXEC mode commands that start with “lo,” as follows:

```
hostname# lo?
*lo=logout login logout
```

You can use the same alias in different modes. For example, you can use “happy” in privileged EXEC mode and configuration mode to alias different commands, as follows:

```
hostname(config)# happy?

configure mode commands/options:
*happy="username crichton password test"

exec mode commands/options:
*happy=enable
```

To list only commands and omit aliases, begin your input line with a space. Also, to circumvent command aliases, use a space before entering the command. In the following example, the alias happy is not shown, because there is a space before the happy? command.

```
hostname(config)# alias exec test enable
hostname(config)# exit
hostname# happy?
ERROR: % Unrecognized command
```

As with commands, you can use CLI help to display the arguments and keywords that can follow a command alias.

You must enter the complete command alias. Shortened aliases are not accepted. In the following example, the parser does not recognize the command hap as indicating the alias happy:

```
hostname# hap
% Ambiguous command: "hap"
```

## Examples

The following example shows how to create a command alias named “save” for the **copy running-config startup-config** command:

```
hostname(config)# command-alias exec save copy running-config startup-config
hostname(config)# exit
hostname# save

Source filename [running-config]?
Cryptochecksum: 50d131d9 8626c515 0c698f7f 613ae54e

2209 bytes copied in 0.210 secs
hostname#
```

## Related Commands

Command	Description
<b>clear configure command-alias</b>	Clears all non-default command aliases.
<b>show running-config command-alias</b>	Displays all non-default command aliases configured.

# command-queue

To specify the maximum number of MGCP commands that are queued while waiting for a response, use the **command-queue** command in MGCP map configuration mode. To remove the configuration, use the **no** form of this command.

**command-queue** *limit*

**no command-queue** *limit*

## Syntax Description

*limit* Specifies the maximum number of commands to queue, from 1 to 2147483647.

## Defaults

This command is disabled by default.

The default for the MGCP command queue is 200.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
MGCP map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the **command-queue** command to specify the maximum number of MGCP commands that are queued while waiting for a response. The range of allowed values is from 1 to 4294967295. The default is 200. When the limit has been reached and a new command arrives, the command that has been in the queue for the longest time is removed.

## Examples

The following example limits the MGCP command queue to 150 commands:

```
hostname(config)# mgcp-map mgcp_policy
hostname(config-mgcp-map)#command-queue 150
```

## Related Commands

Commands	Description
<b>debug mgcp</b>	Enables the display of debug information for MGCP.
<b>mgcp-map</b>	Defines an MGCP map and enables MGCP map configuration mode.

<b>Commands</b>	<b>Description</b>
<b>show mgcp</b>	Displays MGCP configuration and session information.
<b>timeout</b>	Configures the idle timeout after which an MGCP media or MGCP PAT xlate connection will be closed.



# compatible rfc1583

To restore the method that is used to calculate the summary route costs per RFC 1583, use the **compatible rfc1583** command in router configuration mode. To disable RFC 1583 compatibility, use the **no** form of this command.

**compatible rfc1583**

**no compatible rfc1583**

## Syntax Description

This command has no arguments or keywords.

## Defaults

This command is enabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Only the **no** form of this command appears in the configuration.

## Examples

The following example shows how to disable RFC 1583-compatible route summary cost calculation:

```
hostname(config-router)# no compatible rfc1583
hostname(config-router)#
```

## Related Commands

Command	Description
<b>router ospf</b>	Enters router configuration mode.
<b>show running-config router</b>	Displays the commands in the global router configuration.

# compression

To enable compression for SVC connections and WebVPN connections, use the **compression** command from global configuration mode:

```
compression {all | svc | http-comp}
```

```
[no] compression {all | svc | http-comp}
```

To remove the command from the configuration, use the **no** form of the command.

## Syntax Description

<b>all</b>	Specifies enabling all available compression techniques.
<b>svc</b>	Specifies compression for SVC connections.
<b>http-comp</b>	Specifies compression for WebVPN connections.

## Defaults

The default is *all*. All available compression techniques are enabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
global configuration	•	—	•	—	—

## Command History

Release	Modification
7.1.1	This command was introduced.

## Usage Guidelines

For SVC connections, the **compression** command configured from global configuration mode overrides the **svc compression** command configured in group policy webvpn and username webvpn modes.

For example, if you enter the **svc compression** command for a certain group from group policy webvpn mode, and then you enter **no compression** command from global configuration mode, you override the **svc compression** command settings that you configured for the group.

Conversely, if you turn compression back on with the **compression** command from global configuration mode, any group settings take effect, and those settings ultimately determine the compression behavior.

If you disable compression with the **no compression** command, only new connections are affected. Active connections remain unaffected.

## Examples

In the following example, compression is turned on for SVC connections:

```
hostname(config)# compression svc
```

In the next example, compression is disabled for SVC and WebVPN connections:

```
hostname(config)# no compression svc http-comp
```

**Related Commands**

Command	Description
<b>show webvpn svc</b>	Displays information about the SVC installation.
<b>svc</b>	Enables or requires the SVC for a specific group or user.
<b>svc compression</b>	Enables compression of http data over an SVC connection for a specific group or user.

# config-register

To set the configuration register value that is used the next time you reload the security appliance, use the **config-register** command in global configuration mode. To set the value back to the default, use the **no** form of this command. This command is only supported on the ASA 5500 adaptive security appliance. The configuration register value determines which image to boot from as well as other boot parameters.

**config-register** *hex\_value*

**no config-register**

## Syntax Description

<i>hex_value</i>	<p>Sets the configuration register value as a hexadecimal number from 0x0 to 0xFFFFFFFF. This number represents 32 bits and each hexadecimal character represents 4 bits. Each bit controls a different characteristic. However, bits 32 through 20 are either reserved for future use, cannot be set by the user, or are not currently used by the security appliance; therefore, you can ignore the three characters that represent those bits, because they are always set to 0. The relevant bits are represented by 5 hexadecimal characters: 0xnnnnn.</p> <p>You do not need to include preceding 0s. You do need to include trailing 0s. For example, 0x2001 is equivalent to 0x02001; but 0x10000 requires all the zeros. See Table 8-1 for more information about available values for the relevant bits.</p>
------------------	--

## Defaults

The default value is 0x1, which boots from the local image and startup configuration.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The five characters are numbered from 0 to 4 from right to left, which is standard for hexadecimal and binary numbers. You can select one value for each character, and mix and match values as appropriate. For example, you can select either 0 or 2 for character number 3. Some values take priority if they conflict with other values. For example, if you set 0x2011, which sets the security appliance to both boot

from the TFTP server and to boot from the local image, the security appliance boots from the TFTP server. Because this value also stipulates that if the TFTP boot fails, the security appliance should boot directly into ROMMON, then the action that specifies to boot from the default image is ignored.

A value of 0 means no action unless otherwise specified.

Table 8-1 lists the actions associated with each hexadecimal character; choose one value for each character:

**Table 8-1 Configuration Register Values**

Prefix	Hexadecimal Character Numbers 4, 3, 2, 1, and 0				
0x	0	0	0 <sup>1</sup>	0 <sup>2</sup>	0 <sup>2</sup>
	1	2		1	1
	Disables the 10 second ROMMON countdown during startup. Normally, you can press Escape during the countdown to enter ROMMON.	If you set the security appliance to boot from a TFTP server, and the boot fails, then this value boots directly into ROMMON.		Boots from the TFTP server image as specified in the ROMMON Boot Parameters (which is the same as the <b>boot system tftp</b> command, if present). This value takes precedence over a value set for character 1.	Boots the image specified by the first <b>boot system local_flash</b> command. If that image does not load, the security appliance tries to boot each image specified by subsequent <b>boot system</b> commands until it boots successfully.
					3, 5, 7, 9
					Boots the image specified by a particular <b>boot system local_flash</b> command. Value 3 boots the image specified in the first <b>boot system</b> command, value 5 boots the second image, and so on.  If the image does not boot successfully, the security appliance does not attempt to fall back to other <b>boot system</b> command images (this is the difference between using value 1 and value 3). However, the security appliance has a failsafe feature that in the event of a boot failure attempts to boot from any image found in the root directory of internal Flash memory. If you do not want the failsafe feature to take effect, store your images in a different directory than root.
				4 <sup>3</sup>	2, 4, 6, 8
				Ignores the startup configuration and loads the default configuration.	From ROMMON, if you enter the <b>boot</b> command without any arguments, then the security appliance boots the image specified by a particular <b>boot system local_flash</b> command. Value 3 boots the image specified in the first <b>boot system</b> command, value 5 boots the second image, and so on. This value does not automatically boot an image.
				5	
				Performs both actions above.	

1. Reserved for future use.
2. If character numbers 0 and 1 are not set to automatically boot an image, then the security appliance boots directly into ROMMON.
3. If you disable password recovery using the **service password-recovery** command, then you cannot set the configuration register to ignore the startup configuration.

The configuration register value is not replicated to a standby unit, but the following warning is displayed when you set the configuration register on the active unit:

```
WARNING The configuration register is not synchronized with the standby, their values may not match.
```

You can also set the configuration register value in ROMMON using the **confreg** command.

---

### Examples

The following example sets the configuration register to boot from the default image:

```
hostname(config)# config-register 0x1
```

---

### Related Commands

Command	Description
<b>boot</b>	Sets the boot image and startup configuration.
<b>service password-recovery</b>	Enables or disables password recovery.

# configure factory-default

To restore the configuration to the factory default, use the **configure factory-default** command in global configuration mode. The factory default configuration is the configuration applied by Cisco to new security appliances. This command is supported on all platforms except for the PIX 525 and PIX 535 security appliances.

**configure factory-default** [*ip\_address* [*mask*]]

## Syntax Description

<i>ip_address</i>	Sets the IP address of the management or inside interface, instead of using the default address, 192.168.1.1. See the “Usage Guidelines” sections for more information about which interface is configured for your model.
<i>mask</i>	Sets the subnet mask of the interface. If you do not set a mask, the security appliance uses the mask appropriate for the IP address class.

## Defaults

The default IP address and mask are 192.168.1.1 and 255.255.255.0.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	A factory default configuration was added for the ASA 5505 adaptive security appliance.

## Usage Guidelines

For the PIX 515/515E and the ASA 5510 and higher security appliances, the factory default configuration automatically configures an interface for management so you can connect to it using ASDM, with which you can then complete your configuration. For the ASA 5505 adaptive security appliance, the factory default configuration automatically configures interfaces and NAT so that the security appliance is ready to use in your network.

This command is available only for routed firewall mode; transparent mode does not support IP addresses for interfaces, and setting the interface IP address is one of the actions this command takes. This command is also only available in single context mode; a security appliance with a cleared configuration does not have any defined contexts to automatically configure using this command.

This command clears the current running configuration and then configures several commands.

If you set the IP address in the **configure factory-default** command, then the **http** command uses the subnet you specify. Similarly, the **dhcpd address** command range consists of addresses within the subnet that you specify.

After you restore the factory default configuration, save it to internal Flash memory using the **write memory** command. The **write memory** command saves the running configuration to the default location for the startup configuration, even if you previously configured the **boot config** command to set a different location; when the configuration was cleared, this path was also cleared.

**Note**

This command also clears the **boot system** command, if present, along with the rest of the configuration. The **boot system** command lets you boot from a specific image, including an image on the external Flash memory card. The next time you reload the security appliance after restoring the factory configuration, it boots from the first image in internal Flash memory; if you do not have an image in internal Flash memory, the security appliance does not boot.

To configure additional settings that are useful for a full configuration, see the **setup** command.

**ASA 5505 Adaptive Security Appliance Configuration**

The default factory configuration for the ASA 5505 adaptive security appliance configures the following:

- An inside VLAN 1 interface that includes the Ethernet 0/1 through 0/7 switch ports. If you did not set the IP address in the **configure factory-default** command, then the VLAN 1 IP address and mask are 192.168.1.1 and 255.255.255.0.
- An outside VLAN 2 interface that includes the Ethernet 0/0 switch port. VLAN 2 derives its IP address using DHCP.
- The default route is also derived from DHCP.
- All inside IP addresses are translated when accessing the outside using interface PAT.
- By default, inside users can access the outside with an access list, and outside users are prevented from accessing the inside.
- The DHCP server is enabled on the security appliance, so a PC connecting to the VLAN 1 interface receives an address between 192.168.1.2 and 192.168.1.254.
- The HTTP server is enabled for ASDM and is accessible to users on the 192.168.1.0 network.

The configuration consists of the following commands:

```
interface Ethernet 0/0
  switchport access vlan 2
  no shutdown
interface Ethernet 0/1
  switchport access vlan 1
  no shutdown
interface Ethernet 0/2
  switchport access vlan 1
  no shutdown
interface Ethernet 0/3
  switchport access vlan 1
  no shutdown
interface Ethernet 0/4
  switchport access vlan 1
  no shutdown
interface Ethernet 0/5
  switchport access vlan 1
  no shutdown
interface Ethernet 0/6
  switchport access vlan 1
  no shutdown
interface Ethernet 0/7
  switchport access vlan 1
```



```

no shutdown
interface vlan2
  nameif outside
  no shutdown
  ip address dhcp setroute
interface vlan1
  nameif inside
  ip address 192.168.1.1 255.255.255.0
  security-level 100
  no shutdown
global (outside) 1 interface
nat (inside) 1 0 0
http server enable
http 192.168.1.0 255.255.255.0 inside
dhcpd address 192.168.1.2-192.168.1.254 inside
dhcpd auto_config outside
dhcpd enable inside
logging asdm informational

```

### ASA 5510 and Higher Adaptive Security Appliance Configuration

The default factory configuration for the ASA 5510 and higher adaptive security appliance configures the following:

- The management Management 0/0 interface. If you did not set the IP address in the **configure factory-default** command, then the IP address and mask are 192.168.1.1 and 255.255.255.0.
- The DHCP server is enabled on the security appliance, so a PC connecting to the interface receives an address between 192.168.1.2 and 192.168.1.254.
- The HTTP server is enabled for ASDM and is accessible to users on the 192.168.1.0 network.

The configuration consists of the following commands:

```

interface management 0/0
  ip address 192.168.1.1 255.255.255.0
  nameif management
  security-level 100
  no shutdown
asdm logging informational 100
asdm history enable
http server enable
http 192.168.1.0 255.255.255.0 management
dhcpd address 192.168.1.2-192.168.1.254 management
dhcpd lease 3600
dhcpd ping_timeout 750
dhcpd enable management

```

### PIX 515/515E Security Appliance Configuration

The default factory configuration for the PIX 515/515E security appliance configures the following:

- The inside Ethernet1 interface. If you did not set the IP address in the **configure factory-default** command, then the IP address and mask are 192.168.1.1 and 255.255.255.0.
- The DHCP server is enabled on the security appliance, so a PC connecting to the interface receives an address between 192.168.1.2 and 192.168.1.254.
- The HTTP server is enabled for ASDM and is accessible to users on the 192.168.1.0 network.

The configuration consists of the following commands:

```

interface ethernet 1
  ip address 192.168.1.1 255.255.255.0
  nameif management

```

```

    security-level 100
    no shutdown
asdm logging informational 100
asdm history enable
http server enable
http 192.168.1.0 255.255.255.0 management
dhcpd address 192.168.1.2-192.168.1.254 management
dhcpd lease 3600
dhcpd ping_timeout 750
dhcpd enable management

```

## Examples

The following example resets the configuration to the factory default, assigns the IP address 10.1.1.1 to the interface, and then saves the new configuration as the startup configuration:

```
hostname(config)# configure factory-default 10.1.1.1 255.255.255.0
```

Based on the inside IP address and mask, the DHCP address pool size is reduced to 253 from the platform limit 256

```

WARNING: The boot system configuration will be cleared.
The first image found in disk0:/ will be used to boot the
system on the next reload.
Verify there is a valid image on disk0:/ or the system will
not boot.

```

Begin to apply factory-default configuration:

```
Clear all configuration
```

```
...
```

```
hostname(config)#
```

```
hostname(config)# copy running-config startup-config
```

## Related Commands

Command	Description
<b>boot system</b>	Sets the software image from which to boot.
<b>clear configure</b>	Clears the running configuration.
<b>copy running-config startup-config</b>	Copies the running configuration to the startup configuration.
<b>setup</b>	Prompts you to configure basic settings for the security appliance.
<b>show running-config</b>	Shows the running configuration.

# configure http

To merge a configuration file from an HTTP(S) server with the running configuration, use the **configure http** command in global configuration mode. This command supports IPv4 and IPv6 addresses.

```
configure http[s]://[user[:password]@]server[:port]/[path/]filename
```

## Syntax Description

<b>:password</b>	(Optional) For HTTP(S) authentication, specifies the password.
<b>:port</b>	(Optional) Specifies the port. For HTTP, the default is 80. For HTTPS, the default is 443.
<b>@</b>	(Optional) If you enter a name and/or a password, precedes the server IP address with an at sign (@).
<b>filename</b>	Specifies the configuration filename.
<b>http[s]</b>	Specifies either HTTP or HTTPS.
<b>path</b>	(Optional) Specifies a path to the filename.
<b>server</b>	Specifies the server IP address or name. For IPv6 server addresses, if you specify the port, then you must enclose the IP address in brackets so that the colons in the IP address are not mistaken for the colon before the port number. For example, enter the following address and port:  [fe80::2e0:b6ff:fe01:3b7a]:8080
<b>user</b>	(Optional) For HTTP(S) authentication, specifies the username.

## Defaults

For HTTP, the default port is 80. For HTTPS, the default port is 443.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

A merge adds all commands from the new configuration to the running configuration, and overwrites any conflicting commands with the new versions. For example, if a command allows multiple instances, the new commands are added to the existing commands in the running configuration. If a command allows only one instance, the new command overwrites the command in the running configuration. A merge never removes commands that exist in the running configuration but are not set in the new configuration.

This command is the same as the **copy http running-config** command. For multiple context mode, that command is only available in the system execution space, so the **configure http** command is an alternative for use within a context.

---

**Examples**

The following example copies a configuration file from an HTTPS server to the running configuration:

```
hostname(config)# configure https://user1:pa$$w0rd@10.1.1.1/configs/newconfig.cfg
```

---

**Related Commands**

Command	Description
<b>clear configure</b>	Clears the running configuration.
<b>configure memory</b>	Merges the startup configuration with the running configuration.
<b>configure net</b>	Merges a configuration file from the specified TFTP URL with the running configuration.
<b>configure factory-default</b>	Adds commands you enter at the CLI to the running configuration.
<b>show running-config</b>	Shows the running configuration.

# configure memory

To merge the startup configuration with the running configuration, use the **configure memory** command in global configuration mode.

## configure memory

### Syntax Description

This command has no arguments or keywords.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

A merge adds all commands from the new configuration to the running configuration, and overwrites any conflicting commands with the new versions. For example, if a command allows multiple instances, the new commands are added to the existing commands in the running configuration. If a command allows only one instance, the new command overwrites the command in the running configuration. A merge never removes commands that exist in the running configuration but are not set in the new configuration.

If you do not want to merge the configurations, you can clear the running configuration, which disrupts any communications through the security appliance, and then enter the **configure memory** command to load the new configuration.

This command is equivalent to the **copy startup-config running-config** command.

For multiple context mode, a context startup configuration is at the location specified by the **config-url** command.

### Examples

The following example copies the startup configuration to the running configuration:

```
hostname(config)# configure memory
```

### Related Commands

<b>Command</b>	<b>Description</b>
<b>clear configure</b>	Clears the running configuration.
<b>configure http</b>	Merges a configuration file from the specified HTTP(S) URL with the running configuration.
<b>configure net</b>	Merges a configuration file from the specified TFTP URL with the running configuration.
<b>configure factory-default</b>	Adds commands you enter at the CLI to the running configuration.
<b>show running-config</b>	Shows the running configuration.

# configure net

To merge a configuration file from a TFTP server with the running configuration, use the **configure net** command in global configuration mode. This command supports IPv4 and IPv6 addresses.

```
configure net [server:filename] | :filename
```

## Syntax Description

*:filename*

Specifies the path and filename. If you already set the filename using the **tftp-server** command, then this argument is optional.

If you specify the filename in this command as well as a name in the **tftp-server** command, the security appliance treats the **tftp-server** command filename as a directory, and adds the **configure net** command filename as a file under the directory.

To override the **tftp-server** command value, enter a slash in front of the path and filename. The slash indicates that the path is not relative to the tftpboot directory, but is an absolute path. The URL generated for this file includes a double slash (//) in front of the filename path. If the file you want is in the tftpboot directory, you can include the path for the tftpboot directory in the filename path.

If you specified the TFTP server address using the **tftp-server** command, you can enter the filename alone preceded by a colon (:).

*server*:

Sets the TFTP server IP address or name. This address overrides the address you set in the **tftp-server** command, if present. For IPv6 server addresses, you must enclose the IP address in brackets so that the colons in the IP address are not mistaken for the colon before the filename. For example, enter the following address:

```
[fe80::2e0:b6ff:fe01:3b7a]
```

The default gateway interface is the highest security interface; however, you can set a different interface name using the **tftp-server** command.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

A merge adds all commands from the new configuration to the running configuration, and overwrites any conflicting commands with the new versions. For example, if a command allows multiple instances, the new commands are added to the existing commands in the running configuration. If a command allows only one instance, the new command overwrites the command in the running configuration. A merge never removes commands that exist in the running configuration but are not set in the new configuration.

This command is the same as the **copy tftp running-config** command. For multiple context mode, that command is only available in the system execution space, so the **configure net** command is an alternative for use within a context.

**Examples**

The following example sets the server and filename in the **tftp-server** command, and then overrides the server using the **configure net** command. The same filename is used.

```
hostname(config)# tftp-server inside 10.1.1.1 configs/config1
hostname(config)# configure net 10.2.2.2:
```

The following example overrides the server and the filename. The default path to the filename is `/tftpboot/configs/config1`. The `/tftpboot/` part of the path is included by default when you do not lead the filename with a slash (`/`). Because you want to override this path, and the file is also in `tftpboot`, include the `tftpboot` path in the **configure net** command.

```
hostname(config)# tftp-server inside 10.1.1.1 configs/config1
hostname(config)# configure net 10.2.2.2:/tftpboot/oldconfigs/config1
```

The following example sets the server only in the **tftp-server** command. The **configure net** command specifies only the filename.

```
hostname(config)# tftp-server inside 10.1.1.1
hostname(config)# configure net :configs/config1
```

**Related Commands**

Command	Description
<b>configure http</b>	Merges a configuration file from the specified HTTP(S) URL with the running configuration.
<b>configure memory</b>	Merges the startup configuration with the running configuration.
<b>show running-config</b>	Shows the running configuration.
<b>tftp-server</b>	Sets a default TFTP server and path for use in other commands.
<b>write net</b>	Copies the running configuration to a TFTP server.



# configure terminal

To configure the running configuration at the command line, use the **configure terminal** command in privileged EXEC mode. This command enters global configuration mode, which lets you enter commands that change the configuration.

## configure terminal

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Examples** The following example enters global configuration mode:

```
hostname# configure terminal
hostname(config)#
```

Related Commands	Command	Description
	<b>clear configure</b>	Clears the running configuration.
	<b>configure http</b>	Merges a configuration file from the specified HTTP(S) URL with the running configuration.
	<b>configure memory</b>	Merges the startup configuration with the running configuration.
	<b>configure net</b>	Merges a configuration file from the specified TFTP URL with the running configuration.
	<b>show running-config</b>	Shows the running configuration.

# config-url

To identify the URL from which the system downloads the context configuration, use the **config-url** command in context configuration mode.

**config-url** *url*

## Syntax Description

<i>url</i>	<p>Sets the context configuration URL. All remote URLs must be accessible from the admin context. See the following URL syntax:</p> <ul style="list-style-type: none"> <li>• <b>disk0:</b><i>[/path/]filename</i> For the ASA 5500 series adaptive security appliance, this URL indicates the internal Flash memory. You can also use <b>flash</b> instead of <b>disk0</b>; they are aliased.</li> <li>• <b>disk1:</b><i>[/path/]filename</i> For the ASA 5500 series adaptive security appliance, this URL indicates the external Flash memory card.</li> <li>• <b>flash:</b><i>[/path/]filename</i> This URL indicates the internal Flash memory.</li> <li>• <b>ftp:</b><i>[/user[:password]@]server[:port]/[/path/]filename[:type=xx]</i> The <b>type</b> can be one of the following keywords: <ul style="list-style-type: none"> <li>- <b>ap</b>—ASCII passive mode</li> <li>- <b>an</b>—ASCII normal mode</li> <li>- <b>ip</b>—(Default) Binary passive mode</li> <li>- <b>in</b>—Binary normal mode</li> </ul> </li> <li>• <b>http[s]:</b><i>[/user[:password]@]server[:port]/[/path/]filename</i></li> <li>• <b>ftpt:</b><i>[/user[:password]@]server[:port]/[/path/]filename[:int=interface_name]</i> Specify the interface name if you want to override the route to the server address.</li> </ul>
------------	---

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Context configuration	•	•	—	—	•

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

When you add a context URL, the system immediately loads the context so that it is running.

**Note**

Enter the **allocate-interface** command(s) before you enter the **config-url** command. The security appliance must assign interfaces to the context before it loads the context configuration; the context configuration might include commands that refer to interfaces (**interface**, **nat**, **global**...). If you enter the **config-url** command first, the security appliance loads the context configuration immediately. If the context contains any commands that refer to interfaces, those commands fail.

The filename does not require a file extension, although we recommend using “.cfg”.

The admin context file must be stored on the internal Flash memory.

If you download a context configuration from an HTTP or HTTPS server, you cannot save changes back to these servers using the **copy running-config startup-config** command. You can, however, use the **copy tftp** command to copy the running configuration to a TFTP server.

If the system cannot retrieve the context configuration file because the server is unavailable, or the file does not yet exist, the system creates a blank context that is ready for you to configure with the command-line interface.

To change the URL, reenter the **config-url** command with a new URL.

The security appliance merges the new configuration with the current running configuration. Reentering the same URL also merges the saved configuration with the running configuration. A merge adds any new commands from the new configuration to the running configuration. If the configurations are the same, no changes occur. If commands conflict or if commands affect the running of the context, then the effect of the merge depends on the command. You might get errors, or you might have unexpected results. If the running configuration is blank (for example, if the server was unavailable and the configuration was never downloaded), then the new configuration is used. If you do not want to merge the configurations, you can clear the running configuration, which disrupts any communications through the context, and then reload the configuration from the new URL.

**Examples**

The following example sets the admin context to be “administrator,” creates a context called “administrator” on the internal Flash memory, and then adds two contexts from an FTP server:

```
hostname(config)# admin-context administrator
hostname(config)# context administrator
hostname(config-ctx)# allocate-interface gigabitethernet0/0.1
hostname(config-ctx)# allocate-interface gigabitethernet0/1.1
hostname(config-ctx)# config-url flash:/admin.cfg

hostname(config-ctx)# context test
hostname(config-ctx)# allocate-interface gigabitethernet0/0.100 int1
hostname(config-ctx)# allocate-interface gigabitethernet0/0.102 int2
hostname(config-ctx)# allocate-interface gigabitethernet0/0.110-gigabitethernet0/0.115
int3-int8
hostname(config-ctx)# config-url ftp://user1:passw0rd@10.1.1.1/configlets/test.cfg

hostname(config-ctx)# context sample
hostname(config-ctx)# allocate-interface gigabitethernet0/1.200 int1
hostname(config-ctx)# allocate-interface gigabitethernet0/1.212 int2
```

```
hostname(config-ctx)# allocate-interface gigabitethernet0/1.230-gigabitethernet0/1.235
int3-int8
hostname(config-ctx)# config-url ftp://user1:passw0rd@10.1.1.1/configlets/sample.cfg
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>allocate-interface</b>	Allocates interfaces to a context.
<b>context</b>	Creates a security context in the system configuration and enters context configuration mode.
<b>show context</b>	Shows a list of contexts (system execution space) or information about the current context.

# console timeout

To set the idle timeout for a console connection to the security appliance, use the **console timeout** command in global configuration mode. To disable, use the **no** form of this command.

**console timeout** *number*

**no console timeout** [*number*]

## Syntax Description

*number* Specifies the idle time in minutes (0 through 60) after which the console session ends.

## Defaults

The default timeout is 0, which means the console session will not time out.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **console timeout** command sets the timeout value for any authenticated, enable mode, or configuration mode user session to the security appliance. The **console timeout** command does not alter the Telnet or SSH timeouts; these access methods maintain their own timeout values.

The **no console timeout** command resets the console timeout value to the default timeout of 0, which means that the console will not time out.

## Examples

The following example shows how to set the console timeout to 15 minutes:

```
hostname(config)# console timeout 15
```

## Related Commands

Command	Description
<b>clear configure console</b>	Restores the default console connection settings.
<b>clear configure timeout</b>	Restores the default idle time durations in the configuration.
<b>show running-config console timeout</b>	Displays the idle timeout for a console connection to the security appliance.

# content-length

To restrict HTTP traffic based on the length of the HTTP message body, use the **content-length** command in HTTP map configuration mode, which is accessible using the **http-map** command. To remove this command, use the **no** form of this command.

```
content-length { min bytes [max bytes] | max bytes } action { allow | reset | drop } [log]
```

```
no content-length { min bytes [max bytes] | max bytes } action { allow | reset | drop } [log]
```

## Syntax Description

<b>action</b>	Specifies the action taken when a message fails this inspection.
<b>allow</b>	Allows the message.
<b>bytes</b>	Specifies the number of bytes. The permitted range is 1 to 65535 for the <b>min</b> option and 1 to 50000000 for the <b>max</b> option.
<b>drop</b>	Closes the connection.
<b>log</b>	(Optional) Generates a syslog.
<b>max</b>	(Optional) Specifies the maximum content length allowed.
<b>min</b>	Specifies the minimum content length allowed.
<b>reset</b>	Sends a TCP reset message to client and server.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
HTTP map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

After enabling the **content-length** command, the security appliance only allows messages within the configured range and otherwise takes the specified action. Use the **action** keyword to cause the security appliance to reset the TCP connection and create a syslog entry.

**Examples**

The following example restricts HTTP traffic to messages 100 bytes or larger and not exceeding 2000 bytes. If a message is outside this range, the security appliance resets the TCP connection and creates a syslog entry.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# content-length min 100 max 2000 action reset log
hostname(config-http-map)# exit
```

**Related Commands**

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>http-map</b>	Defines an HTTP map for configuring enhanced HTTP inspection.
<b>debug appfw</b>	Displays detailed information about traffic associated with enhanced HTTP inspection.
<b>inspect http</b>	Applies a specific HTTP map to use for application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.

# content-type-verification

To restrict HTTP traffic based on the content type of the HTTP message, use the **content-type-verification** command, in HTTP map configuration mode, which is accessible using the **http-map** command. To disable this feature, use the **no** form of the command.

```
content-type-verification [match-req-rsp] action {allow | reset | drop} [log]
```

```
no content-type-verification [match-req-rsp] action {allow | reset | drop} [log]
```

## Syntax Description

<b>action</b>	Specifies the action taken when a message fails command inspection.
<b>allow</b>	Allows the message.
<b>drop</b>	Closes the connection.
<b>log</b>	(Optional) Generates a syslog message.
<b>match-req-rsp</b>	(Optional) Verifies that the content-type field in the HTTP response matches the accept field in the corresponding HTTP request message.
<b>reset</b>	Sends a TCP reset message to client and server.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
HTTP map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced

## Usage Guidelines

This command enables the following checks:

- Verifies that the value of the header content-type is in the internal list of supported content types,
- Verifies that the header content-type matches the actual content in the data or entity body portion of the message.
- The **match-req-rsp** keyword enables an additional check that verifies the content-type field in the HTTP response matches the **accept** field in the corresponding HTTP request message.

If the message fails any of the above checks, the security appliance takes the configured action.



The following is the list of supported content types.

audio/*	audio/basic	video/x-msvideo
audio/mpeg	audio/x-adpcm	audio/midi
audio/x-ogg	audio/x-wav	audio/x-aiff
application/octet-stream	application/pdf	application/msword
application/vnd.ms-excel	application/vnd.ms-powerpoint	application/postscript
application/x-java-arching	application/x-msn-messenger	application/x-gzip
image	application/x-java-xm	application/zip
image/jpeg	image/cgf	image/gif
image/x-3ds	image/png	image/tiff
image/x-portable-bitmap	image/x-bitmap	image/x-niff
text/*	image/x-portable-greymap	image/x-xpm
text/plain	text/css	text/html
text/xmcd	text/richtext	text/sgml
video/-flc	text/xml	video/*
video/sgi	video/mpeg	video/quicktime
video/x-mng	video/x-avi	video/x-fli

Some content-types in this list may not have a corresponding regular expression (magic number) so they cannot be verified in the body portion of the message. When this case occurs, the HTTP message will be allowed.

### Examples

The following example restricts HTTP traffic based on the content type of the HTTP message. If a message contains an unsupported content type, the security appliance resets the TCP connection and creates a syslog entry.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# content-type-verification match-req-rsp reset log
hostname(config-http-map)# exit
```

### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>http-map</b>	Defines an HTTP map for configuring enhanced HTTP inspection.
<b>debug appfw</b>	Displays detailed information about traffic associated with enhanced HTTP inspection.
<b>inspect http</b>	Applies a specific HTTP map to use for application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.

# context

To create a security context in the system configuration and enter context configuration mode, use the **context** command in global configuration mode. To remove a context, use the **no** form of this command. In context configuration mode, you can identify the configuration file URL and interfaces that a context can use.

**context** *name*

**no context** *name* [**noconfirm**]

## Syntax Description

<b>name</b>	Sets the name as a string up to 32 characters long. This name is case sensitive, so you can have two contexts named “customerA” and “CustomerA,” for example. You can use letters, digits, or hyphens, but you cannot start or end the name with a hyphen.  “System” or “Null” (in upper or lower case letters) are reserved names, and cannot be used.
<b>noconfirm</b>	(Optional) Removes the context without prompting you for confirmation. This option is useful for automated scripts.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If you do not have an admin context (for example, if you clear the configuration) then the first context you add must be the admin context. To add an admin context, see the **admin-context** command. After you specify the admin context, you can enter the **context** command to configure the admin context.

You can only remove a context by editing the system configuration. You cannot remove the current admin context using the **no** form of this command; you can only remove it if you remove all contexts using the **clear configure context** command.

## Examples

The following example sets the admin context to be “administrator,” creates a context called “administrator” on the internal Flash memory, and then adds two contexts from an FTP server:

```

hostname(config)# admin-context administrator
hostname(config)# context administrator
hostname(config-ctx)# allocate-interface gigabitethernet0/0.1
hostname(config-ctx)# allocate-interface gigabitethernet0/1.1
hostname(config-ctx)# config-url flash:/admin.cfg

hostname(config-ctx)# context test
hostname(config-ctx)# allocate-interface gigabitethernet0/0.100 int1
hostname(config-ctx)# allocate-interface gigabitethernet0/0.102 int2
hostname(config-ctx)# allocate-interface gigabitethernet0/0.110-gigabitethernet0/0.115
int3-int8
hostname(config-ctx)# config-url ftp://user1:passw0rd@10.1.1.1/configlets/test.cfg

hostname(config-ctx)# context sample
hostname(config-ctx)# allocate-interface gigabitethernet0/1.200 int1
hostname(config-ctx)# allocate-interface gigabitethernet0/1.212 int2
hostname(config-ctx)# allocate-interface gigabitethernet0/1.230-gigabitethernet0/1.235
int3-int8
hostname(config-ctx)# config-url ftp://user1:passw0rd@10.1.1.1/configlets/sample.cfg

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>allocate-interface</b>	Assigns interfaces to a context.
<b>changeto</b>	Changes between contexts and the system execution space.
<b>config-url</b>	Specifies the location of the context configuration.
<b>join-failover-group</b>	Assigns a context to a failover group.
<b>show context</b>	Shows context information.

# copy

To copy a file from one location to another, use the **copy** command.

```
copy [/noconfirm | /pcap] {url | running-config | startup-config}
    {running-config | startup-config | url}
```

---

## Syntax Description

<b>/noconfirm</b>	Copies the file without a confirmation prompt.
<b>/pcap</b>	Specifies the defaults of the preconfigured TFTP server. See the <b>tftp-server</b> command to configure a default TFTP server.
<b>running-config</b>	Specifies the running configuration.

---

---

**startup-config** Specifies the startup configuration. The startup configuration for single mode or for the system in multiple context mode is a hidden file in Flash memory. From within a context, the location of the startup configuration is specified by the **config-url** command. For example, if you specify an HTTP server for the **config-url** command and then enter the **copy startup-config running-config** command, the security appliance copies the startup configuration from the HTTP server using the admin context interface.

---

*url* Specifies the source or destination file to be copied. Not all combinations of source and destination URLs are allowed. For example, you cannot copy from a remote server to another remote server; this command is meant to copy between local and remote locations. In a context, you can copy the running or startup configuration to a TFTP or FTP server using the context interfaces, but you cannot copy from a server to the running or startup configuration. See the **startup-config** keyword for other options. Also, see the **configure net** command to download from a TFTP server to the running context configuration.

See the following URL syntax:

- **disk0:/[path/]filename**  
This option is only available for the ASA 5500 series adaptive security appliance, and indicates the internal Flash memory. You can also use **flash** instead of **disk0**; they are aliased.
  - **disk1:/[path/]filename**  
This option is only available for the ASA 5500 series adaptive security appliance, and indicates the external Flash memory card.
  - **flash:/[path/]filename**  
This option indicates the internal Flash card. For the ASA 5500 series adaptive security appliance, **flash** is an alias for **disk0**.
  - **ftp://[user[:password]@]server[:port]/[path/]filename[;type=xx]**  
The **type** can be one of the following keywords:
    - **ap**—ASCII passive mode
    - **an**—ASCII normal mode
    - **ip**—(Default) Binary passive mode
    - **in**—Binary normal mode
  - **http[s]://[user[:password]@]server[:port]/[path/]filename**
  - **tftp://[user[:password]@]server[:port]/[path/]filename[;int=interface\_name]**  
Specify the interface name if you want to override the route to the server address.  
  
The pathname cannot contain spaces. If a pathname has spaces, set the path in the **tftp-server** command instead of in the **copy tftp** command.
- 

#### Defaults

This command has no default settings.

#### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged mode	•	•	•	•	•

**Command History**

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	Added support for DNS names.

**Usage Guidelines**

When you copy a configuration to the running configuration, you merge the two configurations. A merge adds any new commands from the new configuration to the running configuration. If the configurations are the same, no changes occur. If commands conflict or if commands affect the running of the context, then the effect of the merge depends on the command. You might get errors, or you might have unexpected results.

**Examples**

This example shows how to copy a file from the disk to a TFTP server in the system execution space:

```
hostname(config)# copy disk0:my_context/my_context.cfg
tftp://10.7.0.80/my_context/my_context.cfg
```

This example shows how to copy a file from one location on the disk to another location on the disk. The name of the destination file can be either the name of the source file or a different name.

```
hostname(config)# copy disk0:my_context.cfg disk:my_context/my_context.cfg
```

This example shows how to copy an ASDM file from a TFTP server to the internal Flash memory:

```
hostname(config)# copy tftp://10.7.0.80/asdm700.bin disk0:asdm700.bin
```

This example shows how to copy the running configuration in a context to a TFTP server:

```
hostname(config)# copy running-config tftp://10.7.0.80/my_context/my_context.cfg
```

The copy command supports DNS names as well as IP addresses as shown in this version of the preceding example:

```
hostname(config)# copy running-config tftp://www.example.com/my_context/my_context.cfg
```

**Related Commands**

Command	Description
<b>configure net</b>	Copies a file from a TFTP server to the running configuration.
<b>copy capture</b>	Copies a capture file to a TFTP server.
<b>tftp-server</b>	Sets the default TFTP server.
<b>write memory</b>	Saves the running configuration to the startup configuration.
<b>write net</b>	Copies the running configuration to a TFTP server.

# copy capture

To copy a capture file to a server, use the **copy capture** command in global configuration mode.

```
copy [/noconfirm] [/pcap] capture: [context_name/]buffer_name url
```

Syntax Description	
<b>/noconfirm</b>	Copies the file without a confirmation prompt.
<b>/pcap</b>	Copies the packet capture as raw data.
<i>buffer_name</i>	Unique name that identifies the capture.
<i>context_name/</i>	Copies a packet capture defined in a security context.
<i>url</i>	Specifies the destination to copy the packet capture file. See the following URL syntax: <ul style="list-style-type: none"> <li>• <b>disk0:/[path/]filename</b> This option is only available for the ASA 5500 series adaptive security appliance, and indicates the internal Flash card. You can also use <b>flash</b> instead of <b>disk0</b>; they are aliased.</li> <li>• <b>disk1:/[path/]filename</b> This option is only available for the ASA 5500 series adaptive security appliance, and indicates the external Flash card.</li> <li>• <b>flash:/[path/]filename</b> This option indicates the internal Flash card. For the ASA 5500 series adaptive security appliance, <b>flash</b> is an alias for <b>disk0</b>.</li> <li>• <b>ftp://[user[:password]@]server[:port]/[path/]filename[;type=xx]</b> The <b>type</b> can be one of the following keywords:               <ul style="list-style-type: none"> <li>- <b>ap</b>—ASCII passive mode</li> <li>- <b>an</b>—ASCII normal mode</li> <li>- <b>ip</b>—(Default) Binary passive mode</li> <li>- <b>in</b>—Binary normal mode</li> </ul> </li> <li>• <b>http[s]://[user[:password]@]server[:port]/[path/]filename</b></li> <li>• <b>tftp://[user[:password]@]server[:port]/[path/]filename[;int=interface_name]</b> Specify the interface name if you want to override the route to the server address.  The pathname cannot contain spaces. If a pathname has spaces, set the path in the <b>tftp-server</b> command instead of in the <b>copy tftp</b> command.</li> </ul>

## Defaults

This command has no default settings.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged mode	•	•	•	—	•

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples**

This example shows the prompts that are provided when you enter the **copy capture** command without specifying the full path:

```
hostname(config)# copy capture:abc tftp
Address or name of remote host [171.68.11.129]?
Source file name [username/cdisk]?
copying capture to tftp://171.68.11.129/username/cdisk:
[yes|no|again]? y
!!!!!!!!!!!!!!
```

You can specify the full path as follows:

```
hostname(config)# copy capture:abc tftp:171.68.11.129/tftpboot/abc.cap
```

If the TFTP server is already configured, the location or filename can be unspecified as follows:

```
hostname(config)# tftp-server outside 171.68.11.129 tftp/cdisk
hostname(config)# copy capture:abc tftp:/tftp/abc.cap
```

**Related Commands**

Command	Description
<b>capture</b>	Enables packet capture capabilities for packet sniffing and network fault isolation.
<b>clear capture</b>	Clears the capture buffer.
<b>show capture</b>	Displays the capture configuration when no options are specified.



# cpu profile activate

To start CPU profile collection information, use the **cpu profile activate** command in privileged EXEC mode.

**cpu profile activate** *n-samples*

## Syntax Description

*n-samples* Allocates memory for storing n number of samples. Values are 1 to 100000, and 1000 is the default.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **show cpu profile** command can be used in conjunction with the **cpu profile activate** command to display information that can be collected and used by the TAC to aid in troubleshooting CPU issues. The information displayed by the **show cpu profile** command is in hexadecimal.

## Examples

The following example activates the profiler and instructs it to store 5000 samples.

```
hostname# cpu profile activate 5000
Activated CPU profiling for 5000 samples.
```

Use the **show cpu profile** command to see the results.



**Note** Executing the **show cpu profile** command while the **cpu profile activate** command is running will display the progress.

```
hostname# show cpu profile
CPU profiling started: 07:54:40.888 PDT Fri Sep 1 2006 CPU profiling currently in
progress, 1640 out of 5000 samples collected.
```

Once it is complete, the **show cpu profile** command output will provide the results. Copy this information and provide to the TAC to be decoded.

```
hostname# show cpu profile
CPU profiling started: 07:54:40.888 PDT Fri Sep 1 2006 Profiling finished, 5000 samples:
 00c483f5 00115283 002199d3 001151d1 002199e5 00116258 002199fc 00115230 0021984e
002198f6 00c48496 00219803 004a55b1 002198b1 00c484d9 00c48472
 00116258 00c48401 002199f3 00c48401 00c484b2 004a5580 0011520a 002198b4
 00116258 00219807 0011520a 00116258 002198a9 00116258 00219a2e 00112009 0021989c
00fff023 008be861 0011525e 002198be 0021984e 00115277 00219807 002199d0 00114a6d 002198af
0011520a 00115260 00115274 004a55a6 00c48472
 00c48472 00c48496 002199f9 002198ad 00c484c4 004a55a6 00115260 002198f4 0011528e
002198e0 00c484bb 00c48496 00c484a6 002199f3 00219810 001161d6 .
```

---

**Related Commands**

Command	Description
<b>show cpu profile</b>	Displays the cpu profile activation information for use with the TAC.

# crashinfo console disable

To read, write, and configure crash write to flash, use the **crashinfo console disable** command.

**crashinfo console disable**

[no] **crashinfo console disable**

## Syntax Description

**disable** Suppresses console output in the event of a crash.

## Defaults

This command has no default settings.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(4)	Support for this command was introduced.

## Usage Guidelines

This command lets you suppress crashinfo from being output to the console. The crashinfo may contain sensitive information that is not appropriate for viewing by all users connected to the device. In conjunction with this command, you should also ensure crashinfo is written to flash, which can be examined after the device reboots. This command effects output for crashinfo and checkheaps, which is saved to flash and should be sufficient for troubleshooting.

## Examples

```
hostname(config)# crashinfo console disable
```

## Related Commands

Command	Description
<b>clear configure fips</b>	Clears the system or module FIPS configuration information stored in NVRAM.
<b>fips enable</b>	Enables or disable a policy-checking to enforce FIPS compliance on the system or module.
<b>fips self-test poweron</b>	Executes power-on self-tests.

Command	Description
<b>show crashinfo console</b>	Reads, writes, and configures crash write to flash.
<b>show running-config fips</b>	Displays the FIPS configuration that is running on the security appliance.

# crashinfo force

To force the security appliance to crash, use the **crashinfo force** command in privileged EXEC mode.

**crashinfo force** [**page-fault** | **watchdog**]

Syntax Description		
<b>page-fault</b>	(Optional)	Forces a crash of the security appliance as a result of a page fault.
<b>watchdog</b>	(Optional)	Forces a crash of the security appliance as a result of watchdogging.

**Defaults** The security appliance saves the crash information file to Flash memory by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** You can use the **crashinfo force** command to test the crash output generation. In the crash output, there is nothing that differentiates a real crash from a crash resulting from the **crashinfo force page-fault** or **crashinfo force watchdog** command (because these are real crashes). The security appliance reloads after the crash dump is complete.



**Caution**

Do not use the **crashinfo force** command in a production environment. The **crashinfo force** command crashes the security appliance and forces it to reload.

**Examples** The following example shows the warning that displays when you enter the **crashinfo force page-fault** command:

```
hostname# crashinfo force page-fault
WARNING: This command will force the XXX to crash and reboot.
Do you wish to proceed? [confirm]:
```

If you enter a carriage return (by pressing the Return or Enter key on your keyboard), “y”, or “Y” the security appliance crashes and reloads; any of these responses are interpreted as confirmation. Any other character is interpreted as a **no**, and the security appliance returns to the command-line prompt.

**Related Commands**

<b>clear crashinfo</b>	Clears the contents of the crash information file.
<b>crashinfo test</b>	Tests the ability of the security appliance to save crash information to a file in Flash memory.
<b>show crashinfo</b>	Displays the contents of the crash information file.

# crashinfo save disable

To disable crash information from writing to Flash memory, use the **crashinfo save** command in global configuration mode.

**crashinfo save disable**

**no crashinfo save disable**

## Syntax Description

This command has no default arguments or keywords.

## Defaults

The security appliance saves the crash information file to Flash memory by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	The <b>crashinfo save enable</b> command was deprecated and is no longer a valid option. Use the <b>no crashinfo save disable</b> command instead.

## Usage Guidelines

Crash information writes to Flash memory first, and then to your console.



### Note

If the security appliance crashes during startup, the crash information file is not saved. The security appliance must be fully initialized and running first, before it can save crash information to Flash memory.

Use the **no crashinfo save disable** command to re-enable saving the crash information to Flash memory.

## Examples

```
hostname(config)# crashinfo save disable
```

## Related Commands

<b>clear crashinfo</b>	Clears the contents of the crash file.
<b>crashinfo force</b>	Forces a crash of the security appliance.

---

<b>crashinfo test</b>	Tests the ability of the security appliance to save crash information to a file in Flash memory.
<b>show crashinfo</b>	Displays the contents of the crash file.

---



# crashinfo test

To test the ability of the security appliance to save crash information to a file in Flash memory, use the **crashinfo test** command in global configuration mode.

## crashinfo test

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** If a previous crash information file already exists in Flash memory, that file is overwritten.



**Note**

Entering the **crashinfo test** command does not crash the security appliance.

**Examples** The following example shows the output of a crash information file test.

```
hostname(config)# crashinfo test
```

Related Commands	clear crashinfo	Deletes the contents of the crash file.
	crashinfo force	Forces the security appliance to crash.
	show crashinfo	Displays the contents of the crash file.

# crl

To specify CRL configuration options, use the `crl` command in `crypto ca trustpoint` configuration mode.

`crl {required | optional | nocheck}`

Syntax Description	required	The required CRL must be available for a peer certificate to be validated.
	optional	The security appliance can still accept the peer certificate if the required CRL is not available.
	nocheck	Directs the security appliance not to perform CRL checking.

**Defaults** The default value is `nocheck`.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)(1)	This command was introduced.
	7.2(1)	This command was deprecated. The following permutations of the <code>revocation-check</code> command replace it. <ul style="list-style-type: none"> <li>• <code>revocation-check crl none</code> replaces <code>crl optional</code></li> <li>• <code>revocation-check crl</code> replaces <code>crl required</code></li> <li>• <code>revocation-check none</code> replaces <code>crl nocheck</code></li> </ul>

**Examples** The following example enters `crypto ca trustpoint` configuration mode for `trustpoint central`, and requires that a CRL be available for a peer certificate to be validated for `trustpoint central`:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl required
hostname(ca-trustpoint)#
```

Related Commands	Command	Description
	<code>clear configure crypto ca trustpoint</code>	Removes all trustpoints.
	<code>crypto ca trustpoint</code>	Enters trustpoint submode.
	<code>crl configure</code>	Enters <code>crl</code> configuration mode.

# crl configure

To enter CRL configuration configuration mode, use the **crl configure** command in crypto ca trustpoint configuration mode.

## crl configure

### Syntax Description

This command has no arguments or keywords.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Examples

The following example enters crl configuration mode within trustpoint central:

```
hostname<config># crypto ca trustpoint central
hostname<ca-trustpoint># crl configure
hostname<ca-crl>#
```

### Related Commands

Command	Description
<b>clear configure crypto ca trustpoint</b>	Removes all trustpoints.
<b>crypto ca trustpoint</b>	Enters trustpoint submode.





## **crypto ca authenticate through customization Commands**

---

# crypto ca authenticate

To install and authenticate the CA certificates associated with a trustpoint, use the **crypto ca authenticate** command in global configuration mode. To remove the CA certificate, use the **no** form of this command.

**crypto ca authenticate** *trustpoint* [**fingerprint** *hexvalue*] [**nointeractive**]

**no crypto ca authenticate** *trustpoint*

## Syntax Description

<b>fingerprint</b>	Specifies a hash value consisting of alphanumeric characters the security appliance uses to authenticate the CA certificate. If a fingerprint is provided, the security appliance compares it to the computed fingerprint of the CA certificate and accepts the certificate only if the two values match. If there is no fingerprint, the security appliance displays the computed fingerprint and asks whether to accept the certificate.
<i>hexvalue</i>	Identifies the hexadecimal value of the fingerprint.
<b>nointeractive</b>	Obtains the CA certificate for this trustpoint using no interactive mode; intended for use by the device manager only. In this case, if there is no fingerprint, the security appliance accepts the certificate without question.
<i>trustpoint</i>	Specifies the trustpoint from which to obtain the CA certificate. Maximum name length is 128 characters.

## Defaults

This command has no default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0	This command was introduced

## Usage Guidelines

If the trustpoint is configured for SCEP enrollment, the CA certificate is downloaded through SCEP. If not, the security appliance prompts you to paste the base-64 formatted CA certificate onto the terminal.

The invocations of this command do not become part of the running configuration.

**Examples**

In the following example, the security appliance requests the certificate of the CA. The CA sends its certificate and the security appliance prompts the administrator to verify the certificate of the CA by checking the CA certificate fingerprint. The security appliance administrator should verify the fingerprint value displayed against a known, correct value. If the fingerprint displayed by the security appliance matches the correct value, you should accept the certificate as valid.

```
hostname(config)# crypto ca authenticate myca
Certificate has the following attributes:
Fingerprint: 0123 4567 89AB CDEF 0123
Do you accept this certificate? [yes/no] y#
hostname(config)#
```

In the next example, the trustpoint tp9 is configured for terminal-based (manual) enrollment. In this case thesecurity appliance prompts the administrator to paste the CA certificate to the terminal. After displaying the fingerprint of the certificate, the security appliance prompts the administrator to confirm that the certificate should be retained.

```
hostname(config)# crypto ca authenticate tp9
Enter the base 64 encoded CA certificate.
End with a blank line or the word "quit" on a line by itself
```

```
MIIDjCCAvEgAwIBAgIQeJJaQ3SJRIBMHcvDdgOsKTANBgkqhkiG9w0BAQUFADBA
MQswCQYDVQQGEwJVUzELMAkGA1UECBMCTUEwETAPBgNVBACTECZyYW5rbGluMREw
DwYDVQQDEwEwCmlhbnNDQTAeFw0wMjEwMjEwMjEwMjEwMjEwMjEwMjEwMjEwMjEw
MEAxCzAJBgNVBAYTA1VTMQswCQYDVQQQIEwJNjQTERMA8GA1UEBxMIRnJhbmtsaW4x
ETAPBgNVBAMTCEJyaWFuc0NBMIIGfMA0GCSqGSIb3DQEBAQUAA4GNADCBiQKBgQCd
jXEPvNnkZD1bKzahbTHuRot1T8KRUBCP5aWkfqViKJENZI2GnAheArasAcc4Eaz
LDnpuyyqa0j5LA3MI577MoN1/nl1018fbpqOf9eVDPJDkYtvtZ/X3vJgnEjTOWyz
T0pXxhdU1b/jgqVE740vKBzU7A2yoQ2hMYzwVbGkewIDAQABo4IBhzCCAYMwEwYJ
KwYBBAGCNxQCBAYeBABDAEEwCwYDVR0PBAQDAgFGMA8GA1UdEwEB/wQFMAMBAf8w
HQYDVR0OBByEFBHR3holowFDmniI3FBwKpSeucdtMIIBGwYDVR0fBIIBEjCCAQ4w
gcaggcOggcCGgb1sZGFwOi8vL0NOPUJyaWFuc0NBLENOPWJyaWFuLXcyay1zdnIs
Q049Q0RQLENOPVB1YmXpYyUyMETleSUyMFN1cnZpY2VzLENOPVN1cnZpY2VzLENO
PUNvbmZpZ3VyYXRpb24sREM9YnJpYW5wZGMsREM9YmRzLERDPWNvbT9jZXJ0aWZp
Y2F0ZVJldm9jYXRpb25MaXN0P2Jhc2U/b2JqZWNOY2xhc3M9Y1JMRGlzdHJpYnV0
aW9uUG9pbmQ6BBod+GPWh0dHA6Ly9icmlhbi13Mmstc3ZyLmJyaWFucGRjLmJk
cy5jb20vQ2VydeVucm9sbC9CcmlhbnNDQs5jcmwweAYJKwYBBAGCNxUBBAMCAQEw
DQYJKoZIhvcNAQEFBQADgYEAdLhc4Za3AbMjRq66xH1qJWxKUzd4nE9wOrhGgA1r
j4B/Hv2K1gUie34xGqu9OpwqvJgp/vCU12Ciykb1YdSDy/PxN4KtR9Xd1JDQMbu5
f20AYqCG5vpPWavCgmgtLcdwKa3ps1YSWGkhWmScHHSiGg1a3tevYVwhHNPA4mWo
7sQ=
```

```
Certificate has the following attributes:
Fingerprint: 21B598D5 4A81F3E5 0B24D12E 3F89C2E4
% Do you accept this certificate? [yes/no]: yes
Trustpoint CA certificate accepted.
% Certificate successfully imported
hostname(config)#
```

**Related Commands**

Command	Description
<b>crypto ca enroll</b>	Starts enrollment with a CA.
<b>crypto ca import certificate</b>	Installs a certificate received from a CA in response to a manual enrollment request. Also used to import PKS12 data to a trustpoint.
<b>crypto ca trustpoint</b>	Enters the trustpoint submode for the indicated trustpoint.

# crypto ca certificate chain

To enter certificate chain configuration mode for the indicated trustpoint, use the **crypto ca certificate chain** command in global configuration mode. To return to global configuration mode, use the **no** form of the command or use the **exit** command.

**crypto ca certificate chain** *trustpoint*

## Syntax Description

<i>trustpoint</i>	Specifies the trustpoint for configuring the certificate chain.
-------------------	---

## Defaults

This command has no default values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example enters CA certificate chain submode for trustpoint central:

```
hostname<config># crypto ca certificate chain central
hostname<config-cert-chain>#
```

## Related Commands

Command	Description
<b>clear configure crypto ca trustpoint</b>	Removes all trustpoints.



## crypto ca certificate map

To enter CA certificate map mode, use the **crypto ca configuration map** command in global configuration mode. Executing this command places you in ca-certificate-map mode. Use this group of commands to maintain a prioritized list of certificate mapping rules. The sequence number orders the mapping rules.

To remove a crypto CA configuration map rule, use the **no** form of the command.

```
crypto ca certificate map {sequence-number | map-name sequence-number}
```

```
no crypto ca certificate map {sequence-number | map-name [sequence-number]}
```

### Syntax Description

<i>map-name</i>	Specifies a name for a certificate-to-group map.
<i>sequence-number</i>	Specifies a number for the certificate map rule you are creating. The range is 1 through 65535. You can use this number when creating a tunnel-group-map, which maps a tunnel group to a certificate map rule.

### Defaults

No default behavior or values for sequence-number.

The default value for *map-name* is DefaultCertificateMap.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
7.0(1)	This command was introduced.
7.2	Added keyword <i>map-name</i> .

### Usage Guidelines

Issuing this command places the security appliance in CA certificate map configuration mode where you can configure rules based on the certificate's issuer and subject distinguished names (DNs). The general form of these rules is as follows:

*DN match-criteria match-value*

*DN* is either *subject-name* or *issuer-name*. DN's are defined in the ITU-T X.509 standard. For a list of certificate fields, see Related Commands.

*match-criteria* comprise the following expressions or operators:

<b>attr tag</b>	Limits the comparison to a specific DN attribute, such as common name (CN).
<b>co</b>	Contains
<b>eq</b>	Equal
<b>nc</b>	Does not contain
<b>ne</b>	Not equal

The DN matching expressions are case insensitive.

### Examples

The following example enters CA certificate map mode with a map named example-map and a sequence number of 1 (rule # 1), and specifies that the common name(CN) attribute of the subject-name must match Pat:

```
hostname(config)# crypto ca certificate map example-map 1
hostname(ca-certificate-map)# subject-name attr cn eq pat
hostname(ca-certificate-map)#
```

The following example enters CA certificate map mode with a map named example-map and a sequence number of 1, and specifies that the subject-name contain the value cisco anywhere within it:

```
hostname(config)# crypto ca certificate map example-map 1
hostname(ca-certificate-map)# subject-name co cisco
hostname(ca-certificate-map)#
```

### Related Commands+

Command	Description
<b>issuer-name</b>	Indicates that rule entry is applied to the issuer DN of the IPsec peer certificate.
<b>subject-name (crypto ca certificate map)</b>	Indicates that rule entry is applied to the subject DN of the IPsec peer certificate.
<b>tunnel-group-map enable</b>	Associates the certificate map entries created using the <b>crypto ca certificate map</b> command with tunnel groups.

# crypto ca crl request

To request a CRL based on the configuration parameters of the specified trustpoint, use the **crypto ca crl request** command in Crypto ca trustpoint configuration mode.

**crypto ca crl request** *trustpoint*

## Syntax Description

*trustpoint* Specifies the trustpoint. Maximum number of characters is 128.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Crypto ca trustpoint configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Invocations of this command do not become part of the running configuration.

## Examples

The following example requests a CRL based on the trustpoint named central:

```
hostname(config)# crypto ca crl request central
hostname(config)#
```

## Related Commands

Command	Description
<b>crl configure</b>	Enters crl configure mode.

# crypto ca enroll

To start the enrollment process with the CA, use the **crypto ca enroll** command in global configuration mode. For this command to execute successfully, the trustpoint must have been configured correctly.

**crypto ca enroll** *trustpoint* [**noconfirm**]

Syntax Description	noconfirm	(Optional) Suppresses all prompts. Enrollment options that might have been prompted for must be pre-configured in the trustpoint. This option is for use in scripts, ASDM, or other such non-interactive needs.
	<i>trustpoint</i>	Specifies the name of the trustpoint to enroll with. Maximum number of characters is 128.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** When the trustpoint is configured for SCEP enrollment, the security appliance displays a CLI prompt immediately and displays status messages to the console asynchronously. When the trustpoint is configured for manual enrollment, the security appliance writes a base-64-encoded PKCS10 certification request to the console and then displays the CLI prompt.

This command generates interactive prompts that vary depending on the configured state of the referenced trustpoint.

**Examples** The following example enrolls for an identity certificate with trustpoint tp1 using SCEP enrollment. The security appliance prompts for information not stored in the trustpoint configuration.

```
hostname(config)# crypto ca enroll tp1
%
% Start certificate enrollment ..
% Create a challenge password. You will need to verbally provide this
% password to the CA Administrator in order to revoke your certificate.
% For security reasons your password will not be saved in the configuration.
% Please make a note of it.
Password:
Re-enter password:
```

```

% The fully-qualified domain name in the certificate will be: xyz.example.com
% The subject name in the certificate will be: xyz.example.com
% Include the router serial number in the subject name? [yes/no]: no
% Include an IP address in the subject name? [no]: no
Request certificate from CA [yes/no]: yes
% Certificate request sent to Certificate authority.
% The certificate request fingerprint will be displayed.
% The 'show crypto ca certificate' command will also show the fingerprint.

hostname(config)#

```

The next command shows manual enrollment of a CA certificate.

```

hostname(config)# crypto ca enroll tp1

% Start certificate enrollment ..
% The fully-qualified domain name in the certificate will be: xyz.example.com
% The subject name in the certificate will be: wb-2600-3.example.com
if serial number not set in trustpoint, prompt:
% Include the router serial number in the subject name? [yes/no]: no
If ip-address not configured in trustpoint:
% Include an IP address in the subject name? [no]: yes
Enter Interface name or IP Address[]: 1.2.3.4
Display Certificate Request to terminal? [yes/no]: y
Certificate Request follows:
MIIBFTCBwAIBADA6MTgwFAyJKoZIhvcNAQkIEwcxLjIuMy40MCAGCSqGSIb3DQEJ
AhYTD2ITmJYwMC0zLmNpc2NvLmNvbTBcMA0GCSqGSIb3DQEBBQUAA0sAMEgCQQDT
IdvHa4D5wXZ+40sKQV7Uek1E+CC6hm/LRN3p5ULW1KF6bxhA3Q5CQfh4jDxobn+A
Y8GoeceulS2Zb+mvgNvjAgMBAAGgITAfBgkqhkiG9w0BCQ4xEjAQMA4GA1UdDwEB
/wQEAWIFoDANBgkqhkiG9w0BAQQFAANBACDhnrEGBVtltG7hp8x6Wz/dgY+ouWcA
lzy7QpdGhb1du2P81RYn+8pWRA43cikXMTem4ykEkZhLjDUgv9t+R9c=

---End - This line not part of the certificate request---

Redisplay enrollment request? [yes/no]: no
hostname(config)#

```

## Related Commands

Command	Description
<b>crypto ca authenticate</b>	Obtains the CA certificate for this trustpoint.
<b>crypto ca import pkcs12</b>	Installs a certificate received from a CA in response to a manual enrollment request. Also used to import PKS12 data to a trustpoint.
<b>crypto ca trustpoint</b>	Enters the trustpoint submode for the indicated trustpoint.

# crypto ca export

To export in PKCS12 format the keys and certificates associated with a trustpoint configuration, use the **crypto ca export** command in global configuration mode.

**crypto ca export** *trustpoint pkcs12 passphrase*

## Syntax Description

<b>passphrase</b>	Specifies the passphrase used to encrypt the PKCS12 file for export.
<b>pkcs12</b>	Specifies the public key cryptography standard to use in exporting the trustpoint configuration.
<b>trustpoint</b>	Specifies the name of the trustpoint whose certificate and keys are to be exported. When you export, if the trustpoint uses RSA keys, the exported key pair is assigned the same name as the trustpoint.

## Defaults

This command has no default values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Invocations of this command do not become part of the active configuration. The PKCS12 data is written to the terminal.

## Examples

The following example exports PKCS12 data for trustpoint central using xxyyzz as the passcode:

```
hostname (config)# crypto ca export central pkcs12 xxyyzz
```

```
Exported pkcs12 follows:
```

```
[ PKCS12 data omitted ]
```

```
---End - This line not part of the pkcs12---
```

```
hostname (config)#
```

Related Commands	Command	Description
	<b>crypto ca import pkcs12</b>	Installs a certificate received from a CA in response to a manual enrollment request. Also used to import PKS12 data to a trustpoint.
	<b>crypto ca authenticate</b>	Obtains the CA certificate for this trustpoint.
	<b>crypto ca enroll</b>	Starts enrollment with a CA.
	<b>crypto ca trustpoint</b>	Enters the trustpoint submode for the indicated trustpoint.

# crypto ca import

To install a certificate received from a CA in response to a manual enrollment request or to import the certificate and key pair for a trustpoint using PKCS12 data, use the **crypto ca import** command in global configuration mode. The security appliance prompts you to paste the text to the terminal in base 64 format.

**crypto ca import** *trustpoint certificate* [ **nointeractive** ]

**crypto ca import** *trustpoint pkcs12 passphrase* [ **nointeractive** ]

## Syntax Description

<i>trustpoint</i>	Specifies the trustpoint with which to associate the import action. Maximum number of characters is 128. If you import PKCS12 data and the trustpoint uses RSA keys, the imported key pair is assigned the same name as the trustpoint.
<i>certificate</i>	Tells the security appliance to import a certificate from the CA represented by the trustpoint.
<b>pkcs12</b>	Tells the security appliance to import a certificate and key pair for a trustpoint, using PKCS12 format.
<i>passphrase</i>	Specifies the passphrase used to decrypt the PKCS12 data.
<b>nointeractive</b>	(Optional) Imports a certificate using nointeractive mode. This suppresses all prompts. This option for use in scripts, ASDM, or other such non-interactive needs.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example manually imports a certificate for the trustpoint Main:

```
hostname (config)# crypto ca import Main certificate
% The fully-qualified domain name in the certificate will be:
securityappliance.example.com
```

```
Enter the base 64 encoded certificate.
End with a blank line or the word "quit" on a line by itself
[ certificate data omitted ]
```



```
quit
INFO: Certificate successfully imported
hostname (config)#
```

The following example manually imports PKCS12 data to trustpoint central:

```
hostname (config)# crypto ca import central pkcs12
```

```
Enter the base 64 encoded pkcs12.
End with a blank line or the word "quit" on a line by itself:
[ PKCS12 data omitted ]
quit
INFO: Import PKCS12 operation completed successfully
hostname (config)#
```

#### Related Commands

Command	Description
<b>crypto ca export</b>	Exports a trustpoint certificate and key pair in PKCS12 format.
<b>crypto ca authenticate</b>	Obtains the CA certificate for a trustpoint.
<b>crypto ca enroll</b>	Starts enrollment with a CA.
<b>crypto ca trustpoint</b>	Enters the trustpoint submode for the indicated trustpoint.

# crypto ca trustpoint

To enter the trustpoint submode for the specified trustpoint, use the **crypto ca trustpoint** command in global configuration mode. To remove the specified trustpoint, use the **no** form of this command. This command manages trustpoint information. A trustpoint represents a CA identity and possibly a device identity, based on a certificate issued by the CA. The commands within the trustpoint sub mode control CA-specific configuration parameters which specify how the security appliance obtains the CA certificate, how the security appliance obtains its certificate from the CA, and the authentication policies for user certificates issued by the CA.

**crypto ca trustpoint** *trustpoint-name*

**no crypto ca trustpoint** *trustpoint-name* [**noconfirm**]

## Syntax Description

<b>noconfirm</b>	Suppresses all interactive prompting
<i>trustpoint- name</i>	Identifies the name of the trustpoint to manage. The maximum name length is 128 characters.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	Subcommands added to support Online Certificate Status Protocol. These include <b>match certificate map</b> , <b>ocsp disable-nonce</b> , <b>ocsp url</b> , and <b>revocation-check</b> .

## Usage Guidelines

Use the **crypto ca trustpoint** command to declare a CA. Issuing this command puts you in crypto ca trustpoint configuration mode.

You can specify characteristics for the trustpoint using the following commands listed alphabetically in this command reference guide:

- **accept-subordinates**—Indicates whether CA certificates subordinate to the CA associated with the trustpoint are accepted if delivered during phase one IKE exchange when not previously installed on the device.
- **crl required | optional | nocheck**—Specifies CRL configuration options.
- **crl configure**—Enters CRL configuration submode (see **crl**).

- **default enrollment**—Returns all enrollment parameters to their system default values. Invocations of this command do not become part of the active configuration.
- **email address**—During enrollment, asks the CA to include the specified email address in the Subject Alternative Name extension of the certificate.
- **enrollment retry period**—Specifies a retry period in minutes for automatic (SCEP) enrollment.
- **enrollment retry count**—Specifies a maximum number of permitted retries for automatic (SCEP) enrollment.
- **enrollment terminal**—Specifies cut and paste enrollment with this trustpoint.
- **enrollment url url**—Specifies automatic enrollment (SCEP) to enroll with this trustpoint and configures the enrollment URL (*url*).
- **exit**—Leaves the submode.
- **fqdn fqdn**—During enrollment, asks the CA to include the specified fully-qualified distinguished name (FQDN) in the Subject Alternative Name extension of the certificate.
- **id-cert-issuer**—Indicates whether the system accepts peer certificates issued by the CA associated with this trustpoint.
- **ip-addr ip-address**—During enrollment, asks the CA to include the IP address of the security appliance in the certificate.
- **keypair name**—Specifies the key pair whose public key is to be certified.
- **match certificate map-name override ocs**—Matches a certificate map to an OCSP override rule..
- **ocs disable-nonce**—Disables the nonce extension, which cryptographically binds revocation requests with responses to avoid replay attacks.
- **ocs url**—Specifies that the OCSP server at this URL checks all certificates associated with this trustpoint for revocation status.
- **exit**—Leaves the submode.
- **password string**—Specifies a challenge phrase that is registered with the CA during enrollment. The CA typically uses this phrase to authenticate a subsequent revocation request.
- **revocation check**—Specifies the revocation checking method, which include CRL, OCSP, and none.
- **serial-number**—During enrollment, asks the CA to include the security appliance's serial number in the certificate.
- **subject-name X.500 name**—During enrollment, asks the CA to include the specified subject DN in the certificate.
- **support-user-cert-validation**—If enabled, the configuration settings to validate a remote user certificate can be taken from this trustpoint, provided that this trustpoint is authenticated to the CA that issued the remote certificate. This option applies to the configuration data associated with the subcommands **crl required | optional | nocheck** and all settings in the CRL sub mode.

### Examples

The following example enters CA trustpoint mode for managing a trustpoint named central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure crypto ca trustpoint</b>	Removes all trustpoints.
<b>crypto ca authenticate</b>	Obtains the CA certificate for this trustpoint.
<b>crypto ca certificate map</b>	Enters crypto CA certificate map mode. Defines certificate-based ACLs.
<b>crypto ca crl request</b>	Requests a CRL based on configuration parameters of specified trustpoint.
<b>crypto ca import</b>	Installs a certificate received from a CA in response to a manual enrollment request. Also used to import PKS12 data to a trustpoint.

# crypto dynamic-map match address

See the **crypto map match address** command for additional information about this command.

**crypto dynamic-map** *dynamic-map-name* *dynamic-seq-num* **match address** *acl\_name*

**no crypto dynamic-map** *dynamic-map-name* *dynamic-seq-num* **match address** *acl\_name*

## Syntax Description

<i>acl-name</i>	Identifies the access-list to be matched for the dynamic crypto map entry.
<i>dynamic-map-name</i>	Specifies the name of the dynamic crypto map set.
<i>dynamic-seq-num</i>	Specifies the sequence number that corresponds to the dynamic crypto map entry.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example shows the use of the **crypto dynamic-map** command to match address of an access list named **aclist1**:

```
hostname(config)# crypto dynamic-map mymap 10 match address aclist1
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure crypto dynamic-map</b>	Clears all configuration for all the dynamic crypto maps.
<b>show running-config crypto dynamic-map</b>	Displays all configuration for all the dynamic crypto maps.

# crypto dynamic-map set nat-t-disable

To disable NAT-T for connections based on this crypto map entry, use the **crypto dynamic-map set nat-t-disable** command in global configuration mode. To enable NAT-T for this crypto map entry, use the **no** form of this command.

**crypto dynamic-map** *dynamic-map-name* *dynamic-seq-num* **set nat-t-disable**

**no crypto dynamic-map** *dynamic-map-name* *dynamic-seq-num* **set nat-t-disable**

## Syntax Description

<i>dynamic-map-name</i>	Specifies the name of the crypto dynamic map set.
<i>dynamic-seq-num</i>	Specifies the number you assign to the crypto dynamic map entry.

## Defaults

The default setting is off.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
			Context	System	
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the **isakmp nat-traversal** command to globally enable NAT-T. Then you can use the **crypto dynamic-map set nat-t-disable** command to disable NAT-T for specific crypto map entries.

## Examples

The following command disables NAT-T for the crypto dynamic map named mymap:

```
hostname(config)# crypto dynamic-map mymap 10 set nat-t-disable
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure crypto dynamic-map</b>	Clears all configuration for all the dynamic crypto maps.
<b>show running-config crypto dynamic-map</b>	Displays all configuration for all the dynamic crypto maps.

# crypto dynamic-map set peer

See the **crypto map set peer** command for additional information about this command.

**crypto dynamic-map** *dynamic-map-name* *dynamic-seq-num* **set peer** *ip\_address* | *hostname*

**no crypto dynamic-map** *dynamic-map-name* *dynamic-seq-num* **set peer** *ip\_address* | *hostname*

## Syntax Description

<i>dynamic-map-name</i>	Specifies the name of the dynamic crypto map set.
<i>dynamic-seq-num</i>	Specifies the sequence number that corresponds to the dynamic crypto map entry.
<i>ip_address</i>	Identifies the peer in the dynamic crypto map entry by IP address, as defined by the <b>name</b> command.
<i>hostname</i>	Identifies the peer in the dynamic crypto map entry by hostname, as defined by the <b>name</b> command.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example shows setting a peer for a dynamic-map named mymap to the IP address 10.0.0.1:

```
hostname(config)# crypto dynamic-map mymap 10 set peer 10.0.0.1
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure crypto dynamic-map</b>	Clears all configuration for all the dynamic crypto maps.
<b>show running-config crypto dynamic-map</b>	Displays all configuration for all the dynamic crypto maps.

# crypto dynamic-map set pfs

See the **crypto map set pfs** command for additional information about this command.

```
crypto dynamic-map dynamic-map-name dynamic-seq-num set pfs [group1 | group2 | group5 |
group 7]
```

```
no crypto dynamic-map dynamic-map-name dynamic-seq-num set pfs [group1 | group2 | group5
| group 7]
```

## Syntax Description

<i>dynamic-map-name</i>	Specifies the name of the dynamic crypto map set.
<i>dynamic-seq-num</i>	Specifies the sequence number that corresponds to the dynamic crypto map entry.
<b>group1</b>	Specifies that IPsec should use the 768-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
<b>group2</b>	Specifies that IPsec should use the 1024-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
<b>group5</b>	Specifies that IPsec should use the 1536-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
<b>group7</b>	Specifies that IPsec should use group7 (ECC) where the elliptical curve field size is 163-bits, for example, with the movianVPN client.
<b>set pfs</b>	Configures IPsec to ask for perfect forward secrecy (PFS) when requesting new security associations for this dynamic crypto map entry or configures IPsec to require PFS when receiving requests for new security associations.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was modified to add Diffie-Hellman group 7.



**Usage Guidelines**

The **crypto dynamic-map** commands, such as **match address**, **set peer**, and **set pfs** are described with the **crypto map** commands. If the peer initiates the negotiation and the local configuration specifies PFS, the peer must perform a PFS exchange or the negotiation fails. If the local configuration does not specify a group, the security appliance assumes a default of group2. If the local configuration does not specify PFS, it accepts any offer of PFS from the peer.

When interacting with the Cisco VPN Client, the security appliance does not use the PFS value, but instead uses the value negotiated during Phase 1.

**Examples**

The following example specifies that PFS should be used whenever a new security association is negotiated for the crypto dynamic-map mymap 10. The group specified is group 2:

```
hostname(config)# crypto dynamic-map mymap 10 set pfs group2
hostname(config)#
```

**Related Commands**

Command	Description
<b>clear configure crypto dynamic-map</b>	Clears all configuration for all the dynamic crypto maps.
<b>show running-config crypto dynamic-map</b>	Displays all configuration for all the dynamic crypto maps.

# crypto dynamic-map set reverse route

See the **crypto map set reverse-route** command for additional information about this command.

**crypto dynamic-map** *dynamic-map-name* *dynamic-seq-num* **set reverse route**

**no crypto dynamic-map** *dynamic-map-name* *dynamic-seq-num* **set reverse route**

## Syntax Description

*dynamic-map-name* Specifies the name of the crypto map set.

*dynamic-seq-num* Specifies the number you assign to the crypto map entry.

## Defaults

The default value for this command is off.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following command enables RRI for the crypto dynamic-map named mymap:

```
hostname(config)# crypto dynamic-map mymap 10 set reverse route
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure crypto dynamic-map</b>	Clears all configuration for all the dynamic crypto maps.
<b>show running-config crypto dynamic-map</b>	Displays all configuration for all the dynamic crypto maps.

# crypto dynamic-map set transform-set

To specify the transform sets to use in a dynamic crypto map entry, use the **crypto dynamic-map set transform-set** command in global configuration mode.

```
crypto dynamic-map dynamic-map-name dynamic-seq-num set transform-set
transform-set-name1 [... transform-set-name11]
```

Specify the names of the transform sets in the **no** form of this command to remove them from a dynamic crypto map entry.

```
no crypto dynamic-map dynamic-map-name dynamic-seq-num set transform-set
transform-set-name1 [... transform-set-name11]
```

Using the **no** form of the command while specifying all or none of the transform sets removes the dynamic crypto map entry.

```
no crypto dynamic-map dynamic-map-name dynamic-seq-num set transform-set
```

## Syntax Description

<i>dynamic-map-name</i>	Specifies the name of the dynamic crypto map set.
<i>dynamic-seq-num</i>	Specifies the sequence number that corresponds to the dynamic crypto map entry.
<i>transform-set-name1</i> <i>transform-set-name11</i>	Specifies one or more names of the transform sets. Any transform sets named in this command must be defined in the <b>crypto ipsec transform-set</b> command. Each crypto map entry supports up to 11 transform sets.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0	This command was introduced.
7.2(1)	Changed maximum number of transform sets in a crypto map entry.

**Usage Guidelines**

A dynamic crypto map is a crypto map without all of the parameters configured. It acts as a policy template where the missing parameters are later dynamically learned, as the result of an IPSec negotiation, to match the peer requirements. The security appliance applies a dynamic crypto map to let a peer negotiate a tunnel if its IP address is not already identified in a static crypto map. This occurs with the following types of peers:

- Peers with dynamically assigned public IP addresses.  
Both LAN-to-LAN and remote access peers can use DHCP to obtain a public IP address. The security appliance uses this address only to initiate the tunnel.
- Peers with dynamically assigned private IP addresses.  
Peers requesting remote access tunnels typically have private IP addresses assigned by the headend. Generally, LAN-to-LAN tunnels have a predetermined set of private networks that are used to configure static maps and therefore used to establish IPSec SAs.

As an administrator configuring static crypto maps, you might not know the IP addresses that are dynamically assigned (via DHCP or some other method), and you might not know the private IP addresses of other clients, regardless of how they were assigned. VPN clients typically do not have static IP addresses; they require a dynamic crypto map to allow IPSec negotiation to occur. For example, the headend assigns the IP address to a Cisco VPN client during IKE negotiation, which the client then uses to negotiate IPSec SAs.

Dynamic crypto maps can ease IPSec configuration and we recommend them for use in networks where the peers are not always predetermined. Use dynamic crypto maps for Cisco VPN clients (such as mobile users) and routers that obtain dynamically assigned IP addresses.

**Tip**

Use care when using the **any** keyword in **permit** entries in dynamic crypto maps. If the traffic covered by such a **permit** entry could include multicast or broadcast traffic, insert **deny** entries for the appropriate address range into the access list. Remember to insert **deny** entries for network and subnet broadcast traffic, and for any other traffic that IPSec should not protect.

Dynamic crypto maps work only to negotiate SAs with remote peers that initiate the connection. The security appliance cannot use dynamic crypto maps to initiate connections to a remote peer. With a dynamic crypto map configured, if the outbound traffic matches a permit entry in an access list and the corresponding SA does not yet exist, the security appliance drops the traffic.

A crypto map set may include a dynamic crypto map. Dynamic crypto map sets should be the lowest priority crypto maps in the crypto map set (that is, they should have the highest sequence numbers) so that the security appliance evaluates other crypto maps first. It examines the dynamic crypto map set only when the other (static) map entries do not match.

Similar to static crypto map sets, a dynamic crypto map set consists of all of the dynamic crypto maps with the same dynamic-map-name. The dynamic-seq-num differentiates the dynamic crypto maps in a set. If you configure a dynamic crypto map, insert a permit ACL to identify the data flow of the IPSec peer for the crypto access list. Otherwise the security appliance accepts any data flow identity the peer proposes.

**Caution**

Do not assign static (default) routes for traffic to be tunneled to a security appliance interface configured with a dynamic crypto map set. To identify the traffic that should be tunneled, add the ACLs to the dynamic crypto map. Use care to identify the proper address pools when configuring the ACLs associated with remote access tunnels. Use Reverse Route Injection to install routes only after the tunnel is up.

You can combine static and dynamic map entries within a single crypto map set.

### Examples

The “crypto ipsec transform-set (create or remove transform set)” section shows ten transform set example commands. The following example creates a dynamic crypto map entry named “dynamic0” consisting of the same ten transform sets.

```
hostname(config)# crypto dynamic-map dynamic0 1 set transform-set 3des-md5 3des-sha  
56des-md5 56des-sha 128aes-md5 128aes-sha 192aes-md5 192aes-sha 256aes-md5 256aes-sha  
hostname(config)#
```

### Related Commands

Command	Description
<b>crypto ipsec transform-set</b>	Configures a transform set.
<b>crypto map set transform-set</b>	Specifies the transform sets to use in a crypto map entry.
<b>clear configure crypto dynamic-map</b>	Clears all dynamic crypto maps from the configuration.
<b>show running-config crypto dynamic-map</b>	Displays the dynamic crypto map configuration.
<b>show running-config crypto map</b>	Displays the crypto map configuration.

# crypto ipsec df-bit

To configure DF-bit policy for IPSec packets, use the **crypto ipsec df-bit** command in global configuration mode.

**crypto ipsec df-bit** [**clear-df** | **copy-df** | **set-df**] *interface*

Syntax Description	clear-df	(Optional) Specifies that the outer IP header will have the DF bit cleared and that the security appliance may fragment the packet to add the IPSec encapsulation.
	<b>copy-df</b>	(Optional) Specifies that the security appliance will look in the original packet for the outer DF bit setting.
	<b>set-df</b>	(Optional) Specifies that the outer IP header will have the DF bit set; however, the security appliance may fragment the packet if the original packet had the DF bit cleared.
	<i>interface</i>	Specifies an interface name.

## Defaults

This command is disabled by default. If this command is enabled without a specified setting, the security appliance uses the **copy-df** setting as default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The DF bit with IPSec tunnels feature lets you specify whether the security appliance can clear, set, or copy the Don't Fragment (DF) bit from the encapsulated header. The DF bit within the IP header determines whether a device is allowed to fragment a packet.

Use the **crypto ipsec df-bit** command in global configuration mode to configure the security appliance to specify the DF bit in an encapsulated header.

When encapsulating tunnel mode IPSec traffic, use the **clear-df** setting for the DF bit. This setting lets the device send packets larger than the available MTU size. Also this setting is appropriate if you do not know the available MTU size.

---

**Examples**

The following example, entered in global configuration mode, sets the IPsec DF policy to **clear-df**:

```
hostname(config)# crypto ipsec df-bit clear-df inside
hostname(config)#
```

---

**Related Commands**

Command	Description
<b>crypto ipsec fragmentation</b>	Configures the fragmentation policy for IPsec packets.
<b>show crypto ipsec df-bit</b>	Displays the DF-bit policy for a specified interface.
<b>show crypto ipsec fragmentation</b>	Displays the fragmentation policy for a specified interface.

# crypto ipsec fragmentation

To configure the fragmentation policy for IPSec packets, use the **crypto ipsec fragmentation** command in global configuration mode.

```
crypto ipsec fragmentation {after-encryption | before-encryption} interface
```

Syntax Description	Parameter	Description
	<b>after-encryption</b>	Specifies the security appliance to fragment IPSec packets that are close to the maximum MTU size after encryption (disables pre-fragmentation).
	<b>before-encryption</b>	Specifies the security appliance to fragment IPSec packets that are close to the maximum MTU size before encryption (enables pre-fragmentation).
	<i>interface</i>	Specifies an interface name.
	token	Indicate a token-based server for user authentication is used.

## Defaults

This feature is enabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

When a packet is near the size of the MTU of the outbound link of the encrypting security appliance, and it is encapsulated with IPSec headers, it is likely to exceed the MTU of the outbound link. This causes packet fragmentation after encryption, which makes the decrypting device reassemble in the process path. Pre-fragmentation for IPSec VPNs increases the decrypting device's performance by letting it operate in the high performance CEF path instead of the process path.

Pre-fragmentation for IPSec VPNs lets an encrypting device predetermine the encapsulated packet size from information available in transform sets, which are configured as part of the IPSec SA. If the device predetermines that the packet will exceed the MTU of the output interface, the device fragments the packet before encrypting it. This avoids process level reassembly before decryption and helps improve decryption performance and overall IPsec traffic throughput.

## Examples

The following example, entered in global configuration mode, enables pre-fragmentation for IPSec packets globally on the device:

```
hostname(config)# crypto ipsec fragmentation before-encryption inside
hostname(config)#
```



The following example, entered in global configuration mode, disables pre-fragmentation for IPSec packets on the interface:

```
hostname(config)# crypto ipsec fragmentation after-encryption inside  
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>crypto ipsec df-bit</b>	Configures the DF-bit policy for IPSec packets.
<b>show crypto ipsec fragmentation</b>	Displays the fragmentation policy for IPSec packets.
<b>show crypto ipsec df-bit</b>	Displays the DF-bit policy for a specified interface.

# crypto ipsec security-association lifetime

To configure global lifetime values, use the **crypto ipsec security-association lifetime** command in global configuration mode. To reset a crypto ipsec entry's lifetime value to the default value, use the **no** form of this command.

**crypto ipsec security-association lifetime** {seconds *seconds* | kilobytes *kilobytes*}

**no crypto ipsec security-association lifetime** {seconds *seconds* | kilobytes *kilobytes*}

Syntax Description		
<i>kilobytes</i>	Specifies the volume of traffic (in kilobytes) that can pass between peers using a given security association before that security association expires. The range is 10 to 2147483647 kbytes. The default is 4,608,000 kilobytes.	
<i>seconds</i>	Specifies the number of seconds a security association will live before it expires. The range is 120 to 214783647 seconds. The default is 28,800 seconds (eight hours).	
token	Indicate a token-based server for user authentication is used.	

## Defaults

The default number of kilobytes is 4,608,000; the default number of seconds is 28,800.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
1.1(1)	This command was introduced.

## Usage Guidelines

The **crypto ipsec security-association lifetime** command changes global lifetime values used when negotiating IPSec security associations.

IPSec security associations use shared secret keys. These keys and their security associations time out together.

Assuming that the particular crypto map entry has no lifetime values configured, when the security appliance requests new security associations during negotiation, it specifies its global lifetime value in the request to the peer; it uses this value as the lifetime of the new security associations. When the security appliance receives a negotiation request from the peer, it uses the smaller of the lifetime value proposed by the peer or the locally configured lifetime value as the lifetime of the new security associations.

There are two lifetimes: a “timed” lifetime and a “traffic-volume” lifetime. The security association expires after the first of these lifetimes is reached.

The security appliance lets you change crypto map, dynamic map, and ipsec settings on the fly. If you do so, the security appliance brings down only the connections affected by the change. If you change an existing access-list associated with a crypto map, specifically by deleting an entry within the access-list, the result is that only the associated connection is brought down. Connections based on other entries in the access-list are not affected.

To change the global timed lifetime, use the **crypto ipsec security-association lifetime seconds** command. The timed lifetime causes the security association to time out after the specified number of seconds have passed.

To change the global traffic-volume lifetime, use the **crypto ipsec security-association lifetime kilobytes** command. The traffic-volume lifetime causes the security association to time out after the specified amount of traffic (in kilobytes) has been protected by the security associations' key.

Shorter lifetimes can make it harder to mount a successful key recovery attack, because the attacker has less data encrypted under the same key to work with. However, shorter lifetimes require more CPU processing time for establishing new security associations.

The security association (and corresponding keys) expires according to whichever occurs sooner, either after the number of seconds has passed or after the amount of traffic in kilobytes has passed.

### Examples

The following example specifies a global timed lifetime for security associations:

```
hostname(config)# crypto ipsec-security association lifetime seconds 240
hostname(config)#
```

### Related Commands

Command	Description
<b>clear configure crypto map</b>	Clears all IPSec configuration (i.e. global lifetimes and transform sets).
<b>show running-config crypto map</b>	Displays all configuration for all the crypto maps.

## crypto ipsec transform-set (create or remove transform set)

To create or remove a transform set, use the **crypto ipsec transform-set** command in global configuration mode. With this command, you identify the IPsec encryption and hash algorithms to be used by the transform set. Use the **no** form of this command to remove a transform set.

**crypto ipsec transform-set** *transform-set-name* *encryption* [*authentication*]

**no crypto ipsec transform-set** *transform-set-name* *encryption* [*authentication*]

### Syntax Description

<i>authentication</i>	(Optional) Specify one of the following authentication methods to ensure the integrity of IPsec data flows:  <b>esp-md5-hmac</b> to use the MD5/HMAC-128 as the hash algorithm. <b>esp-sha-hmac</b> to use the SHA/HMAC-160 as the hash algorithm. <b>esp-none</b> to not use HMAC authentication.
<i>encryption</i>	Specify one of the following encryption methods to protect IPsec data flows:  <b>esp-aes</b> to use AES with a 128-bit key. <b>esp-aes-192</b> to use AES with a 192-bit key. <b>esp-aes-256</b> to use AES with a 256-bit key. <b>esp-des</b> to use 56-bit DES-CBC. <b>esp-3des</b> to use triple DES algorithm. <b>esp-null</b> to not use encryption.
<i>transform-set-name</i>	Name of the transform-set being created or modified. To view the transform sets already present in the configuration, enter the <b>show running-config ipsec</b> command

### Defaults

The default authentication setting is esp-none (no authentication).

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

### Command History

Release	Modification
7.0	This command was introduced.
7.2(1)	This section was rewritten.

**Usage Guidelines**

Following the configuration of a transform set, you assign it to a crypto map. You can assign up to six transform sets to a crypto map. When the peer attempts to establish an IPSec session, the security appliance evaluates the peer against the access list of each crypto map until it finds a match. The security appliance then evaluates all of the protocols, algorithms, and other settings negotiated by the peer against those in the transform sets assigned to the crypto map until it finds a match. If the security appliance matches the peer's IPSec negotiations to the settings in a transform set, it applies them to the protected traffic as part of its IPSec security association. The security appliance terminates the IPSec session if it fails to match the peer to an access list and find an exact match of the security settings of the peer to those in a transform set assigned to the crypto map.

You can specify either the encryption or the authentication first. You can specify the encryption without specifying the authentication. If you specify the authentication in a transform set you are creating, you must specify the encryption with it. If you specify only the authentication in a transform set you are modifying, the transform set retains its current encryption setting.

If you are using AES encryption, we recommend that you use the **isakmp policy priority group 5** command, also in in global configuration mode, to assign Diffie-Hellman group 5 to accommodate the large key sizes provided by AES.

**Tip**

When you apply transform sets to a crypto map or a dynamic crypto map and view the transform sets assigned to it, you will find it helpful if the names of the transform sets reflect their configuration. For example, the name “3des-md5” in the first example below shows the encryption and authentication used in the transform set. The values that follow the name are the actual encryption and authentication settings assigned to the transform set.

**Examples**

The following commands show all possible encryption and authentication options, excluding those that specify no encryption and no authentication:

```
hostname(config)# crypto ipsec transform-set 3des-md5 esp-3des esp-md5-hmac
hostname(config)# crypto ipsec transform-set 3des-sha esp-3des esp-sha-hmac
hostname(config)# crypto ipsec transform-set 56des-md5 esp-des esp-md5-hmac
hostname(config)# crypto ipsec transform-set 56des-sha esp-des esp-sha-hmac
hostname(config)# crypto ipsec transform-set 128aes-md5 esp-aes esp-md5-hmac
hostname(config)# crypto ipsec transform-set 128aes-sha esp-aes esp-sha-hmac
hostname(config)# crypto ipsec transform-set 192aes-md5 esp-aes-192 esp-md5-hmac
hostname(config)# crypto ipsec transform-set 192aes-sha esp-aes-192 esp-sha-hmac
hostname(config)# crypto ipsec transform-set 256aes-md5 esp-aes-256 esp-md5-hmac
hostname(config)# crypto ipsec transform-set 256aes-sha esp-aes-256 esp-sha-hmac
hostname(config)#
```

**Related Commands**

Command	Description
<b>show running-config ipsec</b>	Displays the configuration of all transform sets.
<b>crypto map set transform-set</b>	Specifies the transform sets to use in a crypto map entry.
<b>crypto dynamic-map set transform-set</b>	Specifies the transform sets to use in a dynamic crypto map entry.
<b>show running-config crypto map</b>	Displays the crypto map configuration.
<b>show running-config crypto dynamic-map</b>	Displays the dynamic crypto map configuration.

# crypto ipsec transform-set mode transport

To specify IPSec transport mode for the transform set, use the **crypto ipsec transform-set mode transport** command in global configuration mode. Use the **no** form of this command to remove the IPSec transport mode from the transform set.

**crypto ipsec transform-set** *transform-set-name* **mode transport**

**no crypto ipsec transform-set** *transform-set-name* **mode transport**

## Syntax Description

<b>mode transport</b>	Specifies the transform set to accept transport mode requests in addition to the tunnel mode request.
<i>transform-set-name</i>	Specifies the name of the transform set to modify. It assumes you have already created the transform-set.
token	Indicate a token-based server for user authentication is used.

## Defaults

The default mode is tunnel mode.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

This command specifies IPSec transport mode for a transform set. The Windows 2000 L2TP/IPSec client uses IPSec transport mode, so transport mode must be selected on the transform set. The default is tunnel mode.

Tunnel mode is automatically enabled for a transform set. The security appliance uses tunnel mode except when it is talking to a Windows 2000 L2TP/IPSec client, with which it uses transport mode.

## Examples

The following example configures a transform set named transtet5 that uses Triple DES for encryption, MD5/HMAC-128 for a hash algorithm, and then specifies IPSec transport mode for the transform set transtet5:

```
hostname(config)# crypto ipsec transform-set transtet5 esp-3des esp-md5-hmac
hostname(config)# crypto ipsec transform-set transtet5 mode transport
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure crypto</b>	Clears all ipsec configuration (i.e. global lifetimes and transform sets).
<b>clear configure crypto map</b>	Clears all crypto maps.
<b>show running-config crypto map</b>	Displays all configuration for all the crypto maps.

# crypto isakmp am-disable

To disable inbound aggressive mode connections, use the **crypto isakmp am-disable** command in global configuration mode. To enable inbound aggressive mode connections, use the **no** form of this command.

**crypto isakmp am-disable**

**no crypto isakmp am-disable**

**Syntax Description** This command has no arguments or keywords.

**Defaults** The default value is enabled.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)(1)	The <b>isakmp am-disable</b> command was introduced.
	7.2.(1)	The <b>crypto isakmp am-disable</b> command replaces the <b>isakmp am-disable</b> command.

**Examples** The following example, entered in global configuration mode, disables inbound aggressive mode connections:

```
hostname(config)# crypto isakmp am-disable
```

Related Commands	Command	Description
	<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
	<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
	<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
	<b>show running-config crypto isakmp</b>	Displays all the active configuration.



# crypto isakmp disconnect-notify

To enable disconnect notification to peers, use the **crypto isakmp disconnect-notify** command in global configuration mode. To disable disconnect notification, use the **no** form of this command.

**crypto isakmp disconnect-notify**

**no crypto isakmp disconnect-notify**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default value is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	The <b>isakmp disconnect-notify</b> command was introduced.
7.2.(1)	The <b>crypto isakmp disconnect-notify</b> command replaces the <b>isakmp disconnect-notify</b> command.

## Examples

The following example, entered in global configuration mode, enables disconnect notification to peers:

```
hostname(config)# crypto isakmp disconnect-notify
```

## Related Commands

Command	Description
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config crypto isakmp</b>	Displays all the active configuration.

# crypto isakmp enable

To enable ISAKMP negotiation on the interface on which the IPSec peer communicates with the security appliance, use the **crypto isakmp enable** command in global configuration mode. To disable ISAKMP on the interface, use the **no** form of this command.

**crypto isakmp enable** *interface-name*

**no crypto isakmp enable** *interface-name*

## Syntax Description

*interface-name* Specifies the name of the interface on which to enable or disable ISAKMP negotiation.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This <b>isakmp enable</b> command was preexisting.
7.2(1)	The <b>crypto isakmp enable</b> command replaces the <b>isakmp enable</b> command.

## Examples

The following example, entered in global configuration mode, shows how to disable ISAKMP on the inside interface:

```
hostname(config)# no crypto isakmp enable inside
```

## Related Commands

Command	Description
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config crypto isakmp</b>	Displays all the active configuration.

# crypto isakmp identity

To set the Phase 2 ID to be sent to the peer, use the **crypto isakmp identity** command in global configuration mode. To return to the default setting, use the **no** form of this command.

**crypto isakmp identity** {address | hostname | key-id *key-id-string* | auto}

**no crypto isakmp identity** {address | hostname | key-id *key-id-string* | auto}

## Syntax Description

<b>address</b>	Uses the IP address of the host exchanging ISAKMP identity information.
<b>auto</b>	Determines ISAKMP negotiation by connection type; IP address for preshared key or cert DN for certificate authentication.
<b>hostname</b>	Uses the fully-qualified domain name of the host exchanging ISAKMP identity information (default). This name comprises the hostname and the domain name.
<b>key-id</b> <i>key_id_string</i>	Specifies the string used by the remote peer to look up the preshared key.

## Defaults

The default ISAKMP identity is **crypto isakmp identity hostname**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	The <b>isakmp identity</b> command was preexisting.
7.2(1)	The <b>crypto isakmp identity</b> command replaces the <b>isakmp identity</b> command.

## Examples

The following example, entered in global configuration mode, enables ISAKMP negotiation on the interface for communicating with the IPsec peer, depending on connection type:

```
hostname(config)# crypto isakmp identity auto
```

## Related Commands

Command	Description
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config crypto isakmp</b>	Displays all the active configuration.

# crypto isakmp ipsec-over-tcp

To enable IPsec over TCP, use the **crypto isakmp ipsec-over-tcp** command in global configuration mode. To disable IPsec over TCP, use the **no** form of this command.

```
crypto isakmp ipsec-over-tcp [port port1...port10]
```

```
no crypto isakmp ipsec-over-tcp [port port1...port10]
```

## Syntax Description

**port port1...port10** (Optional) Specifies the ports on which the device accepts IPsec over TCP connections. You can list up to 10 ports. Port numbers can be in the range 1-65535. The default port number is 10000.

## Defaults

The default value is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	The <b>isakmp ipsec-over-tcp</b> command was introduced.
7.2.(1)	The <b>crypto isakmp ipsec-over-tcp</b> command replaces the <b>isakmp ipsec-over-tcp</b> command.

## Examples

This example, entered in global configuration mode, enables IPsec over TCP on port 45:

```
hostname(config)# crypto isakmp ipsec-over-tcp port 45
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config crypto isakmp</b>	Displays all the active configuration.

# crypto isakmp nat-traversal

To enable NAT traversal globally, check that ISAKMP is enabled (you can enable it with the **crypto isakmp enable** command) in global configuration mode and then use the **crypto isakmp nat-traversal** command. If you have enabled NAT traversal, you can disable it with the **no** form of this command.

**crypto isakmp nat-traversal natkeepalive**

**no crypto isakmp nat-traversal natkeepalive**

## Syntax Description

*natkeepalive* Sets the NAT keep alive interval, from 10 to 3600 seconds. The default is 20 seconds.

## Defaults

By default, NAT traversal (**crypto isakmp nat-traversal**) is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	The <b>isakmp nat-traversal</b> command was preexisting.
7.2.(1)	The <b>crypto isakmp nat-traversal</b> command replaces the <b>isakmp nat-traversal</b> command.

## Usage Guidelines

Network Address Translation (NAT), including Port Address Translation (PAT), is used in many networks where IPsec is also used, but there are a number of incompatibilities that prevent IPsec packets from successfully traversing NAT devices. NAT traversal enables ESP packets to pass through one or more NAT devices.

The security appliance supports NAT traversal as described by Version 2 and Version 3 of the IETF “UDP Encapsulation of IPsec Packets” draft, available at <http://www.ietf.org/html.charters/ipsec-charter.html>, and NAT traversal is supported for both dynamic and static crypto maps.

This command enables NAT-T globally on the security appliance. To disable in a crypto-map entry, use the **crypto map set nat-t-disable** command.

## Examples

The following example, entered in global configuration mode, enables ISAKMP and then enables NAT traversal with an interval of 30 seconds:

```
hostname(config)# crypto isakmp enable
hostname(config)# crypto isakmp nat-traversal 30
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config crypto isakmp</b>	Displays all the active configuration.

# crypto isakmp policy

To configure an IKE policy, use the **crypto isakmp policy** command in global configuration mode. IKE policies define a set of parameters for IKE negotiation. To remove the ISAKMP authentication method, use the related **clear configure** command.

**crypto isakmp policy** *priority*

## Syntax Description

*priority* Uniquely identifies the IKE policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2.(1)	This command was introduced.

## Usage Guidelines

The **crypto isakmp policy** command lets you enter crypto isakmp policy mode to set authentication, encryption, group, hash, and lifetime settings.

## Examples

The following example, entered in global configuration mode, shows how to use the **crypto isakmp policy** command. This example sets the authentication method of RSA Signatures to be used for the IKE policy with the priority number of 40.

```
hostname(config)# crypto isakmp policy 40
hostname(config-isakmp-policy)# authentication rsa-sig
```

## Related Commands

Command	Description
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.



Command	Description
<code>clear crypto isakmp sa</code>	Clears the IKE runtime SA database.
<code>show running-config crypto isakmp</code>	Displays all the active configuration.

# crypto isakmp reload-wait

To enable waiting for all active sessions to voluntarily terminate before rebooting the security appliance, use the **crypto isakmp reload-wait** command in global configuration mode. To disable waiting for active sessions to terminate and to proceed with a reboot of the security appliance, use the **no** form of this command.

**crypto isakmp reload-wait**

**no crypto isakmp reload-wait**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)(1)	The <b>isakmp reload-wait</b> command was introduced.
	7.2.(1)	The <b>crypto isakmp reload-wait</b> command replaces the <b>isakmp reload-wait</b> command.

**Examples** The following example, entered in global configuration mode, tells the security appliance to wait until all active sessions have terminated before rebooting.

```
hostname(config)# crypto isakmp reload-wait
```

Related Commands	Command	Description
	<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
	<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
	<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
	<b>show running-config crypto isakmp</b>	Displays all the active configuration.

# crypto key generate dsa

To generate DSA key pairs for identity certificates, use the **crypto key generate dsa** command in global configuration mode.

```
crypto key generate dsa {label key-pair-label} [modulus size] [noconfirm]
```

## Syntax Description

label <i>key-pair-label</i>	Specifies the name to be associated with the key pair(s); maximum label length is 128 characters. DSA requires a label.
modulus <i>size</i>	Specifies the modulus size of the key pair(s): 512, 768, 1024. The default modulus size is 1024.
noconfirm	Suppresses all interactive prompting.

## Defaults

The default modulus size is 1024.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the **crypto key generate dsa** command to generate DSA key pairs to support SSL, SSH, and IPSec connections. The generated key pairs are identified by labels that you provide as part of the command syntax. If you do not provide a label, the security appliance displays an error message.



### Note

When generating DSA keys, you may encounter a delay. On a Cisco PIX 515E Firewall, this delay may extend up to few minutes.

## Examples

The following example, entered in global configuration mode, generates an DSA key pair with the label mypubkey:

```
hostname(config)# crypto key generate dsa label mypubkey
INFO: The name for the keys will be: mypubkey
hostname(config)#
```

The following example, entered in global configuration mode, inadvertently attempts to generate a duplicate DSA key pair with the label mypubkey:

```
hostname(config)# crypto key generate dsa label mypubkey
```

## ■ crypto key generate dsa

```
WARNING: You already have dSA keys defined named mypubkey
Do you really want to replace them? [yes/no] no
ERROR: Failed to create new DSA keys named mypubkey
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>crypto key zeroize</b>	Removes the DSA key pairs.
<b>show crypto key mypubkey</b>	Displays the DSA key pairs.

# crypto key generate rsa

To generate RSA key pairs for identity certificates, use the **crypto key generate rsa** command in global configuration mode.

```
crypto key generate rsa [usage-keys | general-keys] [label key-pair-label] [modulus size]
[noconfirm]
```

## Syntax Description

<b>general-keys</b>	Generates a single pair of general purpose keys. This is the default key-pair type.
<b>label <i>key-pair-label</i></b>	Specifies the name to be associated with the key pair(s). This key pair must be uniquely labeled. If you attempt to create another key pair with the same label, the security appliance displays a warning message. If no label is provided when the key is generated, the key pair is statically named <Default-RSA-Key>.
<b>modulus <i>size</i></b>	Specifies the modulus size of the key pair(s): 512, 768, 1024, and 2048. The default modulus size is 1024.
<b>noconfirm</b>	Suppresses all interactive prompting.
<b>usage-keys</b>	Generates two key pairs, one for signature use and one for encryption use. This implies that two certificates for the corresponding identity are required.

## Defaults

The default key-pair type is **general key**. The default modulus size is 1024.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the **crypto key generate rsa** command to generate RSA key pairs to support SSL, SSH, and IPsec connections. The generated key pairs are identified by labels that you can provide as part of the command syntax. Trustpoints that do not reference a key pair can use the default one <Default-RSA-Key>. SSH connections always use this key. This does not affect SSL, since SSL generates its own cert/key dynamically, unless a trustpoint has one configured.

**Examples**

The following example, entered in global configuration mode, generates an RSA key pair with the label mypubkey:

```
hostname(config)# crypto key generate rsa label mypubkey
INFO: The name for the keys will be: mypubkey
Keypair generation process
hostname(config)#
```

The following example, entered in global configuration mode, inadvertently attempts to generate a duplicate RSA key pair with the label mypubkey:

```
hostname(config)# crypto key generate rsa label mypubkey
WARNING: You already have RSA keys defined named mypubkey
Do you really want to replace them? [yes/no] no
ERROR: Failed to create new RSA keys named mypubkey
hostname(config)#
```

The following example, entered in global configuration mode, generates an RSA key pair with the default label:

```
hostname(config)# crypto key generate rsa
INFO: The name for the keys will be: <Default-RSA-Key>
Keypair generation process begin. Please wait...
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>crypto key zeroize</b>	Removes RSA key pairs.
<b>show crypto key mypubkey</b>	Displays the RSA key pairs.

# crypto key zeroize

To remove the key pairs of the indicated type (rsa or dsa), use the **crypto key zeroize** command in global configuration mode.

```
crypto key zeroize {rsa | dsa} [label key-pair-label] [default] [noconfirm]
```

## Syntax Description

<b>default</b>	Removes RSA key pairs with no labels. This keyword is legal only with RSA key pairs.
<b>dsa</b>	Specifies DSA as the key type.
<b>label</b> <i>key-pair-label</i>	Removes the key pairs of the indicated type (rsa or dsa). If you do not provide a label, the security appliance removes all key pairs of the indicated type.
<b>noconfirm</b>	Suppresses all interactive prompting.
<b>rsa</b>	Specifies RSA as the key type.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example, entered in global configuration mode, removes all RSA key pairs:

```
hostname(config)# crypto key zeroize rsa
WARNING: All RSA keys will be removed.
WARNING: All router certs issued using these keys will also be removed.

Do you really want to remove these keys? [yes/no] y
hostname(config)#
```

## Related Commands

Command	Description
<b>crypto key generate dsa</b>	Generates DSA key pairs for identity certificates.
<b>crypto key generate rsa</b>	Generate RSA key pairs for identity certificates.

# crypto map interface

Use the **crypto map interface** command in global configuration mode to apply a previously defined crypto map set to an interface. Use the **no** form of this command to remove the crypto map set from the interface.

**crypto map** *map-name* **interface** *interface-name*

**no crypto map** *map-name* **interface** *interface-name*

## Syntax Description

<i>interface-name</i>	Specifies the interface for the security appliance to use for establishing tunnels with VPN peers. If ISAKMP is enabled, and you are using a certificate authority (CA) to obtain certificates, this should be the interface with the address specified in the CA certificates.
<i>map-name</i>	Specifies the name of the crypto map set.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Use this command to assign a crypto map set to any active security appliance interface. The security appliance supports IPsec termination on any and all active interfaces. You must assign a crypto map set to an interface before that interface can provide IPsec services.

You can assign only one crypto map set to an interface. If multiple crypto map entries have the same *map-name* but a different *seq-num*, they are part of the same set and are all applied to the interface. The security appliance evaluates the crypto map entry with the lowest *seq-num* first.



**Note**

The security appliance lets you change crypto map, dynamic map, and ipsec settings on the fly. If you do so, the security appliance brings down only the connections affected by the change. If you change an existing access-list associated with a crypto map, specifically by deleting an entry within the access-list, the result is that only the associated connection is brought down. Connections based on other entries in the access-list are not affected.

**Note**

Every static crypto map must define three parts: an access list, a transform set, and an IPsec peer. If one of these is missing, the crypto map is incomplete and the security appliance moves on to the next entry. However, if the crypto map matches on the access-list but not on either or both of the other two requirements, this security appliance drops the traffic.

Use the **show running-config crypto map** command to ensure that every crypto map is complete. To fix an incomplete crypto map, remove the crypto map, add the missing entries, and reapply it.

**Examples**

The following example, entered in global configuration mode, assigns the crypto map set named mymap to the outside interface. When traffic passes through the outside interface, the security appliance evaluates it against all the crypto map entries in the mymap set. When outbound traffic matches an access list in one of the mymap crypto map entries, the security appliance forms a security association using that crypto map entry's configuration.

```
hostname(config)# crypto map mymap interface outside
```

The following example shows the minimum required crypto map configuration:

```
hostname(config)# crypto map mymap 10 ipsec-isakmp
hostname(config)# crypto map mymap 10 match address 101
hostname(config)# crypto map mymap set transform-set my_t_set1
hostname(config)# crypto map mymap set peer 10.0.0.1
```

**Related Commands**

Command	Description
<b>clear configure crypto map</b>	Clears all configuration for all crypto maps.
<b>show running-config crypto map</b>	Displays the crypto map configuration.

## crypto map ipsec-isakmp dynamic

To require a given crypto map entry to refer to a pre-existing dynamic crypto map, use the **crypto map ipsec-isakmp dynamic** command in global configuration mode. Use the **no** form of this command to remove the cross reference.

Use the **crypto dynamic-map** command to create dynamic crypto map entries. After you create a dynamic crypto map set, use the **crypto map ipsec-isakmp dynamic** command to add the dynamic crypto map set to a static crypto map.

**crypto map** *map-name seq-num ipsec-isakmp dynamic dynamic-map-name*

**no crypto map** *map-name seq-num ipsec-isakmp dynamic dynamic-map-name*

### Syntax Description

<i>dynamic-map-name</i>	Specifies the name of the crypto map entry that refers to a pre-existing dynamic crypto map.
<b>ipsec-isakmp</b>	Indicates that IKE establishes the IPSec security associations for this crypto map entry.
<i>map-name</i>	Specifies the name of the crypto map set.
<i>seq-num</i>	Specifies the number you assign to the crypto map entry.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

### Command History

Release	Modification
7.0	This command was modified to remove the <b>ipsec-manual</b> keyword.

### Usage Guidelines

After you define crypto map entries, you can use the **crypto map interface** command to assign the dynamic crypto map set to interfaces.

Dynamic crypto maps provide two functions: filtering/classifying traffic to protect, and defining the policy to apply to that traffic. The first use affects the flow of traffic on an interface; the second affects the negotiation performed (via IKE) on behalf of that traffic.

IPSec dynamic crypto maps identify the following:

- The traffic to protect
- IPSec peer(s) with which to establish a security association
- Transform sets to use with the protected traffic

- How to use or manage keys and security associations

A crypto map set is a collection of crypto map entries, each with a different sequence number (seq-num) but the same map name. Therefore, for a given interface, you could have certain traffic forwarded to one peer with specified security applied to that traffic, and other traffic forwarded to the same or a different peer with different IPsec security applied. To accomplish this you create two crypto map entries, each with the same map name, but each with a different sequence number.

**The number you assign as the seq-num argument should not be arbitrary. This number ranks multiple crypto map entries within a crypto map set. A crypto map entry with a lower seq-num is evaluated before a map entry with a higher seq-num; that is, the map entry with the lower number has a higher priority.**



#### Note

When you link the crypto map to a dynamic crypto map, you must specify the dynamic crypto map. This links the crypto map to an existing dynamic crypto map that was previously defined using the **crypto dynamic-map** command. Now any changes you make to the crypto map entry after it has been converted, will not take affect. For example, a change to the set peer setting does not take effect. However, the security appliance stores the change while it is up. When the dynamic crypto map is converted back to the crypto map, the change is effective and appears in the output of the **show running-config crypto map** command. The security appliance maintains these settings until it reboots.

#### Examples

The following command, entered in global configuration mode, configures the crypto map mymap to refer to a dynamic crypto map named test.

```
hostname(config)# crypto map mymap ipsec-isakmp dynamic test
hostname(config)#
```

#### Related Commands

Command	Description
<b>clear configure crypto map</b>	Clears all configuration for all crypto maps.
<b>show running-config crypto map</b>	Displays the crypto map configuration.

# crypto map match address

To assign an access list to a crypto map entry, use the **crypto map match address** command in global configuration mode. Use the **no** form of this command to remove the access list from a crypto map entry.

```
crypto map map-name seq-num match address acl_name
```

```
no crypto map map-name seq-num match address acl_name
```

## Syntax Description

<i>acl_name</i>	Specifies the name of the encryption access list. This name should match the name argument of the named encryption access list being matched.
<i>map-name</i>	Specifies the name of the crypto map set.
<i>seq-num</i>	Specifies the number you assign to the crypto map entry.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

This command is required for all static crypto maps. If you are defining a dynamic crypto map (with the **crypto dynamic-map** command), this command is not required but is strongly recommended.

Use the **access-list** command to define the access lists.

The security appliance uses the access lists to differentiate the traffic to protect with IPSec crypto from the traffic that does not need protection. It protects outbound packets that match a permit ACE, and ensures that inbound packets that match a permit ACE have protections.

When the security appliance matches a packet to a deny statement, it skips the evaluation of the packet against the remaining access control entries (ACEs) in the crypto map, and resumes evaluation of the packet against the ACEs in the next crypto map in sequence. *Cascading ACLs* involves the use of deny ACEs to bypass evaluation of the remaining ACEs in an ACL, and the resumption of evaluation of traffic against the ACL assigned to the next crypto map in the crypto map set. Because you can associate each crypto map with different IPSec settings, you can use deny ACEs to exclude special traffic from further evaluation in the corresponding crypto map, and match the special traffic to permit statements in another crypto map to provide or require different security.

**Note**

The crypto access list does not determine whether to permit or deny traffic through the interface. An access list applied directly to the interface with the **access-group** command makes that determination.

**Note**

In transparent mode, the destination address should be the IP address of the security appliance, the management address. Only tunnels to the security appliance are allowed in transparent mode.

**Related Commands**

Command	Description
clear configure crypto map	Clears all configuration for all crypto maps.
show running-config crypto map	Displays the crypto map configuration.

## crypto map set connection-type

To specify the connection type for the Backup Site-to-Site feature for this crypto map entry, use the **crypto map set connection-type** command in global configuration mode. Use the **no** form of this command to return to the default setting.

```
crypto map map-name seq-num set connection-type {answer-only | originate-only |
bidirectional}
```

```
no crypto map map-name seq-num set connection-type {answer-only | originate-only |
bidirectional}
```

### Syntax Description

<b>answer-only</b>	Specifies that this peer only responds to inbound IKE connections first during the initial proprietary exchange to determine the appropriate peer to connect to.
<b>bidirectional</b>	Specifies that this peer can accept and originate connections based on this crypto map entry. This is the default connection type for all Site-to-Site connections.
<b>map-name</b>	Specifies the name of the crypto map set.
<b>originate-only</b>	Specifies that this peer initiates the first proprietary exchange to determine the appropriate peer to connect to.
<i>seq-num</i>	Specifies the number you assign to the crypto map entry.
<b>set connection-type</b>	Specifies the connection type for the Backup Site-to-Site feature for this crypto map entry. There are three types of connections: answer-only, originate-only, and bidirectional.

### Defaults

The default setting is bidirectional.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

\*In transparent firewall mode, you can see this command but the connection-type value cannot be set to anything other than answer-only for crypto map entries that are part of a crypto map that has been attached to the interface.

### Command History

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

The **crypto map set connection-type** command specifies the connection types for the Backup Lan-to-Lan feature. This feature works only between two Cisco ASA 5500 series security appliances or a Cisco ASA 5500 series security appliance and a Cisco VPN 3000 Concentrator. It allows multiple backup peers to be specified at one end of the connection.

To configure a backup Lan-to-Lan connection, we recommend you configure one end of the connection as originate-only using the **originate-only** keyword, and the end with multiple backup peers as answer-only using the **answer-only** keyword. On the originate-only end, use the **crypto map set peer** command to order the priority of the peers. The originate-only security appliance attempts to negotiate with the first peer in the list. If that peer does not respond, the security appliance works its way down the list until either a peer responds or there are no more peers in the list.

When configured in this way, the originate-only peer initially attempts to establish a proprietary tunnel and negotiate with a peer. Thereafter, either peer can establish a normal Lan-to-Lan connection and data from either end can initiate the tunnel connection.

Table 9-1 lists all supported configurations. Other combinations may result in unpredictable routing issues.

**Table 9-1 Supported Backup LAN-to-LAN Connection Types**

Remote Side	Central Side
Originate-Only	Answer-Only
Bi-Directional	Answer-Only
Bi-Directional	Bi-Directional

**Examples**

The following example, entered in global configuration mode, configures the crypto map mymap and sets the connection-type to originate-only.

```
hostname(config)# crypto map mymap 10 set connection-type originate-only
hostname(config)#
```

**Related Commands**

Command	Description
<b>clear configure crypto map</b>	Clears all configuration for all crypto maps.
<b>show running-config crypto map</b>	Displays the crypto map configuration.

# crypto map set inheritance

To set the granularity (single or multiple) of security associations generated for this crypto map entry, use the **set inheritance** command in global configuration mode. To remove the inheritance setting for this crypto map entry, use the no form of this command.

```
crypto map map-name seq-num set inheritance {data rule}
```

```
no crypto map map-name seq-num set inheritance {data | rule}
```

## Syntax Description

<b>data</b>	Specifies one tunnel for every address pair within the address ranges specified in the rule.
<i>map-name</i>	Specifies the name of the crypto map set.
<b>rule</b>	Specifies one tunnel for each ACL entry associated with this crypto map. Default.
<i>seq-num</i>	Specifies the number you assign to the crypto map entry.
<b>set inheritance</b>	Specifies the type of inheritance: <b>data or rule</b> . Inheritance allows a single security association (SA) to be generated for each security policy database (SPD) rule or multiple security SAs for each address pair in the range.

## Defaults

Default value is **rule**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command works only when the security appliance is initiating the tunnel, not when responding to a tunnel. Using the data setting may create a large number of IPSec SAs. This consumes memory and results in fewer overall tunnels. You should use the data setting only for extremely security-sensitive applications.

## Examples

The following example, entered in global configuration mode, configures the crypto map mymap and sets the inheritance type to data.

```
hostname(config)# crypto map mymap 10 set inheritance data
hostname(config)#
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure crypto map</b>	Clears all configuration for all crypto maps.
<b>show running-config crypto map</b>	Displays the crypto map configuration.

# crypto map set nat-t-disable

To disable NAT-T for connections based on this crypto map entry, use the **crypto map set nat-t-disable** command in global configuration mode. To enable NAT-T for this crypto map entry, use the **no** form of this command.

**crypto map** *map-name seq-num set nat-t-disable*

**no crypto map** *map-name seq-num set nat-t-disable*

## Syntax Description

<i>map-name</i>	Specifies the name of the crypto map set.
<i>seq-num</i>	Specifies the number you assign to the crypto map entry.

## Defaults

The default setting for this command is not on (therefore NAT-T is enabled by default).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the **isakmp nat-traversal** command to globally enable NAT-T. Then you can use the **crypto map set nat-t-disable** command to disable NAT-T for specific crypto map entries.

## Examples

The following command, entered in global configuration mode, disables NAT-T for the crypto map entry named mymap.

```
hostname(config)# crypto map mymap 10 set nat-t-disable
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure crypto map</b>	Clears all configuration for all crypto maps.
<b>isakmp nat-traversal</b>	Enables NAT-T for all connections.
<b>show running-config crypto map</b>	Displays the crypto map configuration.

## crypto map set peer

To specify an IPSec peer in a crypto map entry, use the **crypto map set peer** command in global configuration mode. Use the **no** form of this command to remove an IPSec peer from a crypto map entry.

```
crypto map map-name seq-num set peer {ip_address | hostname} {...ip_address | hostname10}
```

```
no crypto map map-name seq-num set peer {ip_address | hostname} {...ip_address | hostname10}
```

### Syntax Description

<i>hostname</i>	Specifies a peer by its host name as defined by the security appliance <b>name</b> command.
<i>ip_address</i>	Specifies a peer by its IP address.
<i>map-name</i>	Specifies the name of the crypto map set.
<b>peer</b>	Specifies an IPSec peer in a crypto map entry either by hostname of IP address.
<i>seq-num</i>	Specifies the number you assign to the crypto map entry.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

### Command History

Release	Modification
7.0	This command was modified to allow up to 10 peer addresses.

### Usage Guidelines

This command is required for all static crypto maps. If you are defining a dynamic crypto map (with the **crypto dynamic-map** command), this command is not required, and in most cases is not used because, in general, the peer is unknown.

Configuring multiple peers is equivalent to providing a fallback list. For each tunnel, the security appliance attempts to negotiate with the first peer in the list. If that peer does not respond, the security appliance works its way down the list until either a peer responds or there are no more peers in the list. You can set up multiple peers only when using the backup LAN-to-LAN feature (that is, when the crypto map connection type is originate-only). For more information, see the **crypto map set connection-type** command.

**Examples**

The following example, entered in global configuration mode, shows a crypto map configuration using IKE to establish the security associations. In this example, you can set up a security association to either the peer at 10.0.0.1 or the peer at 10.0.0.2.

```
hostname(config)# crypto map mymap 10 ipsec-isakmp
hostname(config)# crypto map mymap 10 match address 101
hostname(config)# crypto map mymap 10 set transform-set my_t_set1
hostname(config)# crypto map mymap 10 set peer 10.0.0.1 10.0.0.2
```

**Related Commands**

Command	Description
<b>clear configure crypto map</b>	Clears all configuration for all crypto maps.
<b>show running-config crypto map</b>	Displays the crypto map configuration.

## crypto map set pfs

Use the **crypto map set pfs** command in global configuration mode to set IPsec to ask for perfect forward secrecy (PFS) when requesting new security associations for this crypto map entry or that IPsec requires PFS when receiving requests for new security associations. To specify that IPsec should not request PFS, use the **no** form of this command.

```
crypto map map-name seq-num set pfs [group1 | group2 | group5 | group7]
```

```
no crypto map map-name seq-num set pfs [group1 | group2 | group5 | group7]
```

### Syntax Description

<b>group1</b>	Specifies that IPsec should use the 768-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
<b>group2</b>	Specifies that IPsec should use the 1024-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
<b>group5</b>	Specifies that IPsec should use the 1536-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
<b>group7</b>	Specifies that IPsec should use group7 (ECC) where the elliptical curve field size is 163-bits, for example, with the movianVPN client.
<i>map-name</i>	Specifies the name of the crypto map set.
<i>seq-num</i>	Specifies the number you assign to the crypto map entry.

### Defaults

By default PFS is not set.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

### Command History

Release	Modification
7.0	This command was modified to add Diffie-Hellman group 7.

### Usage Guidelines

With PFS, every time a new security association is negotiated, a new Diffie-Hellman exchange occurs, which requires additional processing time. PFS adds another level of security because if one key is ever cracked by an attacker, only the data sent with that key is compromised.

During negotiation, this command causes IPsec to request PFS when requesting new security associations for the crypto map entry. If the **set pfs** statement does not specify a group, the security appliance sends the default (group2).

If the peer initiates the negotiation and the local configuration specifies PFS, the peer must perform a PFS exchange or the negotiation fails. If the local configuration does not specify a group, the security appliance assumes a default of group2. If the local configuration specifies group2, group5, or group7, that group must be part of the peer's offer or the negotiation fails.

For a negotiation to succeed PFS has to be set on both ends. If set, the groups have to be an exact match; The security appliance does not accept just any offer of PFS from the peer.

The 1536-bit Diffie-Hellman prime modulus group, group5, provides more security than group1, or group2, but requires more processing time than the other groups.

Diffie-Hellman Group 7 generates IPsec SA keys, where the elliptical curve field size is 163 bits. You can use this option with any encryption algorithm. This option is intended for use with the movianVPN client, but you can use it with any peers that support Group 7 (ECC).

When interacting with the Cisco VPN Client, the security appliance does not use the PFS value, but instead uses the value negotiated during Phase 1.

### Examples

The following example, entered in global configuration mode, specifies that PFS should be used whenever a new security association is negotiated for the crypto map "mymap 10":

```
hostname(config)# crypto map mymap 10 ipsec-isakmp
hostname(config)# crypto map mymap 10 set pfs group2
```

### Related Commands

Command	Description
<b>clear isakmp sa</b>	Deletes the active IKE security associations.
<b>clear configure crypto map</b>	Clears all configuration for all crypto maps.
<b>show running-config crypto map</b>	Displays the crypto map configuration.
<b>tunnel-group</b>	Configures tunnel-groups and their parameters.

# crypto map set phase1 mode

To specify the IKE mode for phase 1 when initiating a connection to either main or aggressive, use the **crypto map set phase1mode** command in global configuration mode. To remove the setting for phase 1 IKE negotiations, use the **no** form of this command. Including a Diffie-Hellman group with aggressive mode is optional. If one is not included, the security appliance uses group 2.

```
crypto map map-name seq-num set phase1mode {main | aggressive [group1 | group2 | group5 | group7]}
```

```
no crypto map map-name seq-num set phase1mode {main | aggressive [group1 | group2 | group5 | group7]}
```

## Syntax Description

<b>aggressive</b>	Specifies aggressive mode for phase one IKE negotiations
<b>group1</b>	Specifies that IPsec should use the 768-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
<b>group2</b>	Specifies that IPsec should use the 1024-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
<b>group5</b>	Specifies that IPsec should use the 1536-bit Diffie-Hellman prime modulus group when performing the new Diffie-Hellman exchange.
<b>group7</b>	Specifies that IPsec should use group7 (ECC) where the elliptical curve field size is 163-bits, for example, with the movianVPN client.
<b>main</b>	Specifies main mode for phase one IKE negotiations.
<i>map-name</i>	Specifies the name of the crypto map set.
<i>seq-num</i>	Specifies the number you assign to the crypto map entry.

## Defaults

Default phase one mode is **main**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command works only in initiator mode; not in responder mode.

---

**Examples**

The following example, entered in global configuration mode, configures the crypto map my map and sets the phase one mode to aggressive, using group 2.

```
hostname(config)# crypto map mymap 10 set phase1mode aggressive group2  
hostname(config)#
```

---

**Related Commands**

Command	Description
<b>clear isakmp sa</b>	Delete the active IKE security associations.
<b>clear configure crypto map</b>	Clears all configuration for all crypto maps.
<b>show running-config crypto map</b>	Displays the crypto map configuration.



# crypto map set reverse-route

To enable RRI for any connection based on this crypto map entry, use the **crypto map set reverse-route** command in global configuration mode. To disable reverse route injection for any connection based this crypto map entry, use the **no** form of this command.

**crypto map** *map-name seq-num set reverse-route*

**no crypto map** *map-name seq-num set reverse-route*

## Syntax Description

<i>map-name</i>	Specifies the name of the crypto map set.
<i>seq-num</i>	Specifies the number you assign to the crypto map entry.

## Defaults

The default setting for this command is off.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The security appliance can automatically add static routes to the routing table and announce these routes to its private network or border routers using OSPF.

## Examples

The following example, entered in global configuration mode, enables RRI for the crypto map named mymap.

```
hostname(config)# crypto map mymap 10 set reverse-route
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure crypto map</b>	Clears all configuration for all crypto maps.
<b>show running-config crypto map</b>	Displays the crypto map configuration.

## crypto map set security-association lifetime

To override (for a particular crypto map entry) the global lifetime value, which is used when negotiating IPSec security associations, use the **crypto map set security-association lifetime** command in global configuration mode. To reset a crypto map entry's lifetime value to the global value, use the **no** form of this command.

```
crypto map map-name seq-num set security-association lifetime {seconds seconds |  
kilobytes kilobytes}
```

```
no crypto map map-name seq-num set security-association lifetime {seconds seconds |  
kilobytes kilobytes}
```

Syntax Description		
<i>kilobytes</i>	Specifies the volume of traffic (in kilobytes) that can pass between peers using a given security association before that security association expires. The default is 4,608,000 kilobytes.	
<i>map-name</i>	Specifies the name of the crypto map set.	
<i>seconds</i>	Specifies the number of seconds a security association will live before it expires. The default is 28,800 seconds (eight hours).	
<i>seq-num</i>	Specifies the number you assign to the crypto map entry.	

**Defaults** The default number of kilobytes is 4,608,000; the default number of seconds is 28,800.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The crypto map's security associations are negotiated according to the global lifetimes. IPSec security associations use shared secret keys. These keys and their security associations time out together.

Assuming that the particular crypto map entry has lifetime values configured, when the security appliance requests new security associations during security association negotiation, it specifies its crypto map lifetime values in the request to the peer; it uses these values as the lifetime of the new security associations. When the security appliance receives a negotiation request from the peer, it uses the smaller of the lifetime values proposed by the peer or the locally configured lifetime values as the lifetime of the new security associations.

There are two lifetimes: a “timed” lifetime and a “traffic-volume” lifetime. The session keys/security association expires after the first of these lifetimes is reached. You can specify both with one command.

**Note**

The security appliance lets you change crypto map, dynamic map, and ipsec settings on the fly. If you do so, the security appliance brings down only the connections affected by the change. If you change an existing access-list associated with a crypto map, specifically by deleting an entry within the access-list, the result is that only the associated connection is brought down. Connections based on other entries in the access-list are not affected.

To change the timed lifetime, use the **crypto map set security-association lifetime seconds** command. The timed lifetime causes the keys and security association to time out after the specified number of seconds have passed.

**Examples**

The following command, entered in global configuration mode, specifies a security association lifetime in seconds and kilobytes for crypto map mymap

```
hostname(config)# crypto map mymap 10 set security-association lifetime seconds 1400
kilobytes 3000000
hostname(config)#
```

**Related Commands**

Command	Description
<b>clear configure crypto map</b>	Clears all configuration for all crypto maps.
<b>show running-config crypto map</b>	Displays the crypto map configuration.

## crypto map set transform-set

To specify the transform sets to use in a crypto map entry, use the **crypto map set transform-set** command in global configuration mode.

```
crypto map map-name seq-num set transform-set transform-set-name1
[... transform-set-name11]
```

Specify the names of the transform sets in the **no** form of this command to remove them from a crypto map entry.

```
no crypto map map-name seq-num set transform-set transform-set-name1
[... transform-set-name11]
```

Using the **no** form of the command while specifying all or none of the transform sets removes the crypto map entry.

```
no crypto map map-name seq-num set transform-set
```

### Syntax Description

<i>map-name</i>	Specifies the name of the crypto map set.
<i>seq-num</i>	Specifies the sequence number that corresponds to the crypto map entry.
<i>transform-set-name1</i> <i>transform-set-name11</i>	Specifies one or more names of the transform sets. Any transform sets named in this command must be defined in the <b>crypto ipsec transform-set</b> command. Each crypto map entry supports up to 11 transform sets.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	—

### Command History

Release	Modification
7.0	This command was introduced.
7.2(1)	Changed maximum number of transform sets in a crypto map entry.

### Usage Guidelines

This command is required for all crypto map entries.

The peer at the opposite end of the IPSec initiation uses the first matching transform set for the security association. If the local security appliance initiates the negotiation, the order specified in the **crypto map** command determines the order in which the security appliance presents the contents of the transform sets to the peer. If the peer initiates the negotiation, the local security appliance uses the first transform set in the crypto map entry that matches the IPSec parameters sent by the peer.

If the peer at the opposite end of the IPSec initiation fails to match the values of the transform sets, IPSec does not establish a security association. The initiator drops the traffic because there is no security association to protect it.

To change the list of transform sets, respecify the new list to replace the old one.

If you use this command to modify a crypto map, the security appliance modifies only the crypto map entry with the same sequence number you specify. For example, the security appliance inserts the transform set named “56des-sha” in the last position if you enter the following commands:

```
hostname(config)# crypto map map1 1 set transform-set 128aes-md5 128aes-sha 192aes-md5
hostname(config)# crypto map map1 1 transform-set 56des-sha
hostname(config)#
```

The response to the following command shows the cumulative effect of the previous two commands:

```
hostname(config)# show running-config crypto map
crypto map map1 1 set transform-set 128aes-md5 128aes-sha 192aes-md5 56des-sha
hostname(config)#
```

To reconfigure the sequence of transform sets in a crypto map entry, delete the entry, specifying both the map name and sequence number; then recreate it. For example, the following commands reconfigure the crypto map entry named map2, sequence 3:

```
asa2(config)# no crypto map map2 3 set transform-set
asa2(config)# crypto map map2 3 set transform-set 192aes-sha 192aes-md5 128aes-sha
128aes-md5
asa2(config)#
```

## Examples

The “crypto ipsec transform-set (create or remove transform set)” section shows ten transform set example commands. The following example creates a crypto map entry named “map2” consisting of the same ten transform sets.

```
hostname(config)# crypto map map2 10 set transform-set 3des-md5 3des-sha 56des-md5
56des-sha 128aes-md5 128aes-sha 192aes-md5 192aes-sha 256aes-md5 256aes-sha
hostname(config)#
```

The following example, entered in global configuration mode, shows the minimum required crypto map configuration when the security appliance uses IKE to establish the security associations:

```
hostname(config)# crypto map map2 10 ipsec-isakmp
hostname(config)# crypto map map2 10 match address 101
hostname(config)# crypto map map2 set transform-set 3des-md5
hostname(config)# crypto map map2 set peer 10.0.0.1
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure crypto dynamic-map</b>	Clears all dynamic crypto maps from the configuration.
<b>clear configure crypto map</b>	Clears all crypto maps from the configuration.
<b>crypto dynamic-map set transform-set</b>	Specifies the transform sets to use in a dynamic crypto map entry.
<b>crypto ipsec transform-set</b>	Configures a transform set.
<b>show running-config crypto dynamic-map</b>	Displays the dynamic crypto map configuration.
<b>show running-config crypto map</b>	Displays the crypto map configuration.

# crypto map set trustpoint

To specify the trustpoint that identifies the certificate to send for authentication during Phase 1 negotiations for the crypto map entry, use the **crypto map set trustpoint** command in global configuration mode. Use the **no** form of this command to remove a trustpoint from a crypto map entry.

**crypto map** *map-name seq-num set trustpoint trustpoint-name [chain]*

**nocrypto map** *map-name seq-num set trustpoint trustpoint-name [chain]*

## Syntax Description

<b>chain</b>	(Optional) Sends a certificate chain. A CA certificate chain includes all CA certificates in a hierarchy of certificates from the root certificate to the identity certificate. The default value is disable (no chain).
<i>map-name</i>	Specifies the name of the crypto map set.
<i>seq-num</i>	Specifies the number you assign to the crypto map entry.
<i>trustpoint-name</i>	Identifies the certificate to be sent during Phase 1 negotiations. The default is none.
token	Indicate a token-based server for user authentication is used.

## Defaults

The default value is none.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This crypto map command is valid only for initiating a connection. For information on the responder side, see the **tunnel-group** commands.

## Examples

The following example, entered in global configuration mode, specifies a trustpoint named tpoint1 for crypto map mymap and includes the chain of certificates.

```
hostname(config)# crypto map mymap 10 set trustpoint tpoint1 chain
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure crypto map</b>	Clears all configuration for all crypto maps.
<b>show running-config crypto map</b>	Displays the crypto map configuration.
<b>tunnel-group</b>	Configures tunnel groups.

## CSC

To enable the security appliance to send network traffic to the CSC SSM, use the **csc** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

**csc { fail-open | fail-close }**

**no csc**

### Syntax Description

<b>fail-close</b>	Specifies that the security appliance should block traffic if the CSC SSM fails. This applies to the traffic selected by the class map only. Other traffic not sent to the CSC SSM is not affected by a CSC SSM failure.
<b>fail-open</b>	Specifies that the security appliance should allow traffic if the CSC SSM fails. This applies to the traffic selected by the class map only. Other traffic not sent to the CSC SSM is not affected by a CSC SSM failure.

### Defaults

This command is disabled by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	•	•	—

### Command History

Release	Modification
7.1(1)	This command was introduced.

### Usage Guidelines

The **csc** command configures a security policy to send to the CSC SSM all traffic that is matched by the applicable class map. This occurs before the security appliance allows the traffic to continue to its destination.

You can specify how the security appliance treats matching traffic when the CSC SSM is not available to scan the traffic. The **fail-open** keyword specifies that the security appliance permits the traffic to continue to its destination even though the CSC SSM is not available. The **fail-close** keyword specifies that the security appliance never lets matching traffic continue to its destination when the CSC SSM is not available.

The CSC SSM can scan HTTP, SMTP, POP3, and FTP traffic. It supports these protocols only when the destination port of the packet requesting the connection is the well known port for the protocol, that is, CSC SSM can scan only the following connections:

- FTP connections opened to TCP port 21.



- HTTP connections opened to TCP port 80.
- POP3 connections opened to TCP port 110.
- SMTP connections opened to TCP port 25.

If policies using the `csc` command select connections that misuse these ports for other protocols, the security appliance passes the packets to the CSC SSM but the CSC SSM passes them without scanning them.

To maximize the efficiency of the CSC SSM, configure class maps used by policies implementing the `csc` command as follows:

- Select only the supported protocols that you want the CSC SSM to scan. For example, if you do not want to scan HTTP traffic, be sure that service policies do not divert HTTP traffic to the CSC SSM.
- Select only those connections that risk trusted hosts protected by the security appliance. These are connections from outside or untrusted networks to inside networks. We recommend scanning the following connections:
  - Outbound HTTP connections.
  - FTP connections from clients inside the security appliance to servers outside the security appliance.
  - POP3 connections from clients inside the security appliance to servers outside the security appliance.
  - Incoming SMTP connections destined to inside mail servers.

### FTP Scanning

The CSC SSM supports scanning of FTP file transfers only if the primary channel for the FTP session uses the standard port, which is TCP port 21.

FTP inspection must be enabled for the FTP traffic that you want scanned by the CSC SSM. This is because FTP uses a dynamically assigned secondary channel for data transfer. The security appliance determines the port assigned for the secondary channel and opens a pinhole to allow the data transfer to occur. If the CSC SSM is configured to scan FTP data, the security appliance diverts the data traffic to the CSC SSM.

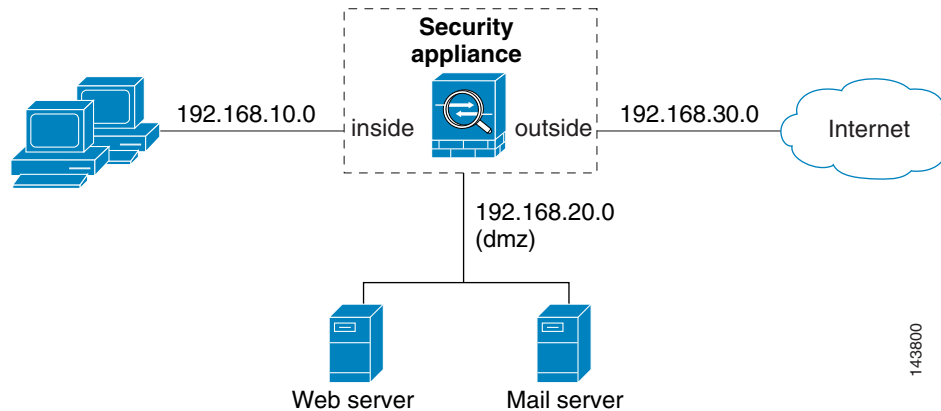
You can apply FTP inspection either globally or to the same interface that the `csc` command is applied to. By default, FTP inspection is enabled globally. If you have not changed default inspection configuration, no further FTP inspection configuration is required to enable FTP scanning by the CSC SSM.

For more information about FTP inspection or the default inspection configuration, see the *Cisco Security Appliance Command Line Configuration Guide*.

**Examples**

In Figure 9-1, the security appliance should be configured to divert traffic to CSC SSM requests from clients on the inside network for HTTP, FTP, and POP3 connections to the outside network and incoming SMTP connections from outside hosts to the mail server on the dmz network. HTTP requests from the inside network to the web server on the dmz network should not be scanned.

**Figure 9-1 Common Network Configuration for CSC SSM Scanning**



The following configuration creates two service policies. The first policy, `csc_out_policy`, is applied to the inside interface and uses the `csc_out` access list to ensure that all outbound requests for FTP and POP3 are scanned. The `csc_out` access list also ensures that HTTP connections from inside to networks on the outside interface are scanned but it includes a deny ACE to exclude HTTP connections from inside to servers on the dmz network.

The second policy, `csc_in_policy`, is applied to the outside interface and uses the `csc_in` access list to ensure that requests for SMTP and HTTP originating on the outside interface and destined for the dmz network are scanned by the CSC SSM. Scanning HTTP requests protects the web server from HTTP file uploads.

```
hostname(config)# access-list csc_out permit tcp 192.168.10.0 255.255.255.0 any eq 21
hostname(config)# access-list csc_out deny tcp 192.168.10.0 255.255.255.0 192.168.20.0 255.255.255.0 eq 80
hostname(config)# access-list csc_out permit tcp 192.168.10.0 255.255.255.0 any eq 80
hostname(config)# access-list csc_out permit tcp 192.168.10.0 255.255.255.0 any eq 110
```

```
hostname(config)# class-map csc_outbound_class
hostname(config-cmap)# match access-list csc_out
```

```
hostname(config)# policy-map csc_out_policy
hostname(config-pmap)# class csc_outbound_class
hostname(config-pmap-c)# csc fail-close
```

```
hostname(config)# service-policy csc_out_policy interface inside
```

```
hostname(config)# access-list csc_in permit tcp any 192.168.20.0 255.255.255.0 eq 25
hostname(config)# access-list csc_in permit tcp any 192.168.20.0 255.255.255.0 eq 80
```

```
hostname(config)# class-map csc_inbound_class
hostname(config-cmap)# match access-list csc_in
```

```
hostname(config)# policy-map csc_in_policy
hostname(config-pmap)# class csc_inbound_class
hostname(config-pmap-c)# csc fail-close
```

```
hostname(config)# service-policy csc_in_policy interface outside
```

**Note**

FTP inspection must be enabled for CSC SSM to scan files transferred by FTP. FTP inspection is enabled by default.

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>class (policy-map)</b>	Specifies a class map for traffic classification.
<b>class-map</b>	Creates a traffic classification map, for use with a policy map.
<b>match port</b>	Matches traffic using a destination port.
<b>policy-map</b>	Creates a policy map by associating the traffic class with one or more actions.
<b>service-policy</b>	Creates a security policy by associating the policy map with one or more interfaces.

# csd enable

To enable Cisco Secure Desktop for management and remote user access, use the **csd enable** command in webvpn configuration mode. To disable CSD, use the **no** form of the command.

**csd enable**

**no csd enable**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
webvpn configuration mode	•	—	•	—	—

Command History	Release	Modification
	7.1(1)	This command was introduced.

**Usage Guidelines** The **csd enable** command does the following:

1. Provides a validity check that supplements the check performed by the previous **csd image path** command.
2. Creates an sdesktop folder on disk0; if one is not already present.
3. Inserts a data.xml (CSD configuration) file in the sdesktop folder if one is not already present.
4. Loads the data.xml from the flash device to the running configuration.
5. Enables CSD.

You can enter the **show webvpn csd** command to determine whether CSD is enabled.

The **csd image path** command must be in the running configuration before you enter the **csd enable** command.

The **no csd enable** command disables CSD in the running configuration. If CSD is disabled, you cannot access Cisco Secure Desktop Manager and remote users cannot use CSD.

If you transfer or replace the data.xml file, disable and then enable CSD to load the file into the running configuration.

---

**Examples**

The following example commands shows how to view the status of the CSD image and enable it:

```
hostname(config-webvpn)# show webvpn csd
Secure Desktop is not enabled.
hostname(config-webvpn)# csd enable
hostname(config-webvpn)# show webvpn csd
Secure Desktop version 3.1.0.25 is currently installed and enabled.
hostname(config-webvpn)#
```

---

**Related Commands**

Command	Description
<b>show webvpn csd</b>	Identifies the version of CSD if it is enabled. Otherwise, the CLI indicates “Secure Desktop is not enabled.”
<b>csd image</b>	Copies the CSD image named in the command, from the flash drive specified in the path to the running configuration.

# csd image

To validate the Cisco Secure Desktop distribution package and add it to the running configuration, effectively installing CSD, use the **csd image** command in webvpn configuration mode. To remove the CSD distribution package from the running configuration, use the **no** form of the command:

```
csd image path
no csd image [path]
```

## Syntax Description

*path* Specifies the path and filename of the CSD package, up to 255 characters.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
webvpn configuration mode	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

Enter the **show webvpn csd** command to determine whether the CSD image is enabled before entering this command. The CLI indicates the version of CSD image that is currently installed if it is enabled.

Use the **csd image** command to install a new CSD image, or upgrade an existing image, after you download it from <http://www.cisco.com/cgi-bin/tablebuild.pl/securedesktop> to your computer, and transfer it to the flash drive. When downloading it, be sure to get the correct file for the security appliance; it is in the form **securedesktop\_asa\_<n>\_<n>\*.pkg**.

Entering **no csd image** removes both management access to Cisco Secure Desktop Manager and remote user access to CSD. The security appliance does not make any changes to the CSD software and the CSD configuration on the flash drive when you enter this command.



### Note

Enter the **write memory** command to save the running configuration to ensure CSD is available the next time the security appliance reboots.

## Examples

The following example commands show how to view the current CSD distribution package, view the contents of the flash file system, and upgrade to a new CSD version:

```
hostname# show webvpn csd
```

```

Secure Desktop version 3.1.0.24 is currently installed and enabled.
hostname# config t
hostname(config)# webvpn
hostname(config-webvpn)# show disk all
-#- --length-- -----date/time----- path
   6 8543616   Nov 02 2005 08:25:36 PDM
   9 6414336   Nov 02 2005 08:49:50 cdisk.bin
  10 4634      Sep 17 2004 15:32:48 first-backup
  11 4096      Sep 21 2004 10:55:02 fsck-2451
  12 4096      Sep 21 2004 10:55:02 fsck-2505
  13 21601     Nov 23 2004 15:51:46 shirley.cfg
  14 9367      Nov 01 2004 17:15:34 still.jpg
  15 6594064   Nov 04 2005 09:48:14 asdmfile.510106.rls
  16 21601     Dec 17 2004 14:20:40 tftp
  17 21601     Dec 17 2004 14:23:02 bingo.cfg
  18 9625      May 03 2005 11:06:14 wally.cfg
  19 16984     Oct 19 2005 03:48:46 tomm_backup.cfg
  20 319662    Jul 29 2005 09:51:28 sslclient-win-1.0.2.127.pkg
  21 0         Oct 07 2005 17:33:48 sdesktop
  22 5352      Oct 28 2005 15:09:20 sdesktop/data.xml
  23 369182    Oct 10 2005 05:27:58 sslclient-win-1.1.0.133.pkg
  24 1836210   Oct 12 2005 09:32:10 securedesktop_asa_3_1_0_24.pkg
  25 1836392   Oct 26 2005 09:15:26 securedesktop_asa_3_1_0_25.pkg

38600704 bytes available (24281088 bytes used)

***** Flash Card Geometry/Format Info *****

COMPACT FLASH CARD GEOMETRY
  Number of Heads:          4
  Number of Cylinders       978
  Sectors per Cylinder     32
  Sector Size               512
  Total Sectors             125184

COMPACT FLASH CARD FORMAT
  Number of FAT Sectors     61
  Sectors Per Cluster      8
  Number of Clusters       15352
  Number of Data Sectors  122976
  Base Root Sector        123
  Base FAT Sector         1
  Base Data Sector        155

hostname(config-webvpn)# csd image disk0:securedesktop_asa_3_1_0_25.pkg
hostname(config-webvpn)# show webvpn csd
Secure Desktop version 3.1.0.25 is currently installed and enabled.
hostname(config-webvpn)# write memory
Building configuration...
Cryptochecksum: 5e57cfa8 0e9ca4d5 764c3825 2fc4deb6

19566 bytes copied in 3.640 secs (6522 bytes/sec)
[OK]
hostname(config-webvpn)#

```

**Related Commands**

Command	Description
<b>show webvpn csd</b>	Identifies the version of CSD if it is enabled. Otherwise, the CLI indicates "Secure Desktop is not enabled."
<b>csd enable</b>	Enables CSD for management and remote user access.

# customization

To specify the customization to use for a tunnel-group, group, or user, use the **customization** command from the following modes:

In tunnel-group webvpn configuration mode:

**customization** *name*

**no customization** *name*

In group policy webvpn configuration mode and username webvpn configuration mode:

**customization** { **none** | **value** *name* }

**no customization** { **none** | **value** *name* }

## Syntax Description

<i>name</i>	Specifies the name of the WebVPN customization to apply.
<b>none</b>	Disables customization for the group or user, and displays the default WebVPN pages.
<b>value</b> <i>name</i>	Specifies the name of a customization to apply to the group policy or user.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group webvpn configuration	•	—	•	—	—
Group-policy webvpn configuration	•	—	•	—	—
Username webvpn configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

Before entering the **customization** command in tunnel-group webvpn mode, you must name and configure the customization using the **customization** command in webvpn configuration mode.

### Mode-Dependent Command Options

The keywords available with the **customization** command differ depending on the mode you are in. In group-policy webvpn configuration mode and username webvpn configuration mode, the additional keywords **none** and **value** appear. The complete syntax from these modes is:

[no] **customization** { **none** | **value** *name* }



**None** disables customization for the group or user, and prevents the customization from being inherited. For example, if you enter the **customization none** command from username webvpn mode, the security appliance will not look for the value in the group policy or tunnel group.

*name* is the name of a customization to apply to the group or user.

To remove the command from the configuration, and cause the value to be inherited, use the **no** form of the command.

### Examples

The following example shows a command sequence that first establishes a WebVPN customization named “123” that defines a password prompt. The example then defines a WebVPN tunnel-group named “test” and uses the **customization** command to specifies the use of the WebVPN customization named “123”:

```
hostname(config)# webvpn
hostname(config-webvpn)# customization 123
hostname(config-webvpn-custom)# password-prompt Enter password
hostname(config-webvpn)# exit
hostname(config)# tunnel-group test type webvpn
hostname(config)# tunnel-group test webvpn-attributes
hostname(config-tunnel-webvpn)# customization 123
hostname(config-tunnel-webvpn)#
```

The next example shows the customization named “cisco” applied to the group policy named “cisco\_sales”. Note that the additional command option **value** is required with the **customization** command entered in group-policy webvpn configuration mode:

```
hostname(config)# group-policy cisco_sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# customization value cisco
```

### Related Commands

Command	Description
<b>clear configure tunnel-group</b>	Removes all tunnel-group configuration.
<b>show running-config tunnel-group</b>	Displays the current tunnel-group configuration.
<b>tunnel-group webvpn-attributes</b>	Enters the config-webvpn mode for configuring WebVPN tunnel-group attributes.





## ddns through debug xdmcp Commands

---

## ddns (DDNS-update-method)

To specify a DDNS update method type, use the **ddns** command in DDNS-update-method mode. To remove an update method type from the running configuration, use the **no** form of this command.

**ddns [both]**

**no ddns [both]**

<b>Syntax Description</b>	<b>both</b>	(Optional) Specifies updating to both the DNS A and PTR resource records (RRs).
---------------------------	-------------	---

<b>Defaults</b>	Update only A RRs.
-----------------	--------------------

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
DDNS-update-method	•	—	•	•	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** Dynamic DNS (DDNS) updates the name to address and address to name mappings maintained by DNS. Of the two methods for performing DDNS updates—the IETF standard defined by RFC 2136 and a generic HTTP method—the security appliance supports the IETF method in this release.

Name and address mappings are contained in two types of resource records (RR):

- The A resource record contains domain name to IP address mappings.
- The PTR resource record contains IP address to domain name mappings.

DDNS updates can be used to maintain consistent information between the A and PTR RR types.

When issued in DDNS-update-method configuration mode, the **ddns** command defines whether the update is just to A RR, or to both A RR and PTR RR.

**Examples** The following example configures updating to both the A and PTR RRs for the DDNS update method named ddns-2:

```
hostname(config)# ddns update method ddns-2
hostname(DDNS-update-method)# ddns both
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>ddns update (interface config mode)</b>	Associates a dynamic DNS (DDNS) update method with a security appliance interface or a DDNS update hostname.
<b>ddns update method (global config mode)</b>	Creates a method for dynamically updating DNS resource records.
<b>dhcp-client update dns</b>	Configures the update parameters that the DHCP client passes to the DHCP server.
<b>dhcpd update dns</b>	Enables a DHCP server to perform DDNS updates.
<b>interval maximum</b>	Configures the maximum interval between update attempts by a DDNS update method.

# ddns update (interface configuration)

To associate a dynamic DNS (DDNS) update method with a security appliance interface or an update hostname, use the **ddns update** command in interface configuration mode. To remove the association between the DDNS update method and the interface or the hostname from the running configuration, use the **no** form of this command.

**ddns update** [*method-name* | **hostname** *hostname*]

**no ddns update** [*method-name* | **hostname** *hostname*]

## Syntax Description

<b>hostname</b>	Specifies that the next term in the command string is a hostname.
<i>hostname</i>	Specifies a hostname to be used for updates.
<i>method-name</i>	Specifies a method name for association with the interface being configured.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

After defining a DDNS update method, you must associate it with a security appliance interface to trigger DDNS updates.

A hostname could be a Fully Qualified Domain Name (FQDN) or just a hostname. If just a hostname, the security appliance appends a domain name to the hostname to create a FQDN.

## Examples

The following example associates the interface GigabitEthernet0/2 with the DDNS update method named ddns-2 and the hostname hostname1.example.com:

```
hostname(config)# interface GigabitEthernet0/2
hostname(config-if)# ddns update ddns-2
hostname(config-if)# ddns update hostname hostname1.example.com
```

## Related Commands

Command	Description
<b>ddns (DDNS-update-method mode)</b>	Specifies a DDNS update method type for a created DDNS method.
<b>ddns update method (global config mode)</b>	Creates a method for dynamically updating DNS resource records.
<b>dhcp-client update dns</b>	Configures the update parameters that the DHCP client passes to the DHCP server.
<b>dhcpcd update dns</b>	Enables a DHCP server to perform DDNS updates.
<b>interval maximum</b>	Configures the maximum interval between update attempts by a DDNS update method.

## ddns update method (global configuration mode)

To create a method for dynamically updating a DNS resource records (RRs), use the **ddns update method** command in global configuration mode. To remove a dynamic DNS (DDNS) update method from the running configuration, use the **no** form of this command.

**ddns update method** *name*

**no ddns update method** *name*

### Syntax Description

*name* Specifies the name of a method for dynamically updating DNS records.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

DDNS updates the name to address and address to name mappings maintained by DNS. The update method configured by the **ddns update method** command determines what and how often dynamic DNS updates are performed. Of the two methods for performing DDNS updates—the IETF standard defined by RFC 2136 and a generic HTTP method—the security appliance supports the IETF method in this release.

Name and address mappings are contained in two types of resource records (RR):

- The A resource record contains domain name to IP address mappings.
- The PTR resource record contains IP address to domain name mappings.

DDNS updates can be used to maintain consistent information between the A and PTR RR types.



#### Note

Before **ddns update method** will work, you must configure a reachable default DNS server using the **dns** command with domain lookup enabled on the interface.

### Examples

The following example configures the DDNS update method named ddns-2:

```
hostname(config)# ddns update method ddns-2
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>ddns (DDNS-update-method mode)</b>	Specifies a DDNS update method type for a created DDNS method.
<b>ddns update (interface config mode)</b>	Associates a dynamic DNS (DDNS) update method with a security appliance interface or a DDNS update hostname.
<b>dhcp-client update dns</b>	Configures the update parameters that the DHCP client passes to the DHCP server.
<b>dhcpd update dns</b>	Enables a DHCP server to perform dynamic DNS updates.
<b>interval maximum</b>	Configures the maximum interval between update attempts by a DDNS update method.

# debug aaa

To show debug messages for AAA, use the **debug aaa** command in privileged EXEC mode. To stop showing AAA messages, use the **no** form of this command.

**debug aaa [ accounting | authentication | authorization | internal | vpn [ level ] ]**

**no debug aaa**

## Syntax Description

<b>accounting</b>	(Optional) Show debug messages for accounting only.
<b>authentication</b>	(Optional) Show debug messages for authentication only.
<b>authorization</b>	(Optional) Show debug messages for authorization only.
<b>internal</b>	(Optional) Show debug messages for AAA functions supported by the local database only.
<i>level</i>	(Optional) Specifies the debug level. Valid with the <b>vpn</b> keyword only.
<b>vpn</b>	(Optional) Show debug messages for VPN-related AAA functions only.

## Defaults

The default *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was modified to include new keywords.

## Usage Guidelines

The **debug aaa** command displays detailed information about AAA activity. The **no debug all** or **undebug all** commands turn off all enabled debugs.

## Examples

The following example enables debugging for AAA functions supported by the local database:

```
hostname(config)# debug aaa internal
debug aaa internal enabled at level 1
hostname(config)# uap allocated. remote address: 10.42.15.172, Session_id: 2147483841
uap freed for user . remote address: 10.42.15.172, session id: 2147483841
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<code>show running-config aaa</code>	Displays running configuration related to AAA.

# debug appfw

To display detailed information about application inspection, use the **debug appfw** command in privileged EXEC mode. To disable debugging, Use the **no** form of this command.

**debug appfw** [**chunk** | **event** | **eventverb** | **regex**]

**no debug appfw** [**chunk** | **event** | **eventverb** | **regex**]

## Syntax Description

<b>chunk</b>	(Optional) Displays runtime information about processing of chunked transfer encoded packets.
<b>event</b>	(Optional) Displays debug information about packet inspection events.
<b>eventverb</b>	(Optional) Displays the action taken by the security appliance in response to an event.
<b>regex</b>	(Optional) Displays information about matching patterns with predefined signatures.

## Defaults

All options are enabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **debug appfw** command displays detailed information about HTTP application inspection. The **no debug all** or **undebug all** commands turn off all enabled debugs.

## Examples

The following example enables the display of detailed information about application inspection:

```
hostname# debug appfw
```

## Related Commands

Commands	Description
<b>http-map</b>	Defines an HTTP map for configuring enhanced HTTP inspection.
<b>inspect http</b>	Applies a specific HTTP map to use for application inspection.

# debug arp

To show debug messages for ARP, use the **debug arp** command in privileged EXEC mode. To stop showing debug messages for ARP, use the **no** form of this command.

**debug arp**

**no debug arp**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines** Using **debug** commands might slow down traffic on busy networks.

**Examples** The following example enables debug messages for ARP:

```
hostname# debug arp
```

**Related Commands**

Command	Description
<b>arp</b>	Adds a static ARP entry.
<b>show arp statistics</b>	Shows ARP statistics.
<b>show debug</b>	Shows all enabled debuggers.

# debug arp-inspection

To show debug messages for ARP inspection, use the **debug arp-inspection** command in privileged EXEC mode. To stop showing debug messages for ARP inspection, use the **no** form of this command.

**debug arp-inspection**

**no debug arp-inspection**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	—	•	•	•	—

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines** Using **debug** commands might slow down traffic on busy networks.

**Examples** The following example enables debug messages for ARP inspection:

```
hostname# debug arp-inspection
```

Command	Description
<b>arp</b>	Adds a static ARP entry.
<b>arp-inspection</b>	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
<b>show debug</b>	Shows all enabled debuggers.

# debug asdm history

To view debug information for ASDM, use the **debug asdm history** command in privileged EXEC mode.

**debug asdm history** *level*

## Syntax Description

*level* (Optional) Specifies the debug level.

## Defaults

The default *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was changed from the <b>debug pdm history</b> command to the <b>debug asdm history</b> command.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables level 1 debugging of ASDM:

```
hostname# debug asdm history
debug asdm history enabled at level 1

hostname#
```

## Related Commands

Command	Description
<b>show asdm history</b>	Displays the contents of the ASDM history buffer.

# debug context

To show debug messages when you add or delete a security context, use the **debug context** command in privileged EXEC mode. To stop showing debug messages for contexts, use the **no** form of this command.

**debug context** [*level*]

**no debug context** [*level*]

<b>Syntax Description</b>	<i>level</i>	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.
---------------------------	--------------	---

**Defaults** The default level is 1.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Using **debug** commands might slow down traffic on busy networks.

**Examples** The following example enables debug messages for context management:

```
hostname# debug context
```

Related Commands	Command	Description
	<b>context</b>	Creates a security context in the system configuration and enters context configuration mode.
	<b>show context</b>	Shows context information.
	<b>show debug</b>	Shows all enabled debuggers.



# debug cplane

To show debug messages about the control plane that connects internally to an SSM, use the **debug cplane** command in privileged EXEC mode. To stop showing debug messages for the control plane, use the **no** form of this command.

**debug cplane** [*level*]

**no debug cplane** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default level is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

## Examples

The following example enables debug messages for the control plane:

```
hostname# debug cplane
```

## Related Commands

Command	Description
<b>hw-module module recover</b>	Recovers an intelligent SSM by loading a recovery image from a TFTP server.
<b>hw-module module reset</b>	Shuts down an SSM and performs a hardware reset.
<b>hw-module module reload</b>	Reloads the intelligent SSM software.

Command	Description
<b>hw-module module shutdown</b>	Shuts down the SSM software in preparation for being powered off without losing configuration data.
<b>show module</b>	Shows SSM information.

# debug crypto ca

To show debug messages for PKI activity (used with CAs), use the **debug crypto ca** command in privileged EXEC mode. To stop showing debug messages for PKI, use the **no** form of this command.

```
debug crypto ca [messages | transactions] [level]
```

```
no debug crypto ca [messages | transactions] [level]
```

## Syntax Description

<b>messages</b>	(Optional) Shows only debug messages for PKI input and output messages.
<b>transactions</b>	(Optional) Shows only debug messages for PKI transactions.
<i>level</i>	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number. Level 1 (the default) shows messages only when errors occur. Level 2 shows warnings. Level 3 shows informational messages. Levels 4 and up show additional information for troubleshooting.

## Defaults

By default, this command shows all debug messages. The default level is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

## Examples

The following example enables debug messages for PKI:

```
hostname# debug crypto ca
```

## Related Commands

Command	Description
<b>debug crypto engine</b>	Shows debug messages for the crypto engine.
<b>debug crypto ipsec</b>	Shows debug messages for IPSec.
<b>debug crypto isakmp</b>	Shows debug messages for ISAKMP.

# debug crypto engine

To show debug messages for the crypto engine, use the **debug crypto engine** command in privileged EXEC mode. To stop showing debug messages for the crypto engine, use the **no** form of this command.

**debug crypto engine** [*level*]

**no debug crypto engine** [*level*]

<b>Syntax Description</b>	<i>level</i>	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.
---------------------------	--------------	---

**Defaults** The default level is 1.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Using **debug** commands might slow down traffic on busy networks.

**Examples** The following example enables debug messages for the crypto engine:

```
hostname# debug crypto engine
```

Related Commands	Command	Description
	<b>debug crypto ca</b>	Shows debug messages for the CA.
	<b>debug crypto ipsec</b>	Shows debug messages for IPsec.
	<b>debug crypto isakmp</b>	Shows debug messages for ISAKMP.

# debug crypto ipsec

To show debug messages for IPSec, use the **debug crypto ipsec** command in privileged EXEC mode. To stop showing debug messages for IPSec, use the **no** form of this command.

**debug crypto ipsec** [*level*]

**no debug crypto ipsec** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default level is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

## Examples

The following example enables debug messages for IPSec:

```
hostname# debug crypto ipsec
```

## Related Commands

Command	Description
<b>debug crypto ca</b>	Shows debug messages for the CA.
<b>debug crypto engine</b>	Shows debug messages for the crypto engine.
<b>debug crypto isakmp</b>	Shows debug messages for ISAKMP.

# debug crypto isakmp

To show debug messages for ISAKMP, use the **debug crypto isakmp** command in privileged EXEC mode. To stop showing debug messages for ISAKMP, use the **no** form of this command.

**debug crypto isakmp** [*timers*] [*level*]

**no debug crypto isakmp** [*timers*] [*level*]

## Syntax Description

<b>timers</b>	(Optional) Shows debug messages for ISAKMP timer expiration.
<i>level</i>	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number. Level 1 (the default) shows messages only when errors occur. Levels 2 through 7 show additional information. Level 254 shows decrypted ISAKMP packets in a human readable format. Level 255 shows hexadecimal dumps of decrypted ISAKMP packets.

## Defaults

The default level is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

## Examples

The following example enables debug messages for ISAKMP:

```
hostname# debug crypto isakmp
```

## Related Commands

Command	Description
<b>debug crypto ca</b>	Shows debug messages for the CA.
<b>debug crypto engine</b>	Shows debug messages for the crypto engine.
<b>debug crypto ipsec</b>	Shows debug messages for IPsec.

# debug ctiqbe

To show debug messages for CTIQBE application inspection, use the **debug ctiqbe** command in privileged EXEC mode. To stop showing debug messages for CTIQBE application inspection, use the **no** form of this command.

**debug ctiqbe** [*level*]

**no debug ctiqbe** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.



### Note

Enabling the **debug ctiqbe** command may slow down traffic on busy networks.

## Examples

The following example enables debug messages at the default level (1) for CTIQBE application inspection:

```
hostname# debug ctiqbe
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>inspect ctiqbe</b>	Enables CTIQBE application inspection.
<b>show ctiqbe</b>	Displays information about CTIQBE sessions established through the security appliance.
<b>show conn</b>	Displays the connection state for different connection types.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types.



# debug ddns

To show debug messages for DDNS, use the **debug ddns** command in privileged EXEC mode. To disable debug messages, use the **no** form of this command.

**debug ddns**

**no debug ddns**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **debug ddns** command displays detailed information about DDNS. The **undebug ddns** turns off DDNS debugging information as does the **no debug ddns** command.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example shows an example of enabling DDNS debug messages:

```
hostname# debug ddns
debug ddns enabled at level 1
```

## Related Commands

Command	Description
<b>ddns (DDNS-update-method mode)</b>	Specifies a DDNS update method type for a created DDNS method.
<b>ddns update (interface config mode)</b>	Associates a dynamic DNS (DDNS) update method with a security appliance interface or a DDNS update hostname.
<b>ddns update method (global config mode)</b>	Creates a method for dynamically updating DNS resource records.
<b>show running-config ddns</b>	Displays the type and interval of all configured DDNS methods in the running configuration.

# debug dhcpc

To enable debugging of the DHCP client, use the **debug dhcpc** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

```
debug dhcpc {detail | packet | error} [level]
```

```
no debug dhcpc {detail | packet | error} [level]
```

## Syntax Description

<b>detail</b>	Displays detail event information that is associated with the DHCP client.
<b>error</b>	Displays error messages that are associated with the DHCP client.
<i>level</i>	(Optional) Specifies the debug level. Valid valuse range from 1 to 255.
<b>packet</b>	Displays packet information that is associated with the DHCP client.

## Defaults

The default debug level is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Displays DHCP client debug information.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example shows how to enable debugging for the DHCP client:

```
hostname# debug dhcpc detail 5
debug dhcpc detail enabled at level 5
```

## Related Commands

Command	Description
<b>show ip address dhcp</b>	Displays detailed information about the DHCP lease for an interface.
<b>show running-config interface</b>	Displays the running configuration of the specified interface.

# debug dhcpd

To enable debugging of the DHCP server, use the **debug dhcpd** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

```
debug dhcpd {event | packet} [level]
```

```
no debug dhcpd {event | packet} [level]
```

## Syntax Description

<b>event</b>	Displays event information that is associated with the DHCP server.
<i>level</i>	(Optional) Specifies the debug level. Valid valuse range from 1 to 255.
<b>packet</b>	Displays packet information that is associated with the DHCP server.

## Defaults

The default debug level is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **debug dhcpd event** command displays event information about the DHCP server. The **debug dhcpd packet** command displays packet information about the DHCP server.

Use the **no** form of the **debug dhcpd** commands to disable debugging.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example shows an example of enabling DHCP event debugging:

```
hostname# debug dhcpd event
debug dhcpd event enabled at level 1
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show dhcpd</b>	Displays DHCP binding, statistic, or state information.
<b>show running-config dhcpd</b>	Displays the current DHCP server configuration.

# debug dhcpd ddns

To enable debugging of the DHCP DDNS, use the **debug dhcpd ddns** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

```
debug dhcpd ddns [level]
```

```
no debug dhcpd ddns [level]
```

## Syntax Description

*level* (Optional) Specifies the debug level. Valid values range from 1 to 255.

## Defaults

The default debug level is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **debug dhcpd ddns** command displays detailed information about DHCP and DDNS. The **undebug dhcpd ddns** command turns off DHCP and DDNS debugging information as does the **no debug dhcpd ddns** command.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example shows DHCP DDNS debugging being enabled:

```
hostname# debug dhcpd ddns
debug dhcpd ddns enabled at level 1
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>dhcpd update dns</b>	Enables a DHCP server to perform dynamic DNS updates.
<b>show running-config dhcpd</b>	Displays the current DHCP server configuration.
<b>show running-config ddns</b>	Display the DDNS update methods of the running configuration.



# debug dhcprelay

To enable debugging of the DHCP relay server, use the **debug dhcprelay** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

```
debug dhcprelay {event | packet | error} [level]
```

```
no debug dhcprelay {event | packet | error} [level]
```

## Syntax Description

<b>error</b>	Displays error messages that are associated with the DHCP relay agent.
<b>event</b>	Displays event information that is associated with the DHCP relay agent.
<i>level</i>	(Optional) Specifies the debug level. Valid valuse range from 1 to 255.
<b>packet</b>	Displays packet information that is associated with the DHCP relay agent.

## Defaults

The default debug level is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example shows how to enable debugging for DHCP relay agent error messages:

```
hostname# debug dhcprelay error
debug dhcprelay error enabled at level 1
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>clear configure dhcprelay</b>	Removes all DHCP relay agent settings.
<b>clear dhcprelay statistics</b>	Clears the DHCP relay agent statistic counters.
<b>show dhcprelay statistics</b>	Displays DHCP relay agent statistic information.
<b>show running-config dhcprelay</b>	Displays the current DHCP relay agent configuration.

# debug disk

To display file system debug information, use the **debug disk** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

```
debug disk { file | file-verbose | filesystem } [level]
```

```
no debug disk { file | file-verbose | filesystem }
```

## Syntax Description

<b>file</b>	Enables file-level disk debug messages.
<b>file-verbose</b>	Enables verbose file-level disk debug messages
<b>filesystem</b>	Enables file system debug messages.
<i>level</i>	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables file-level disk debug messages. The **show debug** command reveals that file-level disk debug messages are enabled. The **dir** command causes several debug messages.

```
hostname# debug disk file
debug disk file enabled at level 1
hostname# show debug
debug vpn-sessiondb enabled at level 1
hostname# dir
```

```

IFS: Opening: file flash:/, flags 1, mode 0
IFS: Opened: file flash:/ as fd 3
IFS: Getdent: fd 3
IFS: Getdent: fd 3
IFS: Getdent: fd 3
IFS: Getdent: fd 3

Directory of flash:/
IFS: Close: fd 3
IFS: Opening: file flash:/, flags 1, mode 0

4      -rw-  5124096   14:42:27 Apr 04 2005  cdisk.binIFS: Opened: file flash:/ as fd 3

9      -rw-  5919340   14:53:39 Apr 04 2005  ASDMIFS: Getdent: fd 3

11     drw-    0       15:18:56 Apr 21 2005  syslog
IFS: Getdent: fd 3
IFS: Getdent: fd 3
IFS: Getdent: fd 3
IFS: Close: fd 3

16128000 bytes total (5047296 bytes free)

```

**Related Commands**

Command	Description
<b>show debug</b>	Displays current debug configuration.

# debug dns

To show debug messages for DNS, use the **debug dns** command in privileged EXEC mode. To stop showing debug messages for DNS, use the **no** form of this command.

```
debug dns [resolver | all] [level]
```

```
no debug dns [resolver | all] [level]
```

## Syntax Description

<i>level</i>	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.
<b>resolver</b>	(Optional) Shows only DNS resolver messages.
<b>all</b>	(Default) Shows all messages, including messages about the DNS cache.

## Defaults

The default level is 1. If you do not specify any keywords, the security appliance shows all messages.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

## Examples

The following example enables debug messages for DNS:

```
hostname# debug dns
```

## Related Commands

Command	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect dns</b>	Enables DNS application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.

# debug eap

To enable logging of Extensible Authentication Protocol events to debug Network Admission Control messaging, use the **debug eap** command in privileged EXEC mode. To disable the logging of EAP debug messages, use the **no** form of this command.

```
debug eap {all | errors | events | packets | sm}
```

```
no debug eap [all | errors | events | packets | sm]
```

## Syntax Description

<b>all</b>	Enables logging of debug messages about all EAP information.
<b>errors</b>	Enables logging of EAP packet errors.
<b>events</b>	Enables logging of EAP session events.
<b>packets</b>	Enables logging of debug messages about EAP packet information.
<b>sm</b>	Enables logging of debug messages about EAP state machine information.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

When you use this command, the security appliance records EAP session state changes and EAP status query events, and generates a complete record of EAP and packet contents in hexadecimal format.

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables the logging of all EAP session events:

```
hostname# debug eap events
hostname#
```

The following example enables the logging of all EAP debug messages:

```
hostname# debug eap all
hostname#
```

The following example disables the logging of all EAP debug messages:

```
hostname# no debug eap
hostname#
```

#### Related Commands

Command	Description
<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
<b>debug nac</b>	Enables logging of NAC events.
<b>eou initialize</b>	Clears the resources assigned to one or more NAC sessions and initiates a new, unconditional posture validation for each of the sessions.
<b>eou revalidate</b>	Forces immediate posture revalidation of one or more NAC sessions.
<b>show debug</b>	Displays current debug configuration.

# debug entity

To display management information base (MIB) debug information, use the **debug entity** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

**debug entity** [*level*]

**no debug entity**

<b>Syntax Description</b>	<i>level</i>	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.
---------------------------	--------------	---

**Defaults** The default value for *level* is 1.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

**Examples** The following example enables MIB debug messages. The **show debug** command reveals that MIB debug messages are enabled.

```
hostname# debug entity
debug entity enabled at level 1
hostname# show debug
debug entity enabled at level 1
hostname#
```

## Related Commands



Command	Description
show debug	Displays current debug configuration.

# debug eou

To enable logging of Extensible Authentication Protocol over UDP (EAPoUDP) events to debug Network Admission Control messaging, use the **debug eou** command in privileged EXEC mode. To disable the logging of EAPoUDP debug messages, use the **no** form of this command.

```
debug eou {all | eap | errors | events | packets | sm}
```

```
no debug eou [all | eap | errors | events | packets | sm]
```

## Syntax Description

<b>all</b>	Enables logging of debug messages about all EAPoUDP information.
<b>eap</b>	Enables logging of debug messages about EAPoUDP packets.
<b>errors</b>	Enables logging of EAPoUDP packet errors.
<b>events</b>	Enables logging of EAPoUDP session events.
<b>packets</b>	Enables logging of debug messages about EAPoUDP packet information.
<b>sm</b>	Enables logging of debug messages about EAPoUDP state machine information.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

When you use this command, the security appliance records EAPoUDP session state changes and timer events, and generates a complete record of EAPoUDP header and packet contents in hexadecimal format.

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables the logging of all EAPoUDP session events:

```
hostname# debug eou events
```

```
hostname#
```

The following example enables the logging of all EAPoUDP debug messages:

```
hostname# debug eou all  
hostname#
```

The following example disables the logging of all EAPoUDP debug messages:

```
hostname# no debug eou  
hostname#
```

#### Related Commands

Command	Description
<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
<b>debug nac</b>	Enables logging of NAC events.
<b>eou initialize</b>	Clears the resources assigned to one or more NAC sessions and initiates a new, unconditional posture validation for each of the sessions.
<b>eou revalidate</b>	Forces immediate posture revalidation of one or more NAC sessions.
<b>show debug</b>	Displays current debug configuration.

# debug esmtp

To show debug messages for SMTP/ESMTP application inspection, use the **debug esmtp** command in privileged EXEC mode. To stop showing debug messages for SMTP/ESMTP application inspection, use the **no** form of this command.

**debug esmtp** [*level*]

**no debug esmtp** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.



### Note

Enabling the **debug esmtp** command may slow down traffic on busy networks.

## Examples

The following example enables debug messages at the default level (1) for SMTP/ESMTP application inspection:

```
hostname# debug esmtp
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect esmtp</b>	Enables ESMTP application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.
<b>show conn</b>	Displays the connection state for different connection types, including SMTP.

# debug fixup

To display detailed information about application inspection, use the **debug fixup** command in privileged EXEC mode. To disable debugging, Use the **no** form of this command.

**debug fixup**

**no debug fixup**

## Defaults

All options are enabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **debug fixup** command displays detailed information about application inspection. The **no debug all** or **undebug all** commands turn off all enabled debugs.

## Examples

The following example enables the display of detailed information about application inspection:

```
hostname# debug fixup
```

## Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect protocol</b>	Enables application inspection for specific protocols.
<b>policy-map</b>	Associates a class map with specific security actions.

# debug fover

To display failover debug information, use the **debug fover** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

```
debug fover {cable | fail | fmsg | ifc | open | rx | rxdmp | rxip | switch | sync | tx | txdmp | txip |
verify}
```

```
no debug fover {cable | fail | fmsg | ifc | open | rx | rxdmp | rxip | switch | sync | tx | txdmp | txip |
verify}
```

## Syntax Description

<b>cable</b>	Failover LAN status or serial cable status.
<b>fail</b>	Failover internal exception.
<b>fmsg</b>	Failover message.
<b>ifc</b>	Network interface status trace.
<b>open</b>	Failover device open.
<b>rx</b>	Failover message receive.
<b>rxdmp</b>	Failover receive message dump (serial console only).
<b>rxip</b>	IP network failover packet receive.
<b>switch</b>	Failover switching status.
<b>sync</b>	Failover configuration/command replication.
<b>tx</b>	Failover message transmit.
<b>txdmp</b>	Failover transmit message dump (serial console only).
<b>txip</b>	IP network failover packet transmit.
<b>verify</b>	Failover message verify.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was modified. It includes additional debug keywords.

---

**Usage Guidelines**

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

---

**Examples**

The following example shows how to display debug information for failover command replication:

```
hostname# debug fover sync  
fover event trace on
```

---

**Related Commands**

Command	Description
<b>show failover</b>	Displays information about the failover configuration and operational statistics.



# debug fsm

To display FSM debug information, use the **debug fsm** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

**debug fsm** [*level*]

**no debug fsm**

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables FSM debug messages. The **show debug** command reveals that FSM debug messages are enabled.

```
hostname# debug fsm
debug fsm  enabled at level 1
hostname# show debug
debug fsm  enabled at level 1
hostname#
```

## Related Commands

Command	Description
show debug	Displays current debug configuration.

# debug ftp client

To show debug messages for FTP, use the **debug ftp client** command in privileged EXEC mode. To stop showing debug messages for FTP, use the **no** form of this command.

**debug ftp client** [*level*]

**no debug ftp client** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.



### Note

Enabling the **debug ftp client** command may slow down traffic on busy networks.

## Examples

The following example enables debug messages at the default level (1) for FTP:

```
hostname# debug ftp client
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>copy</b>	Uploads or downloads image files or configuration files to or from an FTP server.
<b>ftp mode passive</b>	Configures the mode for FTP sessions.
<b>show running-config ftp mode</b>	Displays FTP client configuration.

# debug generic

To display miscellaneous debug information, use the **debug generic** command in privileged EXEC mode. To disable the display of miscellaneous debug information, use the **no** form of this command.

**debug generic** [*level*]

**no debug generic**

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables miscellaneous debug messages. The **show debug** command reveals that miscellaneous debug messages are enabled.

```
hostname# debug generic
debug generic enabled at level 1
hostname# show debug
debug generic enabled at level 1
hostname#
```

## Related Commands

Command	Description
show debug	Displays current debug configuration.

# debug gtp

To display detailed information about GTP inspection, use the **debug gtp** command in privileged EXEC mode. To disable debugging, Use the **no** form of this command.

```
debug gtp {error | event | ha | parser}
```

```
no debug gtp {error | event | ha | parser}
```

## Syntax Description

<b>error</b>	Displays debug information on errors encountered while processing the GTP message.
<b>event</b>	Displays debug information on GTP events.
<b>ha option</b>	Debugs information on GTP HA events.
<b>parser</b>	Displays debug information for parsing the GTP messages.

## Defaults

All options are enabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **debug gtp** command displays detailed information about GTP inspection. The **no debug all** or **undebug all** commands turn off all enabled debugs.



### Note

GTP inspection requires a special license.

## Examples

The following example enables the display of detailed information about GTP inspection:

```
hostname# debug gtp
```

## Related Commands

<b>Commands</b>	<b>Description</b>
<b>clear service-policy inspect gtp</b>	Clears global GTP statistics.
<b>gtp-map</b>	Defines a GTP map and enables GTP map configuration mode.
<b>inspect gtp</b>	Applies a GTP map to use for application inspection.
<b>show service-policy inspect gtp</b>	Displays the GTP configuration.
<b>show running-config gtp-map</b>	Shows the GTP maps that have been configured.



# debug h323

To show debug messages for H.323, use the **debug h323** command in privileged EXEC mode. To stop showing debug messages for H.323, use the **no** form of this command.

```
debug h323 {h225 | h245 | ras} [asn | event]
```

```
no debug h323 {h225 | h245 | ras} [asn | event]
```

## Syntax Description

<b>h225</b>	Specifies H.225 signaling.
<b>h245</b>	Specifies H.245 signaling.
<b>ras</b>	Specifies the registration, admission, and status protocol.
<b>asn</b>	(Optional) Displays the output of the decoded protocol data units (PDU)s.
<b>event</b>	(Optional) Displays the signaling events or turns on both traces.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.



### Note

Enabling the **debug h323** command may slow down traffic on busy networks.

## Examples

The following example enables debug messages at the default level (1) for H.225 signaling

```
hostname# debug h323 h225
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>inspect h323</b>	Enables H.323 application inspection.
<b>show h225</b>	Displays information for H.225 sessions established across the security appliance.
<b>show h245</b>	Displays information for H.245 sessions established across the security appliance by endpoints using slow start.
<b>show h323-ras</b>	Displays information for H.323 RAS sessions established across the security appliance.
<b>timeout h225   h323</b>	Configures idle time after which an H.225 signalling connection or an H.323 control connection will be closed.

# debug http

To display detailed information about HTTP traffic, use the **debug http** command in privileged EXEC mode. To disable debugging, Use the **no** form of this command.

**debug http** [ *level* ]

**no debug http** [ *level* ]

Syntax Description	<i>level</i>	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.
--------------------	--------------	---

**Defaults** The default for *level* is 1.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **debug http** command displays detailed information about HTTP traffic. The **no debug all** or **undebug all** commands turn off all enabled debugs.

**Examples** The following example enables the display of detailed information about HTTP traffic:

```
hostname# debug http
```

Related Commands	Commands	Description
	http	Specifies hosts that can access the HTTP server internal to the security appliance.
	http-proxy	Configures an HTTP proxy server.
	http redirect	Redirects HTTP traffic to HTTPS.
	http server enable	Enables the security appliance HTTP server.

# debug http-map

To show debug messages for HTTP application inspection maps, use the **debug http-map** command in privileged EXEC mode. To stop showing debug messages for HTTP application inspection, use the **no** form of this command.

**debug http-map**

**no debug http-map**

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.



### Note

Enabling the **debug http-map** command may slow down traffic on busy networks.

## Examples

The following example enables debug messages at the default level (1) for HTTP application inspection:

```
hostname# debug http-map
```

## Related Commands

Command	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug appfw</b>	Displays detailed information about HTTP application inspection.
<b>http-map</b>	Defines an HTTP map for configuring enhanced HTTP inspection.
<b>inspect http</b>	Applies a specific HTTP map to use for application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.

# debug icmp

To display detailed information about ICMP inspection, use the **debug icmp** command in privileged EXEC mode. To disable debugging, Use the **no** form of this command.

**debug icmp trace** [ *level* ]

**no debug icmp trace** [ *level* ]

Syntax Description	trace	Displays debug information about ICMP trace activity.
	<i>level</i>	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

All options are enabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **debug icmp** command displays detailed information about ICMP inspection. The **no debug all** or **undebug all** commands turn off all enabled debugs.

## Examples

The following example enables the display of detailed information about ICMP inspection:

```
hostname# debug icmp
```

## Related Commands

Commands	Description
<b>clear configure icmp</b>	Clears the ICMP configuration.
<b>icmp</b>	Configures access rules for ICMP traffic that terminates at a security appliance interface.
<b>show conn</b>	Displays the state of connections through the security appliance for different protocols and session types.

<b>Commands</b>	<b>Description</b>
<b>show icmp</b>	Displays ICMP configuration.
<b>timeout icmp</b>	Configures idle timeout for ICMP.

# debug igmp

To display IGMP debug information, use the **debug igmp** command in privileged EXEC mode. To stop the display of debug information, use the **no** form of this command.

```
debug igmp [group group_id | interface if_name]
```

```
no debug igmp [group group_id | interface if_name]
```

## Syntax Description

<b>group</b> <i>group_id</i>	Displays IGMP debug information for the specified group.
<b>interface</b> <i>if_name</i>	Display IGMP debug information for the specified interface.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following is sample output from the **debug igmp** command:

```
hostname#debug igmp

IGMP debugging is on
IGMP: Received v2 Query on outside from 192.168.3.2
IGMP: Send v2 general Query on dmz
IGMP: Received v2 Query on dmz from 192.168.4.1
IGMP: Send v2 general Query on outside
IGMP: Received v2 Query on outside from 192.168.3.1
IGMP: Send v2 general Query on inside
IGMP: Received v2 Query on inside from 192.168.1.1
IGMP: Received v2 Report on inside from 192.168.1.6 for 224.1.1.1
IGMP: Updating EXCLUDE group timer for 224.1.1.1
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show igmp groups</b>	Displays the multicast groups with receivers that are directly connected to the security appliance and that were learned through IGMP.
<b>show igmp interface</b>	Displays multicast information for an interface.



# debug ils

To show debug messages for ILS, use the **debug ils** command in privileged EXEC mode. To stop showing debug messages for ILS, use the **no** form of this command.

**debug ils** [*level*]

**no debug ils** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.



### Note

Enabling the **debug ils** command may slow down traffic on busy networks.

## Examples

The following example enables debug messages at the default level (1) for ILS application inspection:

```
hostname# debug ils
```

## Related Commands

Command	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect ils</b>	Enables ILS application inspection.

<b>Command</b>	<b>Description</b>
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.

# debug imagemgr

To display Image Manager debug information, use the **debug imagemgr** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

**debug imagemgr** [*level*]

**no debug imagemgr**

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables Image Manager debug messages. The **show debug** command reveals that Image Manager debug messages are enabled.

```
hostname# debug imagemgr
debug imagemgr enabled at level 1
hostname# show debug
debug imagemgr enabled at level 1
hostname#
```

## Related Commands

Command	Description
show debug	Displays current debug configuration.

# debug ipsec-over-tcp

To display IPSec-over-TCP debug information, use the **debug ipsec-over-tcp** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

**debug ipsec-over-tcp** [*level*]

**no debug ipsec-over-tcp**

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables IPSec-over-TCP debug messages. The **show debug** command reveals that IPSec-over-TCP debug messages are enabled.

```
hostname# debug ipsec-over-tcp
debug ipsec-over-tcp enabled at level 1
hostname# show debug
debug ipsec-over-tcp enabled at level 1
hostname#
```

## Related Commands

■ debug ipsec-over-tcp

Command	Description
show debug	Displays current debug configuration.

# debug ipv6

To display ipv6 debug messages, use the **debug ipv6** command in privileged EXEC mode. To stop the display of debug messages, use the **no** form of this command.

```
debug ipv6 {icmp | interface | nd | packet | routing}
```

```
no debug ipv6 {icmp | interface | nd | packet | routing}
```

## Syntax Description

<b>icmp</b>	Displays debug messages for IPv6 ICMP transactions, excluding ICMPv6 neighbor discovery transactions.
<b>interface</b>	Displays debug information for IPv6 interfaces.
<b>nd</b>	Displays debug messages for ICMPv6 neighbor discovery transactions.
<b>packet</b>	Displays debug messages for IPv6 packets.
<b>routing</b>	Displays debug messages for IPv6 routing table updates and route cache updates.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following is sample output for the **debug ipv6 icmp** command:

```
hostname# debug ipv6 icmp
13:28:40:ICMPv6:Received ICMPv6 packet from 2000:0:0:3::2, type 136
13:28:45:ICMPv6:Received ICMPv6 packet from FE80::203:A0FF:FED6:1400, type 135
13:28:50:ICMPv6:Received ICMPv6 packet from FE80::203:A0FF:FED6:1400, type 136
13:28:55:ICMPv6:Received ICMPv6 packet from FE80::203:A0FF:FED6:1400, type 135
```

Related Commands	Command	Description
	<b>ipv6 icmp</b>	Defines access rules for ICMP messages that terminate on a security appliance interface.
	<b>ipv6 address</b>	Configures an interface with an IPv6 address or addresses.
	<b>ipv6 nd dad attempts</b>	Defines the number of neighbor discovery attempts performed during duplicate address detection.
	<b>ipv6 route</b>	Defines a static entry in the IPv6 routing table.



# debug iua-proxy

To display individual user authentication (IUA) proxy debug information, use the **debug iua-proxy** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

**debug iua-proxy** [*level*]

**no debug iua-proxy**

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables IUA-proxy debug messages. The **show debug** command reveals that IUA-proxy debug messages are enabled.

```
hostname# debug iua-proxy
debug iua-proxy enabled at level 1
hostname# show debug
debug iua-proxy enabled at level 1
hostname#
```

**■** debug iua-proxy**Related Commands**

Command	Description
show debug	Displays current debug configuration.

# debug kerberos

To display Kerberos authentication debug information, use the **debug kerberos** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

**debug kerberos** [*level*]

**no debug kerberos**

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables Kerberos debug messages. The **show debug** command reveals that Kerberos debug messages are enabled.

```
hostname# debug kerberos
debug kerberos  enabled at level 1
hostname# show debug
debug kerberos  enabled at level 1
hostname#
```

## Related Commands

Command	Description
show debug	Displays current debug configuration.

# debug l2tp

To display L2TP debug information, use the **debug l2tp** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

```
debug l2tp {data | error | event | packet} level
```

```
no debug l2tp {data | error | event | packet} level
```

## Syntax Description

<b>data</b>	displays data packet trace information.
<b>error</b>	Displays error events.
<b>event</b>	Displays L2TP connection events.
<b>packet</b>	Displays packet trace information.
<i>level</i>	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables L2TP debug messages for connection events. The **show debug** command reveals that L2TP debug messages are enabled.

```
hostname# debug l2tp event 1
hostname# show debug
debug l2tp event enabled at level 1
hostname#
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show debug</b>	Displays current debug configuration.

---

# debug ldap

To display LDAP debug information, use the **debug ldap** command in privileged EXEC mode. To disable the display of debug information, use the **no debug ldap** form of this command.

**debug ldap** [*level*]

**no debug ldap**

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables LDAP debug messages. The **show debug** command reveals that LDAP debug messages are enabled.

```
hostname# debug ldap
debug ldap enabled at level 1
hostname# show debug
debug ldap enabled at level 1
hostname#
```

## Related Commands

Command	Description
show debug	Displays current debug configuration.



# debug mac-address-table

To show debug messages for the MAC address table, use the **debug mac-address-table** command in privileged EXEC mode. To stop showing debug messages for the MAC address table, use the **no** form of this command.

**debug mac-address-table** [*level*]

**no debug mac-address-table** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default level is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	—	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

## Examples

The following example enables debug messages for the MAC address table:

```
hostname# debug mac-address-table
```

## Related Commands

Command	Description
<b>mac-address-table aging-time</b>	Sets the timeout for dynamic MAC address entries.
<b>mac-address-table static</b>	Adds static MAC address entries to the MAC address table.
<b>mac-learn</b>	Disables MAC address learning.

<b>Command</b>	<b>Description</b>
<b>show debug</b>	Shows all enabled debuggers.
<b>show mac-address-table</b>	Shows MAC address table entries.

# debug menu

To display detailed debug information for specific features, use the **debug menu** command in privileged EXEC mode.

## debug menu



### Caution

The **debug menu** command should be used only under the supervision of Cisco technical support staff.

### Syntax Description

This command should be used only under the supervision of Cisco technical support staff.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

### Examples

This command should be used only under the supervision of Cisco technical support staff.

### Related Commands

Command	Description
<b>show debug</b>	Displays current debug configuration.

# debug mfib

To display MFIB debug information, use the **debug mfib** command in privileged EXEC mode. To stop displaying debug information, use the **no** form of this command.

```
debug mfib {db | init | mrrib | pak | ps | signal} [group]
```

```
no debug mfib {db | init | mrrib | pak | ps | signal} [group]
```

## Syntax Description

<b>db</b>	(Optional) Displays debug information for route database operations.
<i>group</i>	(Optional) IP address of the multicast group.
<b>init</b>	(Optional) Displays system initialization activity.
<b>mrrib</b>	(Optional) Displays debug information for communication with MRIB.
<b>pak</b>	(Optional) Displays debug information for packet forwarding operations.
<b>ps</b>	(Optional) Displays debug information for process switching operations.
<b>signal</b>	(Optional) Displays debug information for MFIB signaling to routing protocols.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example displays MFIB database operation debug information:

```
hostname# debug mfib db
MFIB IPv4 db debugging enabled
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show mfib</b>	Displays MFIB forwarding entries and interfaces.

# debug mgcp

To display detailed information about MGCP application inspection, use the **debug mgcp** command in privileged EXEC mode. To disable debugging, Use the **no** form of this command.

```
debug mgcp { messages | parser | sessions }
```

```
no debug mgcp { messages | parser | sessions }
```

<b>messages</b>	Displays debug information about MGCP messages.
<b>parser</b>	Displays debug information for parsing MGCP messages.
<b>sessions</b>	Displays debug information about MGCP sessions.

## Defaults

All options are enabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **debug mgcp** command displays detailed information about mgcp inspection. The **no debug all** or **undebug all** commands turn off all enabled debugs.

## Examples

The following example enables the display of detailed information about MGCP application inspection:

```
hostname# debug mgcp
```

## Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect mgcp</b>	Enables MGCP application inspection.
<b>mgcp-map</b>	Defines an MGCP map and enables MGCP map configuration mode.
<b>show mgcp</b>	Displays information about MGCP sessions established through the security appliance.
<b>show conn</b>	Displays the connection state for different connection types.

# debug module-boot

To show debug messages about the SSM booting process, use the **debug module-boot** command in privileged EXEC mode. To stop showing debug messages for the SSM booting process, use the **no** form of this command.

**debug module-boot** [*level*]

**no debug module-boot** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default level is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

## Examples

The following example enables debug messages for the SSM booting process:

```
hostname# debug module-boot
```

## Related Commands

Command	Description
<b>hw-module module recover</b>	Recovers an intelligent SSM by loading a recovery image from a TFTP server.
<b>hw-module module reset</b>	Shuts down an SSM and performs a hardware reset.
<b>hw-module module reload</b>	Reloads the intelligent SSM software.

<b>Command</b>	<b>Description</b>
<b>hw-module module shutdown</b>	Shuts down the SSM software in preparation for being powered off without losing configuration data.
<b>show module</b>	Shows SSM information.



# debug mrib

To display MRIB debug information, use the **debug mrib** command in privileged EXEC mode. To stop the display of debug information, use the **no** form of this command.

```
debug mrib { client | io | route [group] | table }
```

```
no debug mrib { client | io | route [group] | table }
```

## Syntax Description

<b>client</b>	Enables debugging for MRIB client management activity.
<b>io</b>	Enables debugging of MRIB I/O events.
<b>route</b>	Enables debugging of MRIB routing entry activity.
<i>group</i>	Enables debugging of MRIB routing entry activity for the specified group.
<b>table</b>	Enables debugging of MRIB table management activity.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example shows how to enable debugging of MRIB I/O events:

```
hostname# debug mrib io
IPv4 MRIB io debugging is on
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>show mrib client</b>	Displays information about the MRIB client connections.
<b>show mrib route</b>	Displays MRIB table entries.

# debug nac

To enable logging of Network Admission Control events, use the **debug nac** command in privileged EXEC mode. To disable the logging of NAC debug messages, use the **no** form of this command.

```
debug nac {all | auth | errors | events}
```

```
no debug nac [all | auth | errors | events]
```

## Syntax Description

<b>all</b>	Enables logging of debug messages about all NAC information.
<b>auth</b>	Enables logging of debug messages about NAC authentication requests and responses.
<b>errors</b>	Enables logging of NAC session errors.
<b>events</b>	Enables logging of NAC session events.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

When you use this command, the security appliance logs the following types of NAC events: initializations, exception list matches, ACS transactions, clientless authentications, default ACL applications, and revalidations.

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables the logging of all NAC session events:

```
hostname# debug nac events
hostname#
```

The following example enables the logging of all NAC debug messages:

```
hostname# debug nac all
hostname#
```

The following example disables the logging of all NAC debug messages:

```
hostname# no debug nac
hostname#
```

#### Related Commands

Command	Description
<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
<b>eou initialize</b>	Clears the resources assigned to one or more NAC sessions and initiates a new, unconditional posture validation for each of the sessions.
<b>eou revalidate</b>	Forces immediate posture revalidation of one or more NAC sessions.
<b>show debug</b>	Displays current debug configuration.

# debug ntdomain

To display NT domain authentication debug information, use the **debug ntdomain** command in privileged EXEC mode. To disable the display of NT domain debug information, use the **no** form of this command.

**debug ntdomain** [*level*]

**no debug ntdomain**

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables NT domain debug messages. The **show debug** command reveals that NT domain debug messages are enabled.

```
hostname# debug ntdomain
debug ntdomain  enabled at level 1
hostname# show debug
debug ntdomain  enabled at level 1
hostname#
```

**debug ntdomain****Related Commands**

Command	Description
<b>show debug</b>	Displays current debug configuration.

# debug ntp

To show debug messages for NTP, use the **debug ntp** command in privileged EXEC mode. To stop showing debug messages for NTP, use the **no** form of this command.

```
debug ntp { adjust | authentication | events | loopfilter | packets | params | select | sync | validity }
```

```
no debug ntp { adjust | authentication | events | loopfilter | packets | params | select | sync | validity }
```

## Syntax Description

<b>adjust</b>	Shows messages about NTP clock adjustments.
<b>authentication</b>	Shows messages about NTP authentication.
<b>events</b>	Shows messages about NTP events.
<b>loopfilter</b>	Shows messages about NTP loop filter.
<b>packets</b>	Shows messages about NTP packets.
<b>params</b>	Shows messages about NTP clock parameters.
<b>select</b>	Shows messages about NTP clock selection.
<b>sync</b>	Shows messages about NTP clock synchronization.
<b>validity</b>	Shows messages about NTP peer clock validity.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

## Examples

The following example enables debug messages for NTP:

```
hostname# debug ntp events
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>ntp authenticate</b>	Enables NTP authentication.
<b>ntp server</b>	Identifies an NTP server.
<b>show debug</b>	Shows all enabled debuggers.
<b>show ntp associations</b>	Shows the NTP servers with which the security appliance is associated.
<b>show ntp status</b>	Shows the status of the NTP association.



# debug ospf

To display debug information about the OSPF routing processes, use the **debug ospf** command in privileged EXEC mode.

```
debug ospf [adj | database-timer | events | flood | lsa-generation | packet | retransmission | spf
           [external | inter | intra] | tree]
```

```
no debug ospf [adj | database-timer | events | flood | lsa-generation | packet | retransmission |
              spf [external | inter | intra] | tree]
```

## Syntax Description

<b>adj</b>	(Optional) Enables the debugging of OSPF adjacency events.
<b>database-timer</b>	(Optional) Enables the debugging of OSPF timer events.
<b>events</b>	(Optional) Enables the debugging of OSPF events.
<b>external</b>	(Optional) Limits SPF debugging to external events.
<b>flood</b>	(Optional) Enables the debugging of OSPF flooding.
<b>inter</b>	(Optional) Limits SPF debugging to inter-area events.
<b>intra</b>	(Optional) Limits SPF debugging to intra-area events.
<b>lsa-generation</b>	(Optional) Enables the debugging of OSPF summary LSA generation.
<b>packet</b>	(Optional) Enables the debugging of received OSPF packets.
<b>retransmission</b>	(Optional) Enables the debugging of OSPF retransmission events.
<b>spf</b>	(Optional) Enables the debugging of OSPF shortest path first calculations. You can limit the SPF debug information by using the <b>external</b> , <b>inter</b> , and <b>intra</b> keywords.
<b>tree</b>	(Optional) Enables the debugging of OSPF database events.

## Defaults

Displays all OSPF debug information if no keyword is provided.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

**Examples**

The following is sample output from the **debug ospf events** command:

```
hostname# debug ospf events
ospf event debugging is on

OSPF:hello with invalid timers on interface Ethernet0
hello interval received 10 configured 10
net mask received 255.255.255.0 configured 255.255.255.0
dead interval received 40 configured 30
```

**Related Commands**

Command	Description
<b>show ospf</b>	Displays general information about the OSPF routing process.

# debug parser cache

To display CLI parser debug information, use the **debug parser cache** command in privileged EXEC mode. To disable the display of CLI parser debug information, use the **no** form of this command.

**debug parser cache** [*level*]

**no debug parser cache**

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables CLI parser debug messages. The **show debug** command reveals the current debug configuration. The CLI parser debug messages appear before and after the output of the **show debug** command.

```
hostname# debug parser cache
debug parser cache enabled at level 1
hostname# show debug
parser cache: try to match 'show debug' in exec mode
debug parser cache enabled at level 1
parser cache: hit at index 8
hostname#
```

■ debug parser cache

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show debug</b>	Displays current debug configuration.

# debug pim

To display PIM debug information, use the **debug pim** command in privileged EXEC mode. To stop displaying debug information, use the **no** form of this command.

```
debug pim [df-election [interface if_name | rp rp] | group group | interface if_name | neighbor]
```

```
no debug pim [df-election [interface if_name | rp rp] | group group | interface if_name | neighbor]
```

## Syntax Description

<b>df-election</b>	(Optional) Displays debug messages for PIM bidirectional DF-election message processing.
<b>group</b> <i>group</i>	(Optional) Displays debug information for the specified group. The value for <i>group</i> can be one of the following: <ul style="list-style-type: none"> <li>Name of the multicast group, as defined in the DNS hosts table or with the domain <b>ipv4 host</b> command.</li> <li>IP address of the multicast group. This is a multicast IP address in four-part dotted-decimal notation.</li> </ul>
<b>interface</b> <i>if_name</i>	(Optional) When used with the <b>df-election</b> keyword, it limits the DF election debug display to information for the specified interface.  When used without the <b>df-election</b> keyword, displays PIM error messages for the specified interface.  <b>Note</b> The <b>debug pim interface</b> command does not display PIM protocol activity messages; it only displays error messages. To see debug information for PIM protocol activity, use the <b>debug pim</b> command without the <b>interface</b> keyword. You can use the <b>group</b> keyword to limit the display to the specified multicast group.
<b>neighbor</b>	(Optional) Displays only the sent/received PIM hello messages.
<b>rp</b> <i>rp</i>	(Optional) Can be either one of the following: <ul style="list-style-type: none"> <li>Name of the RP, as defined in the Domain Name System (DNS) hosts table or with the domain <b>ipv4 host</b> command.</li> <li>IP address of the RP. This is a multicast IP address in four-part dotted-decimal notation.</li> </ul>

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

Logs PIM packets received and transmitted and also PIM-related events.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

**Examples**

The following is sample output from the **debug pim** command:

```
hostname# debug pim
PIM: Received Join/Prune on Ethernet1 from 172.24.37.33
PIM: Received Join/Prune on Ethernet1 from 172.24.37.33
PIM: Received Join/Prune on Tunnel0 from 10.3.84.1
PIM: Received Join/Prune on Ethernet1 from 172.24.37.33
PIM: Received Join/Prune on Ethernet1 from 172.24.37.33
PIM: Received RP-Reachable on Ethernet1 from 172.16.20.31
PIM: Update RP expiration timer for 224.2.0.1
PIM: Forward RP-reachability packet for 224.2.0.1 on Tunnel0
PIM: Received Join/Prune on Ethernet1 from 172.24.37.33
PIM: Prune-list (10.221.196.51/32, 224.2.0.1)
PIM: Set join delay timer to 2 seconds for (10.221.0.0/16, 224.2.0.1) on Ethernet1
PIM: Received Join/Prune on Ethernet1 from 172.24.37.6
PIM: Received Join/Prune on Ethernet1 from 172.24.37.33
PIM: Received Join/Prune on Tunnel0 from 10.3.84.1
PIM: Join-list: (*, 224.2.0.1) RP 172.16.20.31
PIM: Add Tunnel0 to (*, 224.2.0.1), Forward state
PIM: Join-list: (10.0.0.0/8, 224.2.0.1)
PIM: Add Tunnel0 to (10.0.0.0/8, 224.2.0.1), Forward state
PIM: Join-list: (10.4.0.0/16, 224.2.0.1)
PIM: Prune-list (172.24.84.16/28, 224.2.0.1) RP-bit set RP 172.24.84.16
PIM: Send Prune on Ethernet1 to 172.24.37.6 for (172.24.84.16/28, 224.2.0.1), RP
PIM: For RP, Prune-list: 10.9.0.0/16
PIM: For RP, Prune-list: 10.16.0.0/16
PIM: For RP, Prune-list: 10.49.0.0/16
PIM: For RP, Prune-list: 10.84.0.0/16
PIM: For RP, Prune-list: 10.146.0.0/16
PIM: For 10.3.84.1, Join-list: 172.24.84.16/28
PIM: Send periodic Join/Prune to RP via 172.24.37.6 (Ethernet1)
```

**Related Commands**

Command	Description
<b>show pim group-map</b>	Displays group-to-protocol mapping table.
<b>show pim interface</b>	Displays interface-specific information for PIM.
<b>show pim neighbor</b>	Displays entries in the PIM neighbor table.

# debug pix pkt2pc

To show debug messages that trace packets sent to the uauth code and that trace the event where the uauth proxy session is cut through to the data path, use the **debug pix pkt2pc** command in privileged EXEC mode. To stop showing debug messages, use the **no** form of this command.

**debug pix pkt2pc**

**no debug pix pkt2pc**

## Syntax Description

This command has no arguments or keywords.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

## Examples

The following example enables debug messages that trace packets sent to the uauth code and that trace the event where the uauth proxy session is cut through to the data path:

```
hostname# debug pix pkt2pc
```

## Related Commands

Command	Description
<b>debug pix process</b>	Shows debug messages for xlate and secondary connections processing.
<b>show debug</b>	Shows all enabled debuggers.

# debug pix process

To show debug messages for xlate and secondary connections processing, use the **debug pix process** command in privileged EXEC mode. To stop showing debug messages, use the **no** form of this command.

**debug pix process**

**no debug pix process**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** Using **debug** commands might slow down traffic on busy networks.

**Examples** The following example enables debug messages for xlate and secondary connections processing:

```
hostname# debug pix process
```

Related Commands	Command	Description
	<b>debug pix pkt2pc</b>	Shows debug messages that trace packets sent to the uauth code and that trace the event where the uauth proxy session is cut through to the data path.
	<b>show debug</b>	Shows all enabled debuggers.



# debug pptp

To show debug messages for PPTP, use the **debug pptp** command in privileged EXEC mode. To stop showing debug messages for PPTP, use the **no** form of this command.

**debug pptp** [*level*]

**no debug pptp** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.



### Note

Enabling the **debug pptp** command may slow down traffic on busy networks.

## Examples

The following example enables debug messages at the default level (1) for PPTP application inspection:

```
hostname# debug pptp
```

## Related Commands

Command	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect pptp</b>	Enables PPTP application inspection.

<b>Command</b>	<b>Description</b>
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.

# debug radius

To show debug messages for AAA, use the **debug radius** command in privileged EXEC mode. To stop showing RADIUS messages, use the **no** form of this command.

```
debug radius [ all | decode | session | user username ] ]
```

```
no debug radius
```

## Syntax Description

<b>all</b>	(Optional) Show RADIUS debugging messages for all users and sessions, including decoded RADIUS messages.
<b>decode</b>	(Optional) Show decoded content of RADIUS messages. Content of all RADIUS packets display, including hexadecimal values and the decoded, eye-readable versions of these values.
<b>session</b>	(Optional) Show session-related RADIUS messages. Packet types for sent and received RADIUS messages display but not the packet content.
<b>user</b>	(Optional) Show RADIUS debugging messages for a specific user.
<i>username</i>	Specifies the user whose messages you want to see. Valid with the <b>user</b> keyword only.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **debug radius** command displays detailed information about RADIUS messaging between the security appliance and a RADIUS AAA server. The **no debug all** or **undebug all** commands turn off all enabled debugs.

## Examples

The following example shows decoded RADIUS messages, which happen to be accounting packets:

```
hostname(config)# debug radius decode
hostname(config)# RADIUS packet decode (accounting request)
```

```
-----
```

```

Raw packet data (length = 216)....
i
Parsed packet data....
Radius: Code = 4 (0x04)
Radius: Identifier = 105 (0x69)
Radius: Length = 216 (0x00D8)
Radius: Vector: 842E0E99F44C00C05A0A19AB88A81312
Radius: Type = 40 (0x28) Acct-Status-Type
Radius: Length = 6 (0x06)
Radius: Value (Hex) = 0x2
Radius: Type = 5 (0x05) NAS-Port
Radius: Length = 6 (0x06)
Radius: Value (Hex) = 0x1
Radius: Type = 4 (0x04) NAS-IP-Address
Radius: Length = 6 (0x06)
Radius: Value (IP Address) = 10.1.1.1 (0x0A010101)
Radius: Type = 14 (0x0E) Login-IP-Host
Radius: Length = 6 (0x06)
Radius: Value (IP Address) = 10.2.0.50 (0xD0FE1291)
Radius: Type = 16 (0x10) Login-TCP-Port
Radius: Length = 6 (0x06)
Radius: Value (Hex) = 0x50
Radius: Type = 44 (0x2C) Acct-Session-Id
Radius: Length = 12 (0x0C)
Radius: Value (String) =
30 78 31 33 30 31 32 39 66 65 | 0x130129fe
Radius: Type = 1 (0x01) User-Name
Radius: Length = 9 (0x09)
Radius: Value (String) =
62 72 6f 77 73 65 72 | browser
Radius: Type = 46 (0x2E) Acct-Session-Time
Radius: Length = 6 (0x06)
Radius: Value (Hex) = 0x0
Radius: Type = 42 (0x2A) Acct-Input-Octets
Radius: Length = 6 (0x06)
Radius: Value (Hex) = 0x256D
Radius: Type = 43 (0x2B) Acct-Output-Octets
Radius: Length = 6 (0x06)
Radius: Value (Hex) = 0x3E1
Radius: Type = 26 (0x1A) Vendor-Specific
Radius: Length = 30 (0x1E)
Radius: Vendor ID = 9 (0x00000009)
Radius: Type = 1 (0x01) Cisco-AV-pair
Radius: Length = 24 (0x18)
Radius: Value (String) =
69 70 3a 73 6f 75 72 63 65 2d 69 70 3d 31 30 2e | ip:source-ip=10.
31 2e 31 2e 31 30 | 1.1.10
Radius: Type = 26 (0x1A) Vendor-Specific
Radius: Length = 27 (0x1B)
Radius: Vendor ID = 9 (0x00000009)
Radius: Type = 1 (0x01) Cisco-AV-pair
Radius: Length = 21 (0x15)
Radius: Value (String) =
69 70 3a 73 6f 75 72 63 65 2d 70 6f 72 74 3d 33 | ip:source-port=3
34 31 33 | 413
Radius: Type = 26 (0x1A) Vendor-Specific
Radius: Length = 40 (0x28)
Radius: Vendor ID = 9 (0x00000009)
Radius: Type = 1 (0x01) Cisco-AV-pair
Radius: Length = 34 (0x22)
Radius: Value (String) =
69 70 3a 64 65 73 74 69 6e 61 74 69 6f 6e 2d 69 | ip:destination-i
70 3d 32 30 38 2e 32 35 34 2e 31 38 2e 31 34 35 | p=10.2.0.50
Radius: Type = 26 (0x1A) Vendor-Specific

```

```
Radius: Length = 30 (0x1E)
Radius: Vendor ID = 9 (0x00000009)
Radius: Type = 1 (0x01) Cisco-AV-pair
Radius: Length = 24 (0x18)
Radius: Value (String) =
69 70 3a 64 65 73 74 69 6e 61 74 69 6f 6e 2d 70 | ip:destination-p
6f 72 74 3d 38 30 | ort=80
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show running-config</b>	Displays the configuration that is running on the security appliance.

---

# debug rip

To display debug information for RIP, use the **debug rip** command in privileged EXEC mode. To disable the debug information display, use the **no** form of this command.

**debug rip** [database | events]

**no debug rip** [database | events]

## Syntax Description

<b>database</b>	Displays RIP database events.
<b>events</b>	Displays RIP processing events.

## Defaults

All RIP events are shown in the debug output.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.
7.2(1)	The <b>database</b> and <b>events</b> keywords were added.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following is sample output from the **debug rip** command:

```
hostname# debug rip
```

```
RIP: broadcasting general request on GigabitEthernet0/1
RIP: broadcasting general request on GigabitEthernet0/2
RIP: Received update from 10.89.80.28 on GigabitEthernet0/1
    10.89.95.0 in 1 hops
    10.89.81.0 in 1 hops
    10.89.66.0 in 2 hops
    172.31.0.0 in 16 hops (inaccessible)
    0.0.0.0 in 7 hops
RIP: Sending update to 255.255.255.255 via GigabitEthernet0/1 (10.89.64.31)
```

```
subnet 10.89.94.0, metric 1
172.31.0.0 in 16 hops (inaccessible)
RIP: Sending update to 255.255.255.255 via GigabitEthernet0/2 (10.89.94.31)
subnet 10.89.64.0, metric 1
subnet 10.89.66.0, metric 3
172.31.0.0 in 16 hops (inaccessible)
default 0.0.0.0, metric 8
RIP: bad version 128 from 192.168.80.43
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>router rip</b>	Configures a RIP process.
<b>show running-config rip</b>	Displays the RIP commands in the running configuration.

# debug rtsp

To show debug messages for RTSP application inspection, use the **debug rtsp** command in privileged EXEC mode. To stop showing debug messages for RTSP application inspection, use the **no** form of this command.

**debug rtsp** [*level*]

**no debug rtsp** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.



### Note

Enabling the **debug rtsp** command may slow down traffic on busy networks.

## Examples

The following example enables debug messages at the default level (1) for RTSP application inspection:

```
hostname# debug rtsp
```

## Related Commands



<b>Command</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect rtsp</b>	Enables RTSP application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.

# debug sdi

To display SDI authentication debug information, use the **debug sdi** command in privileged EXEC mode. To disable the display of SDI debug information, use the **no** form of this command.

**debug sdi** [*level*]

**no debug sdi**

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables SDI debug messages. The **show debug** command reveals that SDI debug messages are enabled.

```
hostname# debug sdi
debug sdi enabled at level 1
hostname# show debug
debug sdi enabled at level 1
hostname#
```

## Related Commands

Command	Description
show debug	Displays current debug configuration.

# debug sequence

To add a sequence number to the beginning of all debug messages, use the **debug sequence** command in privileged EXEC mode. To disable the use of debug sequence numbers, use the **no** form of this command.

**debug sequence** [*level*]

**no debug sequence**

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The defaults are as follows:

- Debug message sequence numbers are disabled.
- The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables sequence numbers in debug messages. The **debug parser cache** command enables CLI parser debug messages. The **show debug** command reveals the current debug configuration. The CLI parser debug messages shown include sequence numbers before each message.

```
hostname# debug sequence
debug sequence enabled at level 1
hostname# debug parser cache
debug parser cache enabled at level 1
```

```
hostname# show debug
0: parser cache: try to match 'show debug' in exec mode
debug parser cache enabled at level 1
debug sequence enabled at level 1
1: parser cache: hit at index 8
hostname#
```

**Related Commands**

Command	Description
show debug	Displays current debug configuration.

# debug session-command

To show debug messages for a session to an SSM, use the **debug session-command** command in privileged EXEC mode. To stop showing debug messages for sessions, use the **no** form of this command.

**debug session-command** [*level*]

**no debug session-command** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default level is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

## Examples

The following example enables debug messages for sessions:

```
hostname# debug session-command
```

## Related Commands

Command	Description
session	Sessions to an SSM.

# debug sip

To show debug messages for SIP application inspection, use the **debug sip** command in privileged EXEC mode. To stop showing debug messages for SIP application inspection, use the **no** form of this command.

**debug sip** [*level*]

**no debug sip** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.



### Note

Enabling the **debug sip** command may slow down traffic on busy networks.

## Examples

The following example enables debug messages at the default level (1) for SIP application inspection:

```
hostname# debug sip
```

## Related Commands

Command	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect sip</b>	Enables SIP application inspection.

<b>Command</b>	<b>Description</b>
<b>show conn</b>	Displays the connection state for different connection types.
<b>show sip</b>	Displays information about SIP sessions established through the security appliance.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types.



# debug skinny

To show debug messages for SCCP (Skinny) application inspection, use the **debug skinny** command in privileged EXEC mode. To stop showing debug messages for SCCP application inspection, use the **no** form of this command.

**debug skinny** [*level*]

**no debug skinny** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.



### Note

Enabling the **debug skinny** command may slow down traffic on busy networks.

## Examples

The following example enables debug messages at the default level (1) for SCCP application inspection:

```
hostname# debug skinny
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect skinny</b>	Enables SCCP application inspection.
<b>show skinny</b>	Displays information about SCCP sessions established through the security appliance.
<b>show conn</b>	Displays the connection state for different connection types.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types.

# debug sla monitor

To display debug messages for the SLA monitor operation, use the **debug sla monitor** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

```
debug sla monitor [error | trace] [sla-id]
```

```
no debug sla monitor [sla-id]
```

## Syntax Description

<b>error</b>	(Optional) Output IP SLA Monitor Error Messages.
<i>sla-id</i>	(Optional) The ID of the SLA to debug.
<b>trace</b>	(Optional) Output IP SLA Monitor Trace Messages.

## Defaults

Both error and trace messages are shown by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Only 32 SLA operations can be debugged at one time.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables SLA operation error debugging:

```
hostname(config)# debug sla monitor error
```

The following example shows how to display SLA operation trace messages for the specified SLA operation:

```
hostname(config)# debug sla monitor trace 123
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure route</b>	Removes statically configured <b>route</b> commands.
<b>clear route</b>	Removes routes learned through dynamic routing protocols such as RIP.
<b>show route</b>	Displays route information.
<b>show running-config route</b>	Displays configured routes.

# debug sqlnet

To show debug messages for SQL\*Net application inspection, use the **debug sqlnet** command in privileged EXEC mode. To stop showing debug messages for SQL\*Net application inspection, use the **no** form of this command.

**debug sqlnet** [*level*]

**no debug sqlnet** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.



### Note

Enabling the **debug sqlnet** command may slow down traffic on busy networks.

## Examples

The following example enables debug messages at the default level (1) for SQL\*Net application inspection:

```
hostname# debug sqlnet
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect sqlnet</b>	Enables SQL*Net application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.
<b>show conn</b>	Displays the connection state for different connection types, including SQL*Net.

# debug ssh

To display debug information and error messages associated with SSH, use the **debug ssh** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

**debug ssh** [*level*]

**no debug ssh** [*level*]

## Syntax Description

*level* (Optional) Specifies an optional level of debug.

## Defaults

The default *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following is sample output from the **debug ssh 255** command:

```
hostname# debug ssh 255
debug ssh enabled at level 255
SSH2 0: send: len 64 (includes padlen 17)
SSH2 0: done calc MAC out #239
SSH2 0: send: len 32 (includes padlen 7)
SSH2 0: done calc MAC out #240
SSH2 0: send: len 64 (includes padlen 15)
SSH2 0: done calc MAC out #241
SSH2 0: send: len 32 (includes padlen 16)
SSH2 0: done calc MAC out #242
SSH2 0: send: len 64 (includes padlen 7)
SSH2 0: done calc MAC out #243
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #244
```

```

SSH2 0: send: len 64 (includes padlen 8)
SSH2 0: done calc MAC out #245
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #246
SSH2 0: send: len 64 (includes padlen 7)
SSH2 0: done calc MAC out #247
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #248
SSH2 0: send: len 64 (includes padlen 7)
SSH2 0: done calc MAC out #249
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #250
SSH2 0: send: len 64 (includes padlen 8)
SSH2 0: done calc MAC out #251
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #252
SSH2 0: send: len 64 (includes padlen 7)
SSH2 0: done calc MAC out #253
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #254
SSH2 0: send: len 64 (includes padlen 8)
SSH2 0: done calc MAC out #255
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #256
SSH2 0: send: len 64 (includes padlen 7)
SSH2 0: done calc MAC out #257
SSH2 0: send: len 64 (includes padlen 18)
SSH2 0: done calc MAC out #258

```

**Related Commands**

Command	Description
<b>clear configure ssh</b>	Clears all SSH commands from the running configuration.
<b>show running-config ssh</b>	Displays the current SSH commands in the running configuration.
<b>show ssh sessions</b>	Displays information about active SSH sessions to the security appliance.
<b>ssh</b>	Allows SSH connectivity to the security appliance from the specified client or network.



# debug ssl

To display SSL debug information, use the **debug ssl** command in privileged EXEC mode. To disable the display of SSL debug information, use the **no debug ssl** form of this command.

```
debug ssl {cipher | device} [level]
```

```
no debug ssl {cipher | device}
```

## Syntax Description

<b>cipher</b>	Display information about the cipher negotiation between the HTTP server and the client.
<b>device</b>	Displays information about the SSL device including session initiation and ongoing status.
<i>level</i>	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables SSL debug messages, specifically for cipher negotiation. The **show debug** command reveals that SSL debug messages are enabled.

```
hostname# debug ssl cipher
debug ssl cipher enabled at level 1
hostname# show debug
debug ssl cipher enabled at level 1
hostname#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show debug</b>	Displays current debug configuration.

# debug sunrpc

To show debug messages for RPC application inspection, use the **debug sunrpc** command in privileged EXEC mode. To stop showing debug messages for RPC application inspection, use the **no** form of this command.

**debug sunrpc** [*level*]

**no debug sunrpc** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.



### Note

Enabling the **debug sunrpc** command may slow down traffic on busy networks.

## Examples

The following example enables debug messages at the default level (1) for RPC application inspection:

```
hostname# debug sunrpc
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect sunrpc</b>	Enables Sun RPC application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>show conn</b>	Displays the connection state for different connection types, including RPC.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types.

# debug switch ilpm

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, show debug messages for PoE using the **debug switch ilpm** command in privileged EXEC mode. To stop showing debug messages for PoE, use the **no** form of this command.

```
debug switch ilpm [events | errors] [level]
```

```
no debug switch ilpm [events | errors] [level]
```

## Syntax Description

<b>errors</b>	(Optional) Shows troubleshooting information when there is an error.
<b>events</b>	(Optional) Shows PoE events.
<i>level</i>	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

By default, both events and errors are shown if you do not specify a keyword. The default level is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

## Examples

The following example enables debug messages for PoE ports:

```
hostname# debug switch ilpm
```

## Related Commands

Command	Description
<b>interface vlan</b>	Adds a VLAN interface.
<b>debug switch manager</b>	Shows debug messages for VLAN assignment and <b>switchport</b> command-caused events and errors.
<b>show debug</b>	Shows all enabled debuggers.

# debug switch manager

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, show debug messages for VLAN assignment and **switchport** command-caused events and errors using the **debug switch manager** command in privileged EXEC mode. To stop showing debug messages for switch ports, use the **no** form of this command.

```
debug switch manager [events | errors] [level]
```

```
no debug switch manager [events | errors] [level]
```

## Syntax Description

<b>errors</b>	(Optional) Shows troubleshooting information when there is an error.
<b>events</b>	(Optional) Shows the switch manager events.
<i>level</i>	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

By default, both events and errors are shown if you do not specify a keyword. The default level is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

## Examples

The following example enables debug messages for switch ports:

```
hostname# debug switch manager
```

## Related Commands

Command	Description
<b>interface vlan</b>	Adds a VLAN interface.
<b>debug switch ilpm</b>	Shows debug messages for PoE.
<b>show debug</b>	Shows all enabled debuggers.

# debug tacacs

To display TACACS+ debug information, use the **debug tacacs** command in privileged EXEC mode. To disable the display of TACACS+ debug information, use the **no** form of this command.

```
debug tacacs [session | user username]
```

```
no debug tacacs [session | user username]
```

## Syntax Description

<b>session</b>	Displays session-related TACACS+ debug messages.
<b>user</b>	Displays user-specific TACACS+ debug messages. You can display TACACS+ debug messages for only one user at a time.
<i>username</i>	Specifies the user whose TACACS+ debug messages you want to view.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables TACACS+ debug messages. The **show debug** command reveals that TACACS+ debug messages are enabled.

```
hostname# debug tacacs user admin342
hostname# show debug
debug tacacs user admin342
hostname#
```

■ debug tacacs

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show debug</b>	Displays current debug configuration.

---



# debug tcp-map

To show debug messages for TCP application inspection maps, use the **debug tcp-map** command in privileged EXEC mode. To stop showing debug messages for TCP application inspection, use the **no** form of this command.

**debug tcp-map**

**no debug tcp-map**

## Syntax Description

This command has no arguments or keywords.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables debug messages for TCP application inspection maps. The **show debug** command reveals that debug messages for TCP application inspection maps are enabled.

```
hostname# debug tcp-map
debug tcp-map enabled at level 1.
hostname# show debug
debug tcp-map enabled at level 1.
hostname#
```

## Related Commands

Command	Description
show debug	Displays current debug configuration.

# debug timestamps

To add timestamp information to the beginning of all debug messages, use the **debug timestamps** command in privileged EXEC mode. To disable the use of debug timestamps, use the **no** form of this command.

**debug timestamps** [*level*]

**no debug timestamps**

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The defaults are as follows:

- Debug timestamp information is disabled.
- The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables timestamps in debug messages. The **debug parser cache** command enables CLI parser debug messages. The **show debug** command reveals the current debug configuration. The CLI parser debug messages shown include timestamps before each message.

```
hostname# debug timestamps
debug timestamps enabled at level 1
hostname# debug parser cache
debug parser cache enabled at level 1
```

```
hostname# show debug
1982769.770000000: parser cache: try to match 'show debug' in exec mode
1982769.770000000: parser cache: hit at index 8
hostname#
```

**Related Commands**

Command	Description
<b>show debug</b>	Displays current debug configuration.

# debug vpn-sessiondb

To display VPN-session database debug information, use the **debug vpn-sessiondb** command in privileged EXEC mode. To disable the display of VPN-session database debug information, use the **no** form of this command.

**debug vpn-sessiondb** [*level*]

**no debug vpn-sessiondb**

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables VPN-session database debug messages. The **show debug** command reveals that VPN-session database debug messages are enabled.

```
hostname# debug vpn-sessiondb
debug vpn-sessiondb enabled at level 1
hostname# show debug
debug vpn-sessiondb enabled at level 1
hostname#
```

## Related Commands

**■** debug vpn-sessiondb

<b>Command</b>	<b>Description</b>
<b>show debug</b>	Displays current debug configuration.

# debug wccp

To enable logging of WCCP events, use the **debug wccp** command in privileged EXEC mode. To disable the logging of WCCP debug messages, use the **no** form of this command.

```
debug wccp {events | packets | subblocks}
```

```
no debug wccp {events | packets | subblocks}
```

## Syntax Description

<b>events</b>	Enables logging of WCCP session events.
<b>packets</b>	Enables logging of debug messages about WCCP packet information.
<b>subblocks</b>	Enables logging of debug messages about WCCP subblocks.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables the logging of all WCCP session events:

```
hostname# debug wccp events
hostname#
```

The following example enables the logging of WCCP packet debug messages:

```
hostname# debug wccp packets
hostname#
```

The following example disables the logging of WCCP debug messages:

```
hostname# no debug wccp
```

## ■ debug wccp

hostname#

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>wccp</b>	Enables support of WCCP.
<b>show debug</b>	Displays current debug configuration.

---



# debug webvpn

To log WebVPN debug messages, use the **debug webvpn** command in privileged EXEC mode. To disable the logging of WebVPN debug messages, use the **no** form of this command.

```
debug webvpn [chunk | cifs | citrix | failover | html | javascript | request | response | svc |
transformation | url | util | xml] [level]
```

```
no debug webvpn [chunk | cifs | citrix | failover | html | javascript | request | response | svc |
transformation | url | util | xml] [level]
```

## Syntax Description

<b>chunk</b>	Displays debug messages about memory blocks used to support WebVPN connections.
<b>cifs</b>	Displays debug messages about connections between Common Internet File System (CIFS) servers and WebVPN users.
<b>citrix</b>	Displays debug messages about connections between Citrix Metaframe Servers and Citrix ICA clients over WebVPN.
<b>failover</b>	Displays debug messages about equipment failovers affecting WebVPN connections.
<b>html</b>	Displays debug messages about HTML pages sent over WebVPN connections.
<b>javascript</b>	Displays debug messages about JavaScript sent over WebVPN connections.
<b>request</b>	Displays debug messages about requests issued over WebVPN connections.
<b>response</b>	Displays debug messages about responses issued over WebVPN connections.
<b>svc</b>	Displays debug messages about connections to SSL VPN clients over WebVPN.
<b>transformation</b>	Displays debug messages about WebVPN content transformation.
<b>url</b>	Displays debug messages about website requests issued over WebVPN connections.
<b>util</b>	Displays debug messages about CPU utilization dedicated to support connections to WebVPN remote users.
<b>xml</b>	Displays debug messages about JavaScript sent over WebVPN connections.
<i>level</i>	(Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

#### Command History

Release	Modification
7.0(1)	This command was introduced.

#### Usage Guidelines

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

#### Examples

The following example enables WebVPN debug messages, specifically for CIFS. The **show debug** command reveals that CIFS debug messages are enabled.

```
hostname# debug webvpn cifs
INFO: debug webvpn cifs enabled at level 1.
hostname# show debug
debug webvpn cifs enabled at level 1
hostname#
```

#### Related Commands

Command	Description
<b>show debug</b>	Displays current debug configuration.

# debug xdmcp

To show debug messages for XDMCP application inspection, use the **debug xdmcp** command in privileged EXEC mode. To stop showing debug messages for XDMCP application inspection, use the **no** form of this command.

**debug xdmcp** [*level*]

**no debug xdmcp** [*level*]

## Syntax Description

*level* (Optional) Sets the debug message level to display, between 1 and 255. The default is 1. To display additional messages at higher levels, set the level to a higher number.

## Defaults

The default value for *level* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.



### Note

Enabling the **debug xdmcp** command may slow down traffic on busy networks.

## Examples

The following example enables debug messages at the default level (1) for XDMCP application inspection:

```
hostname# debug xdmcp
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect xdmcp</b>	Enables XDMCP application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.







## default through duplex Commands

---

# default

To restore default settings for the **time-range** command **absolute** and **periodic** keywords, use the **default** command in time-range configuration mode.

```
default { absolute | periodic days-of-the-week time to [days-of-the-week] time }
```

## Syntax Description

<b>absolute</b>	Defines an absolute time when a time range is in effect.
<b>days-of-the-week</b>	(Optional) The first occurrence of this argument is the starting day or day of the week that the associated time range is in effect. The second occurrence is the ending day or day of the week the associated statement is in effect.  This argument is any single day or combinations of days: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday. Other possible values are: <ul style="list-style-type: none"> <li>daily—Monday through Sunday</li> <li>weekdays—Monday through Friday</li> <li>weekend—Saturday and Sunday</li> </ul> If the ending days of the week are the same as the starting days of the week, you can omit them.
<b>periodic</b>	Specifies a recurring (weekly) time range for functions that support the time-range feature.
<b>time</b>	Specifies the time in the format HH:MM. For example, 8:00 is 8:00 a.m. and 20:00 is 8:00 p.m.
<b>to</b>	Entry of the <b>to</b> keyword is required to complete the range “from start-time to end-time.”

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Time-range configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If the end days-of-the-week value is the same as the start value, you can omit them.



If a **time-range** command has both **absolute** and **periodic** values specified, then the **periodic** commands are evaluated only after the **absolute start** time is reached, and are not further evaluated after the **absolute end** time is reached.

The time-range feature relies on the system clock of the security appliance; however, the feature works best with NTP synchronization.

---

**Examples**

The following example shows how to restore the default behavior of the **absolute** keyword:

```
hostname(config-time-range)# default absolute
```

---

**Related Commands**

Command	Description
<b>absolute</b>	Defines an absolute time when a time range is in effect.
<b>periodic</b>	Specifies a recurring (weekly) time range for functions that support the time-range feature.
<b>time-range</b>	Defines access control to the security appliance based on time.

## default (crl configure)

To return all CRL parameters to their system default values, use the **default** command in **crl configure** configuration mode. The **crl configure** configuration mode is accessible from the **crypto ca trustpoint** configuration mode. These parameters are used only when the LDAP server requires them.

### default

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Crl configure configuration	•		•		

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Invocations of this command do not become part of the active configuration.

**Examples** The following example enters **ca-crl** configuration mode, and returns CRL command values to their defaults:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# default
hostname(ca-crl)#
```

Related Commands	Command	Description
	<b>crl configure</b>	Enters <b>crl configure</b> configuration mode.
	<b>crypto ca trustpoint</b>	Enters <b>trustpoint</b> configuration mode.
	<b>protocol ldap</b>	Specifies LDAP as a retrieval method for CRLs.

# default (time-range)

To restore default settings for the **absolute** and **periodic** commands, use the **default** command in time-range configuration mode.

```
default { absolute | periodic days-of-the-week time to [days-of-the-week] time }
```

## Syntax Description

<b>absolute</b>	Defines an absolute time when a time range is in effect.
<b>days-of-the-week</b>	The first occurrence of this argument is the starting day or day of the week that the associated time range is in effect. The second occurrence is the ending day or day of the week the associated statement is in effect.  This argument is any single day or combinations of days: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday. Other possible values are: <ul style="list-style-type: none"> <li>daily—Monday through Sunday</li> <li>weekdays—Monday through Friday</li> <li>weekend—Saturday and Sunday</li> </ul> If the ending days of the week are the same as the starting days of the week, you can omit them.
<b>periodic</b>	Specifies a recurring (weekly) time range for functions that support the time-range feature.
<b>time</b>	Specifies the time in the format HH:MM. For example, 8:00 is 8:00 a.m. and 20:00 is 8:00 p.m.
<b>to</b>	Entry of the <b>to</b> keyword is required to complete the range “from start-time to end-time.”

## Defaults

There are no default settings for this command.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Time-range configuration	•	•	•	•	

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If the end days-of-the-week value is the same as the start value, you can omit them.

If a **time-range** command has both **absolute** and **periodic** values specified, then the **periodic** commands are evaluated only after the **absolute start** time is reached, and are not further evaluated after the **absolute end** time is reached.

The time-range feature relies on the system clock of the security appliance; however, the feature works best with NTP synchronization.

---

### Examples

The following example shows how to restore the default behavior of the **absolute** keyword:

```
hostname(config-time-range)# default absolute
```

---

### Related Commands

Command	Description
<b>absolute</b>	Defines an absolute time when a time range is in effect.
<b>periodic</b>	Specifies a recurring (weekly) time range for functions that support the time-range feature.
<b>time-range</b>	Defines access control to the security appliance based on time.

# default enrollment

To return all enrollment parameters to their system default values, use the **default enrollment** command in crypto ca trustpoint configuration mode.

## default enrollment

### Syntax Description

This command has no arguments or keywords.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

Invocations of this command do not become part of the active configuration.

### Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and returns all enrollment parameters to their default values within trustpoint central:

```
hostname<config># crypto ca trustpoint central
hostname<ca-trustpoint># default enrollment
hostname<ca-trustpoint>#
```

### Related Commands

Command	Description
<b>clear configure crypto ca trustpoint</b>	Removes all trustpoints.
<b>crl configure</b>	Enters crl configuration mode.
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.

## default-domain

To set a default domain name for users of the group policy, use the **default-domain** command in group-policy configuration mode. To delete a domain name, use the **no** form of this command.

To delete all default domain names, use the **no default-domain** command without arguments. This deletes all configured default domain names, including a null list created by issuing the **default-domain none** command. To prevent users from inheriting a domain name, use the **default-domain none** command.

The security appliance passes the default domain name to the IPSec client to append to DNS queries that omit the domain field. This domain name applies only to tunneled packets. When there are no default domain names, users inherit the default domain name in the default group policy.

**default-domain** {value *domain-name* | none}

**no default-domain** [*domain-name*]

### Syntax Description

<b>none</b>	Indicates that there is no default domain name. Sets a default domain name with a null value, thereby disallowing a default domain name. Prevents inheriting a default domain name from a default or specified group policy.
<b>value</b> <i>domain-name</i>	Identifies the default domain name for the group.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

You can use only alphanumeric characters, hyphens (-), and periods (.) in default domain names.

### Examples

The following example shows how to set a default domain name of FirstDomain for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# default-domain value FirstDomain
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>split-dns</b>	Provides a list of domains to be resolved through the split tunnel.
split-tunnel-network-list	Identifies the access list the security appliance uses to distinguish networks that require tunneling and those that do not.
<b>split-tunnel-policy</b>	Lets an IPSec client conditionally direct packets over an IPSec tunnel in encrypted form, or to a network interface in cleartext form

# default-group-policy

To specify the set of attributes that the user inherits by default, use the **default-group-policy** command in tunnel-group general-attributes configuration mode. To eliminate a default group policy name, use the **no** form of this command.

**default-group-policy** *group-name*

**no default-group-policy** *group-name*

## Syntax Description

*group-name* Specifies the name of the default group.

## Defaults

The default group name is DfltGrpPolicy.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group general attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	The <b>default-group-policy</b> command in webvpn configuration mode was deprecated. The <b>default-group-policy</b> command in tunnel-group general-attributes mode replaces it.

## Usage Guidelines

In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group general-attributes mode.

The default group policy DfltGrpPolicy comes with the initial configuration of the security appliance. You can apply this attribute to all tunnel-group types.

## Examples

The following example entered in config-general configuration mode, specifies a set of attributes for users to inherit by default for an IPSec LAN-to-LAN tunnel group named “standard-policy”. This set of commands defines the accounting server, the authentication server, the authorization server and the address pools.

```
hostname(config)# tunnel-group standard-policy type ipsec-ra
hostname(config)# tunnel-group standard-policy general-attributes
hostname(config-tunnel-general)# default-group-policy first-policy
hostname(config-tunnel-general)# accounting-server-group aaa-server123
hostname(config-tunnel-general)# address-pool (inside) addrpool11 addrpool12 addrpool13
hostname(config-tunnel-general)# authentication-server-group aaa-server456
hostname(config-tunnel-general)# authorization-server-group aaa-server78
```



```
hostname(config-tunnel-general)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear-configure tunnel-group</b>	Clears all configured tunnel groups.
<b>group-policy</b>	Creates or edits a group policy
<b>show running-config tunnel group</b>	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
<b>tunnel-group general-attributes</b>	Specifies the general attributes for the named tunnel-group.

## default-group-policy (webvpn)

To specify the name of the group policy to use when the WebVPN or e-mail proxy configuration does not specify a group policy, use the **default-group-policy** command. WebVPN, IMAP4S, POP3S, and SMTPS sessions require either a specified or a default group policy. For WebVPN, use this command in webvpn mode. For e-mail proxy, use this command in the applicable e-mail proxy mode. To remove the attribute from the configuration, use the **no** version of this command.

**default-group-policy** *groupname*

**no default-group-policy**

### Syntax Description

groupname	Identifies the previously configured group policy to use as the default group policy. Use the <b>group-policy</b> command in configuration mode to configure a group policy.
-----------	--

### Defaults

A default group policy, named *DfltGrpPolicy*, always exists on the security appliance. This **default-group-policy** command lets you substitute a group policy that you create as the default group policy for WebVPN and e-mail proxy sessions. An alternative is to edit the *DfltGrpPolicy*.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn	•	—	•	—	—
Imap4s	•	—	•	—	—
Pop3s	•	—	•	—	—
Smtps	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was deprecated in webvpn configuration mode and moved to tunnel-group general-attributes configuration mode.

### Usage Guidelines

In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group general-attributes mode.

You can edit, but not delete the system DefaultGroupPolicy. It has the following AVPs:

<b>Attribute</b>	<b>Default Value</b>
wins-server	none
dns-server	none
dhcp-network-scope	none
vpn-access-hours	unrestricted
vpn-simultaneous-logins	3
vpn-idle-timeout	30 minutes
vpn-session-timeout	none
vpn-filter	none
vpn-tunnel-protocol	WebVPN
ip-comp	disable
re-xauth	disable
group-lock	none
pfs	disable
client-access-rules	none
banner	none
password-storage	disabled
ipsec-udp	disabled
ipsec-udp-port	0
backup-servers	keep-client-config
split-tunnel-policy	tunnelall
split-tunnel-network-list	none
default-domain	none
split-dns	none
intercept-dhcp	disable
client-firewall	none
secure-unit-authentication	disabled
user-authentication	disabled
user-authentication-idle-timeout	none
ip-phone-bypass	disabled
leap-bypass	disabled
nem	disabled
webvpn attributes:	
filter	none
functions	disabled
homepage	none
html-content-filter	none
port-forward	disabled
port-forward-name	none
url-list	mpme

---

**Examples**

The following example shows how to specify a default group policy called WebVPN7 for WebVPN:

```
hostname(config)# webvpn  
hostname(config-webvpn)# default-group-policy WebVPN7
```

# default-idle-timeout

To set a default idle timeout value for WebVPN users, use the **default-idle-timeout** command in webvpn mode. To remove the default idle timeout value from the configuration and reset the default, use the **no** form of this command.

The default idle timeout prevents stale sessions.

**default-idle-timeout** *seconds*

**no default-idle-timeout**

## Syntax Description

seconds	Specifies the number of seconds for the idle time out. The minimum is 60 seconds, maximum is 1 day (86400 seconds).
---------	---

## Defaults

1800 seconds (30 minutes).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The security appliance uses the value you set here if there is no idle timeout defined for a user, if the value is 0, or if the value does not fall into the valid range.

We recommend that you set this command to a short time period. This is because a browser set to disable cookies (or one that prompts for cookies and then denies them) can result in a user not connecting but nevertheless appearing in the sessions database. If the maximum number of connections permitted is set to one (**vpn-simultaneous-logins** command), the user cannot log back in because the database indicates that the maximum number of connections already exists. Setting a low idle timeout removes such phantom sessions quickly, and lets a user log in again.

## Examples

The following example shows how to set the default idle timeout to 1200 seconds (20 minutes):

```
hostname(config)# webvpn
hostname(config-webvpn)# default-idle-timeout 1200
```

**Related Commands**

<b>Command</b>	<b>Description</b>
vpn-simultaneous-logins	Sets the maximum number of simultaneous VPN sessions permitted. Use in group-policy or username mode.

## default-information originate (OSPF)

To generate a default external route into an OSPF routing domain, use the **default-information originate** command in router configuration mode. To disable this feature, use the **no** form of this command.

**default-information originate** [**always**] [**metric value**] [**metric-type {1 | 2}**] [**route-map name**]

**no default-information originate** [[**always**] [**metric value**] [**metric-type {1 | 2}**] [**route-map name**]]

### Syntax Description

<b>always</b>	(Optional) Always advertises the default route regardless of whether the software has a default route.
<b>metric value</b>	(Optional) Specifies the OSPF default metric value from 0 to 16777214.
<b>metric-type {1   2}</b>	(Optional) External link type associated with the default route advertised into the OSPF routing domain. Valid values are as follows: <ul style="list-style-type: none"> <li><b>1</b>—Type 1 external route.</li> <li><b>2</b>—Type 2 external route.</li> </ul>
<b>route-map name</b>	(Optional) Name of the route map to apply.

### Defaults

The default values are as follows:

- metric value** is 1.
- metric-type** is 2.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

Using the **no** form of this command with optional keywords and arguments only removes the optional information from the command. For example, entering **no default-information originate metric 3** removes the **metric 3** option from the command in the running configuration. To remove the complete command from the running configuration, use the **no** form of the command without any options: **no default-information originate**.

---

**Examples**

The following example shows how to use the **default-information originate** command with an optional metric and metric type:

```
hostname(config-router)# default-information originate always metric 3 metric-type 2  
hostname(config-router)#
```

---

**Related Commands**

Command	Description
<b>router ospf</b>	Enters router configuration mode.
<b>show running-config router</b>	Displays the commands in the global router configuration.



# default-information originate (RIP)

To generate a default route into an RIP, use the **default-information originate** command in router configuration mode. To disable this feature, use the **no** form of this command.

**default-information originate** [**route-map** *name*]

**no default-information originate** [**route-map** *name*]

## Syntax Description

**route-map** *name* (Optional) Name of the route map to apply. The routing process generates the default route if the route map is satisfied.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was Introduced.

## Usage Guidelines

The route map referenced in the **default-information originate** command cannot use an extended access list; it can use a standard access list.

## Examples

The following example shows how generate a default route into RIP:

```
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# default-information originate
```

## Related Commands

Command	Description
<b>router rip</b>	Enters router configuration mode for the RIP routing process.
<b>show running-config router</b>	Displays the commands in the global router configuration.

# delete

To delete a file in the disk partition, use the **delete** command in privileged EXEC mode.

```
delete [/noconfirm] [/recursive] [flash:]filename
```

Syntax Description		
<b>/noconfirm</b>	(Optional)	Specifies not to prompt for confirmation.
<b>/recursive</b>	(Optional)	Deletes the specified file recursively in all subdirectories.
<i>filename</i>		Specifies the name of the file to delete.
<b>flash:</b>		Specifies the nonremovable internal Flash, followed by a colon.

**Defaults** If you do not specify a directory, the directory is the current working directory by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The file is deleted from the current working directory if a path is not specified. Wildcards are supported when deleting files. When deleting files, you are prompted with the filename and you must confirm the deletion.

The following example shows how to delete a file named *test.cfg* in the current working directory:

```
hostname# delete test.cfg
```

Related Commands	Command	Description
	<b>cd</b>	Changes the current working directory to the one specified.
	<b>rmdir</b>	Removes a file or directory.
	<b>show file</b>	Displays the specified file.

## deny-message (group-policy webvpn configuration mode)

To change the message delivered to a remote user who logs into WebVPN successfully, but has no VPN privileges, use the **deny-message value** command in tunnel-group webvpn configuration mode.

The **no deny-message value** command removes the string, so that the remote user does not receive a message.

The **no deny-message none** command removes the attribute from the tunnel group policy configuration. The policy inherits the attribute value.

**deny-message value** *"string"*

**no deny-message value**

**no deny-message none**

### Syntax Description

<i>string</i>	Up to 491 alphanumeric characters, including special characters, spaces, and punctuation.
---------------	---

### Defaults

The default deny message is: "Login was successful, but because certain criteria have not been met or due to some specific group policy, you do not have permission to use any of the VPN features. Contact your IT administrator for more information."

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy webvpn configuration	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command moved from tunnel-group webvpn configuration mode to group-policy webvpn configuration mode.

### Usage Guidelines

Before entering this command, you must enter the **group-policy name** attributes in global configuration mode, then the **webvpn** command. (This assumes you already have created the policy *name*.)

When typing the string in the **deny-message value** command, continue typing even if the command wraps.

The text appears on the remote user's browser upon login, independent of the tunnel policy used for the VPN session.

**Examples**

The first command in the following example creates an internal group policy named group2. The subsequent commands modify the deny message associated with that policy.

```
hostname(config)# group-policy group2 internal
hostname(config)# group-policy group2 attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# deny-message value "Your login credentials are OK. However,
you have not been granted rights to use the VPN features. Contact your administrator for
more information."
hostname(config-group-webvpn)
```

**Related Commands**

Command	Description
<b>clear configure group-policy</b>	Removes all group-policy configuration.
<b>group-policy</b>	Creates a group policy.
<b>group-policy attributes</b>	Enters the group-policy attribute configuration mode.
<b>show running-config group-policy [name]</b>	Displays the running group policy configuration (for the policy named).
<b>webvpn</b> (group-policy or username configuration mode)	Enters group-policy webvpn configuration mode.

# deny version

To deny a specific version of SNMP traffic, use the `deny version` command in SNMP map configuration mode, which is accessible by entering the `snmp-map` command from global configuration mode. To disable this command, use the `no` version of the command.

**deny version** *version*

**deny version** *version*

## Syntax Description

*version* Specifies the version of SNMP traffic that the security appliance drops. The permitted values are **1**, **2**, **2c**, and **3**.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
SNMP map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the **deny version** command to restrict SNMP traffic to specific versions of SNMP. Earlier versions of SNMP were less secure so restricting SNMP traffic to Version 2 may be specified by your security policy. You use the **deny version** command within an SNMP map, which you configure using the **snmp-map** command. After creating the SNMP map, you enable the map using the **inspect snmp** command and then apply it to one or more interfaces using the **service-policy** command.

## Examples

The following example shows how to identify SNMP traffic, define a SNMP map, define a policy, and apply the policy to the outside interface:

```
hostname(config)# access-list snmp-acl permit tcp any any eq 161
hostname(config)# access-list snmp-acl permit tcp any any eq 162
hostname(config)# class-map snmp-port
hostname(config-cmap)# match access-list snmp-acl
hostname(config-cmap)# exit
hostname(config)# snmp-map inbound_snmp
hostname(config-snmpp-map)# deny version 1
hostname(config-snmpp-map)# exit
hostname(config)# policy-map inbound_policy
hostname(config-pmap)# class snmp-port
```

```

hostname(config-pmap-c)# inspect snmp inbound_snmp
hostname(config-pmap-c)# exit
hostname(config-pmap)# exit
hostname(config)# service-policy inbound_policy interface outside

```

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect snmp</b>	Enable SNMP application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>snmp-map</b>	Defines an SNMP map and enables SNMP map configuration mode.
<b>service-policy</b>	Applies a policy map to one or more interfaces.

# description

To add a description for a named configuration unit (for example, for a context or for an object group), use the **description** command in various configuration modes. To remove the description, use the **no** form of this command. The description adds helpful notes in your configuration.

**description** *text*

**no description**

## Syntax Description

<i>text</i>	Sets the description as a text string up to 200 characters in length. If you want to include a question mark (?) in the string, you must type <b>Ctrl-V</b> before typing the question mark so you do not inadvertently invoke CLI help.
-------------	--

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class-map configuration	•	•	•	•	—
Context configuration	•	•	—	—	•
Gtp-map configuration	•	•	•	•	—
Interface configuration	•	•	•	•	•
Object-group configuration	•	•	•	•	—
Policy-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was added to several new configuration modes.

## Examples

The following example adds a description to the “Administration” context configuration:

```
hostname(config)# context administrator
hostname(config-context)# description This is the admin context.
hostname(config-context)# allocate-interface gigabitethernet0/0.1
hostname(config-context)# allocate-interface gigabitethernet0/1.1
hostname(config-context)# config-url flash://admin.cfg
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Identifies traffic to which you apply actions in the <b>policy-map</b> command.
<b>context</b>	Creates a security context in the system configuration and enters context configuration mode.
<b>gtp-map</b>	Controls parameters for the GTP inspection engine.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>object-group</b>	Identifies traffic to include in the <b>access-list</b> command.
<b>policy-map</b>	Identifies actions to apply to traffic identified by the <b>class-map</b> command.



# dhcp client route distance

To configure an administrative distance for routes learned through DHCP, use the **dhcp client route distance** command in interface configuration mode. To restore the default setting, use the **no** form of this command.

**dhcp client route distance** *distance*

**no dhcp client route distance** *distance*

## Syntax Description

*distance* The administrative distance to apply to routes learned through DHCP. Valid values are from 1 to 255.

## Defaults

Routes learned through DHCP are given an administrative distance of 1 by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **dhcp client route distance** command is checked only when a route is learned from DHCP. If the **dhcp client route distance** command is entered after a route is learned from DHCP, the administrative distance specified does not affect the existing learned route. Only routes learned after the command was entered have the specified administrative distance.

You must specify the **setroute** option on the **ip address dhcp** command to obtain routes through DHCP.

If DHCP is configured on multiple interfaces, you must use the **dhcp client route distance** command on each of the interfaces to indicate the priority of the installed routes.

## Examples

The following example obtains the default route through DHCP on GigabitEthernet0/2. The route is tracked by tracking entry object 1. The SLA operation monitors the availability of the 10.1.1.1 gateway off of the outside interface. If the SLA operation fails, then the backup route obtained through DHCP on GigabitEthernet0/3 is used. The backup route is assigned an administrative distance of 254.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
```

```

hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
hostname(config)# interface GigabitEthernet0/2
hostname(config-if)# dhcp client route track 1
hostname(config-if)# ip address dhcp setroute
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# dhcp client route track 1
hostname(config-if)# dhcp client route distance 254
hostname(config-if)# ip address dhcp setroute

```

**Related Commands**

Command	Description
<b>dhcp client route track</b>	Associates routes learned through DHCP with a tracking entry object.
<b>ip address dhcp</b>	Configures the specified interface with an IP address obtained through DHCP.
<b>sla monitor</b>	Defines an SLA monitoring operation.
<b>track rtr</b>	Creates a tracking entry to poll the SLA.

# dhcp client route track

To configure the DHCP client to associate added routes with a specified tracked object number, use the **dhcp client route track** command in interface configuration mode. To disable DHCP client route tracking, use the **no** form of this command.

**dhcp client route track** *number*

**no dhcp client route track**

## Syntax Description

*number* The tracking entry object ID. Valid values are from 1 to 500.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **dhcp client route track** command is checked only when a route is learned from DHCP. If the **dhcp client route track** command is entered after a route is learned from DHCP, the existing learned routes are not associated with a tracking object. Only routes learned after the command was entered are associated with the specified tracking object.

You must specify the **setroute** option on the **ip address dhcp** command to obtain routes through DHCP.

If DHCP is configured on multiple interfaces, you must use the **dhcp client route distance** command on each of the interfaces to indicate the priority of the installed routes.

## Examples

The following example obtains the default route through DHCP on GigabitEthernet0/2. The route is tracked by tracking entry object 1. The SLA operation monitors the availability of the 10.1.1.1 gateway off of the outside interface. If the SLA operation fails, then the backup route obtained through DHCP on GigabitEthernet0/3 is used. The backup route is assigned an administrative distance of 254.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
```

```

hostname(config)# track 1 rtr 123 reachability
hostname(config)# interface GigabitEthernet0/2
hostname(config-if)# dhcp client route track 1
hostname(config-if)# ip address dhcp setroute
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# dhcp client route track 1
hostname(config-if)# dhcp client route distance 254
hostname(config-if)# ip address dhcp setroute

```

**Related Commands**

Command	Description
<b>dhcp client route distance</b>	Assigns an administrative distance to routes learned through DHCP.
<b>ip address dhcp</b>	Configures the specified interface with an IP address obtained through DHCP.
<b>sla monitor</b>	Defines an SLA monitoring operation.
<b>track rtr</b>	Creates a tracking entry to poll the SLA.

# dhcp-client update dns

To configure the update parameters that the DHCP client passes to the DHCP server, use the **dhcp-client update dns** command in global configuration mode. To remove the parameters that the DHCP client passes to the DHCP server, use the **no** form of this command.

```
dhcp-client update dns [server {both | none}]
```

```
no dhcp-client update dns [server {both | none}]
```

## Syntax Description

<b>both</b>	The client requests that the DHCP server update both the DNS A and PTR resource records.
<b>none</b>	The client requests that the DHCP server perform no DDNS updates.
<b>server</b>	Specifies the DHCP server to receive the client requests.

## Defaults

By default, the security appliance requests that the DHCP server perform PTR RR updates only. The client does not send the FQDN option to the server.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command can also be entered in interface configuration mode, but it is not hyphenated. See **dhcp client update dns**. When entered in interface mode, the **dhcp client update dns** command overrides settings configured by this command in global configuration mode.

## Examples

The following example configures the client to request that the DHCP server update neither the A and the PTR RRs:

```
hostname(config)# dhcp-client update dns server none
```

The following example configures the client to request that the server update both the A and PTR RRs:

```
hostname(config)# dhcp-client update dns server both
```

## Related Commands

Command	Description
<b>ddns (DDNS-update-method mode)</b>	Specifies a DDNS update method type for a created DDNS method.
<b>ddns update (interface config mode)</b>	Associates a dynamic DNS (DDNS) update method with a security appliance interface or a DDNS update hostname.
<b>ddns update method (global config mode)</b>	Creates a method for dynamically updating DNS resource records.
<b>dhcp client update dns</b>	
<b>dhcpd update dns</b>	Enables a DHCP server to perform DDNS updates.
<b>interval maximum</b>	Configures the maximum interval between update attempts by a DDNS update method.

# dhcpd address

To define the IP address pool used by the DHCP server, use the **dhcpd address** command in global configuration mode. To remove an existing DHCP address pool, use the **no** form of this command.

```
dhcpd address IP_address1[-IP_address2] interface_name
```

```
no dhcpd address interface_name
```

## Syntax Description

<i>interface_name</i>	Interface the address pool is assigned to.
<i>IP_address1</i>	Start address of the DHCP address pool.
<i>IP_address2</i>	End address of the DHCP address pool.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **dhcpd address ip1[-ip2] interface\_name** command specifies the DHCP server address pool. The address pool of a security appliance DHCP server must be within the same subnet of the security appliance interface on which it is enabled, and you must specify the associated security appliance interface using *interface\_name*.

The size of the address pool is limited to 256 addresses per pool on the security appliance. If the address pool range is larger than 253 addresses, the netmask of the security appliance interface cannot be a Class C address (for example, 255.255.255.0) and needs to be something larger, for example, 255.255.254.0.

DHCP clients must be physically connected to the subnet of the security appliance DHCP server interface.

The **dhcpd address** command cannot use interface names with a “-” (dash) character because the “-” character is interpreted as a range specifier instead of as part of the object name.

The **no dhcpd address interface\_name** command removes the DHCP server address pool that you configured for the specified interface.

Refer to the *Cisco Security Appliance Command Line Configuration Guide* for information on how to implement the DHCP server feature into the security appliance.

**Examples**

The following example shows how to use the **dhcpd address**, **dhcpd dns**, and **dhcpd enable interface\_name** commands to configure an address pool and DNS server for the DHCP clients on the **dmz** interface of the security appliance:

```
hostname(config)# dhcpd address 10.0.1.100-10.0.1.108 dmz
hostname(config)# dhcpd dns 209.165.200.226
hostname(config)# dhcpd enable dmz
```

The following example shows how to configure a DHCP server on the inside interface. It uses the **dhcpd address** command to assign a pool of 10 IP addresses to the DHCP server on that interface.

```
hostname(config)# dhcpd address 10.0.1.101-10.0.1.110 inside
hostname(config)# dhcpd dns 198.162.1.2 198.162.1.3
hostname(config)# dhcpd wins 198.162.1.4
hostname(config)# dhcpd lease 3000
hostname(config)# dhcpd ping_timeout 1000
hostname(config)# dhcpd domain example.com
hostname(config)# dhcpd enable inside
```

**Related Commands**

Command	Description
<b>clear configure dhcpd</b>	Removes all DHCP server settings.
<b>dhcpd enable</b>	Enables the DHCP server on the specified interface.
<b>show dhcpd</b>	Displays DHCP binding, statistic, or state information.
<b>show running-config dhcpd</b>	Displays the current DHCP server configuration.



## dhcpd auto\_config

To enable the security appliance to automatically configure DNS, WINS and domain name values for the DHCP server based on the values obtained from an interface running a DHCP or PPPoE client, or from a vpn server, use the **dhcpd auto\_config** command in global configuration mode. To discontinue the automatic configuration of DHCP parameters, use the **no** form of this command.

```
dhcpd auto_config client_if_name [[vpnclient-wins-override] interface if_name]
```

```
no dhcpd auto_config client_if_name [[vpnclient-wins-override] interface if_name]
```

### Syntax Description

<i>client_if_name</i>	Specifies the interface running the DHCP client that supplies the DNS, WINS, and domain name parameters.
<b>interface</b> <i>if_name</i>	Specifies the interface to which the action will apply.
<b>vpnclient-wins-override</b>	Overrides interface DHCP or PPPoE client WINS parameter with vpnclient parameter.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

If you specify DNS, WINS, or domain name parameters using the CLI commands, then the CLI-configured parameters overwrite the parameters obtained by automatic configuration.

### Examples

The following example shows how to configure DHCP on the inside interface. The **dhcpd auto\_config** command is used to pass DNS, WINS, and domain information obtained from the DHCP client on the outside interface to the DHCP clients on the inside interface.

```
hostname(config)# dhcpd address 10.0.1.101-10.0.1.110 inside
hostname(config)# dhcpd autoconfig outside
hostname(config)# dhcpd enable inside
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure dhcpd</b>	Removes all DHCP server settings.
<b>dhcpd enable</b>	Enables the DHCP server on the specified interface.
<b>show ip address dhcp server</b>	Displays detailed information about the DHCP options provided by a DHCP server to an interface acting as a DHCP client.
<b>show running-config dhcpd</b>	Displays the current DHCP server configuration.

# dhcpd dns

To define the DNS servers for DHCP clients, use the **dhcpd dns** command in global configuration mode. To clear defined servers, use the **no** form of this command.

```
dhcpd dns dnsip1 [dnsip2] [interface if_name]
```

```
no dhcpd dns [dnsip1 [dnsip2]] [interface if_name]
```

## Syntax Description

<i>dnsip1</i>	IP address of the primary DNS server for the DHCP client.
<i>dnsip2</i>	(Optional) IP address of the alternate DNS server for the DHCP client.
<b>interface</b> <i>if_name</i>	Specifies the interface to which values entered to the server apply. If no interface is specified, values are applied to all servers.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **dhcpd dns** command lets you specify the IP address or addresses of the DNS server(s) for the DHCP client. You can specify two DNS servers. The **no dhcpd dns** command lets you remove the DNS IP address(es) from the configuration.

## Examples

The following example shows how to use the **dhcpd address**, **dhcpd dns**, and **dhcpd enable** *interface\_name* commands to configure an address pool and DNS server for the DHCP clients on the **dmz** interface of the security appliance.

```
hostname(config)# dhcpd address 10.0.1.100-10.0.1.108 dmz
hostname(config)# dhcpd dns 192.168.1.2
hostname(config)# dhcpd enable dmz
```

## Related Commands

Command	Description
<b>clear configure dhcpd</b>	Removes all DHCP server settings.
<b>dhcpd address</b>	Specifies the address pool used by the DHCP server on the specified interface.
<b>dhcpd enable</b>	Enables the DHCP server on the specified interface.
<b>dhcpd wins</b>	Defines the WINS servers for DHCP clients.
<b>show running-config dhcpd</b>	Displays the current DHCP server configuration.

# dhcpd domain

To define the DNS domain name for DHCP clients, use the **dhcpd domain** command in global configuration mode. To clear the DNS domain name, use the **no** form of this command.

```
dhcpd domain domain_name [interface if_name]
```

```
no dhcpd domain [domain_name] [interface if_name]
```

## Syntax Description

<i>domain_name</i>	The DNS domain name, for example example.com.
<b>interface</b> <i>if_name</i>	Specifies the interface to which values entered to the server apply. If no interface is specified, values are applied to all servers.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **dhcpd domain** command lets you specify the DNS domain name for the DHCP client. The **no dhcpd domain** command lets you remove the DNS domain server from the configuration.

## Examples

The following example shows how to use the **dhcpd domain** command to configure the domain name supplied to DHCP clients by the DHCP server on the security appliance:

```
hostname(config)# dhcpd address 10.0.1.101-10.0.1.110 inside
hostname(config)# dhcpd dns 198.162.1.2 198.162.1.3
hostname(config)# dhcpd wins 198.162.1.4
hostname(config)# dhcpd lease 3000
hostname(config)# dhcpd ping_timeout 1000
hostname(config)# dhcpd domain example.com
hostname(config)# dhcpd enable inside
```

## Related Commands

Command	Description
<code>clear configure dhcpd</code>	Removes all DHCP server settings.
<code>show running-config dhcpd</code>	Displays the current DHCP server configuration.

# dhcpd enable

To enable the DHCP server, use the **dhcpd enable** command in global configuration mode. To disable the DHCP server, use the **no** form of this command. The DHCP server provides network configuration parameters to DHCP clients. Support for the DHCP server within the security appliance means that the security appliance can use DHCP to configure connected clients.

**dhcpd enable** *interface*

**no dhcpd enable** *interface*

## Syntax Description

*interface* Specifies the interface on which to enable the DHCP server.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **dhcpd enable** *interface* command lets you enable the DHCP daemon to listen for the DHCP client requests on the DHCP-enabled interface. The **no dhcpd enable** command disables the DHCP server feature on the specified interface.



### Note

For multiple context mode, you cannot enable the DHCP server on an interface that is used by more than one context (a shared VLAN).

When the security appliance responds to a DHCP client request, it uses the IP address and subnet mask of the interface where the request was received as the IP address and subnet mask of the default gateway in the response.



### Note

The security appliance DHCP server daemon does not support clients that are not directly connected to a security appliance interface.

Refer to the *Cisco Security Appliance Command Line Configuration Guide* for information on how to implement the DHCP server feature into the security appliance.

**Examples**

The following example shows how to use the **dhcpd enable** command to enable the DHCP server on the inside interface:

```
hostname(config)# dhcpd address 10.0.1.101-10.0.1.110 inside
hostname(config)# dhcpd dns 198.162.1.2 198.162.1.3
hostname(config)# dhcpd wins 198.162.1.4
hostname(config)# dhcpd lease 3000
hostname(config)# dhcpd ping_timeout 1000
hostname(config)# dhcpd domain example.com
hostname(config)# dhcpd enable inside
```

**Related Commands**

Command	Description
<b>debug dhcpd</b>	Displays debug information for the DHCP server.
<b>dhcpd address</b>	Specifies the address pool used by the DHCP server on the specified interface.
<b>show dhcpd</b>	Displays DHCP binding, statistic, or state information.
<b>show running-config dhcpd</b>	Displays the current DHCP server configuration.



# dhcpd lease

To specify the DHCP lease length, use the **dhcpd lease** command in global configuration mode. To restore the default value for the lease, use the **no** form of this command.

```
dhcpd lease lease_length [interface if_name]
```

```
no dhcpd lease [lease_length] [interface if_name]
```

## Syntax Description

<b>interface</b> <i>if_name</i>	Specifies the interface to which values entered to the server apply. If no interface is specified, values are applied to all servers.
<i>lease_length</i>	Length of the IP address lease, in seconds, granted to the DHCP client from the DHCP server; valid values are from 300 to 1048575 seconds.

## Defaults

The default *lease\_length* is 3600 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **dhcpd lease** command lets you specify the length of the lease, in seconds, that is granted to the DHCP client. This lease indicates how long the DHCP client can use the assigned IP address that the DHCP server granted.

The **no dhcpd lease** command lets you remove the lease length that you specified from the configuration and replaces this value with the default value of 3600 seconds.

## Examples

The following example shows how to use the **dhcpd lease** command to specify the length of the lease of DHCP information for DHCP clients:

```
hostname(config)# dhcpd address 10.0.1.101-10.0.1.110 inside
hostname(config)# dhcpd dns 198.162.1.2 198.162.1.3
hostname(config)# dhcpd wins 198.162.1.4
hostname(config)# dhcpd lease 3000
hostname(config)# dhcpd ping_timeout 1000
hostname(config)# dhcpd domain example.com
hostname(config)# dhcpd enable inside
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure dhcpd</b>	Removes all DHCP server settings.
<b>show running-config dhcpd</b>	Displays the current DHCP server configuration.

---

# dhcpd option

To configure DHCP options, use the **dhcpd option** command in global configuration mode. To clear the option, use the **no** form of this command. You can use the **dhcpd option** command to provide TFTP server information to Cisco IP Phones and routers.

```
dhcpd option code {ascii string} | {ip IP_address [IP_address]} | {hex hex_string} [interface if_name]
```

```
no dhcpd option code [interface if_name]
```

## Syntax Description

<b>ascii</b>	Specifies that the option parameter is an ASCII character string.
<i>code</i>	A number representing the DHCP option being set. Valid values are 0 to 255 with several exceptions. See the “Usage Guidelines” section, below, for the list of DHCP option codes that are not supported.
<b>hex</b>	Specifies that the option parameter is a hexadecimal string.
<i>hex_string</i>	Specifies a hexadecimal string with an even number of digits and no spaces. You do not need to use a 0x prefix.
<b>interface</b> <i>if_name</i>	Specifies the interface to which values entered to the server apply. If no interface is specified, values are applied to all servers.
<b>ip</b>	Specifies that the option parameter is an IP address. You can specify a maximum of two IP addresses with the <b>ip</b> keyword.
<i>IP_address</i>	Specifies a dotted-decimal IP address.
<i>string</i>	Specifies an ASCII character string without spaces.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

When a DHCP option request arrives at the security appliance DHCP server, the security appliance places the value or values that are specified by the **dhcpd option** command in the response to the client.

The **dhcpd option 66** and **dhcpd option 150** commands specify TFTP servers that Cisco IP Phones and routers can use to download configuration files. Use the commands as follows:

- **dhcpd option 66** *ascii string*, where *string* is either the IP address or hostname of the TFTP server. Only one TFTP server can be specified for option 66.
- **dhcpd option 150** *ip IP\_address [IP\_address]*, where *IP\_address* is the IP address of the TFTP server. You can specify a maximum of two IP addresses for option 150.

**Note**

The **dhcpd option 66** command only takes an **ascii** parameter, and the **dhcpd option 150** only takes an **ip** parameter.

Use the following guidelines when specifying an IP address for the **dhcpd option 66 | 150** commands:

- If the TFTP server is located on the DHCP server interface, use the local IP address of the TFTP server.
- If the TFTP server is located on a less secure interface than the DHCP server interface, then general outbound rules apply. Create a group of NAT, global, and **access-list** entries for the DHCP clients, and use the actual IP address of the TFTP server.
- If the TFTP server is located on a more secure interface, then general inbound rules apply. Create a group of static and **access-list** statements for the TFTP server and use the global IP address of the TFTP server.

For information about other DHCP options, refer to RFC2132.

**Note**

The security appliance does not verify that the option type and value that you provide match the expected type and value for the option code as defined in RFC 2132. For example, you can enter **dhcpd option 46 ascii hello**, and the security appliance accepts the configuration although option 46 is defined in RFC 2132 as expecting a single-digit, hexadecimal value.

You cannot configure the following DHCP options with the **dhcpd option** command:

Option Code	Description
0	DHCPOPT_PAD
1	HCPOPT_SUBNET_MASK
12	DHCPOPT_HOST_NAME
50	DHCPOPT_REQUESTED_ADDRESS
51	DHCPOPT_LEASE_TIME
52	DHCPOPT_OPTION_OVERLOAD
53	DHCPOPT_MESSAGE_TYPE
54	DHCPOPT_SERVER_IDENTIFIER
58	DHCPOPT_RENEWAL_TIME
59	DHCPOPT_REBINDING_TIME
61	DHCPOPT_CLIENT_IDENTIFIER
67	DHCPOPT_BOOT_FILE_NAME
82	DHCPOPT_RELAY_INFORMATION
255	DHCPOPT_END

---

**Examples**

The following example shows how to specify a TFTP server for DHCP option 66:

```
hostname(config)# dhcpd option 66 ascii MyTftpServer
```

---

**Related Commands**

Command	Description
<b>clear configure dhcpd</b>	Removes all DHCP server settings.
<b>show running-config dhcpd</b>	Displays the current DHCP server configuration.

## dhcpd ping\_timeout

To change the default timeout for DHCP ping, use the **dhcpd ping\_timeout** command in global configuration mode. To return to the default value, use the **no** form of this command. To avoid address conflicts, the DHCP server sends two ICMP ping packets to an address before assigning that address to a DHCP client. This command specifies the ping timeout in milliseconds.

**dhcpd ping\_timeout** *number* [**interface** *if\_name*]

**no dhcpd ping\_timeout** [**interface** *if\_name*]

### Syntax Description

<b>interface</b> <i>if_name</i>	Specifies the interface to which values entered to the server apply. If no interface is specified, values are applied to all servers.
<i>number</i>	The timeout value of the ping, in milliseconds. The minimum value is 10, the maximum is 10000. The default is 50.

### Defaults

The default number of milliseconds for *number* is 50.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

The security appliance waits for both ICMP ping packets to time out before assigning an IP address to a DHCP client. For example, if the default value is used, the security appliance waits for 1500 milliseconds (750 milliseconds for each ICMP ping packet) before assigning an IP address.

A long ping timeout value can adversely affect the performance of the DHCP server.

### Examples

The following example shows how to use the **dhcpd ping\_timeout** command to change the ping timeout value for the DHCP server:

```
hostname(config)# dhcpd address 10.0.1.101-10.0.1.110 inside
hostname(config)# dhcpd dns 198.162.1.2 198.162.1.3
hostname(config)# dhcpd wins 198.162.1.4
hostname(config)# dhcpd lease 3000
hostname(config)# dhcpd ping_timeout 1000
hostname(config)# dhcpd domain example.com
hostname(config)# dhcpd enable inside
```

Related Commands	Command	Description
	clear configure dhcpd	Removes all DHCP server settings.
	show running-config dhcpd	Displays the current DHCP server configuration.

# dhcpd update dns

To enable a DHCP server to perform Dynamic DNS updates, use the **dhcpd update dns** command in global configuration mode. To disable DDNS by a DHCP server, use the **no** form of this command.

```
dhcpd update dns [both] [override] [interface srv_ifc_name]
```

```
no dhcpd update dns [both] [override] [interface srv_ifc_name]
```

## Syntax Description

<b>both</b>	Specifies that the DHCP server updates both A and PTR DNS resource records (RRs).
<b>interface</b>	Specifies the security appliance interface to which the DDNS updates apply.
<b>override</b>	Specifies that the DHCP server overrides DHCP client requests.
<i>srv_ifc_name</i>	Specifies an interface to apply this option to.

## Defaults

By default, the DHCP server performs PTR RR updates only.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Dynamic DNS (DDNS) updates the name to address and address to name mappings maintained by DNS. Updates are performed in conjunction with a DHCP server. The **dhcpd update dns** command enables updates by the server.

Name and address mappings are contained in two types of resource records (RR):

- The A resource record contains domain name to IP address mappings.
- The PTR resource record contains IP address to domain name mappings.

DDNS updates can be used to maintain consistent information between the A and PTR RR types.

Using the **dhcpd update dns** command, the DHCP server can be configured to perform both A and PRT RR updates or PTR RR updates only. It can also be configured to override update requests from the DHCP client.



**Examples**

The following example configures the DDNS server to perform both A and PTR updates while also overriding requests from the DHCP client:

```
hostname(config)# dhcpd update dns both override
```

**Related Commands**

Command	Description
<b>ddns (DDNS-update-method mode)</b>	Specifies a DDNS update method type for a created DDNS method.
<b>ddns update (interface config mode)</b>	Associates a dynamic DNS (DDNS) update method with a security appliance interface or a DDNS update hostname.
<b>ddns update method (global config mode)</b>	Creates a method for dynamically updating DNS resource records.
<b>dhcp-client update dns</b>	Configures the update parameters that the DHCP client passes to the DHCP server.
<b>interval maximum</b>	Configures the maximum interval between update attempts by a DDNS update method.

# dhcpd wins

To define the WINS servers for DHCP clients, use the **dhcpd wins** command in global configuration mode. To remove the WINS servers from the DHCP server, use the **no** form of this command.

```
dhcpd wins server1 [server2] [interface if_name]
```

```
no dhcpd wins [server1 [server2]] [interface if_name]
```

## Syntax Description

<b>interface</b> <i>if_name</i>	Specifies the interface to which values entered to the server apply. If no interface is specified, values are applied to all servers.
<i>server1</i>	Specifies the IP address of the primary Microsoft NetBIOS name server (WINS server).
<i>server2</i>	(Optional) Specifies the IP address of the alternate Microsoft NetBIOS name server (WINS server).

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **dhcpd wins** command lets you specify the addresses of the WINS servers for the DHCP client. The **no dhcpd wins** command removes the WINS server IP addresses from the configuration.

## Examples

The following example shows how to use the **dhcpd wins** command to specify WINS server information that is sent to DHCP clients:

```
hostname(config)# dhcpd address 10.0.1.101-10.0.1.110 inside
hostname(config)# dhcpd dns 198.162.1.2 198.162.1.3
hostname(config)# dhcpd wins 198.162.1.4
hostname(config)# dhcpd lease 3000
hostname(config)# dhcpd ping_timeout 1000
hostname(config)# dhcpd domain example.com
hostname(config)# dhcpd enable inside
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure dhcpd</b>	Removes all DHCP server settings.
<b>dhcpd address</b>	Specifies the address pool used by the DHCP server on the specified interface.
<b>dhcpd dns</b>	Defines the DNS servers for DHCP clients.
<b>show dhcpd</b>	Displays DHCP binding, statistic, or state information.
<b>show running-config dhcpd</b>	Displays the current DHCP server configuration.

# dhcprelay enable

To enable the DHCP relay agent, use the **dhcprelay enable** command in global configuration mode. To disable DHCP relay agent, use the **no** form of this command. The DHCP relay agent allows DHCP requests to be forwarded from a specified security appliance interface to a specified DHCP server.

**dhcprelay enable** *interface\_name*

**no dhcprelay enable** *interface\_name*

## Syntax Description

<i>interface_name</i>	Name of the interface on which the DHCP relay agent accepts client requests.
-----------------------	--

## Defaults

The DHCP relay agent is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

For the security appliance to start the DHCP relay agent with the **dhcprelay enable** *interface\_name* command, you must have a **dhcprelay server** command already in the configuration. Otherwise, the security appliance displays an error message similar to the following:

```
DHCPRA: Warning - There are no DHCP servers configured!
No relaying can be done without a server!
Use the 'dhcprelay server <server_ip> <server_interface>' command
```

You cannot enable DHCP relay under the following conditions:

- You cannot enable DHCP relay and the DHCP relay server on the same interface.
- You cannot enable DHCP relay and a DHCP server (**dhcpcd enable**) on the same interface.
- You cannot enable DHCP relay in a context at the same time as the DHCP server.
- For multiple context mode, you cannot enable DHCP relay on an interface that is used by more than one context (a shared VLAN).

The **no dhcprelay enable** *interface\_name* command removes the DHCP relay agent configuration for the interface that is specified by *interface\_name* only.

**Examples**

The following example shows how to configure the DHCP relay agent for a DHCP server with an IP address of 10.1.1.1 on the outside interface of the security appliance, client requests on the inside interface of the security appliance, and a timeout value up to 90 seconds:

```
hostname(config)# dhcprelay server 10.1.1.1 outside
hostname(config)# dhcprelay timeout 90
hostname(config)# dhcprelay enable inside
hostname(config)# show running-config dhcprelay
dhcprelay server 10.1.1.1 outside
dhcprelay enable inside
dhcprelay timeout 90
```

The following example shows how to disable the DHCP relay agent:

```
hostname(config)# no dhcprelay enable inside
hostname(config)# show running-config dhcprelay
dhcprelay server 10.1.1.1 outside
dhcprelay timeout 90
```

**Related Commands**

Command	Description
<b>clear configure dhcprelay</b>	Removes all DHCP relay agent settings.
<b>debug dhcp relay</b>	Displays debug information for the DHCP relay agent.
<b>dhcprelay server</b>	Specifies the DHCP server that the DHCP relay agent forwards DHCP requests to.
<b>dhcprelay setroute</b>	Defines IP address that the DHCP relay agent uses as the default router address in DHCP replies.
<b>show running-config dhcprelay</b>	Displays the current DHCP relay agent configuration.

# dhcprelay server

To specify the DHCP server that DHCP requests are forwarded to, use the **dhcprelay server** command in global configuration mode. To remove the DHCP server from the DHCP relay configuration, use the **no** form of this command. The DHCP relay agent allows DHCP requests to be forwarded from a specified security appliance interface to a specified DHCP server.

**dhcprelay server** *IP\_address interface\_name*

**no dhcprelay server** *IP\_address [interface\_name]*

## Syntax Description

<i>interface_name</i>	Name of the security appliance interface on which the DHCP server resides.
<i>IP_address</i>	The IP address of the DHCP server to which the DHCP relay agent forwards client DHCP requests.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

You can add up to four DHCP relay servers per interface. You must add at least one **dhcprelay server** command to the security appliance configuration before you can enter the **dhcprelay enable** command. You cannot configure a DHCP client on an interface that has a DHCP relay server configured.

The **dhcprelay server** command opens UDP port 67 on the specified interface and starts the DHCP relay task as soon as the **dhcprelay enable** command is added to the configuration.

When you use the **no dhcprelay server** *IP\_address [interface\_name]* command, the interface stops forwarding DHCP packets to that server.

The **no dhcprelay server** *IP\_address [interface\_name]* command removes the DHCP relay agent configuration for the DHCP server that is specified by *IP\_address [interface\_name]* only.

**Examples**

The following example shows how to configure the DHCP relay agent for a DHCP server with an IP address of 10.1.1.1 on the outside interface of the security appliance, client requests on the inside interface of the security appliance, and a timeout value up to 90 seconds:

```
hostname(config)# dhcprelay server 10.1.1.1 outside
hostname(config)# dhcprelay timeout 90
hostname(config)# dhcprelay enable inside
hostname(config)# show running-config dhcprelay
dhcprelay server 10.1.1.1 outside
dhcprelay enable inside
dhcprelay timeout 90
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure dhcprelay</b>	Removes all DHCP relay agent settings.
<b>dhcprelay enable</b>	Enables the DHCP relay agent on the specified interface.
<b>dhcprelay setroute</b>	Defines IP address that the DHCP relay agent uses as the default router address in DHCP replies.
<b>dhcprelay timeout</b>	Specifies the timeout value for the DHCP relay agent.
<b>show running-config dhcprelay</b>	Displays the current DHCP relay agent configuration.

# dhcprelay setroute

To set the default gateway address in the DHCP reply, use the **dhcprelay setroute** command in global configuration mode. To remove the default router, use the **no** form of this command. This command causes the default IP address of the DHCP reply to be substituted with the address of the specified security appliance interface.

**dhcprelay setroute** *interface*

**no dhcprelay setroute** *interface*

<b>Syntax Description</b>	<i>interface</i>	Configures the DHCP relay agent to change the first default IP address (in the packet sent from the DHCP server) to the address of <i>interface</i> .
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**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **dhcprelay setroute** *interface* command lets you enable the DHCP relay agent to change the first default router address (in the packet sent from the DHCP server) to the address of *interface*. If there is no default router option in the packet, the security appliance adds one containing the address of *interface*. This action allows the client to set its default route to point to the security appliance. When you do not configure the **dhcprelay setroute** *interface* command (and there is a default router option in the packet), it passes through the security appliance with the router address unaltered.

**Examples** The following example shows how to use the **dhcprelay setroute** command to set the default gateway in the DHCP reply from the external DHCP server to the inside interface of the security appliance:

```
hostname(config)# dhcprelay server 10.1.1.1 outside
hostname(config)# dhcprelay timeout 90
hostname(config)# dhcprelay setroute inside
hostname(config)# dhcprelay enable inside
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure dhcprelay</b>	Removes all DHCP relay agent settings.
<b>dhcprelay enable</b>	Enables the DHCP relay agent on the specified interface.
<b>dhcprelay server</b>	Specifies the DHCP server that the DHCP relay agent forwards DHCP requests to.
<b>dhcprelay timeout</b>	Specifies the timeout value for the DHCP relay agent.
<b>show running-config dhcprelay</b>	Displays the current DHCP relay agent configuration.

# dhcprelay timeout

To set the DHCP relay agent timeout value, use the **dhcprelay timeout** command in global configuration mode. To restore the timeout value to its default value, use the **no** form of this command.

**dhcprelay timeout** *seconds*

**no dhcprelay timeout**

<b>Syntax Description</b>	<i>seconds</i>	Specifies the number of seconds that are allowed for DHCP relay address negotiation.
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**Defaults** The default value for the dhcprelay timeout is 60 seconds.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **dhcprelay timeout** command lets you set the amount of time, in seconds, allowed for responses from the DHCP server to pass to the DHCP client through the relay binding structure.

**Examples** The following example shows how to configure the DHCP relay agent for a DHCP server with an IP address of 10.1.1.1 on the outside interface of the security appliance, client requests on the inside interface of the security appliance, and a timeout value up to 90 seconds:

```
hostname(config)# dhcprelay server 10.1.1.1 outside
hostname(config)# dhcprelay timeout 90
hostname(config)# dhcprelay enable inside
hostname(config)# show running-config dhcprelay
dhcprelay server 10.1.1.1 outside
dhcprelay enable inside
dhcprelay timeout 90
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure dhcprelay</b>	Removes all DHCP relay agent settings.
<b>dhcprelay enable</b>	Enables the DHCP relay agent on the specified interface.
<b>dhcprelay server</b>	Specifies the DHCP server that the DHCP relay agent forwards DHCP requests to.
<b>dhcprelay setroute</b>	Defines IP address that the DHCP relay agent uses as the default router address in DHCP replies.
<b>show running-config dhcprelay</b>	Displays the current DHCP relay agent configuration.

# dialog

To customize dialog messages displayed to WebVPN users, use the **dialog** command from webvpn customization mode:

**dialog** { **title** | **message** | **border** } **style** *value*

[**no**] **dialog** { **title** | **message** | **border** } **style** *value*

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>title</b>	Specifies you are changing the title.
<b>message</b>	Specifies you are changing the message.
<b>border</b>	Specifies you are changing the border.
<b>style</b>	Specifies you are changing the style.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default title style is background-color:#669999;color:white.

The default message style is background-color:#99CCCC;color:black.

The default border style is border:1px solid black;border-collapse:collapse.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.

- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

The following example customizes the dialog message, changing the foreground color to blue:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# dialog message style color:blue
```

**Related Commands**

Command	Description
<b>application-access</b>	Customizes the Application Access box of the WebVPN Home page.
<b>browse-networks</b>	Customizes the Browse Networks box of the WebVPN Home page.
<b>web-bookmarks</b>	Customizes the Web Bookmarks title or links on the WebVPN Home page.
<b>file-bookmarks</b>	Customizes the File Bookmarks title or links on the WebVPN Home page.

# dir

To display the directory contents, use the **dir** command in privileged EXEC mode.

**dir** [/all] [all-file systems] [/recursive] [flash: | system:] [path]

## Syntax Description

/all	(Optional) Displays all files.
all-file systems	(Optional) Displays the files of all file systems
/recursive	(Optional) Displays the directory contents recursively.
system:	(Optional) Displays the directory contents of the file system.
flash:	(Optional) Displays the directory contents of the default Flash partition.
path	(Optional) Specifies a specific path.

## Defaults

If you do not specify a directory, the directory is the current working directory by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **dir** command without keywords or arguments displays the directory contents of the current directory.

## Examples

The following example shows how to display the directory contents:

```
hostname# dir
Directory of disk0:/

 1   -rw-  1519      10:03:50 Jul 14 2003   my_context.cfg
 2   -rw-  1516      10:04:02 Jul 14 2003   my_context.cfg
 3   -rw-  1516      10:01:34 Jul 14 2003   admin.cfg
60985344 bytes total (60973056 bytes free)
```

This example shows how to display recursively the contents of the entire file system:

```
hostname# dir /recursive disk0:
Directory of disk0:/*
 1   -rw-  1519      10:03:50 Jul 14 2003   my_context.cfg
```

```
2      -rw-  1516      10:04:02 Jul 14 2003  my_context.cfg
3      -rw-  1516      10:01:34 Jul 14 2003  admin.cfg
60985344 bytes total (60973056 bytes free)
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>cd</b>	Changes the current working directory to the one specified.
<b>pwd</b>	Displays the current working directory.
<b>mkdir</b>	Creates a directory.
<b>rmdir</b>	Removes a directory.

# disable

To exit privileged EXEC mode and return to unprivileged EXEC mode, use the **disable** command in privileged EXEC mode.

## disable

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** Use the **enable** command to enter privileged mode. The **disable** command allows you to exit privileged mode and returns you to unprivileged mode.

**Examples** The following example shows how to enter privileged mode:

```
hostname> enable
hostname#
```

The following example shows how to exit privileged mode:

```
hostname# disable
hostname>
```

Related Commands	Command	Description
	<b>enable</b>	Enables privileged EXEC mode.



# disable (cache)

To disable caching for WebVPN, use the **disable** command in cache mode. To reenable caching, use the **no** version of the command

**disable**

**no disable**

## Defaults

Caching is enabled with default settings for each cache attribute.

## Command Modes

The following table shows the modes in which you enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Cache mode	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

Caching stores frequently reused objects in the system cache, which reduces the need to perform repeated rewriting and compressing of content. It reduces traffic between WebVPN and both the remote servers and end-user browsers, with the result that many applications run much more efficiently.

## Examples

The following example shows how to disable caching, and how to then reenable it.

```
hostname(config)# webvpn
hostname(config-webvpn)# cache
hostname(config-webvpn-cache)# disable
hostname(config-webvpn-cache)# no disable
hostname(config-webvpn-cache)#
```

## Related Commands

Command	Description
<b>cache</b>	Enters WebVPN Cache mode.
<b>cache-compressed</b>	Configures WebVPN cache compression.
<b>expiry-time</b>	Configures the expiration time for caching objects without revalidating them.
<b>infactor</b>	Sets a revalidation policy for caching objects that have only the last-modified timestamp.

Command	Description
<b>max-object-size</b>	Defines the maximum size of an object to cache.
<b>min-object-size</b>	Defines the minimum size of an object to cache.

# distance ospf

To define OSPF route administrative distances based on route type, use the **distance ospf** command in router configuration mode. To restore the default values, use the **no** form of this command.

```
distance ospf [intra-area d1] [inter-area d2] [external d3]
```

```
no distance ospf
```

## Syntax Description

<i>d1</i> , <i>d2</i> , and <i>d3</i>	Distance for each route types. Valid values range from 1 to 255.
<b>external</b>	(Optional) Sets the distance for routes from other routing domains that are learned by redistribution.
<b>inter-area</b>	(Optional) Sets the distance for all routes from one area to another area.
<b>intra-area</b>	(Optional) Sets the distance for all routes within an area.

## Defaults

The default values for *d1*, *d2*, and *d3* are 110.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

You must specify at least one keyword and argument. You can enter the commands for each type of administrative distance separately, however they appear as a single command in the configuration. If you reenter an administrative distance, the administrative distance for only that route type changes; the administrative distances for any other route types remain unaffected.

The **no** form of the command does not take any keywords or arguments. Using the **no** form of the command restores the default administrative distance for all of the route types. If you want to restore the default administrative distance for a single route type when you have multiple route types configured, you can do one of the following:

- Manually set that route type to the default value.
- Use the **no** form of the command to remove the entire configuration and then re-enter the configurations for the route types you want to keep.

**Examples**

The following example sets the administrative distance of external routes to 150:

```
hostname(config-router)# distance ospf external 105
hostname(config-router)#
```

The following example shows how entering separate commands for each route type appears as a single command in the router configuration:

```
hostname(config-router)# distance ospf intra-area 105 inter-area 105
hostname(config-router)# distance ospf intra-area 105
hostname(config-router)# distance ospf external 105
hostname(config-router)# exit
hostname(config)# show running-config router ospf 1
!
router ospf 1
  distance ospf intra-area 105 inter-area 105 external 105
!
hostname(config)#
```

The following example shows how to set each administrative distance to 105, and then change only the external administrative distance to 150. The **show running-config router ospf** command shows how only the external route type value changed, while the other route types retained the value previously set.

```
hostname(config-router)# distance ospf external 105 intra-area 105 inter-area 105
hostname(config-router)# distance ospf external 150
hostname(config-router)# exit
hostname(config)# show running-config router ospf 1
!
router ospf 1
  distance ospf intra-area 105 inter-area 105 external 150
!
hostname(config)#
```

**Related Commands**

Command	Description
<b>router ospf</b>	Enters router configuration mode.
<b>show running-config router</b>	Displays the commands in the global router configuration.

# distribute-list in

To filter the networks received in updates, use the **distribute-list in** command in router configuration mode. To remove the filtering, use the **no** form of this command.

```
distribute-list acl in [interface if_name]
```

```
no distribute-list acl in [interface if_name]
```

## Syntax Description

<i>acl</i>	Name of a standard access list.
<i>if_name</i>	(Optional) The interface name as specified by the <b>nameif</b> command. Specifying an interface causes the access list to be applied only to routing updates received on that interface.

## Defaults

Networks are not filtered in incoming updates.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

If no interface is specified, the access list will be applied to all incoming updates.

## Examples

The following example limits filters routing updates on the outside interface. It accepts routes in the 10.0.0.0 network and denies all others.

```
hostname(config)# access-list ripfilter permit 10.0.0.0
hostname(config)# access-list ripfilter deny any
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# distribute-list ripfilter in interface outside
```

## Related Commands

Command	Description
<b>distribute-list out</b>	Filters networks from being advertised in RIP updates.

<b>Command</b>	<b>Description</b>
<b>router rip</b>	Enters router configuration mode.
<b>show running-config router</b>	Displays the commands in the global router configuration.

# distribute-list out

To filter specific networks from being sent in RIP updates, use the **distribute-list out** command in router configuration mode. To remove the filtering, use the **no** form of this command.

```
distribute-list acl out [interface if_name | rip | ospf pid | static | connected]
```

```
no distribute-list acl out [interface if_name]
```

## Syntax Description

<i>acl</i>	Name of a standard access list.
<b>connected</b>	(Optional) Filters only connected routes.
<b>interface</b> <i>if_name</i>	(Optional) The interface name as specified by the <b>nameif</b> command. Specifying an interface causes the access list to be applied only to routing updates sent on the specified interface.
<b>ospf</b> <i>pid</i>	(Optional) Filters only OSPF routes discovered by the specified OSPF process.
<b>rip</b>	(Optional) Filters only RIP routes.
<b>static</b>	(Optional) Filters only static routes

## Defaults

Networks are not filtered in sent updates.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

If no interface is specified, the access list will be applied to all outgoing updates.

## Examples

The following example prevents the 10.0.0.0 network from being advertised in RIP updates sent out of any interface.

```
hostname(config)# access-list ripfilter deny 10.0.0.0
hostname(config)# access-list ripfilter permit any
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# distribute-list ripfilter out
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>distribute-list in</b>	Filters networks received in RIP updates.
<b>router rip</b>	Enters router configuration mode.
<b>show running-config router</b>	Displays the commands in the global router configuration.



# dns domain-lookup

To enable the security appliance to send DNS requests to a DNS server to perform a name lookup for supported commands, use the **dns domain-lookup** command in global configuration mode. To disable DNS lookup, use the **no** form of this command.

```
dns domain-lookup interface_name
```

```
no dns domain-lookup interface_name
```

## Syntax Description

<i>interface_name</i>	Specifies the interface on which you want to enable DNS lookup. If you enter this command multiple times to enable DNS lookup on multiple interfaces, the security appliance tries each interface in order until it receives a response.
-----------------------	--

## Defaults

DNS lookup is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the **dns name-server** command to configure the DNS server addresses to which you want to send DNS requests. See the **dns name-server** command for a list of commands that support DNS lookup.

The security appliance maintains a cache of name resolutions that consists of dynamically learned entries. Instead of making queries to external DNS servers each time an hostname-to-IP-address translation is needed, the security appliance caches information returned from external DNS requests. The security appliance only makes requests for names that are not in the cache. The cache entries time out automatically according to the DNS record expiration, or after 72 hours, whichever comes first.

## Examples

The following example enables DNS lookup on the inside interface:

```
hostname(config)# dns domain-lookup inside
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>dns name-server</b>	Configures a DNS server address.
<b>dns retries</b>	Specifies the number of times to retry the list of DNS servers when the security appliance does not receive a response.
<b>dns timeout</b>	Specifies the amount of time to wait before trying the next DNS server.
<b>domain-name</b>	Sets the default domain name.
<b>show dns-hosts</b>	Shows the DNS cache.

## dns-group (tunnel-group webvpn configuration mode)

To specify the DNS server to use for a WebVPN tunnel-group, use the **dns-group** command in tunnel-group webvpn configuration mode. To restore the default DNS group, use the **no** form of this command.

**dns-group** *name*

**no dns-group**

### Syntax Description

<i>name</i>	Specifies the name of the DNS server group configuration to use for the tunnel group.
-------------	---

### Defaults

The default value is DefaultDNS.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Tunnel-group webvpn-attributes configuration	•	—	•	—	—

### Command History

Release	Modification
7.1(1)	This command was introduced.

### Usage Guidelines

The name can specify any DNS group. The **dns-group** command resolves the hostname to the appropriate DNS server for the tunnel group.

You configure the DNS group using the **dns server-group** command.

### Examples

The following example shows a customization command that specifies the use of the DNS group named “dnsgroup1”:

```
hostname(config)# tunnel-group test type webvpn
hostname(config)# tunnel-group test webvpn-attributes
hostname(config-tunnel-webvpn)# dns-group dnsgroup1
hostname(config-tunnel-webvpn)#
```

### Related Commands

<b>Command</b>	<b>Description</b>
<b>clear configure dns</b>	Removes all DNS commands.
<b>dns server-group</b>	Enters DNS-server-group mode, in which you can configure a DNS server group.
<b>show running-config dns-server group</b>	Shows one or all the existing DNS server-group configurations.
<b>tunnel-group webvpn-attributes</b>	Enters the config-webvpn mode for configuring WebVPN tunnel-group attributes.

# dns-guard

To enable the DNS guard function, which enforces one DNS response per query, use the **dns-guard** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

**dns-guard**

**no dns-guard**

## Syntax Description

This command has no arguments or keywords.

## Defaults

DNS guard is enabled by default. This feature can be enabled when **inspect dns** is configured even if a **policy-map type inspect dns** is not defined. To disable, **no dns-guard** must explicitly be stated in the policy map configuration. If **inspect dns** is not configured, the behavior is determined by the **global dns-guard** command.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The identification field in the DNS header is used to match the DNS response with the DNS header. One response per query is allowed through the security appliance.

## Examples

The following example shows how to enable DNS guard in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# dns-guard
```

## Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.

<b>Command</b>	<b>Description</b>
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

## dns name-server

To identify one or more DNS servers, use the **dns name-server** command in global configuration mode. To remove a server, use the **no** form of this command. The security appliance uses DNS to resolve server names in your WebVPN configuration or certificate configuration (see “Usage Guidelines” for a list of supported commands). Other features that define server names (such as AAA) do not support DNS resolution. You must enter the IP address or manually resolve the name to an IP address by using the **name** command.

```
dns name-server ip_address [ip_address2] [...] [ip_address6]
```

```
no dns name-server ip_address [ip_address2] [...] [ip_address6]
```

### Syntax Description

<i>ip_address</i>	Specifies the DNS server IP address. You can specify up to six addresses as separate commands, or for convenience, up to six addresses in one command separated by spaces. If you enter multiple servers in one command, the security appliance saves each server in a separate command in the configuration. The security appliance tries each DNS server in order until it receives a response.
-------------------	---

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command is deprecated. The <b>name-server</b> command in dns-server-group configuration mode replaces it.

### Usage Guidelines

To enable DNS lookup, configure the **domain-name** command in dns-server-group configuration mode. If you do not enable DNS lookup, the DNS servers are not used.

WebVPN commands that support DNS resolution include the following:

- **server (pop3s)**
- **server (imap4s)**
- **server (smtps)**
- **port-forward**

- **url-list**

Certificate commands that support DNS resolution include the following:

- **enrollment url**
- url

You can manually enter names and IP addresses using the **name** command.

See the **retries** command to set how many times the security appliance tries the list of DNS servers.

---

## Examples

The following example adds three DNS servers:

```
hostname(config)# dns name-server 10.1.1.1 10.2.3.4 192.168.5.5
```

The security appliance saves the configuration as separate commands, as follows:

```
dns name-server 10.1.1.1
dns name-server 10.2.3.4
dns name-server 192.168.5.5
```

To add two additional servers, you can enter them as one command:

```
hostname(config)# dns name-server 10.5.1.1 10.8.3.8
hostname(config)# show running-config dns
dns name-server 10.1.1.1
dns name-server 10.2.3.4
dns name-server 192.168.5.5
dns name-server 10.5.1.1
dns name-server 10.8.3.8
...
```

Or you can enter them as two commands:

```
hostname(config)# dns name-server 10.5.1.1
hostname(config)# dns name-server 10.8.3.8
```

To delete multiple servers you can enter them as multiple commands or as one command, as follows:

```
hostname(config)# no dns name-server 10.5.1.1 10.8.3.8
```

---

## Related Commands

Command	Description
<b>domain-name</b> (dns-server-group configuration mode)	Enables the security appliance to perform a name lookup.
<b>name-server</b> (dns-server-group configuration mode)	Replaces the dns name-server command. Identifies one or more DNS name servers.
<b>retries</b> (dns-server-group configuration mode)	Specifies the number of times to retry the list of DNS servers when the security appliance does not receive a response.
<b>timeout</b> (dns-server-group configuration mode)	Specifies the amount of time to wait before trying the next DNS server.



# dns retries

To specify the number of times to retry the list of DNS servers when the security appliance does not receive a response, use the **dns retries** command in global configuration mode. To restore the default setting, use the **no** form of this command.

**dns retries** *number*

**no dns retries** [*number*]

## Syntax Description

*number* Specifies the number of retries between 0 and 10. The default is 2.

## Defaults

The default number of retries is 2.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was deprecated for WebVPN connections.

## Usage Guidelines

Add DNS servers using the **dns name-server** command.

## Examples

The following example sets the number of retries to 0. The security appliance only tries each server one time.

```
hostname(config)# dns retries 0
hostname(config)#
```

## Related Commands

Command	Description
<b>dns domain-lookup</b>	Enables the security appliance to perform a name lookup.
<b>dns name-server</b>	Configures a DNS server address.
<b>dns timeout</b>	Specifies the amount of time to wait before trying the next DNS server.

<b>Command</b>	<b>Description</b>
<b>domain-name</b>	Sets the default domain name.
<b>show dns-hosts</b>	Shows the DNS cache.

# dns-server

To set the IP address of the primary and secondary DNS servers, use the **dns-server** command in group-policy mode. To remove the attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a DNS server from another group policy. To prevent inheriting a server, use the **dns-server none** command.

```
dns-server {value ip_address [ip_address] | none}
```

```
no dns-server
```

## Syntax Description

<b>none</b>	Sets dns-servers to a null value, thereby allowing no DNS servers. Prevents inheriting a value from a default or specified group policy.
value <i>ip_address</i>	Specifies the IP address of the primary and secondary DNS servers.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Every time you issue the **dns-server** command you overwrite the existing setting. For example, if you configure DNS server x.x.x.x and then configure DNS server y.y.y.y, the second command overwrites the first, and y.y.y.y becomes the sole DNS server. The same holds true for multiple servers. To add a DNS server rather than overwrite previously configured servers, include the IP addresses of all DNS servers when you enter this command.

## Examples

The following example shows how to configure DNS servers with the IP addresses 10.10.10.15, 10.10.10.30, and 10.10.10.45 for the group policy named FirstGroup.

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# dns-server value 10.10.10.15 10.10.10.30 10.10.10.45
```

## dns server-group

To enter the dns server-group mode, in which you can specify the domain-name, name-server, number of retries, and timeout values for a DNS server to use for a tunnel-group, use the **dns server-group** command in global configuration mode. To remove a particular DNS server group, use the **no** form of this command.

**dns server -group** *name*

**no dns server-group**

### Syntax Description

<i>name</i>	Specifies the name of the DNS server group configuration to use for the tunnel group.
-------------	---

### Defaults

The default value is DefaultDNS.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

The name can specify any DNS group. You configure the DNS group using the **dns server-group** command.

### Examples

The following example configures a DNS server group named “eval”:

```
hostname(config)# dns server-group eval
hostname(config-dns-server-group)# domain-name cisco.com
hostname(config-dns-server-group)# name-server 192.168.10.10
hostname(config-dns-server-group)# retries 5
hostname(config-dns-server-group)# timeout 7
hostname(config-dns-server-group)#
```

### Related Commands

Command	Description
<code>clear configure dns</code>	Removes all DNS commands.
<code>show running-config dns server-group</code>	Shows the current running DNS server-group configuration.

# dns timeout

To specify the amount of time to wait before trying the next DNS server, use the **dns timeout** command in global configuration mode. To restore the default timeout, use the **no** form of this command.

**dns timeout** *seconds*

**no dns timeout** [*seconds*]

## Syntax Description

*seconds* Specifies the timeout in seconds between 1 and 30. The default is 2 seconds. Each time the security appliance retries the list of servers, this timeout doubles. See the **dns retries** command to configure the number of retries.

## Defaults

The default timeout is 2 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example sets the timeout to 1 second:

```
hostname(config)# dns timeout 1
```

## Related Commands

Command	Description
<b>dns name-server</b>	Configures a DNS server address.
<b>dns retries</b>	Specifies the number of times to retry the list of DNS servers when the security appliance does not receive a response.
<b>dns domain-lookup</b>	Enables the security appliance to perform a name lookup.
<b>domain-name</b>	Sets the default domain name.
<b>show dns-hosts</b>	Shows the DNS cache.

# domain-name

To set the default domain name, use the **domain-name** command in global configuration mode. To remove the domain name, use the **no** form of this command. The security appliance appends the domain name as a suffix to unqualified names. For example, if you set the domain name to “example.com,” and specify a syslog server by the unqualified name of “jupiter,” then the security appliance qualifies the name to “jupiter.example.com.”

**domain-name** *name*

**no domain-name** [*name*]

## Syntax Description

*name* Sets the domain name, up to 63 characters.

## Defaults

The default domain name is default.domain.invalid.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

For multiple context mode, you can set the domain name for each context, as well as within the system execution space.

## Examples

The following example sets the domain as example.com:

```
hostname(config)# domain-name example.com
```

## Related Commands

Command	Description
<b>dns domain-lookup</b>	Enables the security appliance to perform a name lookup.
<b>dns name-server</b>	Configures a DNS server address.

<b>Command</b>	<b>Description</b>
<b>hostname</b>	Sets the security appliance hostname.
<b>show running-config domain-name</b>	Shows the domain name configuration.



# downgrade

To downgrade to a previous version of the operating system software (software image), use the **downgrade** command in privileged EXEC mode.



## Caution

Do not load a previous version of software if your PIX security appliance is currently running PIX Version 7.0 or later. Loading a software image from monitor mode, on a PIX security appliance that has a PIX Version 7.0 file system, results in unpredictable behavior and is not supported. We strongly recommend that you use the **downgrade** command from a running PIX Version 7.0 image that facilitates the downgrade process.

```
downgrade image_url [activation-key [flash | 4-part_key | file]] [config start_config_url]
```

## Syntax Description

<i>4-part_key</i>	(Optional) Specifies the four-part activation key to write to the image.  If you are using a five-part key, a warning with the list of features that might be lost by going back to the four-part key is generated.  If the system Flash has been reformatted or erased, no default key is available for the downgrade. In that case, the CLI prompts you to enter an activation key at the command line. This is the default behavior if the <b>activation-key</b> keyword is not specified at the command line.
<b>activation-key</b>	(Optional) Specifies the activation key to use with the downgraded software image.
<b>config</b>	(Optional) Specifies the startup configuration file.
<i>file</i>	(Optional) Specifies the path/URL and name of the activation key file to use after the downgrade procedure completes. If the source image file is the one saved in Flash during the upgrade process, the activation key in this file is used with the downgrade.
<b>flash</b>	(Optional) Specifies to look in Flash memory for the four-part activation key that was used on the device prior to using a five-part activation key. This is the default behavior if the <b>activation-key</b> keyword is not specified at the command line.
<i>image_url</i>	Specifies the path/URL and name of the software image to downgrade to. The software image must be a version prior to 7.0(1).
<i>start_config_url</i>	(Optional) Specifies the path/URL and name of the configuration file to use after the downgrade procedure completes.

## Defaults

If the **activation-key** keyword is not specified, the security appliance tries to use the last four-part activation key used. If the security appliance cannot find a four-part activation key in Flash, the command is rejected and an error message displays. In this case, a valid four-part activation-key must be specified at the command line next time. The default activation key or the user specified activation key is compared with the activation key currently in effect. If there is a potential loss of features by using the chosen activation key, a warning displays with the list of features that could be lost after downgrade.

The security appliance uses `downgrade.cfg` by default if the startup configuration file is not specified.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•		

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

This command is available only on Cisco PIX Firewall series security appliances running software Release 7.0(1) and later. This command is not supported on Cisco ASA 5500 series security appliances.

**Caution**

A power failure during the downgrade process might corrupt the Flash memory. As a precaution, backup all data on the Flash memory to an external device prior to starting the downgrade process.

Recovering corrupt Flash memory requires direct console access. See the **format** command for more information.

**Examples**

The following example downgrades the software to Release 6.3.3:

```
hostname# downgrade tftp://17.13.2.25//tftpboot/mananthr/cdisk.6.3.3 activation-key
32c261f3 062afe24 c94ef2ea 0e299a3f
This command will reformat the flash and automatically reboot the system.
Do you wish to continue? [confirm]
Buffering image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!

Buffering startup config

All items have been buffered successfully.
If the flash reformat is interrupted or fails, data in flash will be lost
and the system might drop to monitor mode.
Do you wish to continue? [confirm]
Installing the correct file system for the image and saving the buffered data
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Flash downgrade succeeded
```

Rebooting....

Enter zero actkey:

The following example shows what happens if you enter an invalid activation key:

```
hostname# downgrade tftp://17.13.2.25//tftpboot/mananthr/cdisk.6.3.3 activation-key
0 0 0 0
This command will reformat the flash and automatically reboot the system.
Do you wish to continue? [confirm]
Buffering image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!
Error: activation key entered is invalid.

Enter the file option when there is no actkey in the source image (happens if the source
is in tftp server).
```

The following example shows what happens if you specify the activation key in the source image and it does not exist:

```
hostname# downgrade tftp://17.13.2.25//tftpboot/mananthr/cdisk.6.3.3 activation-key file
This command will reformat the flash and automatically reboot the system.
Do you wish to continue? [confirm]
Buffering image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!
Activation key does not exist in the source image.
Please use the activation-key option to specify an activation key.
```

The following example shows how to abort the downgrade procedure at the final prompt:

```
hostname# downgrade tftp://17.13.2.25//tftpboot/mananthr/cdisk.6.3.3
This command will reformat the flash and automatically reboot the system.
Do you wish to continue? [confirm]
Buffering image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!

Buffering startup config

All items have been buffered successfully.
If the flash reformat is interrupted or fails, data in flash will be lost
and the system might drop to monitor mode.
Do you wish to continue? [confirm] ==<typed n here>
Downgrade process terminated.
```

To downgrade, the software version must be less than 7.0. The following example shows a failed attempt at downgrading the software:

```
hostname# downgrade tftp://17.13.2.25//scratch/views/test/target/sw/cdisk
This command will reformat the flash and automatically reboot the system.
Do you wish to continue? [confirm]
Buffering image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Error: Need to use an image with version less than 7-0-0-0.
```

The following example shows what happens if you specify an image and do not verify the activation key:

```
hostname# downgrade tftp://17.13.2.25//tftpboot/mananthr/cdisk.4.4.1-rel
This command will reformat the flash and automatically reboot the system.
Do you wish to continue? [confirm]
Buffering image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Image checksum has not been verified
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Warning: Activation key not verified.
Key 32c261f3 633fe24 c94ef2ea e299a3f might be incompatible with the image version
4-4-1-0.
Do you wish to continue? [confirm]
Downgrade process terminated.
Please enter an activation-key in the command line.
```

The following example shows what happens if the four-part activation key does not have all the features that the current five-part activation key has:

```
hostname# downgrade tftp://17.13.2.25//tftpboot/mananthr/cdisk.6.3.3
This command will reformat the flash and automatically reboot the system.
Do you wish to continue? [confirm]
Buffering image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!
The following features available in current activation key in flash
are NOT available in 4 tuple activation key in flash:
VPN-3DES-AES
GTP/GPRS
5 Security Contexts
Failover is different:
current activation key in flash: UR(estricted)
4 tuple activation key in flash: R(estricted)
Some features might not work in the downgraded image if this key is used.
Do you wish to continue? [confirm]
Downgrade process terminated.
Please enter an activation-key in the command line.
```

Related Commands

Command	Description
<b>copy running-config startup-config</b>	Saves the current running configuration to Flash memory.

# drop

When using the Modular Policy Framework, drop packets that match a **match** command or class map by using the **drop** command in match or class configuration mode. This drop action is available in an inspection policy map (the **policy-map type inspect** command) for application traffic; however, not all applications allow this action. To disable this action, use the **no** form of this command.

**drop** [**send-protocol-error**] [**log**]

**no drop** [**send-protocol-error**] [**log**]

## Syntax Description

<b>send-protocol-error</b>	Sends a protocol error message.
<b>log</b>	Logs the match. The system log message number depends on the application.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Match and class configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

An inspection policy map consists of one or more **match** and **class** commands. The exact commands available for an inspection policy map depends on the application. After you enter the **match** or **class** command to identify application traffic (the **class** command refers to an existing **class-map type inspect** command that in turn includes **match** commands), you can enter the **drop** command to drop all packets that match the **match** command or **class** command.

If you drop a packet, then no further actions are performed in the inspection policy map. For example, if the first action is to drop the packet, then it will never match any further **match** or **class** commands. If the first action is to log the packet, then a second action, such as dropping the packet, can occur. You can configure both the **drop** and the **log** action for the same **match** or **class** command, in which case the packet is logged before it is dropped for a given match.

When you enable application inspection using the **inspect** command in a Layer 3/4 policy map (the **policy-map** command), you can enable the inspection policy map that contains this action, for example, enter the **inspect http http\_policy\_map** command where **http\_policy\_map** is the name of the inspection policy map.

**Examples**

The following example drops packets and sends a log when they match the http-traffic class map. If the same packet also matches the second **match** command, it will not be processed because it was already dropped.

```
hostname(config-cmap)# policy-map type inspect http http-map1
hostname(config-pmap)# class http-traffic
hostname(config-pmap-c)# drop log
hostname(config-pmap-c)# match req-resp content-type mismatch
hostname(config-pmap-c)# reset log
```

**Related Commands**

Commands	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>policy-map type inspect</b>	Defines special actions for application inspection.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# drop-connection

When using the Modular Policy Framework, drop packets and close the connection for traffic that matches a **match** command or class map by using the **drop-connection** command in match or class configuration mode. The connection will be removed from the connection database on the security appliance. Any subsequent packets entering the security appliance for the dropped connection will be discarded. This drop-connection action is available in an inspection policy map (the **policy-map type inspect** command) for application traffic; however, not all applications allow this action. To disable this action, use the **no** form of this command.

**drop-connection** [send-protocol-error] [log]

**no drop-connection** [send-protocol-error] [log]

## Syntax Description

<b>send-protocol-error</b>	Sends a protocol error message.
<b>log</b>	Logs the match. The system log message number depends on the application.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Match and class configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

An inspection policy map consists of one or more **match** and **class** commands. The exact commands available for an inspection policy map depends on the application. After you enter the **match** or **class** command to identify application traffic (the **class** command refers to an existing **class-map type inspect** command that in turn includes **match** commands), you can enter the **drop-connection** command to drop packets and close the connection for traffic that matches the **match** command or **class** command.

If you drop a packet or close a connection, then no further actions are performed in the inspection policy map. For example, if the first action is to drop the packet and close the connection, then it will never match any further **match** or **class** commands. If the first action is to log the packet, then a second action, such as dropping the packet, can occur. You can configure both the **drop-connection** and the **log** action for the same **match** or **class** command, in which case the packet is logged before it is dropped for a given match.

When you enable application inspection using the **inspect** command in a Layer 3/4 policy map (the **policy-map** command), you can enable the inspection policy map that contains this action, for example, enter the **inspect http http\_policy\_map** command where `http_policy_map` is the name of the inspection policy map.

### Examples

The following example drops packets, closes the connection, and sends a log when they match the `http-traffic` class map. If the same packet also matches the second **match** command, it will not be processed because it was already dropped.

```
hostname(config-cmap)# policy-map type inspect http http-map1
hostname(config-pmap)# class http-traffic
hostname(config-pmap-c)# drop-connection log
hostname(config-pmap-c)# match req-resp content-type mismatch
hostname(config-pmap-c)# reset log
```

### Related Commands

Commands	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>policy-map type inspect</b>	Defines special actions for application inspection.
<b>show running-config policy-map</b>	Display all current policy map configurations.



# duplex

To set the duplex of a copper (RJ-45) Ethernet interface, use the **duplex** command in interface configuration mode. To restore the duplex setting to the default, use the **no** form of this command.

```
duplex { auto | full | half }
```

```
no duplex
```

## Syntax Description

<b>auto</b>	Auto-detects the duplex mode.
<b>full</b>	Sets the duplex mode to full duplex.
<b>half</b>	Sets the duplex mode to half duplex.

## Defaults

The default is auto detect.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was moved from a keyword of the <b>interface</b> command to an interface configuration mode command.

## Usage Guidelines

Set the duplex mode on the physical interface only.

The **duplex** command is not available for fiber media.

If your network does not support auto detection, set the duplex mode to a specific value.

For RJ-45 interfaces on the ASA 5500 series adaptive security appliance, the default auto-negotiation setting also includes the Auto-MDI/MDIX feature. Auto-MDI/MDIX eliminates the need for crossover cabling by performing an internal crossover when a straight cable is detected during the auto-negotiation phase. Either the speed or duplex must be set to auto-negotiate to enable Auto-MDI/MDIX for the interface. If you explicitly set both the speed and duplex to a fixed value, thus disabling auto-negotiation for both settings, then Auto-MDI/MDIX is also disabled.

If you set the duplex to anything other than **auto** on PoE ports, if available, then Cisco IP phones and Cisco wireless access points that do not support IEEE 802.3af will not be detected and supplied with power.

**Examples**

The following example sets the duplex mode to full duplex:

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# speed 1000
hostname(config-if)# duplex full
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown
```

**Related Commands**

Command	Description
<b>clear configure interface</b>	Clears all configuration for an interface.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.
<b>show running-config interface</b>	Shows the interface configuration.
<b>speed</b>	Sets the interface speed.







## email through functions Commands

---

# email

To include the indicated email address in the Subject Alternative Name extension of the certificate during enrollment, use the **email** command in crypto ca trustpoint configuration mode. To restore the default setting, use the **no** form of the command.

**email** *address*

**no email**

## Syntax Description

*address* Specifies the email address. The maximum length of *address* is 64 characters.

## Defaults

The default setting is not set.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Crypto ca trustpoint configuration	•	•	•		

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and includes the email address jjh@nhf.net in the enrollment request for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# email jjh@nhf.net
hostname(ca-trustpoint)#
```

## Related Commands

Command	Description
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.

# enable

To enter privileged EXEC mode, use the **enable** command in user EXEC mode.

**enable** [*level*]

## Syntax Description

*level* (Optional) The privilege level between 0 and 15.

## Defaults

Enters privilege level 15 unless you are using command authorization, in which case the default level depends on the level configured for your username.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The default enable password is blank. See the **enable password** command to set the password.

To use privilege levels other than the default of 15, configure local command authorization (see the **aaa authorization command** command and specify the **LOCAL** keyword), and set the commands to different privilege levels using the **privilege** command. If you do not configure local command authorization, the enable levels are ignored, and you have access to level 15 regardless of the level you set. See the **show curpriv** command to view your current privilege level.

Levels 2 and above enter privileged EXEC mode. Levels 0 and 1 enter user EXEC mode.

Enter the **disable** command to exit privileged EXEC mode.

## Examples

The following example enters privileged EXEC mode:

```
hostname> enable
Password: Pa$$w0rd
hostname#
```

The following example enters privileged EXEC mode for level 10:

```
hostname> enable 10
Password: Pa$$w0rd10
hostname#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>enable password</b>	Sets the enable password.
<b>disable</b>	Exits privileged EXEC mode.
<b>aaa authorization command</b>	Configures command authorization.
<b>privilege</b>	Sets the command privilege levels for local command authorization.
<b>show curpriv</b>	Shows the currently logged in username and the user privilege level.



# enable gprs

To enable GPRS with RADIUS accounting, use the **enable gprs** command in radius-accounting parameter configuration mode, which is accessed by using the **inspect radius-accounting** command. The security appliance will check for the 3GPP VSA 26-10415 in the Accounting-Request Stop messages in order to properly handle secondary PDP contexts.

This option is disabled by default. A GTP license is required to enable this feature.

**enable gprs**

**no enable gprs**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
radius-accounting parameter configuration	•	•	•	•	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Examples** The following example shows how to enable GPRS with RADIUS accounting:

```
hostname(config)# policy-map type inspect radius-accounting ra
hostname(config-pmap)# parameters
hostname(config-pmap-p)# enable gprs
```

Related Commands	Commands	Description
	<b>inspect radius-accounting</b>	Sets inspection for RADIUS accounting.
	<b>parameters</b>	Sets parameters for an inspection policy map.

# enable password

To set the enable password for privileged EXEC mode, use the **enable password** command in global configuration mode. To remove the password for a level other than 15, use the **no** form of this command. You cannot remove the level 15 password.

**enable password** *password* [**level** *level*] [**encrypted**]

**no enable password** **level** *level*

## Syntax Description

<b>encrypted</b>	(Optional) Specifies that the password is in encrypted form. The password is saved in the configuration in encrypted form, so you cannot view the original password after you enter it. If for some reason you need to copy the password to another security appliance but do not know the original password, you can enter the <b>enable password</b> command with the encrypted password and this keyword. Normally, you only see this keyword when you enter the <b>show running-config enable</b> command.
<b>level</b> <i>level</i>	(Optional) Sets a password for a privilege level between 0 and 15.
<i>password</i>	Sets the password as a case-sensitive string of up to 16 alphanumeric and special characters. You can use any character in the password except a question mark or a space.

## Defaults

The default password is blank. The default level is 15.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The default password for enable level 15 (the default level) is blank. To reset the password to be blank, do not enter any text for the *password*.

For multiple context mode, you can create an enable password for the system configuration as well as for each context.

To use privilege levels other than the default of 15, configure local command authorization (see the **aaa authorization command** command and specify the **LOCAL** keyword), and set the commands to different privilege levels using the **privilege** command. If you do not configure local command authorization, the enable levels are ignored, and you have access to level 15 regardless of the level you set. See the **show curpriv** command to view your current privilege level.

Levels 2 and above enter privileged EXEC mode. Levels 0 and 1 enter user EXEC mode.

### Examples

The following example sets the enable password to Pa\$\$w0rd:

```
hostname(config)# enable password Pa$$w0rd
```

The following example sets the enable password to Pa\$\$w0rd10 for level 10:

```
hostname(config)# enable password Pa$$w0rd10 level 10
```

The following example sets the enable password to an encrypted password that you copied from another security appliance:

```
hostname(config)# enable password jMorNbK0514fadBh encrypted
```

### Related Commands

Command	Description
<b>aaa authorization command</b>	Configures command authorization.
<b>enable</b>	Enters privileged EXEC mode.
<b>privilege</b>	Sets the command privilege levels for local command authorization.
<b>show curpriv</b>	Shows the currently logged in username and the user privilege level.
<b>show running-config enable</b>	Shows the enable passwords in encrypted form.

# encryption

To specify the encryption algorithm to use within an IKE policy, use the **encryption** command in `crypto isakmp policy` configuration mode. To reset the encryption algorithm to the default value, which is **des**, use the **no encryption** form of this command.

```
encryption { aes | aes-192 | aes-256 | des | 3des }
```

```
no encryption { aes | aes-192 | aes-256 | des | 3des }
```

## Syntax Description

<b>3des</b>	Specifies that the Triple DES encryption algorithm be used in the IKE policy.
<b>aes</b>	Specifies that the encryption algorithm to use in the IKE policy is AES with a 128-bit key.
<b>aes-192</b>	Specifies that the encryption algorithm to use in the IKE policy is AES with a 192-bit key.
<b>aes-256</b>	Specifies that the encryption algorithm to use in the IKE policy is AES with a 256-bit key.
<b>des</b>	Specifies that the encryption algorithm to use in the IKE policy is 56-bit DES-CBC.
<i>priority</i>	Uniquely identifies the Internet Key Exchange (IKE) policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.

## Defaults

The default ISAKMP policy encryption is **3des**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto isakmp policy configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	The <b>isakmp policy encryption</b> command was preexisting.
7.2.(1)	The <b>encryption</b> command replaces the <b>isakmp policy encryption</b> command.

## Examples

The following example, entered in global configuration mode, shows use of the **encryption** command; it sets 128-bit key AES encryption as the algorithm to be used within the IKE policy with the priority number of 25.

```
hostname(config)# crypto isakmp policy 25
hostname(config-isakmp-policy)# encryption aes
```

The following example, entered in global configuration mode, sets the 3DES algorithm to be used within the IKE policy with the priority number of 40.

```
hostname(config)# crypto isakmp policy 40  
hostname(config-isakmp-policy)# encryption 3des
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config crypto isakmp</b>	Displays all the active configuration.

# endpoint

To add an endpoint to an HSI group for H.323 protocol inspection, use the **endpoint** command in hsi group configuration mode. To disable this feature, use the **no** form of this command.

**endpoint** *ip\_address* *if\_name*

**no endpoint** *ip\_address* *if\_name*

## Syntax Description

<i>ip_address</i>	IP address of the endpoint to add. A maximum of ten endpoints per HSI group is allowed.
<i>if_name</i>	The interface through which the endpoint is connected to the security appliance.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
HSI group configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to add endpoints to an HSI group in an H.323 inspection policy map:

```
hostname(config-pmap-p)# hsi-group 10
hostname(config-h225-map-hsi-grp)# endpoint 10.3.6.1 inside
hostname(config-h225-map-hsi-grp)# endpoint 10.10.25.5 outside
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>hsi-group</b>	Creates an HSI group.
<b>hsi</b>	Adds an HSI to the HSI group.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config</b> <b>policy-map</b>	Display all current policy map configurations.

# endpoint-mapper

To configure endpoint mapper options for DCERPC inspection, use the **endpoint-mapper** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

**endpoint-mapper** [**epm-service only**] [**lookup-operation** [**timeout** *value*]]

**no endpoint-mapper** [**epm-service only**] [**lookup-operation** [**timeout** *value*]]

## Syntax Description

<b>epm-service only</b>	Specifies to enforce endpoint mapper service during binding.
<b>lookup-operation</b>	Specifies to enable lookup operation of the endpoint mapper service.
<b>timeout</b> <i>value</i>	Specifies the timeout for pinholes from the lookup operation. Range is from 0:0:1 to 1193:0:0.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to configure the endpoint mapper in a DCERPC policy map:

```
hostname(config)# policy-map type inspect dcerpc dcerpc_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# endpoint-mapper epm-service-only
```

## Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# enforcenextupdate

To specify how to handle the NextUpdate CRL field, use the **enforcenextupdate** command in ca-crl configuration mode. If set, this command requires CRLs to have a NextUpdate field that has not yet lapsed. If not used, the security appliance allows a missing or lapsed NextUpdate field in a CRL.

To permit a lapsed or missing NextUpdate field, use the **no** form of this command.

**enforcenextupdate**

**no enforcenextupdate**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default setting is enforced (on).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
CRL configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example enters ca-crl configuration mode, and requires CRLs to have a NextUpdate field that has not expired for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# enforcenextupdate
hostname(ca-crl)#
```

## Related Commands

Command	Description
<b>cache-time</b>	Specifies a cache refresh time in minutes.
<b>crl configure</b>	Enters ca-crl configuration mode.
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.



# enrollment retry count

To specify a retry count, use the **enrollment retry count** command in Crypto ca trustpoint configuration mode. After requesting a certificate, the security appliance waits to receive a certificate from the CA. If the security appliance does not receive a certificate within the configured retry period, it sends another certificate request. The security appliance repeats the request until either it receives a response or reaches the end of the configured retry period.

To restore the default setting of the retry count, use the **no** form of the command.

**enrollment retry count** *number*

**no enrollment retry count**

## Syntax Description

<i>number</i>	The maximum number of attempts to send an enrollment request. The valid range is 0, 1-100 retries.
---------------	--

## Defaults

The default setting for *number* is 0 (unlimited).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto ca trustpoint configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command is optional and applies only when automatic enrollment is configured.

## Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and configures an enrollment retry count of 20 retries within trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# enrollment retry count 20
hostname(ca-trustpoint)#
```

## Related Commands

Command	Description
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.

<b>Command</b>	<b>Description</b>
<b>default enrollment</b>	Returns enrollment parameters to their defaults.
<b>enrollment retry period</b>	Specifies the number of minutes to wait before resending an enrollment request.

# enrollment retry period

To specify a retry period, use the **enrollment retry period** command in crypto ca trustpoint configuration mode. After requesting a certificate, the security appliance waits to receive a certificate from the CA. If the security appliance does not receive a certificate within the specified retry period, it sends another certificate request.

To restore the default setting of the retry period, use the **no** form of the command.

**enrollment retry period** *minutes*

**no enrollment retry period**

## Syntax Description

<i>minutes</i>	The number of minutes between attempts to send an enrollment request. the valid range is 1- 60 minutes.
----------------	---

## Defaults

The default setting is 1 minute.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command is optional and applies only when automatic enrollment is configured.

## Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and configures an enrollment retry period of 10 minutes within trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# enrollment retry period 10
hostname(ca-trustpoint)#
```

## Related Commands

Command	Description
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.
<b>default enrollment</b>	Returns all enrollment parameters to their system default values.
<b>enrollment retry count</b>	Defines the number of retries to requesting an enrollment.

# enrollment terminal

To specify cut and paste enrollment with this trustpoint (also known as manual enrollment), use the **enrollment terminal** command in crypto ca trustpoint configuration mode. To restore the default setting of the command, use the **no** form of the command.

**enrollment terminal**

**no enrollment terminal**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default setting is off.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Crypto ca trustpoint configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and specifies the cut and paste method of CA enrollment for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# enrollment terminal
hostname(ca-trustpoint)#
```

## Related Commands

Command	Description
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.
<b>default enrollment</b>	Returns enrollment parameters to their defaults.
<b>enrollment retry count</b>	Specifies the number of retries to attempt to send an enrollment request.
<b>enrollment retry period</b>	Specifies the number of minutes to wait before resending an enrollment request.
<b>enrollment url</b>	Specifies automatic enrollment (SCEP) with this trustpoint and configures the URL.

# enrollment url

To specify automatic enrollment (SCEP) to enroll with this trustpoint and to configure the enrollment URL, use the **enrollment url** command in crypto ca trustpoint configuration mode. To restore the default setting of the command, use the **no** form of the command.

**enrollment url** *url*

**no enrollment url**

## Syntax Description

*url* Specifies the name of the URL for automatic enrollment. The maximum length is 1K characters (effectively unbounded).

## Defaults

The default setting is off.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and specifies SCEP enrollment at the URL https://enrollsite for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# enrollment url https://enrollsite
hostname(ca-trustpoint)#
```

## Related Commands

Command	Description
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.
<b>default enrollment</b>	Returns enrollment parameters to their defaults.
<b>enrollment retry count</b>	Specifies the number of retries to attempt to send an enrollment request.
<b>enrollment retry period</b>	Specifies the number of minutes to wait before resending an enrollment request.
<b>enrollment terminal</b>	Specifies cut and paste enrollment with this trustpoint.

# eou allow

To enable clientless authentication, use the **eou allow** command in global configuration mode. To disable clientless authentication, use the **no** form of this command.

**eou allow clientless**

**no eou allow clientless**

**Syntax Description** This command has no arguments or keywords.

**Defaults** Clientless authentication is enabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
global configuration	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** This command applies only to hosts that do not respond to EAPoUDP requests. It is effective only if all of the following are true:

- An Access Control Server is configured on the network to support clientless authentication.
- Network Admission Control is configured on the security appliance.

**Examples** The following example enables clientless authentication:

```
hostname(config)# eou allow clientless
hostname(config)#
```

The following example disables clientless authentication:

```
hostname(config)# no eou allow clientless
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
<b>debug nac</b>	Enables logging of NAC events.
<b>eou clientless</b>	Changes the username and password used for clientless authentication.

# eou clientless

To change the username and password to be sent to the Access Control Server for clientless authentication, use the **eou clientless** command in global configuration mode. To use the default value, use the **no** form of this command.

**eou clientless username** *username*

**eou clientless password** *password*

To use the default value, use the **no** form of this command.

**no eou clientless username**

**no eou clientless password**

## Syntax Description

<b>username</b>	Enter to change the username sent to the Access Control Server to obtain clientless authentication for a remote host that does not respond to EAPoUDP requests.
<i>username</i>	Enter the username configured on the Access Control Server to support clientless hosts. Enter 1 to 64 ASCII characters, excluding leading and trailing spaces, pound signs (#), question marks (?), quotation marks ("), asterisks (*), and angle brackets (< and >).
<b>password</b>	Enter to change the password sent to the Access Control Server to obtain clientless authentication for a remote host that does not respond to EAPoUDP requests.
<i>password</i>	Enter the password configured on the Access Control Server to support clientless hosts. Enter 4 – 32 ASCII characters.

## Defaults

The default value for both the username and password attributes is "clientless".

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command is effective only if all of the following are true:

- An Access Control Server is configured on the network to support clientless authentication.
- Clientless authentication is enabled on the security appliance.
- Network Admission Control is configured on the security appliance.



**Examples**

The following example changes the username for clientless authentication to sherlock:

```
hostname(config)# eou clientless username sherlock
hostname(config)#
```

The following example changes the username for clientless authentication to the default value, clientless:

```
hostname(config)# no eou clientless username
hostname(config)#
```

The following example changes the password for clientless authentication to secret:

```
hostname(config)# eou clientless password secret
hostname(config)#
```

The following example changes the password for clientless authentication to the default value, clientless:

```
hostname(config)# no eou clientless password
hostname(config)#
```

**Related Commands**

Command	Description
<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
<b>debug nac</b>	Enables logging of NAC events.
<b>eou allow</b>	Enables clientless authentication.

# eou initialize

To clear the resources assigned to one or more Network Admission Control sessions and initiate a new, unconditional posture validation for each of the sessions, use the **eou initialize** command in EXEC mode.

```
eou initialize {all | group tunnel-group | ip ip-address}
```

Syntax	Description
<b>all</b>	Revalidates all NAC sessions on this security appliance
<b>group</b>	Revalidates all NAC sessions assigned to a tunnel group.
<b>ip</b>	Revalidates a single NAC session.
<i>ip-address</i>	IP address of the remote peer end of the tunnel.
<i>tunnel-group</i>	Name of the tunnel group used to negotiate parameters to set up the tunnel.

**Defaults** No default behavior or values.

## Command Modes

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
EXEC	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** Use this command if a change occurs in the posture of the remote peers or if the assigned access policies (that is, the downloaded ACLs) change, and you want to clear the resources assigned to the sessions. Entering this command purges the EAPoUDP associations and access policies (that is, the downloaded ACLs, if any) used for posture validation. The NAC default ACL is effective during the revalidations, so the session initializations can disrupt user traffic. This command does not affect peers that are exempt from posture validation.

**Examples** The following example initializes all NAC sessions:

```
hostname# eou initialize all
hostname
```

The following example initializes all NAC sessions assigned to the tunnel group named tg1:

```
hostname# eou initialize group tg1
hostname
```

The following example initializes the NAC session for the endpoint with the IP address 209.165.200.225:

```
hostname# eou initialize 209.165.200.225
hostname
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>eou revalidate</b>	Forces immediate posture revalidation of one or more NAC sessions.
<b>nac-reval-period</b>	Specifies the interval between each successful posture validation in a Network Admission Control session
<b>nac-sq-period</b>	Specifies the interval between each successful posture validation in a Network Admission Control session and the next query for changes in the host posture

## eou max-retry

To change the number of times the security appliance resends an EAP over UDP message to the remote computer, use the **eou max-retry** command in global configuration mode. To use the default value, use the **no** form of this command.

**eou max-retry** *retries*

**no eou max-retry**

<b>Syntax Description</b>	<i>retries</i>	Limits the number of consecutive retries sent in response to retransmission timer expirations. Enter a value in the range 1 to 3.
---------------------------	----------------	---

**Defaults** The default value is 3.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
global configuration	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** This command is effective only if all of the following are true:

- An Access Control Server is configured on the network to support clientless authentication.
- Clientless authentication is enabled on the security appliance.
- Network Admission Control is configured on the security appliance.

**Examples** The following example limits the number of EAP over UDP retransmissions to 1:

```
hostname(config)# eou max-retry 1
hostname(config)#
```

The following example changes the number of EAP over UDP retransmissions to its default value, 3:

```
hostname(config)# no eou max-retry
hostname(config)#
```

Related Commands

---

<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
<b>debug nac</b>	Enables logging of NAC events.

---

# eou port

To change the port number for EAP over UDP communication with the Cisco Trust Agent, use the **eou port** command in global configuration mode. To use the default value, use the **no** form of this command.

**eou port** *port\_number*

**no eou port**

## Syntax Description

*port\_number* Port number on the client endpoint to be designated for EAP over UDP communications. This number is the port number configured on the Cisco Trust Agent. Enter a value in the range 1024 to 65535.

## Defaults

The default value is 21862.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example changes the port number for EAP over UDP communication to 62445:

```
hostname(config)# eou port 62445
hostname(config)#
```

The following example changes the port number for EAP over UDP communication to its default value:

```
hostname(config)# no eou port
hostname(config)#
```

## Related Commands

<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
<b>debug nac</b>	Enables logging of NAC events.
<b>eou initialize</b>	Clears the resources assigned to one or more NAC sessions and initiates a new, unconditional posture validation for each of the sessions.
<b>eou revalidate</b>	Forces immediate posture revalidation of one or more NAC sessions.

# eou revalidate

To force immediate posture revalidation of one or more Network Admission Control sessions, use the **eou revalidate** command in EXEC mode.

```
eou revalidate {all | group tunnel-group | ip ip-address}
```

## Syntax Description

<b>all</b>	Revalidates all NAC sessions on this security appliance
<b>group</b>	Revalidates all NAC sessions assigned to a tunnel group.
<b>ip</b>	Revalidates a single NAC session.
<i>ip-address</i>	IP address of the remote peer end of the tunnel.
<i>tunnel-group</i>	Name of the tunnel group used to negotiate parameters to set up the tunnel.

## Defaults

No default behavior or values.

## Command Modes

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
EXEC	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Use this command if the posture of the peer or the assigned access policy (that is, the downloaded ACL, if any) has changed. The command initiates a new, unconditional posture validation. The posture validation and assigned access policy that were in effect before you entered the command remain in effect until the new posture validation succeeds or fails. This command does not affect peers that are exempt from posture validation.

## Examples

The following example revalidates all NAC sessions:

```
hostname# eou revalidate all
hostname
```

The following example revalidates all NAC sessions assigned to the tunnel group named tg-1:

```
hostname# eou revalidate group tg-1
hostname
```

The following example revalidates the NAC session for the endpoint with the IP address 209.165.200.225.200.225:

```
hostname# eou revalidate ip 209.165.200.225
hostname
```

#### Related Commands

Command	Description
<b>eou initialize</b>	Clears the resources assigned to one or more NAC sessions and initiates a new, unconditional posture validation for each of the sessions.
<b>nac-reval-period</b>	Specifies the interval between each successful posture validation in a Network Admission Control session
<b>nac-sq-period</b>	Specifies the interval between each successful posture validation in a Network Admission Control session and the next query for changes in the host posture



# eou timeout

To change the number of seconds to wait after sending an EAPoUDP message to the remote host, use the **eou timeout** command in global configuration mode. To use the default value, use the **no** form of this command.

```
eou timeout {hold-period | retransmit} seconds
```

```
no eou timeout {hold-period | retransmit}
```

## Syntax Description

<b>hold-period</b>	Maximum time to wait after sending EAPoUDP messages equal to the number of EAPoUDP retries. The <b>eou initialize</b> or <b>eou revalidate</b> command also clears this timer. If this timer expires, the security appliance initiates a new EAP over UDP association with the remote host.
<b>retransmit</b>	Maximum time to wait after sending an EAPoUDP message. A response from the remote host clears this timer. The <b>eou initialize</b> or <b>eou revalidate</b> command also clears this timer. If the timer expires, the security appliance retransmits the EAPoUDP message to the remote host.
<i>seconds</i>	Number of seconds for the security appliance to wait. Enter a value in the range 60 to 86400 for the hold-period attribute, or the range 1 to 60 for the retransmit attribute.

## Defaults

The default value of the hold-period attribute is 180.

The default value of the retransmit attribute is 3.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example changes the wait period before initiating a new EAP over UDP association to 120 seconds:

```
hostname(config)# eou timeout hold-period 120
hostname(config)#
```

The following example changes the wait period before initiating a new EAP over UDP association to its default value:

```
hostname(config)# no eou timeout hold-period
```

```
hostname(config)#
```

The following example changes the retransmission timer to 6 seconds:

```
hostname(config)# eou timeout retransmit 6
hostname(config)#
```

The following example changes the retransmission timer to its default value:

```
hostname(config)# no eou timeout retransmit
hostname(config)#
```

#### Related Commands

Command	Description
<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
<b>debug nac</b>	Enables logging of NAC events.
<b>eou max-retry</b>	Changes the number of times the security appliance resends an EAP over UDP message to the remote computer.

# erase

To erase and reformat the file system, use the **erase** command in privileged EXEC mode. This command overwrites all files and erases the file system, including hidden system files, and then reinstalls the file system.

**erase** [**disk0:** | **disk1:** | **flash:**]

## Syntax Description

<b>disk0:</b>	(Optional) Specifies the internal Flash memory, followed by a colon.
<b>disk1:</b>	(Optional) Specifies the external, compact Flash memory card, followed by a colon.
<b>flash:</b>	(Optional) Specifies the internal Flash memory, followed by a colon.



### Caution

Erasing the Flash memory also removes the licensing information, which is stored in Flash memory. Save the licensing information prior to erasing the Flash memory.

In the ASA 5500 series, the **flash** keyword is aliased to **disk0**.

## Defaults

This command has no default settings.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **erase** command erases all data on the Flash memory using the 0xFF pattern and then rewrites an empty file system allocation table to the device.

To delete all visible files (excluding hidden system files), enter the **delete /recursive** command, instead of the **erase** command.



### Note

On Cisco PIX security appliances, the **erase** and **format** commands do the same thing, destroy user data with the 0xFF pattern.

**Note**

On Cisco ASA 5500 series security appliances, the **erase** command destroys all user data on the disk with the 0xFF pattern. In contrast, the **format** command only resets the file system control structures. If you used a raw disk read tool, you could still see the information.

**Examples**

The following example erases and reformats the file system:

```
hostname# erase flash:
```

**Related Commands**

Command	Description
<b>delete</b>	Removes all visible files, excluding hidden system files.
<b>format</b>	Erases all files (including hidden system files) and formats the file system.

# esp

To specify parameters for esp and AH tunnels for IPsec Pass Thru inspection, use the **esp** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

```
{ esp | ah } [per-client-max num] [timeout time]
```

```
no { esp | ah } [per-client-max num] [timeout time]
```

## Syntax Description

<b>esp</b>	Specifies parameters for esp tunnel.
<b>ah</b>	Specifies parameters for AH tunnel.
<b>per-client-max num</b>	Specifies maximum tunnels from one client.
<b>timeout time</b>	Specifies idle timeout for the esp tunnel.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to permit UDP 500 traffic:

```
hostname(config)# access-list test-udp-acl extended permit udp any any eq 500
hostname(config)# class-map test-udp-class
hostname(config-pmap-c)# match access-list test-udp-acl

hostname(config)# policy-map type inspect ipsec-pass-thru ipsec-map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# esp per-client-max 32 timeout 00:06:00
hostname(config-pmap-p)# ah per-client-max 16 timeout 00:05:00

hostname(config)# policy-map test-udp-policy
hostname(config-pmap)# class test-udp-class
hostname(config-pmap-c)# inspect ipsec-pass-thru ipsec-map
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# established

To permit return connections on ports that are based on an established connection, use the **established** command in global configuration mode. To disable the **established** feature, use the **no** form of this command.

```
established est_protocol dport [sport] [permitto protocol port [-port]] [permitfrom protocol port[-port]]
```

```
no established est_protocol dport [sport] [permitto protocol port [-port]] [permitfrom protocol port[-port]]
```

## Syntax Description

<i>est_protocol</i>	Specifies the IP protocol (UDP or TCP) to use for the established connection lookup.
<i>dport</i>	Specifies the destination port to use for the established connection lookup.
<b>permitfrom</b>	(Optional) Allows the return protocol connection(s) originating from the specified port.
<b>permitto</b>	(Optional) Allows the return protocol connections destined to the specified port.
<i>port [-port]</i>	(Optional) Specifies the (UDP or TCP) destination port(s) of the return connection.
<i>protocol</i>	(Optional) IP protocol (UDP or TCP) used by the return connection.
<i>sport</i>	(Optional) Specifies the source port to use for the established connection lookup.

## Defaults

The defaults are as follows:

- *dport*—0 (wildcard)
- *sport*—0 (wildcard)

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	The keywords <b>to</b> and <b>from</b> were removed from the CLI. Use the keywords <b>permitto</b> and <b>permitfrom</b> instead.

## Usage Guidelines

The **established** command lets you permit return access for outbound connections through the security appliance. This command works with an original connection that is outbound from a network and protected by the security appliance and a return connection that is inbound between the same two devices on an external host. The **established** command lets you specify the destination port that is used for

connection lookups. This addition allows more control over the command and provides support for protocols where the destination port is known, but the source port is unknown. The **permitto** and **permitfrom** keywords define the return inbound connection.

**Caution**

We recommend that you always specify the **established** command with the **permitto** and **permitfrom** keywords. Using the **established** command without these keywords is a security risk because when connections are made to external systems, those system can make unrestricted connections to the internal host involved in the connection. This situation can be exploited for an attack of your internal systems.

The following potential security violations could occur if you do not use the **established** command correctly.

This example shows that if an internal system makes a TCP connection to an external host on port 4000, then the external host could come back in on any port using any protocol:

```
hostname(config)# established tcp 0 4000
```

You can specify the source and destination ports as **0** if the protocol does not specify which ports are used. Use wildcard ports (0) only when necessary.

```
hostname(config)# established tcp 0 0
```

**Note**

To allow the **established** command to work properly, the client must listen on the port that is specified with the **permitto** keyword.

You can use the **established** command with the **nat 0** command (where there are no **global** commands).

**Note**

You cannot use the **established** command with PAT.

The security appliance supports XDMCP with assistance from the **established** command.

**Caution**

Using XWindows system applications through the security appliance may cause security risks.

XDMCP is on by default, but it does not complete the session unless you enter the **established** command as follows:

```
hostname(config)# established tcp 0 6000 to tcp 6000 from tcp 1024-65535
```

Entering the **established** command enables the internal XDMCP-equipped (UNIX or ReflectionX) hosts to access external XDMCP-equipped XWindows servers. UDP/177-based XDMCP negotiates a TCP-based XWindows session, and subsequent TCP back connections are permitted. Because the source port(s) of the return traffic is unknown, specify the *sport* field as 0 (wildcard). The *dport* should be 6000 + *n*, where *n* represents the local display number. Use this UNIX command to change this value:

```
hostname(config)# setenv DISPLAY hostname:displaynumber.screennumber
```

The **established** command is needed because many TCP connections are generated (based on user interaction) and the source port for these connections is unknown. Only the destination port is static. The security appliance performs XDMCP fixups transparently. No configuration is required, but you must enter the **established** command to accommodate the TCP session.



**Examples**

This example shows a connection between two hosts using protocol A from the SRC port B destined for port C. To permit return connections through the security appliance and protocol D (protocol D can be different from protocol A), the source port(s) must correspond to port F and the destination port(s) must correspond to port E.

```
hostname(config)# established A B C permitto D E permitfrom D F
```

This example shows how a connection is started by an internal host to an external host using TCP source port 6060 and any destination port. The security appliance permits return traffic between the hosts through TCP destination port 6061 and TCP source port 6059.

```
hostname(config)# established tcp 6060 0 permitto tcp 6061 permitfrom tcp 6059
```

This example shows how a connection is started by an internal host to an external host using UDP destination port 6060 and any source port. The security appliance permits return traffic between the hosts through TCP destination port 6061 and TCP source port 1024-65535.

```
hostname(config)# established udp 0 6060 permitto tcp 6061 permitfrom tcp 1024-65535
```

This example shows how a local host 10.1.1.1 starts a TCP connection on port 9999 to a foreign host 209.165.201.1. The example allows packets from the foreign host 209.165.201.1 on port 4242 back to local host 10.1.1.1 on port 5454.

```
hostname(config)# established tcp 9999 permitto tcp 5454 permitfrom tcp 4242
```

This example shows how to allow packets from foreign host 209.165.201.1 on any port back to local host 10.1.1.1 on port 5454:

```
hostname(config)# established tcp 9999 permitto tcp 5454
```

**Related Commands**

Command	Description
<b>clear configure established</b>	Removes all established commands.
<b>show running-config established</b>	Displays the allowed inbound connections that are based on established connections.

# exceed-mss

To allow or drop packets whose data length exceeds the TCP maximum segment size set by the peer during a three-way handshake, use the **exceed-mss** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

```
exceed-mss { allow | drop }
```

```
no exceed-mss { allow | drop }
```

## Syntax Description

allow	Allows packets that exceed the MSS.
drop	Drops packets that exceed the MSS.

## Defaults

Packets are dropped by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tcp-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **exceed-mss** command in tcp-map configuration mode to drop TCP packets whose data length exceeds the TCP maximum segment size set by the peer during a three-way handshake.

## Examples

The following example allows flows on port 21 to send packets in excess of MSS:

```
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# exceed-mss allow
hostname(config)# class-map cmap
hostname(config-cmap)# match port tcp eq ftp
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config-pmap)# service-policy pmap global
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>class</b>	Specifies a class map to use for traffic classification.
	<b>help</b>	Shows syntax help for the <b>policy-map</b> , <b>class</b> , and <b>description</b> commands.
	<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
	<b>set connection</b>	Configures connection values.
	<b>tcp-map</b>	Creates a TCP map and allows access to tcp-map configuration mode.

# exit

To exit the current configuration mode, or to logout from privileged or user EXEC modes, use the **exit** command.

**exit**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC	•	•	•	•	•

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines** You can also use the key sequence **Ctrl Z** to exit global configuration (and higher) modes. This key sequence does not work with privileged or user EXEC modes.

When you enter the **exit** command in privileged or user EXEC modes, you log out from the security appliance. Use the **disable** command to return to user EXEC mode from privileged EXEC mode.

**Examples** The following example shows how to use the **exit** command to exit global configuration mode, and then logout from the session:

```
hostname(config)# exit
hostname# exit

Logoff
```

The following example shows how to use the **exit** command to exit global configuration mode, and then use the **disable** command to exit privileged EXEC mode:

```
hostname(config)# exit
hostname# disable
hostname>
```

**Related Commands**

Command	Description
<code>quit</code>	Exits a configuration mode or logs out from privileged or user EXEC modes.

# expiry-time

To configure an expiration time for caching objects without revalidating them, use the **expiry-time** command in cache mode. To reset the expiry time to a new value, use the command again. To remove the expiration time from the configuration and reset it to the default value, one minute, enter the **no** version of the command.

**expiry-time** *time*

**no expiry-time**

<b>Syntax Description</b>	<i>time</i>	The amount of time in minutes that the security appliance caches objects without revalidating them.
---------------------------	-------------	---

<b>Defaults</b>	One minute.
-----------------	-------------

**Command Modes** The following table shows the modes in which you enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Cache mode	•	—	•	—	—

Command History	Release	Modification
	7.1(1)	This command was introduced.

**Usage Guidelines** The expiration time is the amount of time in minutes that the security appliance caches an object without revalidating it. Revalidation consists of rechecking the content.

**Examples** The following example shows how to set an expiration time of 13 minutes:

```
hostname(config)# webvpn
hostname(config-webvpn)# cache
hostname(config-webvpn-cache)#expiry-time 13
hostname(config-webvpn-cache)#
```

Related Commands	Command	Description
	<b>cache</b>	Enters WebVPN Cache mode.
	<b>cache-compressed</b>	Configures WebVPN cache compression.
	<b>disable</b>	Disables caching.

<b>Command</b>	<b>Description</b>
<b>lfactor</b>	Sets a revalidation policy for caching objects that have only the last-modified timestamp.
<b>max-object-size</b>	Defines the maximum size of an object to cache.
<b>min-object-size</b>	Defines the minimum size of an object to cache.

# failover

To enable failover, use the **failover** command in global configuration mode. To disable failover, use the **no** form of this command.

**failover**

**no failover**

**Syntax Description** This command has no arguments or keywords.

**Defaults** Failover is disabled.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was limited to enable or disable failover in the configuration (see the <b>failover active</b> command).
	7.2(1)	Added support for failover features specific to ASA 5505 devices.

**Usage Guidelines** Use the **no** form of this command to disable failover.



**Caution**

All information sent over the failover and Stateful Failover links is sent in clear text unless you secure the communication with a failover key. If the security appliance is used to terminate VPN tunnels, this information includes any usernames, passwords and preshared keys used for establishing the tunnels. Transmitting this sensitive data in clear text could pose a significant security risk. We recommend securing the failover communication with a failover key if you are using the security appliance to terminate VPN tunnels.

The ASA 5505 device allows only Stateless Failover, and only while not acting as an Easy VPN hardware client.

**Examples** The following example disables failover:

```
hostname(config)# no failover
hostname(config)#
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure failover</b>	Clears <b>failover</b> commands from the running configuration and restores failover default values.
<b>failover active</b>	Switches the standby unit to active.
<b>show failover</b>	Displays information about the failover status of the unit.
<b>show running-config failover</b>	Displays the <b>failover</b> commands in the running configuration.

# failover active

To switch a standby security appliance or failover group to the active state, use the **failover active** command in privileged EXEC mode. To switch an active security appliance or failover group to standby, use the **no** form of this command.

**failover active** [**group** *group\_id*]

**no failover active** [**group** *group\_id*]

## Syntax Description

**group** *group\_id* (Optional) Specifies the failover group to make active.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was modified to include failover groups.

## Usage Guidelines

Use the **failover active** command to initiate a failover switch from the standby unit, or use the **no failover active** command from the active unit to initiate a failover switch. You can use this feature to return a failed unit to service, or to force an active unit offline for maintenance. If you are not using stateful failover, all active connections are dropped and must be reestablished by the clients after the failover occurs.

Switching for a failover group is available only for Active/Active failover. If you enter the **failover active** command on an Active/Active failover unit without specifying a failover group, all groups on the unit become active.

## Examples

The following example switches the standby group 1 to active:

```
hostname# failover active group 1
```

## Related Commands

Command	Description
<b>failover reset</b>	Moves a security appliance from a failed state to standby.

# failover group

To configure an Active/Active failover group, use the **failover group** command in global configuration mode. To remove a failover group, use the **no** form of this command.

**failover group** *num*

**no failover group** *num*

## Syntax Description

*num* Failover group number. Valid values are 1 or 2.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You can define a maximum of 2 failover groups. The **failover group** command can only be added to the system context of devices configured for multiple context mode. You can create and remove failover groups only when failover is disabled.

Entering this command puts you in the failover group command mode. The **primary**, **secondary**, **preempt**, **replication http**, **interface-policy**, **mac address**, and **polltime interface** commands are available in the failover group configuration mode. Use the **exit** command to return to global configuration mode.



### Note

The **failover polltime interface**, **failover interface-policy**, **failover replication http**, and **failover mac address** commands have no effect in Active/Active failover configurations. They are overridden by the following failover group configuration mode commands: **polltime interface**, **interface-policy**, **replication http**, and **mac address**.

When removing failover groups, you must remove failover group 1 last. Failover group 1 always contains the admin context. Any context not assigned to a failover group defaults to failover group 1. You cannot remove a failover group that has contexts explicitly assigned to it.

**Note**

If you have more than one Active/Active failover pair on the same network, it is possible to have the same default virtual MAC addresses assigned to the interfaces on one pair as are assigned to the interfaces of the other pairs because of the way the default virtual MAC addresses are determined. To avoid having duplicate MAC addresses on your network, make sure you assign each physical interface a virtual active and standby MAC address using the **mac address** command.

**Examples**

The following partial example shows a possible configuration for two failover groups:

```
hostname(config)# failover group 1
hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# exit
hostname(config)# failover group 2
hostname(config-fover-group)# secondary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# exit
hostname(config)#
```

**Related Commands**

Command	Description
<b>asr-group</b>	Specifies an asymmetrical routing interface group ID.
<b>interface-policy</b>	Specifies the failover policy when monitoring detects interface failures.
<b>join-failover-group</b>	Assigns a context to a failover group.
<b>mac address</b>	Defines virtual mac addresses for the contexts within a failover group.
<b>polltime interface</b>	Specifies the amount of time between hello messages sent to monitored interfaces.
<b>preempt</b>	Specifies that a unit with a higher priority becomes the active unit after a reboot.
<b>primary</b>	Gives the primary unit higher priority for a failover group.
<b>replication http</b>	Specifies HTTP session replication for the selected failover group.
<b>secondary</b>	Gives the secondary unit higher priority for a failover group.

# failover interface ip

To specify the IP address and mask for the failover interface and the Stateful Failover interface, use the **failover interface ip** command in global configuration mode. To remove the IP address, use the **no** form of this command.

**failover interface ip** *if\_name ip\_address mask standby ip\_address*

**no failover interface ip** *if\_name ip\_address mask standby ip\_address*

## Syntax Description

<i>if_name</i>	Interface name for the failover or stateful failover interface.
<i>ip_address mask</i>	Specifies the IP address and mask for the failover or stateful failover interface on the primary module.
<b>standby</b> <i>ip_address</i>	Specifies the IP address used by the secondary module to communicate with the primary module.

## Defaults

Nodefault behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Failover and stateful failover interfaces are functions of Layer 3, even when the security appliance is operating in transparent firewall mode, and are global to the system.

In multiple context mode, you configure failover in the system context (except for the **monitor-interface** command).

This command must be part of the configuration when bootstrapping a security appliance for LAN failover.

## Examples

The following example shows how to specify the IP address and mask for the failover interface:

```
hostname(config)# failover interface ip lanlink 172.27.48.1 255.255.255.0 standby
172.27.48.2
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure failover</b>	Clears <b>failover</b> commands from the running configuration and restores failover default values.
<b>failover lan interface</b>	Specifies the interface used for failover communication.
<b>failover link</b>	Specifies the interface used for Stateful Failover.
<b>monitor-interface</b>	Monitors the health of the specified interface.
<b>show running-config failover</b>	Displays the <b>failover</b> commands in the running configuration.

# failover interface-policy

To specify the policy for failover when monitoring detects an interface failure, use the **failover interface-policy** command in global configuration mode. To restore the default, use the **no** form of this command.

```
failover interface-policy num[%]
```

```
no failover interface-policy num[%]
```

## Syntax Description

<i>num</i>	Specifies a number from 1 to 100 when used as a percentage, or 1 to the maximum number of interfaces when used as a number.
<i>%</i>	(Optional) Specifies that the number <i>num</i> is a percentage of the monitored interfaces.

## Defaults

The defaults are as follows:

- *num* is 1.
- Monitoring of physical interfaces is enabled by default; monitoring of logical interfaces is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

There is no space between the *num* argument and the optional *%* keyword.

If the number of failed interfaces meets the configured policy and the other security appliance is functioning properly, the security appliance marks itself as failed and a failover might occur (if the active security appliance is the one that fails). Only interfaces that are designated as monitored by the **monitor-interface** command count towards the policy.



### Note

This command applies to Active/Standby failover only. In Active/Active failover, you configure the interface policy for each failover group with the **interface-policy** command in failover group configuration mode.

**Examples**

The following examples show two ways to specify the failover policy:

```
hostname(config)# failover interface-policy 20%
```

```
hostname(config)# failover interface-policy 5
```

**Related Commands**

Command	Description
<b>failover polltime</b>	Specifies the unit and interface poll times.
<b>failover reset</b>	Restores a failed unit to an unfailed state.
<b>monitor-interface</b>	Specifies the interfaces being monitored for failover.
<b>show failover</b>	Displays information about the failover state of the unit.



# failover key

To specify the key for encrypted and authenticated communication between units in a failover pair, use the **failover key** command in global configuration mode. To remove the key, use the **no** form of this command.

**failover key** {*secret* | **hex** *key*}

**no failover key**

## Syntax Description

<b>hex</b> <i>key</i>	Specifies a hexadecimal value for the encryption key. The key must be 32 hexadecimal characters (0-9, a-f).
<i>secret</i>	Specifies an alphanumeric shared secret. The secret can be from 1 to 63 characters. Valid character are any combination of numbers, letters, or punctuation. The shared secret is used to generate the encryption key.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)(1)	This command was modified from <b>failover lan key</b> to <b>failover key</b> .
7.0(4)	This command was modified to include the <b>hex</b> <i>key</i> keyword and argument.

## Usage Guidelines

To encrypt and authenticate failover communications between the units, you must configure both units with a shared secret or hexadecimal key. If you do not specify a failover key, failover communication is transmitted in the clear.



### Note

On the PIX security appliance platform, if you are using the dedicated serial failover cable to connect the units, then communication over the failover link is not encrypted even if a failover key is configured. The failover key only encrypts LAN-based failover communication.



### Caution

All information sent over the failover and Stateful Failover links is sent in clear text unless you secure the communication with a failover key. If the security appliance is used to terminate VPN tunnels, this information includes any user names, passwords and preshared keys used for establishing the tunnels.

Transmitting this sensitive data in clear text could pose a significant security risk. We recommend securing the failover communication with a failover key if you are using the security appliance to terminate VPN tunnels.

### Examples

The following example shows how to specify a shared secret for securing failover communication between units in a failover pair:

```
hostname(config)# failover key abcdefg
```

The following example shows how to specify a hexadecimal key for securing failover communication between two units in a failover pair:

```
hostname(config)# failover key hex 6a1ed228381cf5c68557cb0c32e614dc
```

### Related Commands

Command	Description
<b>show running-config failover</b>	Displays the failover commands in the running configuration.

# failover lan enable

To enable lan-based failover on the PIX security appliance, use the **failover lan enable** command in global configuration mode. To disable LAN-based failover, use the **no** form of this command.

**failover lan enable**

**no failover lan enable**

## Syntax Description

This command has no arguments or keywords.

## Defaults

Not enabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

When LAN-based failover is disabled using the **no** form of this command, cable-based failover is used if the failover cable is installed. This command is available on the PIX security appliance only.



### Caution

All information sent over the failover and Stateful Failover links is sent in clear text unless you secure the communication with a failover key. If the security appliance is used to terminate VPN tunnels, this information includes any usernames, passwords and preshared keys used for establishing the tunnels. Transmitting this sensitive data in clear text could pose a significant security risk. We recommend securing the failover communication with a failover key if you are using the security appliance to terminate VPN tunnels.

## Examples

The following example enables LAN-based failover:

```
hostname(config)# failover lan enable
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>failover lan interface</b>	Specifies the interface used for failover communication.
<b>failover lan unit</b>	Specifies the LAN-based failover primary or secondary unit.
<b>show failover</b>	Displays information about the failover status of the unit.
<b>show running-config failover</b>	Displays the <b>failover</b> commands in the running configuration.

# failover lan interface

To specify the interface used for failover communication, use the **failover lan interface** command in global configuration mode. To remove the failover interface, use the **no** form of this command.

```
failover lan interface if_name {phy_if [.sub_if] | vlan_if}
```

```
no failover lan interface [if_name {phy_if [.sub_if] | vlan_if}]
```

## Syntax Description

<i>if_name</i>	Specifies the name of the security appliance interface dedicated to failover.
<i>phy_if</i>	Specifies the physical interface.
<i>sub_if</i>	(Optional) Specifies a subinterface number.
<i>vlan_if</i>	Used on the ASA 5505 adaptive security appliance to specify a VLAN interface as the failover link.

## Defaults

Not configured.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
Preexisting	This command was modified to include the <i>phy_if</i> argument.
7.2(1)	This command was modified to include the <i>vlan_if</i> argument.

## Usage Guidelines

LAN failover requires a dedicated interface for passing failover traffic. However you can also use the LAN failover interface for the Stateful Failover link.



### Note

If you use the same interface for both LAN failover and Stateful Failover, the interface needs enough capacity to handle both the LAN-based failover and Stateful Failover traffic.

You can use any unused Ethernet interface on the device as the failover interface. You cannot specify an interface that is currently configured with a name. The failover interface is not configured as a normal networking interface; it exists only for failover communications. This interface should only be used for the failover link (and optionally for the state link). You can connect the LAN-based failover link by using a dedicated switch with no hosts or routers on the link or by using a crossover Ethernet cable to link the units directly.

**Note**

When using VLANs, use a dedicated VLAN for the failover link. Sharing the failover link VLAN with any other VLANs can cause intermittent traffic problems and ping and ARP failures. If you use a switch to connect the failover link, use dedicated interfaces on the switch and security appliance for the failover link; do not share the interface with subinterfaces carrying regular network traffic.

On systems running in multiple context mode, the failover link resides in the system context. This interface and the state link, if used, are the only interfaces that you can configure in the system context. All other interfaces are allocated to and configured from within security contexts.

**Note**

The IP address and MAC address for the failover link do not change at failover.

The **no** form of this command also clears the failover interface IP address configuration.

This command must be part of the configuration when bootstrapping a security appliance for LAN failover.

**Examples**

The following example configures the failover LAN interface on a PIX 500 series security appliance:

```
hostname(config)# failover lan interface folink Ethernet4
```

The following example configures the failover LAN interface using a subinterface on an ASA 5500 series adaptive security appliance (except for the ASA 5505 adaptive security appliance):

```
hostname(config)# failover lan interface folink GigabitEthernet0/3.1
```

The following example configures the failover LAN interface on the ASA 5505 adaptive security appliance:

```
hostname(config)# failover lan interface folink Vlan6
```

**Related Commands**

Command	Description
<b>failover lan enable</b>	Enables LAN-based failover on the PIX security appliance.
<b>failover lan unit</b>	Specifies the LAN-based failover primary or secondary unit.
<b>failover link</b>	Specifies the Stateful Failover interface.

# failover lan unit

To configure the security appliance as either the primary or secondary unit in a LAN failover configuration, use the **failover lan unit** command in global configuration mode. To restore the default setting, use the **no** form of this command.

**failover lan unit** {primary | secondary}

**no failover lan unit** {primary | secondary}

## Syntax Description

<b>primary</b>	Specifies the security appliance as a primary unit.
<b>secondary</b>	Specifies the security appliance as a secondary unit.

## Defaults

Secondary.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

For Active/Standby failover, the primary and secondary designation for the failover unit refers to which unit becomes active at boot time. The primary unit becomes the active unit at boot time when the following occurs:

- The primary and secondary unit both complete their boot sequence within the first failover poll check.
- The primary unit boots before the secondary unit.

If the secondary unit is already active when the primary unit boots, the primary unit does not take control; it becomes the standby unit. In this case, you need to issue the **no failover active** command on the secondary (active) unit to force the primary unit back to active status.

For Active/Active failover, each failover group is assigned a primary or secondary unit preference. This preference determines on which unit in the failover pair the contexts in the failover group become active at startup when both units start simultaneously (within the failover polling period).

This command must be part of the configuration when bootstrapping a security appliance for LAN failover.

---

**Examples**

The following example sets the security appliance as the primary unit in LAN-based failover:

```
hostname(config)# failover lan unit primary
```

---

**Related Commands**

Command	Description
<b>failover lan enable</b>	Enables LAN-based failover on the PIX security appliance.
<b>failover lan interface</b>	Specifies the interface used for failover communication.



# failover link

To specify the Stateful Failover interface, use the **failover link** command in global configuration mode. To remove the Stateful Failover interface, use the **no** form of this command.

**failover link** *if\_name* [*phy\_if*]

**no failover link**

## Syntax Description

<i>if_name</i>	Specifies the name of the security appliance interface dedicated to Stateful Failover.
<i>phy_if</i>	(Optional) Specifies the physical or logical interface port. If the Stateful Failover interface is sharing the interface assigned for failover communication or sharing a standard firewall interface, then this argument is not required.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
Preexisting	This command was modified to include the <i>phy_if</i> argument.
7.0(4)	This command was modified to accept standard firewall interfaces.

## Usage Guidelines

This command is not available on the ASA 5505 series adaptive security appliance, which does not support Stateful Failover.

The physical or logical interface argument is required when not sharing the failover communication or a standard firewall interface.

The **failover link** command enables Stateful Failover. Enter the **no failover link** command to disable Stateful Failover. If you are using a dedicated Stateful Failover interface, the **no failover link** command also clears the Stateful Failover interface IP address configuration.

To use Stateful Failover, you must configure a Stateful Failover link to pass all state information. You have three options for configuring a Stateful Failover link:

- You can use a dedicated Ethernet interface for the Stateful Failover link.
- If you are using LAN-based failover, you can share the failover link.

- You can share a regular data interface, such as the inside interface. However, this option is not recommended.

If you are using a dedicated Ethernet interface for the Stateful Failover link, you can use either a switch or a crossover cable to directly connect the units. If you use a switch, no other hosts or routers should be on this link.

**Note**


---

Enable the PortFast option on Cisco switch ports that connect directly to the security appliance.

---

If you are using the failover link as the Stateful Failover link, you should use the fastest Ethernet interface available. If you experience performance problems on that interface, consider dedicating a separate interface for the Stateful Failover interface.

If you use a data interface as the Stateful Failover link, you will receive the following warning when you specify that interface as the Stateful Failover link:

```
***** WARNING ***** WARNING ***** WARNING ***** WARNING *****
  Sharing Stateful failover interface with regular data interface is not
  a recommended configuration due to performance and security concerns.
***** WARNING ***** WARNING ***** WARNING ***** WARNING *****
```

Sharing a data interface with the Stateful Failover interface can leave you vulnerable to replay attacks. Additionally, large amounts of Stateful Failover traffic may be sent on the interface, causing performance problems on that network segment.

**Note**


---

Using a data interface as the Stateful Failover interface is only supported in single context, routed mode.

---

In multiple context mode, the Stateful Failover link resides in the system context. This interface and the failover interface are the only interfaces in the system context. All other interfaces are allocated to and configured from within security contexts.

In multiple context mode, the Stateful Failover interface resides in the system context. This interface and the failover interface are the only interfaces in the system context. All other interfaces are allocated to and configured from within security contexts.

**Note**


---

The IP address and MAC address for the Stateful Failover link does not change at failover unless the Stateful Failover link is configured on a regular data interface.

---

**Caution**


---

All information sent over the failover and Stateful Failover links is sent in clear text unless you secure the communication with a failover key. If the security appliance is used to terminate VPN tunnels, this information includes any user names, passwords and preshared keys used for establishing the tunnels. Transmitting this sensitive data in clear text could pose a significant security risk. We recommend securing the failover communication with a failover key if you are using the security appliance to terminate VPN tunnels.

---

**Examples**

The following example shows how to specify a dedicated interface as the Stateful Failover interface. The interface in the example does not have an existing configuration.

```
hostname(config)# failover link stateful_if e4
INFO: Non-failover interface config is cleared on Ethernet4 and its sub-interfaces
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>failover interface ip</b>	Configures the IP address of the <b>failover</b> command and stateful failover interface.
<b>failover lan interface</b>	Specifies the interface used for failover communication.
<b>mtu</b>	Specifies the maximum transmission unit for an interface.

## failover mac address

To specify the failover virtual MAC address for a physical interface, use the **failover mac address** command in global configuration mode. To remove the virtual MAC address, use the **no** form of this command.

**failover mac address** *phy\_if active\_mac standby\_mac*

**no failover mac address** *phy\_if active\_mac standby\_mac*

### Syntax Description

<i>phy_if</i>	The physical name of the interface to set the MAC address.
<i>active_mac</i>	The MAC address assigned to the specified interface the active security appliance. The MAC address must be entered in h.h.h format, where h is a 16-bit hexadecimal number.
<i>standby_mac</i>	The MAC address assigned to the specified interface of the standby security appliance. The MAC address must be entered in h.h.h format, where h is a 16-bit hexadecimal number.

### Defaults

Not configured.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

The **failover mac address** command lets you configure virtual MAC addresses for an Active/Standby failover pair. If virtual MAC addresses are not defined, then when each failover unit boots it uses the burned-in MAC addresses for its interfaces and exchanges those addresses with its failover peer. The MAC addresses for the interfaces on the primary unit are used for the interfaces on the active unit.

However, if both units are not brought online at the same time and the secondary unit boots first and becomes active, it uses the burned-in MAC addresses for its own interfaces. When the primary unit comes online, the secondary unit will obtain the MAC addresses from the primary unit. This change can disrupt network traffic. Configuring virtual MAC addresses for the interfaces ensures that the secondary unit uses the correct MAC address when it is the active unit, even if it comes online before the primary unit.

The **failover mac address** command is unnecessary (and therefore cannot be used) on an interface configured for LAN-based failover because the **failover lan interface** command does not change the IP and MAC addresses when failover occurs. This command has no effect when the security appliance is configured for Active/Active failover.

When adding the **failover mac address** command to your configuration, it is best to configure the virtual MAC address, save the configuration to Flash memory, and then reload the failover pair. If the virtual MAC address is added when there are active connections, then those connections stop. Also, you must write the complete configuration, including the **failover mac address** command, to the Flash memory of the secondary security appliance for the virtual MAC addressing to take effect.

If the **failover mac address** is specified in the configuration of the primary unit, it should also be specified in the bootstrap configuration of the secondary unit.

**Note**

This command applies to Active/Standby failover only. In Active/Active failover, you configure the virtual MAC address for each interface in a failover group with the **mac address** command in failover group configuration mode.

**Examples**

The following example configures the active and standby MAC addresses for the interface named intf2:

```
hostname(config)# failover mac address Ethernet0/2 00a0.c969.87c8 00a0.c918.95d8
```

**Related Commands**

Command	Description
<b>show interface</b>	Displays interface status, configuration, and statistics.

# failover polltime

To specify the failover unit poll and hold times, use the **failover polltime** command in global configuration mode. To restore the default poll and hold times, use the **no** form of this command.

**failover polltime** [**unit**] [**msec**] *time* [**holdtime** [**msec**] *time*]

**no failover polltime** [**unit**] [**msec**] *time* [**holdtime** [**msec**] *time*]

Syntax Description	
<b>holdtime</b> <i>time</i>	(Optional) Sets the time during which a unit must receive a hello message on the failover link, after which the peer unit is declared failed.  Valid values are from 3 to 45 seconds or from 800 to 999 milliseconds if the optional <b>msec</b> keyword is used.
<b>msec</b>	(Optional) Specifies that the given time is in milliseconds.
<i>time</i>	Amount of time between hello messages.  Valid values are from 1 to 15 seconds or from 200 to 999 milliseconds if the optional <b>msec</b> keyword is used.
<b>unit</b>	(Optional) Indicates that the command is used for unit poll and hold times.  Adding this keyword to the command does not have any affect on the command, but it can make it easier to differentiate this command from the <b>failover polltime interface</b> commands in the configuration.

## Defaults

The default values on the PIX security appliance are as follows:

- The poll *time* is 15 seconds.
- The **holdtime** *time* is 45 seconds.

The default values on the ASA security appliance are as follows:

- The poll *time* is 1 second.
- The **holdtime** *time* is 15 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

**Command History**

Release	Modification
7.0(1)	This command was changed from the <b>failover poll</b> command to the <b>failover polltime</b> command and now includes <b>unit</b> , <b>interface</b> , and <b>holdtime</b> keywords.
7.2(1)	The <b>msec</b> keyword was added to the <b>holdtime</b> keyword. The <b>polltime</b> minimum value was reduced to 200 milliseconds from 500 milliseconds. The <b>holdtime</b> minimum value was reduced to 800 milliseconds from 3 seconds.

**Usage Guidelines**

You cannot enter a **holdtime** value that is less than 3 times the unit poll time. With a faster poll time, the security appliance can detect failure and trigger failover faster. However, faster detection can cause unnecessary switch overs when the network is temporarily congested.

If a unit does not hear hello packet on the failover communication interface or cable for one polling period, additional testing occurs through the remaining interfaces. If there is still no response from the peer unit during the hold time, the unit is considered failed and, if the failed unit is the active unit, the standby unit takes over as the active unit.

You can include both **failover polltime [unit]** and **failover polltime interface** commands in the configuration.

**Note**

When CTIQBE traffic is passed through a security appliance in a failover configuration, you should decrease the failover hold time on the security appliance to below 30 seconds. The CTIQBE keepalive timeout is 30 seconds and may time out before failover occurs in a failover situation. If CTIQBE times out, Cisco IP SoftPhone connections to Cisco CallManager are dropped, and the IP SoftPhone clients need to reregister with the CallManager.

**Examples**

The following example changes the unit poll time frequency to 3 seconds:

```
hostname(config)# failover polltime 3
```

The following example configures the security appliance to send a hello packet every 200 milliseconds and to fail over in 800 milliseconds if no hello packets are received on the failover interface within that time. The optional **unit** keyword is included in the command.

```
hostname(config)# failover polltime unit msec 200 holdtime msec 800
```

**Related Commands**

Command	Description
<b>failover polltime interface</b>	Specifies the interface poll and hold times for Active/Standby failover configurations.
<b>polltime interface</b>	Specifies the interface poll and hold times for Active/Active failover configurations.
<b>show failover</b>	Displays failover configuration information.

# failover polltime interface

To specify the data interface poll and hold times in an Active/Standby failover configuration, use the **failover polltime interface** command in global configuration mode. To restore the default poll and hold times, use the **no** form of this command.

```
failover polltime interface [msec] time [holdtime time]
```

```
no failover polltime interface [msec] time [holdtime time]
```

## Syntax Description

<b>holdtime</b> <i>time</i>	(Optional) Sets the time during which a data interface must receive a hello message on the data interface, after which the peer is declared failed. Valid values are from 5 to 75 seconds.
<b>interface</b> <i>time</i>	Specifies the poll time for interface monitoring. Valid values range from 3 to 15 seconds. If the optional <b>msec</b> keyword is used, the valid values are from 500 to 999 milliseconds.
<b>msec</b>	(Optional) Specifies that the given time is in milliseconds.

## Defaults

The default values are as follows:

- The poll *time* is 5 seconds.
- The **holdtime** *time* is 5 times the poll *time*.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was changed from the <b>failover poll</b> command to the <b>failover polltime</b> command and includes <b>unit</b> , <b>interface</b> , and <b>holdtime</b> keywords.
7.2(1)	The optional <b>holdtime</b> <i>time</i> and the ability to specify the poll time in milliseconds was added.

## Usage Guidelines

Use the **failover polltime interface** command to change the frequency that hello packets are sent out on data interfaces. This command is available for Active/Standby failover only. For Active/Active failover, use the **polltime interface** command in failover group configuration mode instead of the **failover polltime interface** command.



You cannot enter a **holdtime** value that is less than 5 times the interface poll time. With a faster poll time, the security appliance can detect failure and trigger failover faster. However, faster detection can cause unnecessary switchovers when the network is temporarily congested. Interface testing begins when a hello packet is not heard on the interface for over half the hold time.

You can include both **failover polltime unit** and **failover polltime interface** commands in the configuration.

**Note**

When CTIQBE traffic is passed through a security appliance in a failover configuration, you should decrease the failover hold time on the security appliance to below 30 seconds. The CTIQBE keepalive timeout is 30 seconds and may time out before failover occurs in a failover situation. If CTIQBE times out, Cisco IP SoftPhone connections to Cisco CallManager are dropped, and the IP SoftPhone clients need to reregister with the CallManager.

**Examples**

The following example sets the interface poll time frequency to 15 seconds:

```
hostname(config)# failover polltime interface 15
```

The following example sets the interface poll time frequency to 500 milliseconds and the hold time to 5 seconds:

```
hostname(config)# failover polltime interface msec 500 holdtime 5
```

**Related Commands**

Command	Description
<b>failover polltime</b>	Specifies the unit failover poll and hold times.
<b>polltime interface</b>	Specifies the interface polltime for Active/Active failover configurations.
<b>show failover</b>	Displays failover configuration information.

# failover reload-standby

To force the standby unit to reboot, use the **failover reload-standby** command in privileged EXEC mode.

## failover reload-standby

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Use this command when your failover units do not synchronize. The standby unit restarts and resynchronizes to the active unit after it finishes booting.

**Examples** The following example shows how to use the **failover reload-standby** command on the active unit to force the standby unit to reboot:

```
hostname# failover reload-standby
```

Related Commands	Command	Description
	<b>write standby</b>	Writes the running configuration to the memory on the standby unit.

# failover replication http

To enable HTTP (port 80) connection replication, use the **failover replication http** command in global configuration mode. To disable HTTP connection replication, use the **no** form of this command.

**failover replication http**

**no failover replication http**

**Syntax Description** This command has no arguments or keywords.

**Defaults** Disabled.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	•

Command History	Release	Modification
	Preexisting	This command was changed from <b>failover replicate http</b> to <b>failover replication http</b> .

**Usage Guidelines** By default, the security appliance does not replicate HTTP session information when Stateful Failover is enabled. Because HTTP sessions are typically short-lived, and because HTTP clients typically retry failed connection attempts, not replicating HTTP sessions increases system performance without causing serious data or connection loss. The **failover replication http** command enables the stateful replication of HTTP sessions in a Stateful Failover environment, but could have a negative effect on system performance.

In Active/Active failover configurations, you control HTTP session replication per failover group using the **replication http** command in failover group configuration mode.

**Examples** The following example shows how to enable HTTP connection replication:

```
hostname(config)# failover replication http
```

**Related Commands**

Command	Description
<b>replication http</b>	Enables HTTP session replication for a specific failover group.
<b>show running-config failover</b>	Displays the <b>failover</b> commands in the running configuration.

# failover reset

To restore a failed security appliance to an unfailed state, use the **failover reset** command in privileged EXEC mode.

```
failover reset [group group_id]
```

## Syntax Description

<b>group</b>	(Optional) Specifies a failover group.
<i>group_id</i>	Failover group number.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was modified to allow the optional failover group ID.

## Usage Guidelines

The **failover reset** command allows you to change the failed unit or group to an unfailed state. The **failover reset** command can be entered on either unit, but we recommend that you always enter the command on the active unit. Entering the **failover reset** command at the active unit will “unfail” the standby unit.

You can display the failover status of the unit with the **show failover** or **show failover state** commands.

There is no **no** version of this command.

In Active/Active failover, entering **failover reset** resets the whole unit. Specifying a failover group with the command resets only the specified group.

## Examples

The following example shows how to change a failed unit to an unfailed state:

```
hostname# failover reset
```

## Related Commands

Command	Description
<b>failover interface-policy</b>	Specifies the policy for failover when monitoring detects interface failures.
<b>show failover</b>	Displays information about the failover status of the unit.

## failover timeout

To specify the failover reconnect timeout value for asymmetrically routed sessions, use the **failover timeout** command in global configuration mode. To restore the default timeout value, use the **no** form of this command.

**failover timeout** *hh[:mm][:ss]*

**no failover timeout** [*hh[:mm][:ss]*]

### Syntax Description

<i>hh</i>	Specifies the number of hours in the timeout value. Valid values range from -1 to 1193. By default, this value is set to 0.  Setting this value to -1 disables the timeout, allowing connections to reconnect after any amount of time.  Setting this value to 0, without specifying any of the other timeout values, sets the command back to the default value, which prevents connections from reconnecting. Entering <b>no failover timeout</b> command also sets this value to the default (0).  <b>Note</b> When set to the default value, this command does not appear in the running configuration.
<i>mm</i>	(Optional) Specifies the number of minutes in the timeout value. Valid values range from 0 to 59. By default, this value is set to 0.
<i>ss</i>	(Optional) Specifies the number of seconds in the timeout value. Valid values range from 0 to 59. By default, this value is set to 0.

### Defaults

By default, *hh*, *mm*, and *ss* are 0, which prevents connections from reconnecting.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	•

### Command History

Release	Modification
7.0(1)	This command was modified to appear in the command listing.

### Usage Guidelines

This command is used in conjunction with the **static** command with the **nailed** option. The **nailed** option allows connections to be reestablished in a specified amount of time after bootup or a system goes active. The **failover timeout** command specifies that amount of time. If not configured, the connections cannot be reestablished. The **failover timeout** command does not affect the **asr-group** command.

**Note**

Adding the **nailed** option to the **static** command causes TCP state tracking and sequence checking to be skipped for the connection.

Enter the **no** form of this command restores the default value. Entering **failover timeout 0** also restores the default value. When set to the default value, this command does not appear in the running configuration.

**Examples**

The following example switches the standby group 1 to active:

```
hostname(config)# failover timeout 12:30
hostname(config)# show running-config failover
no failover
failover timeout 12:30:00
```

**Related Commands**

Command	Description
<b>static</b>	Configures a persistent one-to-one address translation rule by mapping a local IP address to a global IP address.

# file-bookmarks

To customize the File Bookmarks title or the File Bookmarks links on the WebVPN Home page that is displayed to authenticated WebVPN users, use the **file-bookmarks** command from webvpn customization mode:

```
file-bookmarks {link {style value} | title {style value | text value}}
```

```
[no] file-bookmarks {link {style value} | title {style value | text value}}
```

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>link</b>	Specifies you are changing the links.
<b>title</b>	Specifies you are changing the title.
<b>style</b>	Specifies you are changing the HTML style.
<b>text</b>	Specifies you are changing the text.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default link style is color:#669999;border-bottom: 1px solid #669999;text-decoration:none.

The default title style is color:#669999;background-color:#99CCCC;font-weight:bold.

The default title text is “File Folder Bookmarks”.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.



- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

The following example customizes the File Bookmarks title to “Corporate File Bookmarks”:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# file-bookmarks title text Corporate File Bookmarks
```

**Related Commands**

Command	Description
<b>application-access</b>	Customizes the Application Access box of the WebVPN Home page.
<b>browse-networks</b>	Customizes the Browse Networks box of the WebVPN Home page.
<b>web-applications</b>	Customizes the Web Application box of the WebVPN Home page.
<b>web-bookmarks</b>	Customizes the Web Bookmarks title or links on the WebVPN Home page.

# file-encoding

To specify the character encoding for pages from Common Internet File System servers, use the **file-encoding** command in webvpn configuration mode. The **no** form removes the value of the file-encoding attribute.

**file-encoding** {server-name | server-ip-addr} *charset*

**no file-encoding** {server-name | server-ip-addr}

## Syntax Description

<b>charset</b>	String consisting of up to 40 characters, and equal to one of the valid character sets identified in <a href="http://www.iana.org/assignments/character-sets">http://www.iana.org/assignments/character-sets</a> . You can use either the name or the alias of a character set listed on that page. Examples include iso-8859-1, shift_jis, and ibm850.  The string is case-insensitive. The command interpreter converts upper-case to lower-case in the security appliance configuration.
<b>server-ip-addr</b>	IP address, in dotted decimal notation, of the CIFS server for which you want to specify character encoding.
<b>server-name</b>	Name of the CIFS server for which you want to specify character encoding.  The security appliance retains the case you specify, although it ignores the case when matching the name to a server.

## Defaults

Pages from all CIFS servers that do not have explicit file-encoding entries in the WebVPN configuration inherit the character encoding value from the character-encoding attribute.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
webvpn configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

Enter file-encoding entries for all CIFS servers that require character encodings that differ from the value of the webvpn character-encoding attribute.

The WebVPN portal pages downloaded from the CIFS server to the WebVPN user encode the value of the WebVPN file-encoding attribute identifying the server, or if one does not, they inherit the value of the character-encoding attribute. The remote user's browser maps this value to an entry in its character encoding set to determine the proper character set to use. The WebVPN portal pages do not specify a

value if WebVPN configuration does not specify a file-encoding entry for the CIFS server and the character-encoding attribute is not set. The remote browser uses its own default encoding if the WebVPN portal page does not specify the character encoding or if it specifies a character encoding value that the browser does not support.

The mapping of CIFS servers to their appropriate character encoding, globally with the `webvpn` character-encoding attribute, and individually with file-encoding overrides, provides for the accurate handling and display of CIFS pages when the proper rendering of file names or directory paths, as well as pages, are an issue.

**Note**

The character-encoding and file-encoding values do not exclude the font family to be used by the browser. You need to complement the setting of one these values with the **page style** command in `webvpn` customization command mode to replace the font family if you are using Japanese Shift\_JIS character encoding, as shown in the following example, or enter the **no page style** command in `webvpn` customization command mode to remove the font family.

**Examples**

The following example sets the file-encoding attribute of the CIFS server named “CISCO-server-jp” to support Japanese Shift\_JIS characters, removes the font family, and retains the default background color:

```
hostname(config)# webvpn
hostname(config-webvpn)# file-encoding CISCO-server-jp shift_jis
F1-asal(config-webvpn)# customization DfltCustomization
F1-asal(config-webvpn-custom)# page style background-color:white
F1-asal(config-webvpn-custom)#
```

The following example sets the file-encoding attribute of the CIFS server 10.86.5.174 to support IBM860 (alias “CP860”) characters:

```
hostname(config)# webvpn
hostname(config-webvpn)# file-encoding 10.86.5.174 cp860
hostname(config-webvpn)#
```

**Related Commands**

Command	Description
<b>character-encoding</b>	Specifies the global character encoding used in all WebVPN portal pages except for pages from servers specified in file-encoding entries in the WebVPN configuration.
<b>show running-config [all] webvpn</b>	Displays the running configuration for WebVPN. Use the <b>all</b> keyword to include the default configuration.
<b>debug webvpn cifs</b>	Displays debug messages about the Common Internet File System.

# filter

To specify the name of the access list to use for WebVPN connections for this group policy or username, use the **filter** command in webvpn mode. To remove the access list, including a null value created by issuing the **filter none** command, use the **no** form of this command. The **no** option allows inheritance of a value from another group policy. To prevent inheriting filter values, use the **filter value none** command.

You configure ACLs to permit or deny various types of traffic for this user or group policy. You then use the **filter** command to apply those ACLs for WebVPN traffic.

**filter** { *value ACLname* | **none** }

**no filter**

## Syntax Description

<b>none</b>	Indicates that there is no <b>webvpntype</b> access list. Sets a null value, thereby disallowing an access list. Prevents inheriting an access list from another group policy.
<b>value</b> <i>ACLname</i>	Provides the name of the previously configured access list.

## Defaults

WebVPN access lists do not apply until you use the **filter** command to specify them.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn mode	•	•	—	—	•

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

WebVPN does not use ACLs defined in the **vpn-filter** command.

## Examples

The following example shows how to set a filter that invokes an access list named *acl\_in* for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# filter acl_in
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>access-list</b>	Creates an access list, or uses a downloadable access list.
<b>webvpn</b>	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn mode to configure parameters that apply to group policies or usernames.
<b>webvpn</b>	Use in global configuration mode. Lets you configure global settings for WebVPN.

# filter activex

To remove ActiveX objects in HTTP traffic passing through the security appliance, use the **filter activex** command in global configuration mode. To remove the configuration, use the **no** form of this command.

**filter activex** | java <port> [-<port>] | **except** <local\_ip> <mask> <foreign\_ip> <foreign\_mask>

**no filter activex** | java <port> [-<port>] | **except** <local\_ip> <mask> <foreign\_ip> <foreign\_mask>

## Syntax Description

<i>port</i>	The TCP port to which filtering is applied. Typically, this is port 21, but other values are accepted. The <b>http</b> or <b>url</b> literal can be used for port 21. The range of values permitted is 0 to 65535. For a listing of the well-known ports and their literal values, see
<i>-port</i>	(Optional) Specifies a port range.
<b>except</b>	Creates an exception to a previous <b>filter</b> condition.
<i>local_ip</i>	The IP address of the highest security level interface from which access is sought. You can set this address to <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<i>mask</i>	Network mask of <i>local_ip</i> . You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<i>foreign_ip</i>	The IP address of the lowest security level interface to which access is sought. You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<i>foreign_mask</i>	Network mask of <i>foreign_ip</i> . Always specify a specific mask value. You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

ActiveX objects may pose security risks because they can contain code intended to attack hosts and servers on a protected network. You can disable ActiveX objects with the **filter activex** command.

ActiveX controls, formerly known as OLE or OCX controls, are components you can insert in a web page or other application. These controls include custom forms, calendars, or any of the extensive third-party forms for gathering or displaying information. As a technology, ActiveX creates many potential problems for network clients including causing workstations to fail, introducing network security problems, or being used to attack servers.

The **filteractivex** command blocks the HTML <object> commands by commenting them out within the HTML web page. ActiveX filtering of HTML files is performed by selectively replacing the <APPLET> and </APPLET> and <OBJECT CLASSID> and </OBJECT> tags with comments. Filtering of nested tags is supported by converting top-level tags to comments.

**Caution**

The <object> tag is also used for Java applets, image files, and multimedia objects, which will also be blocked by this command.

If the <object> or </object> HTML tags split across network packets or if the code in the tags is longer than the number of bytes in the MTU, the security appliance cannot block the tag.

ActiveX blocking does not occur when users access an IP address referenced by the **alias** command or for WebVPN traffic.

**Note**

If the **filteractivex** command is configured on port 80 with the **inspect im** command, the **inspect im** command is disabled.

**Examples**

The following example specifies that ActiveX objects are blocked on all outbound connections:

```
hostname(config)# filteractivex 80 0 0 0 0
```

This command specifies that the ActiveX object blocking applies to web traffic on port 80 from any local host and for connections to any foreign host.

**Related Commands**

Commands	Description
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>filter java</b>	Removes Java applets from HTTP traffic passing through the security appliance.
<b>show running-config filter</b>	Displays filtering configuration.
<b>url-block</b>	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.
<b>url-server</b>	Identifies anN2H2 or Websense server for use with the <b>filter</b> command.

# filter ftp

To identify the FTP traffic to be filtered by a Websense or N2H2 server, use the **filter ftp** command in global configuration mode. To remove the configuration, use the **no** form of this command.

```
filter ftp <port> [-<port>] | except <local_ip> <mask> <foreign_ip> <foreign_mask> [allow]
[interact-block]
```

```
no filter ftp <port> [-<port>] | except <local_ip> <mask> <foreign_ip> <foreign_mask> [allow]
[interact-block]
```

## Syntax Description

<i>port</i>	The TCP port to which filtering is applied. Typically, this is port 21, but other values are accepted. The <b>ftp</b> literal can be used for port 80.
<i>-port</i>	(Optional) Specifies a port range.
<b>except</b>	Creates an exception to a previous <b>filter</b> condition.
<i>local_ip</i>	The IP address of the highest security level interface from which access is sought. You can set this address to <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<i>mask</i>	Network mask of <i>local_ip</i> . You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<i>foreign_ip</i>	The IP address of the lowest security level interface to which access is sought. You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<i>foreign_mask</i>	Network mask of <i>foreign_ip</i> . Always specify a specific mask value. You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<b>allow</b>	(Optional) When the server is unavailable, let outbound connections pass through the security appliance without filtering. If you omit this option, and if the N2H2 or Websense server goes off line, the security appliance stops outbound port 80 (Web) traffic until the N2H2 or Websense server is back on line.
<b>interact-block</b>	(Optional) Prevents users from connecting to the FTP server through an interactive FTP program.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.



**Usage Guidelines**

The **filter ftp** command lets you identify the FTP traffic to be filtered by a Websense or N2H2 server. After enabling this feature, when a user issues an FTP GET request to a server, the security appliance sends the request to the FTP server and to the Websense or N2H2 server at the same time. If the Websense or N2H2 server permits the connection, the security appliance allows the successful FTP return code to reach the user unchanged. For example, a successful return code is “250: CWD command successful.”

If the Websense or N2H2 server denies the connection, the security appliance alters the FTP return code to show that the connection was denied. For example, the security appliance would change code 250 to “550 Requested file is prohibited by URL filtering policy.” Websense only filters FTP GET commands and not PUT commands).

Use the **interactive-block** option to prevent interactive FTP sessions that do not provide the entire directory path. An interactive FTP client allows the user to change directories without typing the entire path. For example, the user might enter **cd ./files** instead of **cd /public/files**. You must identify and enable the URL filtering server before using these commands.

**Examples**

The following example shows how to enable FTP filtering:

```
hostname(config)# url-server (perimeter) host 10.0.1.1
hostname(config)# filter ftp 21 0 0 0 0
hostname(config)# filter ftp except 10.0.2.54 255.255.255.255 0 0
```

**Related Commands**

Commands	Description
<b>filter https</b>	Identifies the HTTPS traffic to be filtered by a Websense or N2H2 server.
<b>filter java</b>	Removes Java applets from HTTP traffic passing through the security appliance.
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>show running-config filter</b>	Displays filtering configuration.
<b>url-block</b>	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# filter https

To identify the HTTPS traffic to be filtered by a N2H2 or Websense server, use the **filter https** command in global configuration mode. To remove the configuration, use the **no** form of this command.

```
filter https <port> [-<port>] | except <local_ip> <mask> <foreign_ip> <foreign_mask> [allow]
```

```
no filter https <port> [-<port>] | except <local_ip> <mask> <foreign_ip> <foreign_mask> [allow]
```

## Syntax Description

<i>port</i>	The TCP port to which filtering is applied. Typically, this is port 443, but other values are accepted. The <b>https</b> literal can be used for port 443.
<i>-port</i>	(Optional) Specifies a port range.
<b>except</b>	(Optional) Creates an exception to a previous <b>filter</b> condition.
<i>local_ip</i>	The IP address of the highest security level interface from which access is sought. You can set this address to <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<i>mask</i>	Network mask of <i>local_ip</i> . You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<i>foreign_ip</i>	The IP address of the lowest security level interface to which access is sought. You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<i>foreign_mask</i>	Network mask of <i>foreign_ip</i> . Always specify a specific mask value. You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<b>allow</b>	(Optional) When the server is unavailable, let outbound connections pass through the security appliance without filtering. If you omit this option, and if the N2H2 or Websense server goes off line, the security appliance stops outbound port 443 traffic until the N2H2 or Websense server is back on line.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The security appliance supports filtering of HTTPS and FTP sites using an external Websense or N2H2 filtering server.

HTTPS filtering works by preventing the completion of SSL connection negotiation if the site is not allowed. The browser displays an error message such as “The Page or the content cannot be displayed.” Because HTTPS content is encrypted, the security appliance sends the URL lookup without directory and filename information.

### Examples

The following example filters all outbound HTTPS connections except those from the 10.0.2.54 host:

```
hostname(config)# url-server (perimeter) host 10.0.1.1
hostname(config)# filter https 443 0 0 0 0
hostname(config)# filter https except 10.0.2.54 255.255.255.255 0 0
```

### Related Commands

Commands	Description
<b>filter activex</b>	Removes ActiveX objects from HTTP traffic passing through the security appliance.
<b>filter java</b>	Removes Java applets from HTTP traffic passing through the security appliance.
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>show running-config filter</b>	Displays filtering configuration.
<b>url-block</b>	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# filter java

To remove Java applets from HTTP traffic passing through the security appliance, use the **filter java** command in global configuration mode. To remove the configuration, use the **no** form of this command.

```
filter java {[port[-port] | except } local_ip local_mask foreign_ip foreign_mask]
```

```
no filter java {[port[-port] | except } local_ip local_mask foreign_ip foreign_mask]
```

## Syntax Description

<i>port</i>	The TCP port to which filtering is applied. Typically, this is port 80, but other values are accepted. The <b>http</b> or <b>url</b> literal can be used for port 80.
<i>port-port</i>	(Optional) Specifies a port range.
<b>except</b>	(Optional) Creates an exception to a previous <b>filter</b> condition.
<i>local_ip</i>	The IP address of the highest security level interface from which access is sought. You can set this address to <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<i>local_mask</i>	Network mask of <i>local_ip</i> . You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<i>foreign_ip</i>	The IP address of the lowest security level interface to which access is sought. You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<i>foreign_mask</i>	Network mask of <i>foreign_ip</i> . Always specify a specific mask value. You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Java applets may pose security risks because they can contain code intended to attack hosts and servers on a protected network. You can remove Java applets with the **filter java** command.

The **filter java** command filters out Java applets that return to the security appliance from an outbound connection. The user still receives the HTML page, but the web page source for the applet is commented out so that the applet cannot execute. The **filter java** command does not filter WebVPN traffic.

If the applet or /applet HTML tags split across network packets or if the code in the tags is longer than the number of bytes in the MTU, the security appliance cannot block the tag. If Java applets are known to be in <object> tags, use the **filter activex** command to remove them.

**Note**

If the **filter java** command is configured on port 80 with the **inspect im** command, the **inspect im** command is disabled.

**Examples**

The following example specifies that Java applets are blocked on all outbound connections:

```
hostname(config)# filter java 80 0 0 0 0
```

This command specifies that the Java applet blocking applies to web traffic on port 80 from any local host and for connections to any foreign host.

The following example blocks downloading of Java applets to a host on a protected network:

```
hostname(config)# filter java http 192.168.3.3 255.255.255.255 0 0
```

This command prevents host 192.168.3.3 from downloading Java applets.

**Related Commands**

Commands	Description
<b>filter activex</b>	Removes ActiveX objects from HTTP traffic passing through the security appliance.
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>show running-config filter</b>	Displays filtering configuration.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# filter url

To direct traffic to a URL filtering server, use the **filter url** command in global configuration mode. To remove the configuration, use the **no** form of this command.

```
filter url <port> [-<port>] | except <local_ip> <mask> <foreign_ip> <foreign_mask> [allow]
[cgi-truncate] [longurl-truncate | longurl-deny] [proxy-block]
```

```
no filter url <port> [-<port>] | except <local_ip> <mask> <foreign_ip> <foreign_mask> [allow]
[cgi-truncate] [longurl-truncate | longurl-deny] [proxy-block]
```

## Syntax Description

<b>allow</b>	When the server is unavailable, let outbound connections pass through the security appliance without filtering. If you omit this option, and if the N2H2 or Websense server goes off line, the security appliance stops outbound port 80 (Web) traffic until the N2H2 or Websense server is back on line.
<b>cgi_truncate</b>	When a URL has a parameter list starting with a question mark (?), such as a CGI script, truncate the URL sent to the filtering server by removing all characters after and including the question mark.
<b>except</b>	Creates an exception to a previous <b>filter</b> condition.
<i>foreign_ip</i>	The IP address of the lowest security level interface to which access is sought. You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<i>foreign_mask</i>	Network mask of <i>foreign_ip</i> . Always specify a specific mask value. You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<b>http</b>	Specifies port 80. You can enter <b>http</b> or <b>www</b> instead of 80 to specify port 80.)
<i>local_ip</i>	The IP address of the highest security level interface from which access is sought. You can set this address to <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<i>local_mask</i>	Network mask of <i>local_ip</i> . You can use <b>0.0.0.0</b> (or in shortened form, <b>0</b> ) to specify all hosts.
<b>longurl-deny</b>	Denies the URL request if the URL is over the URL buffer size limit or the URL buffer is not available.
<b>longurl-truncate</b>	Sends only the originating hostname or IP address to the N2H2 or Websense server if the URL is over the URL buffer limit.
<i>mask</i>	Any mask.
<i>-port</i>	(Optional) The TCP port to which filtering is applied. Typically, this is port 80, but other values are accepted. The <b>http</b> or <b>url</b> literal can be used for port 80. Adding a second port after a hyphen optionally identifies a range of ports.
<b>proxy-block</b>	Prevents users from connecting to an HTTP proxy server.
<b>url</b>	Filter URLs from data moving through the security appliance.

## Defaults

This command is disabled by default.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

The **filter url** command lets you prevent outbound users from accessing World Wide Web URLs that you designate using the N2H2 or Websense filtering application.

**Note**

The **url-server** command must be configured before issuing the **filter url** command.

The **allow** option to the **filter url** command determines how the security appliance behaves if the N2H2 or Websense server goes off line. If you use the **allow** option with the **filter url** command and the N2H2 or Websense server goes offline, port 80 traffic passes through the security appliance without filtering. Used without the **allow** option and with the server off line, the security appliance stops outbound port 80 (Web) traffic until the server is back on line, or if another URL server is available, passes control to the next URL server.

**Note**

With the **allow** option set, the security appliance now passes control to an alternate server if the N2H2 or Websense server goes off line.

The N2H2 or Websense server works with the security appliance to deny users from access to websites based on the company security policy.

**Using the Filtering Server**

Websense protocol Version 4 enables group and username authentication between a host and a security appliance. The security appliance performs a username lookup, and then Websense server handles URL filtering and username logging.

The N2H2 server must be a Windows workstation (2000, NT, or XP), running an IFP Server, with a recommended minimum of 512 MB of RAM. Also, the long URL support for the N2H2 service is capped at 3 KB, less than the cap for Websense.

Websense protocol Version 4 contains the following enhancements:

- URL filtering allows the security appliance to check outgoing URL requests against the policy defined on the Websense server.
- Username logging tracks username, group, and domain name on the Websense server.
- Username lookup enables the security appliance to use the user authentication table to map the host's IP address to the username.

Information on Websense is available at the following website:

http://www.websense.com/

### Configuration Procedure

Follow these steps to filter URLs:

- 
- Step 1** Designate an N2H2 or Websense server with the appropriate vendor-specific form of the **url-server** command.
  - Step 2** Enable filtering with the **filter** command.
  - Step 3** If needed, improve throughput with the **url-cache** command. However, this command does not update Websense logs, which may affect Websense accounting reports. Accumulate Websense run logs before using the **url-cache** command.
  - Step 4** Use the **show url-cache statistics** and the **show perfmon** commands to view run information.
- 

### Working with Long URLs

Filtering URLs up to 4 KB is supported for the Websense filtering server, and up to 3 KB for the N2H2 filtering server.

Use the **longurl-truncate** and **cgi-truncate** options to allow handling of URL requests longer than the maximum permitted size.

If a URL is longer than the maximum, and you do not enable the **longurl-truncate** or **longurl-deny** options, the security appliance drops the packet.

The **longurl-truncate** option causes the security appliance to send only the hostname or IP address portion of the URL for evaluation to the filtering server when the URL is longer than the maximum length permitted. Use the **longurl-deny** option to deny outbound URL traffic if the URL is longer than the maximum permitted.

Use the **cgi-truncate** option to truncate CGI URLs to include only the CGI script location and the script name without any parameters. Many long HTTP requests are CGI requests. If the parameters list is very long, waiting and sending the complete CGI request including the parameter list can use up memory resources and affect security appliance performance.

### Buffering HTTP Responses

By default, when a user issues a request to connect to a specific website, the security appliance sends the request to the web server and to the filtering server at the same time. If the filtering server does not respond before the web content server, the response from the web server is dropped. This delays the web server response from the point of view of the web client.

By enabling the HTTP response buffer, replies from web content servers are buffered and the responses will be forwarded to the requesting user if the filtering server allows the connection. This prevents the delay that may otherwise occur.

To enable the HTTP response buffer, enter the following command:

```
url-block block block-buffer-limit
```

Replace *block-buffer* with the maximum number of blocks that will be buffered. The permitted values are from 1 to 128, which specifies the number of 1550-byte blocks that can be buffered at one time.



**Note**

If the **filter url** command is configured on port 80 with the **inspect im** command, the **inspect im** command is disabled.

**Examples**

The following example filters all outbound HTTP connections except those from the 10.0.2.54 host:

```
hostname(config)# url-server (perimeter) host 10.0.1.1
hostname(config)# filter url 80 0 0 0 0
hostname(config)# filter url except 10.0.2.54 255.255.255.255 0 0
```

The following example blocks all outbound HTTP connections destined to a proxy server that listens on port 8080:

```
hostname(config)# filter url 8080 0 0 0 0 proxy-block
```

**Related Commands**

Commands	Description
<b>filter activex</b>	Removes ActiveX objects from HTTP traffic passing through the security appliance.
<b>filter java</b>	Removes Java applets from HTTP traffic passing through the security appliance.
<b>url-block</b>	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.
<b>url-cache</b>	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# fips enable

To enable or disable policy-checking to enforce FIPS compliance on the system or module, use the **fips enable** command, or **[no] fips enable** command.

**fips enable**

**[no] fips enable**

## Syntax Description

**enable** Enables or disables policy-checking to enforce FIPS compliance.

## Defaults

This command has no default settings.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	—	—	•	—	—

## Command History

Release	Modification
7.0(4)	This command was introduced.

## Usage Guidelines

To run in a FIPS-compliant mode of operation, you must apply both the **fips enable** command and the proper configuration specified in the Security Policy. The internal API allows the device to migrate towards enforcing proper configuration at run-time.

When “fips enable” is present in the startup-configuration, FIPS POST will run and print the following console message:

```
Copyright (c) 1996-2005 by Cisco Systems, Inc.
Restricted Rights Legend
```

```
Use, duplication, or disclosure by the Government is subject to restrictions as set forth
in subparagraph (c) of the Commercial Computer Software - Restricted Rights clause at FAR
sec. 52.227-19 and subparagraph (c) (1) (ii) of the Rights in Technical Data and Computer
Software clause at DFARS sec. 252.227-7013.
```

```
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, California 95134-1706
```

```
....
Cryptochecksum (unchanged): 6c6d2f77 ef13898e 682c9f94 9c2d5ba9
```

```
INFO: FIPS Power-On Self-Test in process. Estimated completion in 90 seconds.
```

```
.....
```

```
INFO: FIPS Power-On Self-Test complete.  
Type help or '?' for a list of available commands.  
sw8-5520>
```

---

**Examples**

```
sw8-ASA(config)# fips enable
```

---

**Related Commands**

Command	Description
<b>clear configure fips</b>	Clears the system or module FIPS configuration information stored in NVRAM.
<b>crashinfo console disable</b>	Disables the reading, writing and configuration of crash write info to flash.
<b>fips self-test poweron</b>	Executes power-on self-tests.
<b>show crashinfo console</b>	Reads, writes, and configures crash write to flash.
<b>show running-config fips</b>	Displays the FIPS configuration that is running on the security appliance.

# fips self-test poweron

To execute power-on self-tests, use the **fips self-test poweron** command.

## fips self-test poweron

<b>Syntax Description</b>	<b>poweron</b>	Executes Power-On Self-Tests.
---------------------------	----------------	-------------------------------

<b>Defaults</b>	This command has no default settings.
-----------------	---------------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.0(4)	This command was introduced.

<b>Usage Guidelines</b>	Executing this command causes the device to run all self-tests required for FIPS 140-2 compliance. Tests are comprised of: cryptographic algorithm test, software integrity test and critical functions test.
-------------------------	---

<b>Examples</b>	<code>sw8-5520(config)# fips self-test poweron</code>
-----------------	---

Related Commands	Command	Description
	<b>clear configure fips</b>	Clears the system or module FIPS configuration information stored in NVRAM.
	<b>crashinfo console disable</b>	Disables the reading, writing and configuration of crash write info to flash.
	<b>fips enable</b>	Enables or disables a policy-checking to enforce FIPS compliance on the system or module.
	<b>show crashinfo console</b>	Reads, writes, and configures crash write to flash.
	<b>show running-config fips</b>	Displays the FIPS configuration that is running on the security appliance.

# firewall transparent

To set the firewall mode to transparent mode, use the **firewall transparent** command in global configuration mode. To restore routed mode, use the **no** form of this command. A transparent firewall is a Layer 2 firewall that acts like a “bump in the wire,” or a “stealth firewall,” and is not seen as a router hop to connected devices.

**firewall transparent**

**no firewall transparent**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** For multiple context mode, you can use only one firewall mode for all contexts. You must set the mode in the system configuration. This command also appears in each context configuration for informational purposes only; you cannot enter this command in a context.

When you change modes, the security appliance clears the configuration because many commands are not supported for both modes. If you already have a populated configuration, be sure to back up your configuration before changing the mode; you can use this backup for reference when creating your new configuration.

If you download a text configuration to the security appliance that changes the mode with the **firewall transparent** command, be sure to put the command at the top of the configuration; the security appliance changes the mode as soon as it reads the command and then continues reading the configuration you downloaded. If the command is later in the configuration, the security appliance clears all the preceding lines in the configuration.

**Examples** The following example changes the firewall mode to transparent:

```
hostname(config)# firewall transparent
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>arp-inspection</b>	Enables ARP inspection, which compares ARP packets to static ARP entries.
<b>mac-address-table static</b>	Adds static MAC address entries to the MAC address table.
<b>mac-learn</b>	Disables MAC address learning.
<b>show firewall</b>	Shows the firewall mode.
<b>show mac-address-table</b>	Shows the MAC address table, including dynamic and static entries.

# format

To erase all files and format the file system, use the **format** command in privileged EXEC mode. This command erases all files on the file system, including hidden system files, and reinstalls the file system.

**format** { **disk0:** | **disk1:** | **flash:** }

## Syntax Description

<b>disk0:</b>	Specifies the internal Flash memory, followed by a colon.
<b>disk1:</b>	Specifies the external Flash memory card, followed by a colon.
<b>flash:</b>	Specifies the internal Flash memory, followed by a colon. In the ASA 5500 series, the <b>flash</b> keyword is aliased to <b>disk0</b> .

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **format** command erases all data on the specified file system and then rewrites the FAT information to the device.



### Caution

Use the **format** command with extreme caution, only when necessary to clean up corrupted Flash memory.

To delete all visible files (excluding hidden system files), enter the **delete /recursive** command, instead of the **format** command.



### Note

On Cisco PIX security appliances, the **erase** and **format** commands do the same thing, destroy user data with the 0xFF pattern.

To repair a corrupt file system, try entering the **fsck** command before entering the **format** command.

**Note**

On Cisco ASA 5500 series security appliances, the **erase** command destroys all user data on the disk with the 0xFF pattern. In contrast, the **format** command only resets the file system control structures. If you used a raw disk read tool, you could still see the information.

To repair a corrupt file system, try entering the **fsck** command before entering the **format** command.

**Examples**

This example shows how to format the Flash memory:

```
hostname# format flash:
```

**Related Commands**

Command	Description
<b>delete</b>	Removes all user-visible files.
<b>erase</b>	Deletes all files and formats the Flash memory.
<b>fsck</b>	Repairs a corrupt file system.



# forward interface

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **no forward interface** command in interface configuration mode to restrict one VLAN from initiating contact to one other VLAN. This command can be entered in the interface configuration mode for a VLAN interface only. To restore connectivity, use the **forward interface** command. You might need to restrict one VLAN depending on how many VLANs your license supports.

**forward interface** *vlan number*

**no forward interface** *vlan number*

## Syntax Description

**vlan number** Specifies the VLAN ID to which this VLAN interface cannot initiate traffic.

## Defaults

By default, all interfaces can initiate traffic to all other interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

In routed mode, you can configure up to three active VLANs with the ASA 5505 adaptive security appliance Base license, and up to five active VLANs with the Security Plus license. An active VLAN is a VLAN with a **nameif** command configured. You can configure up to five inactive VLANs on the ASA 5505 adaptive security appliance for either license, but if you make them active, be sure to follow the guidelines for your license.

With the Base license, the third VLAN must be configured with the **no forward interface** command to restrict this VLAN from initiating contact to one other VLAN.

For example, you have one VLAN assigned to the outside for Internet access, one VLAN assigned to an inside work network, and a third VLAN assigned to your home network. The home network does not need to access the work network, so you can use the **no forward interface** command on the home VLAN; the work network can access the home network, but the home network cannot access the work network.

If you already have two VLAN interfaces configured with a **nameif** command, be sure to enter the **no forward interface** command before the **nameif** command on the third interface; the security appliance does not allow three fully functioning VLAN interfaces with the Base license on the ASA 5505 adaptive security appliance.

**Examples**

The following example configures three VLAN interfaces. The third home interface cannot forward traffic to the work interface.

```

hostname(config)# interface vlan 100
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address dhcp
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 200
hostname(config-if)# nameif work
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 300
hostname(config-if)# no forward interface vlan 200
hostname(config-if)# nameif home
hostname(config-if)# security-level 50
hostname(config-if)# ip address 10.2.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/2
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/3
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/4
hostname(config-if)# switchport access vlan 300
hostname(config-if)# no shutdown

...

```

**Related Commands**

Command	Description
<b>backup interface</b>	Assigns an interface to be a backup link to an ISP, for example.
<b>clear interface</b>	Clears counters for the <b>show interface</b> command.
<b>interface vlan</b>	Creates a VLAN interface and enters interface configuration mode.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.
<b>switchport access vlan</b>	Assigns a switch port to a VLAN.

# fqdn

To include the indicated FQDN in the Subject Alternative Name extension of the certificate during enrollment, use the **fqdn** command in `crypto ca trustpoint` configuration mode. To restore the default setting of the `fqdn`, use the **no** form of the command.

**fqdn** [*fqdn* | **none**]

**no fqdn**

## Syntax Description

<i>fqdn</i>	Specifies the fully qualified domain name. The maximum length of <i>fqdn</i> is 64 characters.
<b>none</b>	Specifies no fully qualified domain name.

## Defaults

The default setting does not include the FQDN.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If you are configuring the security appliance to support authentication of a Nokia VPN Client using certificates, use the **none** keyword. See the **crypto isakmp identity** or **isakmp identity** command for more information on supporting certificate authentication of the Nokia VPN Client.

## Examples

The following example enters `crypto ca trustpoint` configuration mode for `trustpoint central`, and includes the FQDN `engineering` in the enrollment request for `trustpoint central`:

```
hostname(config)# crypto ca trustpoint central
hostname(config-ca-trustpoint)# fqdn engineering
hostname(config-ca-trustpoint)#
```

## Related Commands

Command	Description
<b>crypto ca trustpoint</b>	Enters <code>trustpoint</code> configuration mode.
<b>default enrollment</b>	Returns enrollment parameters to their defaults.

<b>Command</b>	<b>Description</b>
<b>enrollment retry count</b>	Specifies the number of retries to attempt to send an enrollment request.
<b>enrollment retry period</b>	Specifies the number of minutes to wait before trying to send an enrollment request.
<b>enrollment terminal</b>	Specifies cut and paste enrollment with this trustpoint.

# fragment

To provide additional management of packet fragmentation and improve compatibility with NFS, use the **fragment** command in global configuration mode.

```
fragment {size | chain | timeout limit} [interface]
```

```
no fragment {size | chain | timeout limit} interface
```

## Syntax Description

<b>chain limit</b>	Specifies the maximum number of packets into which a full IP packet can be fragmented.
<i>interface</i>	(Optional) Specifies the security appliance interface. If an interface is not specified, the command applies to all interfaces.
<b>size limit</b>	Sets the maximum number of packets that can be in the IP reassembly database waiting for reassembly.
<b>timeout limit</b>	Specifies the maximum number of seconds to wait for an entire fragmented packet to arrive. The timer starts after the first fragment of a packet arrives. If all fragments of the packet do not arrive by the number of seconds specified, all fragments of the packet that were already received will be discarded.

## Defaults

The defaults are as follows:

- **chain** is 24 packets
- *interface* is all interfaces
- **size** is 200
- **timeout** is 5 seconds

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was modified so that you now must choose one of the following arguments: <b>chain</b> , <b>size</b> , or <b>timeout</b> . You can no longer enter the <b>fragment</b> command without entering one of these arguments, as was supported in prior releases of the software.

**Usage Guidelines**

By default, the security appliance accepts up to 24 fragments to reconstruct a full IP packet. Based on your network security policy, you should consider configuring the security appliance to prevent fragmented packets from traversing the security appliance by entering the **fragment chain 1 interface** command on each interface. Setting the limit to 1 means that all packets must be whole; that is, unfragmented.

If a large percentage of the network traffic through the security appliance is NFS, additional tuning might be necessary to avoid database overflow.

In an environment where the MTU size is small between the NFS server and client, such as a WAN interface, the **chain** keyword might require additional tuning. In this case, we recommend using NFS over TCP to improve efficiency.

Setting the **size limit** to a large value can make the security appliance more vulnerable to a DoS attack by fragment flooding. Do not set the **size limit** equal to or greater than the total number of blocks in the 1550 or 16384 pool.

The default values will limit DoS attacks caused by fragment flooding.

**Examples**

This example shows how to prevent fragmented packets on the outside and inside interfaces:

```
hostname(config)# fragment chain 1 outside
hostname(config)# fragment chain 1 inside
```

Continue entering the **fragment chain 1 interface** command for each additional interface on which you want to prevent fragmented packets.

This example shows how to configure the fragment database on the outside interface to a maximum size of 2000, a maximum chain length of 45, and a wait time of 10 seconds:

```
hostname(config)# fragment size 2000 outside
hostname(config)# fragment chain 45 outside
hostname(config)# fragment timeout 10 outside
```

**Related Commands**

Command	Description
<b>clear configure fragment</b>	Resets all the IP fragment reassembly configurations to defaults.
<b>clear fragment</b>	Clears the operational data of the IP fragment reassembly module.
<b>show fragment</b>	Displays the operational data of the IP fragment reassembly module.
<b>show running-config fragment</b>	Displays the IP fragment reassembly configuration.

# frequency

To set the rate at which the selected SLA operation repeats, use the **frequency** command in SLA monitor protocol configuration mode. To restore the default value, use the **no** form of this command.

**frequency** *seconds*

**no frequency**

## Syntax Description

*seconds* The number of seconds between SLA probes. Valid values are from 1 to 604800 seconds. This value cannot be less than the **timeout** value.

## Defaults

The default frequency is 60 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
SLA monitor protocol configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

An SLA operation repeats at a given frequency for the lifetime of the operation. For example, an **ipIcmpEcho** operation with a frequency of 60 seconds repeats by sending the echo request packets once every 60 seconds for the lifetime of the operation. For example, the default number of packets in an echo operation is 1. This packet is sent when the operation is started and is then sent again 60 seconds later.

If an individual SLA operation takes longer to execute than the specified frequency value, a statistics counter called “busy” is increased rather than immediately repeating the operation.

The value specified for the **frequency** command cannot be less than the value specified for the **timeout** command.

## Examples

The following example configures an SLA operation with an ID of 123 and creates a tracking entry with the ID of 1 to track the reachability of the SLA. The frequency of the SLA operation is set to 3 seconds, and the timeout value us set to 1000 milliseconds.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
```

```
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```

**Related Commands**

Command	Description
<b>sla monitor</b>	Defines an SLA monitoring operation.
<b>timeout</b>	Defines the amount of time the SLA operation waits for a response.



# fsck

To perform a file system check and to repair corruptions, use the **fsck** command in privileged EXEC mode.

```
fsck [/no confirm]{disk0: | disk1: | flash:}
```

## Syntax Description

<b>/noconfirm</b>	Optional. Do not prompt for confirmation to repair.
<b>disk0:</b>	Specifies the internal Flash memory, followed by a colon.
<b>disk1:</b>	Specifies the external Flash memory card, followed by a colon.
<b>flash:</b>	Specifies the internal Flash memory, followed by a colon. In the ASA 5500 series, the <b>flash</b> keyword is aliased to <b>disk0</b> .

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **fsck** command checks and attempts to repair corrupt file systems. Try using this command before resorting to more permanent procedures.

The **/noconfirm** keyword automatically repairs corruptions without seeking your confirmation first.

## Examples

This example shows how to check the file system of the Flash memory:

```
hostname# fsck flash:
```

## Related Commands

Command	Description
<b>delete</b>	Removes all user-visible files.
<b>erase</b>	Deletes all files and formats the Flash memory.
<b>format</b>	Erases all files on a file system, including hidden system files, and reinstalls the file system.

# ftp mode passive

To set the FTP mode to passive, use the **ftp mode passive** command in global configuration mode. To reset the FTP client to active mode, use the **no** form of this command.

**ftp mode passive**

**no ftp mode passive**

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **ftp mode passive** command sets the FTP mode to passive. The security appliance can use FTP to upload or download image files or configuration files to or from an FTP server. The **ftp mode passive** command controls how the FTP client on the security appliance interacts with the FTP server.

In passive FTP, the client initiates both the control connection and the data connection. Passive mode refers to the server state, in that the server is passively accepting both the control connection and the data connection, which are initiated by the client.

In passive mode, both destination and source ports are ephemeral ports (greater than 1023). The mode is set by the client, as the client issues the **passive** command to initiate the setup of the passive data connection. The server, which is the recipient of the data connection in passive mode, responds with the port number to which it is listening for the specific connection.

## Examples

The following example sets the FTP mode to passive:

```
hostname(config)# ftp mode passive
```

## Related Commands

<b>copy</b>	Uploads or downloads image files or configuration files to or from an FTP server.
-------------	---

---

<b>debug ftp client</b>	Displays detailed information about FTP client activity.
<b>show running-config ftp mode</b>	Displays FTP client configuration.

---

# functions

To configure automatic downloading of the port forwarding java applet, Citrix support, file access, file browsing, file server entry, application of a weertype ACL, HTTP Proxy, MAPI Proxy, port forwarding, or URL entry over WebVPN for this user or group policy, use the **functions** command in webvpn mode, which you enter from group-policy or username mode. To remove a configured function, use the **no** form of this command.

To remove all configured functions, including a null value created by issuing the **functions none** command, use the **no** form of this command without arguments. The **no** option allows inheritance of a value from another group policy. To prevent inheriting function values, use the **functions none** command.

**functions** { **auto-download** | **citrix** | **file-access** | **file-browsing** | **file-entry** | **filter** | **http-proxy** | **url-entry** | **mapi** | **port-forward** | **none** }

**no functions** [**auto-download** | **citrix** | **file-access** | **file-browsing** | **file-entry** | **filter** | **url-entry** | **mapi** | **port-forward** ]

## Syntax Description

<b>auto-download</b>	Enables or disables automatic download of the port forwarding java applet upon WebVPN login. You must first enable port forwarding, Outlook/Exchange proxy, or HTTP proxy.
<b>citrix</b>	Enables or disables support for terminal services from a MetaFrame Application Server to the remote user. This keyword lets the security appliance act as a secure gateway within a secure Citrix configuration. These services provide users with access to MetaFrame applications through a standard Web browser.
<b>file-access</b>	Enables or disables file access. When enabled, the WebVPN home page lists file servers in the server list. You must enable file access to enable file browsing and/or file entry.
<b>file-browsing</b>	Enables or disables browsing for file servers and shares. You must enable file browsing to allow user entry of a file server.
<b>file-entry</b>	Enables or disables user ability to enter names of file servers.
<b>filter</b>	Applies a weertype ACL. When enabled, the security appliance applies the weertype ACL defined with the webvpn <b>filter</b> command.
<b>http-proxy</b>	Enables or disables the forwarding of an HTTP applet proxy to the remote user. The proxy is useful for technologies that interfere with proper mangling, such as Java, ActiveX, and Flash. It bypasses mangling while ensuring the continued use of the security appliance. The forwarded proxy modifies the browser's old proxy configuration automatically and redirects all HTTP and HTTPS requests to the new proxy configuration. It supports virtually all client side technologies, including HTML, CSS, JavaScript, VBScript, ActiveX, and Java. The only browser it supports is Microsoft Internet Explorer.
<b>mapi</b>	Enables or disables Microsoft Outlook/Exchange port forwarding.
<b>none</b>	Sets a null value for all WebVPN <b>functions</b> . Prevents inheriting functions from a default or specified group policy.

<b>port-forward</b>	Enables port forwarding. When enabled, the security appliance uses the port forwarding list defined with the webvpn <b>port-forward</b> command.
<b>url-entry</b>	Enables or disables user entry of URLs. When enabled, the security appliance still restricts URLs with any configured URL or network ACLs. When URL entry is disabled, the security appliance restricts WebVPN users to the URLs on the home page.

**Defaults**

Functions are disabled by default.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn mode	•	—	•	—	—

**Command History**

Release	Modification
7.1(1)	The auto-download and citrix keywords were added.
7.0(1)	This command was introduced.

**Examples**

The following example shows how to configure file access, file browsing, and MAPI Proxy for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# functions file-access file-browsing MAPI
```

**Related Commands**

Command	Description
<b>webvpn</b>	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn mode to configure parameters that apply to group policies or usernames.
<b>webvpn</b>	Use in global configuration mode. Lets you configure global settings for WebVPN.





## gateway through hw-module module shutdown Commands

---

# gateway

To specify which group of call agents are managing a particular gateway, use the **gateway** command in MGCP map configuration mode. To remove the configuration, use the **no** form of this command.

```
gateway ip_address [group_id]
```

## Syntax Description

<b>gateway</b>	Specifies the group of call agents that are managing a particular gateway
<i>ip_address</i>	The IP address of the gateway.
<i>group_id</i>	The ID of the call agent group, from 0 to 2147483647.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
MGCP map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the **gateway** command to specify which group of call agents are managing a particular gateway. The IP address of the gateway is specified with the *ip\_address* option. The *group\_id* option is a number from 0 to 4294967295 that must correspond with the *group\_id* of the call agents that are managing the gateway. A gateway may only belong to one group.

## Examples

The following example allows call agents 10.10.11.5 and 10.10.11.6 to control gateway 10.10.10.115, and allows call agents 10.10.11.7 and 10.10.11.8 to control both gateways 10.10.10.116 and 10.10.10.117:

```
hostname(config)# mgcp-map mgcp_policy
hostname(config-mgcp-map)# call-agent 10.10.11.5 101
hostname(config-mgcp-map)# call-agent 10.10.11.6 101
hostname(config-mgcp-map)# call-agent 10.10.11.7 102
hostname(config-mgcp-map)# call-agent 10.10.11.8 102
hostname(config-mgcp-map)# gateway 10.10.10.115 101
hostname(config-mgcp-map)# gateway 10.10.10.116 102
hostname(config-mgcp-map)# gateway 10.10.10.117 102
```



**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>debug mgcp</b>	Enables the display of debug information for MGCP.
<b>mgcp-map</b>	Defines an MGCP map and enables MGCP map configuration mode.
<b>show mgcp</b>	Displays MGCP configuration and session information.

# global

To create a pool of mapped addresses for NAT, use the **global** command in global configuration mode. To remove the pool of addresses, use the **no** form of this command.

```
global (mapped_ifc) nat_id {mapped_ip[-mapped_ip] [netmask mask] | interface}
```

```
no global (mapped_ifc) nat_id {mapped_ip[-mapped_ip] [netmask mask] | interface}
```

## Syntax Description

<b>interface</b>	Uses the interface IP address as the mapped address. Use this keyword if you want to use the interface address, but the address is dynamically assigned using DHCP.
<i>mapped_ifc</i>	Specifies the name of the interface connected to the mapped IP address network.
<i>mapped_ip</i> [- <i>mapped_ip</i> ]	Specifies the mapped address(es) to which you want to translate the real addresses when they exit the mapped interface. If you specify a single address, then you configure PAT. If you specify a range of addresses, then you configure dynamic NAT.  If the external network is connected to the Internet, each global IP address must be registered with the Network Information Center (NIC).
<i>nat_id</i>	Specifies an integer for the NAT ID. This ID is referenced by the <b>nat</b> command to associate a mapped pool with the real addresses to translate.  For regular NAT, this integer is between 1 and 2147483647. For policy NAT ( <b>nat id access-list</b> ), this integer is between 1 and 65535.  Do not specify a <b>global</b> command for NAT ID 0; 0 is reserved for identity NAT and NAT exemption, which do not use a <b>global</b> command.
<b>netmask</b> <i>mask</i>	(Optional) Specifies the network mask for the <i>mapped_ip</i> . This mask does not specify a network when paired with the <i>mapped_ip</i> ; rather, it specifies the subnet mask assigned to the <i>mapped_ip</i> when it is assigned to a host. If you want to configure a range of addresses, you need to specify <i>mapped_ip-mapped_ip</i> .  If you do not specify a mask, then the default mask for the address class is used.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	—

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

For dynamic NAT and PAT, you first configure a **nat** command identifying the real addresses on a given interface that you want to translate. Then you configure a separate **global** command to specify the mapped addresses when exiting another interface (in the case of PAT, this is one address). Each **nat** command matches a **global** command by comparing the NAT ID, a number that you assign to each command.

See the **nat** command for more information about dynamic NAT and PAT.

If you change the NAT configuration, and you do not want to wait for existing translations to time out before the new NAT information is used, you can clear the translation table using **clear xlate** command. However, clearing the translation table disconnects all of the current connections.

**Examples**

For example, to translate the 10.1.1.0/24 network on the inside interface, enter the following command:

```
hostname(config)# nat (inside) 1 10.1.1.0 255.255.255.0
hostname(config)# global (outside) 1 209.165.201.1-209.165.201.30
```

To identify a pool of addresses for dynamic NAT as well as a PAT address for when the NAT pool is exhausted, enter the following commands:

```
hostname(config)# nat (inside) 1 10.1.1.0 255.255.255.0
hostname(config)# global (outside) 1 209.165.201.5
hostname(config)# global (outside) 1 209.165.201.10-209.165.201.20
```

To translate the lower security dmz network addresses so they appear to be on the same network as the inside network (10.1.1.0), for example, to simplify routing, enter the following commands:

```
hostname(config)# nat (dmz) 1 10.1.2.0 255.255.255.0 outside dns
hostname(config)# global (inside) 1 10.1.1.45
```

To identify a single real address with two different destination addresses using policy NAT, enter the following commands:

```
hostname(config)# access-list NET1 permit ip 10.1.2.0 255.255.255.0 209.165.201.0
255.255.255.224
hostname(config)# access-list NET2 permit ip 10.1.2.0 255.255.255.0 209.165.200.224
255.255.255.224
hostname(config)# nat (inside) 1 access-list NET1 tcp 0 2000 udp 10000
hostname(config)# global (outside) 1 209.165.202.129
hostname(config)# nat (inside) 2 access-list NET2 tcp 1000 500 udp 2000
hostname(config)# global (outside) 2 209.165.202.130
```

To identify a single real address/destination address pair that use different ports using policy NAT, enter the following commands:

```
hostname(config)# access-list WEB permit tcp 10.1.2.0 255.255.255.0 209.165.201.11
255.255.255.255 eq 80
hostname(config)# access-list TELNET permit tcp 10.1.2.0 255.255.255.0 209.165.201.11
255.255.255.255 eq 23
hostname(config)# nat (inside) 1 access-list WEB
hostname(config)# global (outside) 1 209.165.202.129
hostname(config)# nat (inside) 2 access-list TELNET
hostname(config)# global (outside) 2 209.165.202.130
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure global</b>	Removes <b>global</b> commands from the configuration.
<b>nat</b>	Specifies the real addresses to translate.
<b>show running-config global</b>	Displays the <b>global</b> commands in the configuration.
<b>static</b>	Configures a one-to-one translation.

# group

To specify the Diffie-Hellman group for an IKE policy, use the **group** command in crypto isakmp policy configuration mode. IKE policies define a set of parameters to use during IKE negotiation. To reset the Diffie-Hellman group identifier to the default value, use the **no** form of this command.

```
group {1 | 2 | 5 | 7}
```

```
no group
```

## Syntax Description

<b>group 1</b>	Specifies that the 768-bit Diffie-Hellman group be used in the IKE policy. This is the default value.
<b>group 2</b>	Specifies that the 1024-bit Diffie-Hellman group 2 be used in the IKE policy.
<b>group 5</b>	Specifies that the 1536-bit Diffie-Hellman group 5 be used in the IKE policy.
<b>group 7</b>	Specifies that Diffie-Hellman Group 7 be used in the IKE policy. Group 7 generates IPsec SA keys, where the elliptical curve field size is 163 bits.
<i>priority</i>	Uniquely identifies the Internet Key Exchange (IKE) policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.

## Defaults

The default group policy is group 2.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto isakmp policy configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	The <b>isakmp policy group</b> command was introduced.
7.2.(1)	The <b>group</b> command replaces the <b>isakmp policy group</b> command.

## Usage Guidelines

There are four group options: 768-bit (DH Group 1), 1024-bit (DH Group 2), 1536-bit (DH Group 5), and DH Group 7. The 1024-bit and 1536-bit Diffie-Hellman Groups provide stronger security, but require more CPU time to execute.



### Note

The Cisco VPN Client Version 3.x or higher requires isakmp policy to use DH group 2. (If you configure DH group 1, the Cisco VPN Client cannot connect.)

AES support is available on security appliances licensed for VPN-3DES only. Due to the large key sizes provided by AES, ISAKMP negotiation should use Diffie-Hellman (DH) group 5 instead of group 1 or group 2. To configure group 5, use the **group 5** command.

### Examples

The following example, entered in global configuration mode, shows how to use the **group** command. This example sets group 2, the 1024-bit Diffie Hellman, to use for the IKE policy with the priority number of 40.

```
hostname(config)# crypto isakmp policy 40
hostname(config-isakmp-policy)# group 2
```

### Related Commands

Command	Description
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config crypto isakmp</b>	Displays all the active configuration.

# group-alias

To create one or more alternate names by which the user can refer to a tunnel-group, use the **group-alias** command in tunnel-group webvpn configuration mode. To remove an alias from the list, use the **no** form of this command.

**group-alias** *name* [**enable** | **disable**]

**no group-alias** *name*

## Syntax Description

<b>disable</b>	Disables the group alias.
<b>enable</b>	Enables a previously disabled group alias.
<i>name</i>	Specifies the name of a tunnel group alias. This can be any string you choose, except that the string cannot contain spaces.

## Defaults

No default group alias, but if you do specify a group alias, that alias is enabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group webvpn configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The group alias that you specify here appears in the drop-down list on the login page. Each group can have multiple aliases or no alias. This command is useful when the same group is known by several common names, such as “Devtest” and “QA”.

## Examples

The following example shows the commands for configuring the webvpn tunnel group named “devtest” and establishing the aliases “QA” and “Fra-QA” for the group:

```
hostname(config)# tunnel-group devtest type webvpn
hostname(config)# tunnel-group devtest webvpn-attributes
hostname(config-tunnel-webvpn)# group-alias QA
hostname(config-tunnel-webvpn)# group-alias Fra-QA
hostname(config-tunnel-webvpn)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure tunnel-group</b>	Clears the entire tunnel-group database or the named tunnel group configuration.
<b>show webvpn group-alias</b>	Displays the aliases for the specified tunnel group or for all tunnel groups.
<b>tunnel-group webvpn-attributes</b>	Enters the tunnel-group webvpn configuration mode for configuring WebVPN tunnel-group attributes.



# group-delimiter

To enable group-name parsing and specify the delimiter to be used when parsing group names from the user names that are received when tunnels are being negotiated, use the **group-delimiter** command in global configuration mode. To disable this group-name parsing, use the **no** form of this command.

**group-delimiter** *delimiter*

**no group-delimiter**

## Syntax Description

*delimiter* Specifies the character to use as the group-name delimiter.  
Valid values are: @, #, and !.

## Defaults

By default, no delimiter is specified, disabling group-name parsing.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The delimiter is used to parse tunnel group names from user names when tunnels are negotiated. By default, no delimiter is specified, disabling group-name parsing.

## Examples

This example shows the **group-delimiter** command to change the group delimiter to the hash mark (#):

```
hostname(config)# group-delimiter #
```

## Related Commands

Command	Description
<b>clear configure group-delimiter</b>	Clears the configured group delimiter.
<b>show running-config group-delimiter</b>	Displays the current group-delimiter value.
<b>strip-group</b>	Enables or disables strip-group processing.

# group-lock

To restrict remote users to access through the tunnel group only, issue the **group-lock** command in group-policy configuration mode or username configuration mode.

To remove the **group-lock** attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a value from another group policy. To disable group-lock, use the **group-lock none** command.

Group-lock restricts users by checking if the group configured in the VPN Client is the same as the tunnel group to which the user is assigned. If it is not, the security appliance prevents the user from connecting. If you do not configure group-lock, the security appliance authenticates users without regard to the assigned group.

```
group-lock {value tunnel-grp-name | none}
```

```
no group-lock
```

## Syntax Description

<b>none</b>	Sets group-lock to a null value, thereby allowing no group-lock restriction. Prevents inheriting a group-lock value from a default or specified group policy.
<b>value</b> <i>tunnel-grp-name</i>	Specifies the name of an existing tunnel group that the security appliance requires for the user to connect.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—
Username	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example shows how to set group lock for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# group-lock value tunnel group name
```

# group-object

To add network object groups, use the **group-object** command in protocol, network, service, and icmp-type configuration modes. To remove network object groups, use the **no** form of this command.

```
group-object obj_grp_id
```

```
no group-object obj_grp_id
```

## Syntax Description

*obj\_grp\_id* Identifies the object group (one to 64 characters) and can be any combination of letters, digits, and the “\_”, “-”, “.” characters.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Protocol, network, service, icmp-type configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **group-object** command is used with the **object-group** command to define an object that itself is an object group. It is used in protocol, network, service, and icmp-type configuration modes. This sub-command allows logical grouping of the same type of objects and construction of hierarchical object groups for structured configuration.

Duplicate objects are allowed in an object group if they are group objects. For example, if object 1 is in both group A and group B, it is allowed to define a group C which includes both A and B. It is not allowed, however, to include a group object which causes the group hierarchy to become circular. For example, it is not allowed to have group A include group B and then also have group B include group A.

The maximum allowed levels of a hierarchical object group is 10.

## Examples

The following example shows how to use the **group-object** command in network configuration mode eliminate the need to duplicate hosts:

```
hostname(config)# object-group network host_grp_1
hostname(config-network)# network-object host 192.168.1.1
hostname(config-network)# network-object host 192.168.1.2
hostname(config-network)# exit
```

```

hostname(config)# object-group network host_grp_2
hostname(config-network)# network-object host 172.23.56.1
hostname(config-network)# network-object host 172.23.56.2
hostname(config-network)# exit
hostname(config)# object-group network all_hosts
hostname(config-network)# group-object host_grp_1
hostname(config-network)# group-object host_grp_2
hostname(config-network)# exit
hostname(config)# access-list grp_1 permit tcp object-group host_grp_1 any eq ftp
hostname(config)# access-list grp_2 permit tcp object-group host_grp_2 any eq smtp
hostname(config)# access-list all permit tcp object-group all-hosts any eq w

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure object-group</b>	Removes all the <b>object-group</b> commands from the configuration.
<b>network-object</b>	Adds a network object to a network object group.
<b>object-group</b>	Defines object groups to optimize your configuration.
<b>port-object</b>	Adds a port object to a service object group.
<b>show running-config object-group</b>	Displays the current object groups.

# group-policy

To create or edit a group policy, use the **group-policy** command in global configuration mode. To remove a group policy from the configuration, use the **no** form of this command.

```
group-policy name { internal [from group-policy_name] | external server-group server_group
password server_password }
```

```
no group-policy name
```

## Syntax Description

<b>external server-group</b> <i>server_group</i>	Specifies the group policy as external and identifies the AAA server group for the security appliance to query for attributes.
<b>from</b> <i>group-policy_name</i>	Initializes the attributes of this internal group policy to the values of a pre-existing group policy.
<b>internal</b>	Identifies the group policy as internal.
<i>name</i>	Specifies the name of the group policy. The name can be up to 64 characters long and cannot contain spaces.
<b>password</b> <i>server_password</i>	Provides the password to use when retrieving attributes from the external AAA server group. The password can be up to 128 characters long and cannot contain spaces.

## Defaults

No default behavior or values. See Usage Guidelines.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0.1	This command was introduced.

## Usage Guidelines

A default group policy, named “DefaultGroupPolicy,” always exists on the security appliance. However, this default group policy does not take effect unless you configure the security appliance to use it. For configuration instructions, see the *Cisco Security Appliance Command Line Configuration Guide*.

Use the **group-policy attributes** command to enter config-group-policy mode, in which you can configure any of the group-policy Attribute-Value Pairs. The DefaultGroupPolicy has these Attribute-Value Pairs:

Attribute	Default Value
backup-servers	keep-client-config
banner	none
client-access-rules	none
client-firewall	none
default-domain	none
dns-server	none
group-lock	none
ip-comp	disable
ip-phone-bypass	disabled
ipsec-udp	disabled
ipsec-udp-port	10000
leap-bypass	disabled
nem	disabled
password-storage	disabled
pfs	disable
re-xauth	disable
secure-unit-authentication	disabled
split-dns	none
split-tunnel-network-list	none
split-tunnel-policy	tunnelall
user-authentication	disabled
user-authentication-idle-timeout	none
vpn-access-hours	unrestricted
vpn-filter	none
vpn-idle-timeout	30 minutes
vpn-session-timeout	none
vpn-simultaneous-logins	3
vpn-tunnel-protocol	IPSec WebVPN
wins-server	none

In addition, you can configure webvpn-mode attributes for the group policy, either by entering the **webvpn** command in config-group-policy mode or by entering the **group-policy attributes** command and then entering the **webvpn** command in config-group-webvpn mode. See the description of the **group-policy attributes** command for details.

### Examples

The following example shows how to create an internal group policy with the name “FirstGroup”:

```
hostname(config)# group-policy FirstGroup internal
```

The next example shows how to create an external group policy with the name “ExternalGroup,” the AAA server group “BostonAAA,” and the password “12345678”:

```
hostname(config)# group-policy ExternalGroup external server-group BostonAAA password
12345678
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure group-policy</b>	Removes the configuration for a particular group policy or for all group policies.
<b>group-policy attributes</b>	Enters config-group-policy mode, which lets you configure attributes and values for a specified group policy or lets you enter webvpn mode to configure webvpn attributes for the group.
<b>show running-config group-policy</b>	Displays the running configuration for a particular group policy or for all group policies.
<b>webvpn</b>	Enters config-group-webvpn mode, in which you can configure the WebVPN attributes for the specified group.

# group-policy attributes

To enter the config-group-policy mode, use the **group-policy attributes** command in global configuration mode. To remove all attributes from a group policy, use the **no** version of this command. In config-group-policy mode, you can configure Attribute-Value Pairs for a specified group policy or enter group-policy webvpn configuration mode to configure webvpn attributes for the group.

**group-policy** *name* **attributes**

**no group-policy** *name* **attributes**

Syntax Description	<i>name</i>	Specifies the name of the group policy.
--------------------	-------------	---

Defaults	No default behavior or values.
----------	--------------------------------

Command Modes	The following table shows the modes in which you can enter the command:
---------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0.1	This command was introduced.

Usage Guidelines	The syntax of the commands in attributes mode have the following characteristics in common:
	<ul style="list-style-type: none"> <li>The <b>no</b> form removes the attribute from the running configuration, and enables inheritance of a value from another group policy.</li> <li>The <b>none</b> keyword sets the attribute in the running configuration to a null value, thereby preventing inheritance.</li> <li>Boolean attributes have explicit syntax for enabled and disabled settings.</li> </ul>

A default group policy, named DefaultGroupPolicy, always exists on the security appliance. However, this default group policy does not take effect unless you configure the security appliance to use it. For configuration instructions, see the *Cisco Security Appliance Command Line Configuration Guide*.

The **group-policy attributes** command enters config-group-policy mode, in which you can configure any of the group-policy Attribute-Value Pairs. The DefaultGroupPolicy has these Attribute-Value Pairs:

Attribute	Default Value
<b>backup-servers</b>	keep-client-config
<b>banner</b>	none



Attribute	Default Value
client-access-rule	none
client-firewall	none
default-domain	none
dns-server	none
group-lock	none
ip-comp	disable
ip-phone-bypass	disabled
ipsec-udp	disabled
ipsec-udp-port	10000
leap-bypass	disabled
nem	disabled
password-storage	disabled
pfs	disable
re-xauth	disable
secure-unit-authentication	disabled
split-dns	none
split-tunnel-network-list	none
split-tunnel-policy	tunnelall
user-authentication	disabled
user-authentication-idle-timeout	none
vpn-access-hours	unrestricted
vpn-filter	none
vpn-idle-timeout	30 minutes
vpn-session-timeout	none
vpn-simultaneous-logins	3
vpn-tunnel-protocol	IPSec WebVPN
wins-server	none

In addition, you can configure webvpn-mode attributes for the group policy, by entering the **group-policy attributes** command and then entering the **webvpn** command in config-group-policy mode. See the description of the **webvpn** command (group-policy attributes and username attributes modes) for details.

### Examples

The following example shows how to enter group-policy attributes mode for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)#
```

### Related Commands

Command	Description
<b>clear configure group-policy</b>	Removes the configuration for a particular group policy or for all group policies.
<b>group-policy</b>	Creates, edits, or removes a group policy.
<b>show running-config group-policy</b>	Displays the running configuration for a particular group policy or for all group policies.
<b>webvpn (group-policy attributes mode)</b>	Enters config-group-webvpn mode, in which you can configure the WebVPN attributes for the specified group.

# group-prompt

To customize the group prompt of the WebVPN page login box that is displayed to WebVPN users when they connect to the security appliance, use the **group-prompt** command from webvpn customization mode:

**group-prompt** {text | style} value

[no] **group-prompt** {text | style} value

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>text</b>	Specifies you are changing the text.
<b>style</b>	Specifies you are changing the style.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default text of the group prompt is “GROUP:”.

The default style of the group prompt is color:black;font-weight:bold;text-align:right.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.

- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

In the following example, the text is changed to “Corporate Group:”, and the default style is changed with the font weight increased to bolder:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# group-prompt text Corporate Group:
F1-asal(config-webvpn-custom)# group-prompt style font-weight:bolder
```

**Related Commands**

Command	Description
<b>password-prompt</b>	Customizes the password prompt of the WebVPN page.
<b>username-prompt</b>	Customizes the username prompt of the WebVPN page.

# group-url

To specify incoming URLs or IP addresses for the group, use the **group-url** command in tunnel-group webvpn configuration mode. To remove a URL from the list, use the **no** form of this command.

```
group-url url [enable | disable ]
```

```
no group-url url
```

## Syntax Description

<b>disable</b>	Disables the URL, but does not remove it from the list.
<b>enable</b>	Enables the URL.
<i>url</i>	Specifies a URL or IP address for this tunnel group.

## Defaults

There is no default URL or IP address, but if you do specify a URL or IP address, it is enabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group webvpn configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

Specifying a group URL or IP address eliminates the need for the user to select a group at login. When a user logs in, the security appliance looks for the user's incoming URL/address in the tunnel-group-policy table. If it finds the URL/address and if group-url is enabled in the tunnel group, then the security appliance automatically selects the associated tunnel group and presents the user with only the username and password fields in the login window. This simplifies the user interface and has the added advantage of never exposing the list of groups to the user. The login window that the user sees uses the customizations configured for that tunnel group.

If the URL/address is disabled and group-alias is configured, then the dropdown list of groups is also displayed, and the user must make a selection.

You can configure multiple URLs/addresses (or none) for a group. Each URL/address can be enabled or disabled individually. You must use a separate **group-url** command for each URL/address specified. You must specify the entire URL/address, including either the http or https protocol.

You cannot associate the same URL/address with multiple groups. The security appliance verifies the uniqueness of the URL/address before accepting the URL/address for a tunnel group.

The following example shows the commands for configuring the webvpn tunnel group named “test” and establishing two group URLs, “http://www.cisco.com” and “https://supplier.com” for the group:

```
hostname(config)# tunnel-group test type webvpn
hostname(config)# tunnel-group test webvpn-attributes
hostname(config-tunnel-webvpn)# group-url http://www.cisco.com
hostname(config-tunnel-webvpn)# group-url https://supplier.company.com
hostname(config-tunnel-webvpn)#
```

The following example enables the group URLs http://www.cisco.com and http://192.168.10.10 for the tunnel-group named RadiusServer:

```
hostname(config)# tunnel-group RadiusServer type webvpn
hostname(config)# tunnel-group RadiusServer general-attributes
hostname(config-tunnel-general)# authentication server-group RADIUS
hostname(config-tunnel-general)# accounting-server-group RADIUS
hostname(config-tunnel-general)# tunnel-group RadiusServer webvpn-attributes
hostname(config-tunnel-webvpn)# group-alias "Cisco Remote Access" enable
hostname(config-tunnel-webvpn)# group-url http://www.cisco.com enable
hostname(config-tunnel-webvpn)# group-url http://192.168.10.10 enable
hostname(config-tunnel-webvpn)#
```

#### Related Commands

Command	Description
<b>clear configure tunnel-group</b>	Clears the entire tunnel-group database or the named tunnel group configuration.
<b>show webvpn group-url</b>	Displays the URLs for the specified tunnel group or for all tunnel groups.
<b>tunnel-group webvpn-attributes</b>	Enters the config-webvpn mode for configuring WebVPN tunnel-group attributes.

# h245-tunnel-block

To block H.245 tunneling in H.323, use the **h245-tunnel-block** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

**h245-tunnel-block action [drop-connection | log]**

**no h245-tunnel-block action [drop-connection | log]**

## Syntax Description

This command has no arguments or keywords.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example...

## Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# hash

To specify the hash algorithm for an IKE policy, use the **hash** command in crypto isakmp policy configuration mode. IKE policies define a set of parameters to be used during IKE negotiation.

To reset the hash algorithm to the default value of SHA-1, use the **no** form of this command.

```
hash {md5 | sha}
```

```
no hash
```

## Syntax Description

<b>md5</b>	Specifies that MD5 (HMAC variant) as the hash algorithm for the IKE policy.
<i>priority</i>	Uniquely identifies and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.
<b>sha</b>	Specifies SHA-1 (HMAC variant) as the hash algorithm for the IKE policy.

## Defaults

The default hash algorithm is SHA-1 (HMAC variant).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Crypto isakmp policy configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	The <b>isakmp policy hash</b> command was preexisting.
7.2.(1)	The <b>hash</b> command replaces the <b>isakmp policy hash</b> command.

## Usage Guidelines

There are two hash algorithm options: SHA-1 and MD5. MD5 has a smaller digest and is considered to be slightly faster than SHA-1.

## Examples

The following example, entered in global configuration mode, shows how to use the **hash** command. This example specifies the MD5 hash algorithm for the IKE policy, with the priority number of 40.

```
hostname(config)# crypto isakmp policy 40
hostname(config-isakmp-policy)# hash md5
```

## Related Commands



<b>Command</b>	<b>Description</b>
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config crypto isakmp</b>	Displays all the active configuration.

# help

To display help information for the command specified, use the **help** command in user EXEC mode.

**help** {*command* | ?}

## Syntax Description

<i>command</i>	Specifies the command for which to display the CLI help.
?	Displays all commands that are available in the current privilege level and mode.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **help** command displays help information about all commands. You can see help for an individual command by entering the **help** command followed by the command name. If you do not specify a command name and enter **?** instead, all commands that are available in the current privilege level and mode display.

If you enable the **pager** command and when 24 lines display, the listing pauses, and the following prompt appears:

```
<--- More --->
```

The More prompt uses syntax similar to the UNIX **more** command as follows:

- To see another screen of text, press the **Space** bar.
- To see the next line, press the **Enter** key.
- To return to the command line, press the **q** key.

## Examples

The following example shows how to display help for the **rename** command:

```
hostname# help rename
```

```
USAGE:
```

```
rename /noconfirm [{disk0:|disk1:|flash:}] <source path> [{disk0:|disk1:
```

```
|flash:}] <destination path>
```

## DESCRIPTION:

```
rename          Rename a file
```

## SYNTAX:

```
/noconfirm          No confirmation
{disk0:|disk1:|flash:} Optional parameter that specifies the filesystem
<source path>       Source file path
<destination path>  Destination file path
```

```
hostname#
```

The following examples shows how to display help by entering the command name and a question mark:

```
hostname(config)# enable ?
usage: enable password <pwd> [encrypted]
```

Help is available for the core commands (not the **show**, **no**, or **clear** commands) by entering **?** at the command prompt:

```
hostname(config)# ?
aaa          Enable, disable, or view TACACS+ or RADIUS
             user authentication, authorization and accounting
...
```

---

**Related Commands**

Command	Description
<b>show version</b>	Displays information about the operating system software.

# hic-fail-group-policy

To specify a group policy to grant a WebVPN user access rights that are different from the default group policy, use the **hic-fail-group-policy** command in tunnel-group-webvpn configuration mode. The **no** form of this command sets the group policy to the default group policy.

**hic-fail-group-policy** *name*

**no hic-fail-group-policy**

## Syntax Description

*name* Specifies the name of the group policy.

## Defaults

DfltGrpPolicy

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Tunnel-group-webvpn configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

This command is valid only for security appliances with Cisco Secure Desktop installed. Host integrity checking, also called *System Detection*, involves checking the remote PC for a minimal set of criteria that must be satisfied to apply a VPN feature policy. The security appliance uses the value of the hic-fail-group-policy attribute to limit access rights to remote CSD users as follows:

- Always uses it if you set the VPN feature policy to “Use Failure Group-Policy.”
- Uses it if you set the VPN feature policy to “Use Success Group-Policy, if criteria match” and the criteria then fail to match.

This attribute specifies the name of the failure group policy to be applied. Use a group policy to differentiate access rights from those associated with the default group policy.



### Note

The security appliance does not use this attribute if you set the VPN feature policy to “Always use Success Group-Policy.”

For more information, see the *Cisco Secure Desktop Configuration Guide for Cisco ASA 5500 Series Administrators*.

**Examples**

The following example creates a WebVPN tunnel group named “FirstGroup” and specifies the failure group policy with the name “group2”:

```
hostname(config)# tunnel-group FirstGroup webvpn
hostname(config)# tunnel-group FirstGroup webvpn-attributes
hostname(config-tunnel-webvpn)# hic-fail-group-policy group2
hostname(config-tunnel-webvpn)#
```

**Related Commands**

Command	Description
<b>clear configure group-policy</b>	Removes the configuration for a particular group policy or for all group policies.
<b>show running-config group-policy</b>	Displays the running configuration for a particular group policy or for all group policies.
<b>tunnel-group webvpn-attributes</b>	Specifies the WebVPN attributes for the named tunnel-group.

# hidden-parameter

To specify hidden parameters in the HTTP POST request that the security appliance submits to the authenticating web server for SSO authentication, use the **hidden-parameter** command in aaa-server-host configuration mode.

To remove all hidden parameters from the running configuration, use the **no** form of the command.

This is an SSO with HTTP Forms command.

**hidden-parameter** *string*

**no hidden-parameter**



## Note

To configure SSO with the HTTP protocol correctly, you must have a thorough working knowledge of authentication and HTTP protocol exchanges.

## Syntax Description

*string* A hidden parameter embedded in the form and sent to the SSO server. You can enter it on multiple lines. The maximum number of characters for each line is 255. The maximum number of characters for all lines together—the complete hidden parameter—is 2048.

## Defaults

No default value or behavior.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Aaa-server-host configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The WebVPN server of the security appliance uses an HTTP POST request to submit a single sign-on authentication request to an authenticating web server. That request may require specific hidden parameters from the SSO HTML form—other than username and password—that are not visible to the user. You can discover hidden parameters that the web server expects in the POST request by using a HTTP header analyzer on a form received from the web server.

The command **hidden-parameter** lets you specify a hidden parameter the web server requires in the authentication POST request. If you use a header analyzer, you can copy and paste the whole hidden parameter string including any encoded URL parameters.

For ease of entry, you can enter a hidden parameter on multiple, sequential lines. The security appliance then concatenates the lines into a single hidden parameter. While the maximum characters per hidden-parameter line is 255 characters, you can enter fewer characters on each line.

**Note**

Any question mark in the string must be preceded by a CTRL-v escape sequence.

**Examples**

The following example shows a hidden parameter comprised of four form entries and their values, separated by &. Excerpted from the POST request, the four entries and their values are:

- SMENC with a value of ISO-8859-1
- SMLOCALE with a value of US-EN
- target with a value of `https%3A%2F%2Ftools.cisco.com%2Ffemco%2Fappdir%2FAreaRoot.do%3FEMCOPageCode%3DENG`
- smauthreason with a value of 0

`SMENC=ISO-8859-1&SMLOCALE=US-EN&target=https%3A%2F%2Ftools.cisco.com%2Ffemco%2Fappdir%2FAreaRoot.do%3FEMCOPageCode%3DENG&smauthreason=0`

```
hostname(config)# aaa-server testgrp1 host example.com
hostname(config-aaa-server-host)# hidden-parameter SMENC=ISO-8859-1&SMLOCALE=US-EN&targe
hostname(config-aaa-server-host)# hidden-parameter t=https%3A%2F%2Ftools.cisco.com%2Femc
hostname(config-aaa-server-host)# hidden-parameter o%2Fappdir%2FAreaRoot.do%3FEMCOPageCo
hostname(config-aaa-server-host)# hidden-parameter de%3DENG&smauthreason=0
hostname(config-aaa-server-host)#
```

**Related Commands**

Command	Description
<b>action-uri</b>	Specifies a web server URI to receive a username and password for single sign-on authentication.
<b>auth-cookie-name</b>	Specifies a name for the authentication cookie.
<b>password-parameter</b>	Specifies the name of the HTTP POST request parameter in which a user password must be submitted for SSO authentication.
<b>start-url</b>	Specifies the URL at which to retrieve a pre-login cookie.
<b>user-parameter</b>	Specifies the name of the HTTP POST request parameter in which a username must be submitted for SSO authentication.

# homepage

To specify a URL for the web page that displays upon login for this WebVPN user or group policy, use the **homepage** command in webvpn mode, which you enter from group-policy or username mode. To remove a configured home page, including a null value created by issuing the **homepage none** command, use the **no** form of this command. The **no** option allows inheritance of a value from another group policy. To prevent inheriting a home page, use the **homepage none** command.

**homepage** {value *url-string* | none}

**no homepage**

## Syntax Description

<b>none</b>	Indicates that there is no WebVPN home page. Sets a null value, thereby disallowing a home page. Prevents inheriting an home page.
<b>value</b> <i>url-string</i>	Provides a URL for the home page. The string must begin with either http:// or https://.

## Defaults

There is no default home page.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn mode	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example shows how to specify www.example.com as the home page for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# homepage value http://www.example.com
```

## Related Commands

Command	Description
<b>webvpn</b>	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn mode to configure parameters that apply to group policies or usernames.



# host

To specify a host to interact with using RADIUS accounting, use the **host** command in radius-accounting parameter configuration mode, which is accessed by using the **parameters** command in the policy-map type inspect radius-accounting submode.

This option is disabled by default.

```
host address [key secret]
```

```
no host address [key secret]
```

## Syntax Description

<b>host</b>	Specifies a single endpoint sending the RADIUS accounting messages.
<i>address</i>	The IP address of the client or server sending the RADIUS accounting messages.
<b>key</b>	Optional keyword to specify the secret of the endpoint sending the gratuitous copy of the accounting messages.
<i>secret</i>	The shared secret key of the endpoint sending the accounting messages used to validate the messages. This can be up to 128 alphanumeric characters.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
radius-accounting parameter configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Multiple instances of this command are allowed.

## Examples

The following example shows how to specify a host with RADIUS accounting:

```
hostname(config)# policy-map type inspect radius-accounting ra
hostname(config-pmap)# parameters
hostname(config-pmap-p)# host 209.165.202.128 key cisco123
```

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>inspect radius-accounting</b>	Sets inspection for RADIUS accounting.
<b>parameters</b>	Sets parameters for an inspection policy map.

# hostname

To set the security appliance hostname, use the **hostname** command in global configuration mode. To restore the default hostname, use the **no** form of this command. The hostname appears as the command line prompt, and if you establish sessions to multiple devices, the hostname helps you keep track of where you enter commands.

**hostname** *name*

**no hostname** [*name*]

## Syntax Description

<i>name</i>	Specifies a hostname up to 63 characters. A hostname must start and end with a letter or digit, and have as interior characters only letters, digits, or a hyphen.
-------------	--

## Defaults

The default hostname depends on your platform.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	You can no longer use non-alphanumeric characters (other than a hyphen).

## Usage Guidelines

For multiple context mode, the hostname that you set in the system execution space appears in the command line prompt for all contexts.

The hostname that you optionally set within a context does not appear in the command line, but can be used for the **banner** command **\$(hostname)** token.

## Examples

The following example sets the hostname to firewall1:

```
hostname(config)# hostname firewall1
firewall1(config)#
```

## Related Commands

Command	Description
<b>banner</b>	Sets a login, message of the day, or enable banner.
<b>domain-name</b>	Sets the default domain name.

# hsi

To add an HSI to an HSI group for H.323 protocol inspection, use the **hsi** command in hsi group configuration mode. To disable this feature, use the **no** form of this command.

**hsi** *ip\_address*

**no hsi** *ip\_address*

## Syntax Description

*ip\_address* IP address of the host to add. A maximum of five HSIs per HSI group is allowed.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
HSI group configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to add an HSI to an HSI group in an H.323 inspection policy map:

```
hostname(config-pmap-p)# hsi-group 10
hostname(config-h225-map-hsi-grp)# hsi 10.10.15.11
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>endpoint</b>	Adds an endpoint to the HSI group.
<b>hsi-group</b>	Creates an HSI group.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# hsi-group

To define an HSI group for H.323 protocol inspection and to enter hsi group configuration mode, use the **hsi-group** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

```
hsi-group group_id
```

```
no hsi-group group_id
```

## Syntax Description

*group\_id* HSI group ID number (0 to 2147483647).

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to configure an HSI group in an H.323 inspection policy map:

```
hostname(config-pmap-p)# hsi-group 10
hostname(config-h225-map-hsi-grp)# hsi 10.10.15.11
hostname(config-h225-map-hsi-grp)# endpoint 10.3.6.1 inside
hostname(config-h225-map-hsi-grp)# endpoint 10.10.25.5 outside
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>endpoint</b>	Adds an endpoint to the HSI group.
<b>hsi</b>	Adds an HSI to the HSI group.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config</b> <b>policy-map</b>	Display all current policy map configurations.

## html-content-filter

To filter Java, ActiveX, images, scripts, and cookies for WebVPN sessions for this user or group policy, use the **html-content-filter** command in webvpn mode, which you enter from group-policy or username mode. To remove a content filter, use the **no** form of this command. To remove all content filters, including a null value created by issuing the **html-content-filter none** command, use the **no** form of this command without arguments. The **no** option allows inheritance of a value from another group policy. To prevent inheriting an html content filter, use the **html-content-filter none** command.

**html-content-filter** {java | images | scripts | cookies | none}

**no html-content-filter** [java | images | scripts | cookies | none]

### Syntax Description

<b>cookies</b>	Removes cookies from images, providing limited ad filtering and privacy.
<b>images</b>	Removes references to images (removes <IMG> tags).
<b>java</b>	Removes references to Java and ActiveX (removes <EMBED>, <APPLET>, and <OBJECT> tags).
<b>none</b>	Indicates that there is no filtering. Sets a null value, thereby disallowing filtering. Prevents inheriting filtering values.
<b>scripts</b>	Removes references to scripting (removes <SCRIPT> tags).

### Defaults

No filtering occurs.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn mode	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

Using the command a second time overrides the previous setting.

### Examples

The following example shows how to set filtering of JAVA and ActiveX, cookies, and images for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# html-content-filter java cookies images
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>webvpn (group-policy, username)</b>	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn mode to configure parameters that apply to group policies or usernames.
<b>webvpn</b>	Use in global configuration mode. Lets you configure global settings for WebVPN.

# http

To specify hosts that can access the HTTP server internal to the security appliance, use the **http** command in global configuration mode. To remove one or more hosts, use the **no** form of this command. To remove the attribute from the configuration, use the **no** form of this command without arguments.

```
http ip_address subnet_mask interface_name
```

```
no http
```

## Syntax Description

<i>interface_name</i>	Provides the name of the security appliance interface through which the host can access the HTTP server.
<i>ip_address</i>	Provides the IP address of a host that can access the HTTP server.
<i>subnet_mask</i>	Provides the subnet mask of a host that can access the HTTP server.

## Defaults

No hosts can access the HTTP server.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example shows how to allow the host with the IP address of 10.10.99.1 and the subnet mask of 255.255.255.255 access to the HTTP server via the outside interface:

```
hostname(config)# http 10.10.99.1 255.255.255.255 outside
```

The next example shows how to allow any host access to the HTTP server via the outside interface:

```
hostname(config)# http 0.0.0.0 0.0.0.0 outside
```

## Related Commands

Command	Description
<b>clear configure http</b>	Removes the HTTP configuration: disables the HTTP server and removes hosts that can access the HTTP server.
<b>http authentication-certificate</b>	Requires authentication via certificate from users who are establishing HTTPS connections to the security appliance.



<b>Command</b>	<b>Description</b>
<b>http redirect</b>	Specifies that the security appliance redirect HTTP connections to HTTPS.
<b>http server enable</b>	Enables the HTTP server.
<b>show running-config http</b>	Displays the hosts that can access the HTTP server, and whether or not the HTTP server is enabled.

# http authentication-certificate

To require authentication via certificate from users who are establishing HTTPS connections, use the **http authentication-certificate** command in global configuration mode. To remove the attribute from the configuration, use the **no** version of this command. To remove all **http authentication-certificate** commands from the configuration, use the **no** version without arguments.

The security appliance validates certificates against the PKI trust points. If a certificate does not pass validation, the security appliance closes the SSL connection.

**http authentication-certificate** *interface*

**no http authentication-certificate** [*interface*]

## Syntax Description

<i>interface</i>	Specifies the interface on the security appliance that requires certificate authentication.
------------------	---

## Defaults

HTTP certificate authentication is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You can configure certificate authentication for each interface, such that connections on a trusted/inside interface do not have to provide a certificate. You can use the command multiple times to enable certificate authentication on multiple interfaces.

Validation occurs before the URL is known, so this affects both WebVPN and ASDM access.

The ASDM uses its own authentication method in addition to this value. That is, it requires both certificate and username/password authentication if both are configured, or just username/password if certificate authentication is disabled.

## Examples

The following example shows how to require certificate authentication for clients connecting to the interfaces named outside and external:

```
hostname(config)# http authentication-certificate inside
hostname(config)# http authentication-certificate external
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure http</b>	Removes the HTTP configuration: disables the HTTP server and removes hosts that can access the HTTP server.
<b>http</b>	Specifies hosts that can access the HTTP server by IP address and subnet mask. Specifies the security appliance interface through which the host accesses the HTTP server.
<b>http redirect</b>	Specifies that the security appliance redirect HTTP connections to HTTPS.
<b>http server enable</b>	Enables the HTTP server.
<b>show running-config http</b>	Displays the hosts that can access the HTTP server, and whether or not the HTTP server is enabled.

# http-comp

To enable compression of http data over a WebVPN connection for a specific group or user, use the **http-comp** command in the group policy and username webvpn modes.

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command:

```
http-comp {gzip | none}
```

```
no http-comp {gzip | none}
```

## Syntax Description

<b>gzip</b>	Specifies compression is enabled for the group or user.
<b>none</b>	Specifies compression is disabled for the group or user.

## Defaults

By default, compression is set to *gzip*.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
group-policy webvpn	•	—	•	—	—
username webvpn	•	—	•	—	—

## Command History

Release	Modification
7.1.1	This command was introduced.

## Usage Guidelines

For WebVPN connections, the **compression** command configured from global configuration mode overrides the **http-comp** command configured in group policy and username webvpn modes.

## Examples

In the following example, compression is disabled for the group-policy sales:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# http-comp none
```

## Related Commands

Command	Description
<b>compression</b>	Enables compression for all SVC, WebVPN, IPsec VPN connections.

# http-proxy

To configure an HTTP proxy server, use the **http-proxy** command in webvpn mode. To remove the HTTP proxy server from the configuration, use the **no** form of this command.

This is an external proxy server the security appliance uses for HTTP requests.

```
http-proxy address [port]
```

```
no http-proxy
```

## Syntax Description

<i>address</i>	Specifies the IP address for the external HTTP proxy server.
<i>port</i>	Specifies the port the HTTP proxy server uses. The default port is 80, which is the port the security appliance uses if you do not supply a value.

## Defaults

No HTTP proxy server is configured by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Webvpn	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example shows how to configure an HTTP proxy server with an IP address of 10.10.10.7 using port 80:

```
hostname(config)# webvpn
hostname(config-webvpn)# http-proxy 10.10.10.7
hostname(config-webvpn)
```

# http redirect

To specify that the security appliance redirect HTTP connections to HTTPS, use the **http redirect** command in global configuration mode. To remove a specified http redirect command from the configuration, use the **no** version of this command. To remove all http redirect commands from the configuration, use the **no** version of this command without arguments.

**http redirect** *interface* [*port*]

**no http redirect** [*interface*]

## Syntax Description

<i>interface</i>	Identifies the interface for which the security appliance should redirect HTTP requests to HTTPS.
<i>port</i>	Identifies the port the security appliance listens on for HTTP requests, which it then redirects to HTTPS. By default it listens on port 80,

## Defaults

HTTP redirect is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The interface requires an access list that permits HTTP. Otherwise the security appliance does not listen to port 80, or to any other port that you configure for HTTP.

## Examples

The following example shows how to configure HTTP redirect for the inside interface, keeping the default port 80:

```
hostname(config)# http redirect inside
```

## Related Commands

Command	Description
<b>clear configure http</b>	Removes the HTTP configuration: disables the HTTP server and removes hosts that can access the HTTP server.
<b>http</b>	Specifies hosts that can access the HTTP server by IP address and subnet mask. Specifies the security appliance interface through which the host accesses the HTTP server.
<b>http authentication-certificate</b>	Requires authentication via certificate from users who are establishing HTTPS connections to the security appliance.
<b>http server enable</b>	Enables the HTTP server.
<b>show running-config http</b>	Displays the hosts that can access the HTTP server, and whether or not the HTTP server is enabled.

# http server enable

To enable the security appliance HTTP server, use the **http server enable** command in global configuration mode. To disable the HTTP server, use the **no** form of this command.

**http server enable** [*port*]

## Syntax Description

<i>port</i>	The port to use for HTTP connections. The range is 1-65535. The default port is 443.
-------------	--

## Defaults

The HTTP server is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example shows how to enable the HTTP server.

```
hostname(config)# http server enable
```

## Related Commands

Command	Description
<b>clear configure http</b>	Removes the HTTP configuration: disables the HTTP server and removes hosts that can access the HTTP server.
<b>http</b>	Specifies hosts that can access the HTTP server by IP address and subnet mask. Specifies the security appliance interface through which the host accesses the HTTP server.
<b>http authentication-certificate</b>	Requires authentication via certificate from users who are establishing HTTPS connections to the security appliance.
<b>http redirect</b>	Specifies that the security appliance redirect HTTP connections to HTTPS.
<b>show running-config http</b>	Displays the hosts that can access the HTTP server, and whether or not the HTTP server is enabled.



# https-proxy

To configure an HTTPS proxy server, use the **https-proxy** command in webvpn mode. To remove the HTTPS proxy server from the configuration, use the no form of this command.

This is an external proxy server the security appliance uses for HTTPS requests.

```
https-proxy address [port]
```

```
no https-proxy
```

## Syntax Description

<i>address</i>	Specifies the IP address for the external HTTPS proxy server.
<i>port</i>	Specifies the port the HTTPS proxy server uses. The default port is 443, which is the port the security appliance uses if you do not supply a value.

## Defaults

No HTTPS proxy server is configured by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Webvpn	•	—	•	—	—

## Command History

Release	Modification
7.0.1	This command was introduced.

## Examples

The following example shows how to configure an HTTPS proxy server with an IP address of 10.10.10.1 using port 443:

```
hostname(config)# webvpn
hostname(config-webvpn)# https-proxy 10.10.10.1 443
```

# hw-module module password-reset

To reset the password on the hardware module to the default value, “cisco,” use the **hw-module module password reset** command in privileged EXEC mode.

**hw-module module slot# password-reset**

**Syntax Description**

<b>slot#</b>	Specifies the slot number.
--------------	----------------------------

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.2(2)	This command was introduced.

**Usage Guidelines** This command is only valid when the hardware module is in the Up state and supports password reset. On the AIP SSM, running this command results in rebooting of the module. The module is offline until the rebooting is finished, which may take several minutes. You can run the **show module** command to monitor the module state.

The command always prompts for confirmation. If the command succeeds, no other output appears. If the command fails, an error message appears that explains why the failure occurred. The possible error messages are as follows:

Unable to reset the password on the module in slot 1

Unable to reset the password on the module in slot 1 - unknown module state

Unable to reset the password on the module in slot 1 - no module installed

Failed to reset the password on the module in slot 1 - module not in Up state

Unable to reset the password on the module in slot 1 - unknown module type

The module in slot [n] does not support password reset

Unable to reset the password on the module in slot 1 - no application found

The SSM application version does not support password reset

Failed to reset the password on the module in slot 1

### Examples

The following example resets a password on a hardware module in slot 1:

```
hostname (config)# hw-module module 1 password-reset
Reset the password on module in slot 1? [confirm] y
```

### Related Commands

Command	Description
<b>hw-module module recover</b>	Recovers an intelligent SSM by loading a recovery image from a TFTP server.
<b>hw-module module reload</b>	Reloads the intelligent SSM software.
<b>hw-module module reset</b>	Shuts down and resets the SSM hardware.
<b>hw-module module shutdown</b>	Shuts down the SSM software in preparation for being powered off without losing configuration data.
<b>show module</b>	Shows SSM information.

# hw-module module recover

To load a recovery software image from a TFTP server to an intelligent SSM (for example, the AIP SSM), or to configure network settings to access the TFTP server, use the **hw-module module recover** command in privileged EXEC mode. You might need to recover an SSM using this command if, for example, the SSM is unable to load a local image. This command is not available for interface SSMs (for example, the 4GE SSM).

```
hw-module module 1 recover {boot | stop | configure [url tftp_url | ip port_ip_address |
gateway gateway_ip_address | vlan vlan_id]}
```

## Syntax Description

<b>1</b>	Specifies the slot number, which is always 1.
<b>boot</b>	Initiates recovery of this SSM and downloads a recovery image according to the <b>configure</b> settings. The SSM then reboots from the new image.
<b>configure</b>	Configures the network parameters to download a recovery image. If you do not enter any network parameters after the <b>configure</b> keyword, you are prompted for the information.
<b>gateway</b> <i>gateway_ip_address</i>	(Optional) The gateway IP address for access to the TFTP server through the SSM management interface.
<b>ip</b> <i>port_ip_address</i>	(Optional) The IP address of the SSM management interface.
<b>stop</b>	Stops the recovery action, and stops downloading the recovery image. The SSM boots from the original image. You must enter this command within 30 to 45 seconds after starting recovery using the <b>hw-module module boot</b> command. If you issue the <b>stop</b> command after this period, it might cause unexpected results, such as the SSM becoming unresponsive.
<b>url</b> <i>tftp_url</i>	(Optional) The URL for the image on a TFTP server, in the following format: <b>tftp://server/[path]/filename</b>
<b>vlan</b> <i>vlan_id</i>	(Optional) Sets the VLAN ID for the management interface.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

This command is only available when the SSM is in the Up, Down, Unresponsive, or Recovery state. See the **show module** command for state information.

**Examples**

The following example sets the SSM to download an image from a TFTP server:

```
hostname# hw-module module 1 recover configure
Image URL [tftp://127.0.0.1/myimage]: tftp://10.1.1.1/ids-newimg
Port IP Address [127.0.0.2]: 10.1.2.10
Port Mask [255.255.255.254]: 255.255.255.0
Gateway IP Address [1.1.2.10]: 10.1.2.254
VLAN ID [0]: 100
```

The following example recovers the SSM:

```
hostname# hw-module module 1 recover boot
The module in slot 1 will be recovered. This may
erase all configuration and all data on that device and
attempt to download a new image for it.
Recover module in slot 1? [confirm]
```

**Related Commands**

Command	Description
<b>debug module-boot</b>	Shows debug messages about the SSM booting process.
<b>hw-module module reset</b>	Shuts down an SSM and performs a hardware reset.
<b>hw-module module reload</b>	Reloads the intelligent SSM software.
<b>hw-module module shutdown</b>	Shuts down the SSM software in preparation for being powered off without losing configuration data.
<b>show module</b>	Shows SSM information.

# hw-module module reload

To reload an intelligent SSM software (for example, the AIP SSM), use the **hw-module module reload** command in privileged EXEC mode. This command is not available for interface SSMs (for example, the 4GE SSM).

## hw-module module 1 reload

**Syntax Description** **1** Specifies the slot number, which is always 1.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines** This command is only valid when the SSM status is Up. See the **show module** command for state information.

This command differs from the **hw-module module reset** command, which also performs a hardware reset.

**Examples** The following example reloads the SSM in slot 1:

```
hostname# hw-module module 1 reload
Reload module in slot 1? [confirm] y
Reload issued for module in slot 1
%XXX-5-505002: Module in slot 1 is reloading. Please wait...
%XXX-5-505006: Module in slot 1 is Up.
```

**Related Commands**

Command	Description
<b>debug module-boot</b>	Shows debug messages about the SSM booting process.
<b>hw-module module recover</b>	Recovers an intelligent SSM by loading a recovery image from a TFTP server.

Command	Description
<b>hw-module module reset</b>	Shuts down an SSM and performs a hardware reset.
<b>hw-module module shutdown</b>	Shuts down the SSM software in preparation for being powered off without losing configuration data.
<b>show module</b>	Shows SSM information.

# hw-module module reset

To shut down and reset the SSM hardware, use the **hw-module module reset** command in privileged EXEC mode.

## hw-module module 1 reset

### Syntax Description

**1** Specifies the slot number, which is always 1.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

This command is only valid when the SSM status is Up, Down, Unresponsive, or Recover. See the **show module** command for state information.

When the SSM is in an Up state, the **hw-module module reset** command prompts you to shut down the software before resetting.

You can recover intelligent SSMs (for example, the AIP SSM) using the **hw-module module recover** command. If you enter the **hw-module module reset** while the SSM is in a Recover state, the SSM does not interrupt the recovery process. The **hw-module module reset** command performs a hardware reset of the SSM, and the SSM recovery continues after the hardware reset. You might want to reset the SSM during recovery if the SSM hangs; a hardware reset might resolve the issue.

This command differs from the **hw-module module reload** command which only reloads the software and does not perform a hardware reset.

### Examples

The following example resets an SSM in slot 1 that is in the Up state:

```
hostname# hw-module module 1 reset
The module in slot 1 should be shut down before
resetting it or loss of configuration may occur.
Reset module in slot 1? [confirm] y
Reset issued for module in slot 1
%XXX-5-505001: Module in slot 1 is shutting down. Please wait...
%XXX-5-505004: Module in slot 1 shutdown is complete.
```



```
%XXX-5-505003: Module in slot 1 is resetting. Please wait...  
%XXX-5-505006: Module in slot 1 is Up.
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>debug module-boot</b>	Shows debug messages about the SSM booting process.
<b>hw-module module recover</b>	Recovers an intelligent SSM by loading a recovery image from a TFTP server.
<b>hw-module module reload</b>	Reloads the intelligent SSM software.
<b>hw-module module shutdown</b>	Shuts down the SSM software in preparation for being powered off without losing configuration data.
<b>show module</b>	Shows SSM information.

# hw-module module shutdown

To shut down the SSM software, use the **hw-module module shutdown** command in privileged EXEC mode.

## hw-module module 1 shutdown

<b>Syntax Description</b>	<b>1</b>	Specifies the slot number, which is always 1.
---------------------------	----------	---

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

<b>Usage Guidelines</b>	Shutting down the SSM software prepares the SSM to be safely powered off without losing configuration data.
-------------------------	---

This command is only valid when the SSM status is Up or Unresponsive. See the **show module** command for state information.

<b>Examples</b>	The following example shuts down an SSM in slot 1:
-----------------	--

```
hostname# hw-module module 1 shutdown
Shutdown module in slot 1? [confirm] y
Shutdown issued for module in slot 1
hostname#
%XXX-5-505001: Module in slot 1 is shutting down. Please wait...
%XXX-5-505004: Module in slot 1 shutdown is complete.
```

Related Commands	Command	Description
	<b>debug module-boot</b>	Shows debug messages about the SSM booting process.
	<b>hw-module module recover</b>	Recovers an intelligent SSM by loading a recovery image from a TFTP server.

Command	Description
<b>hw-module module reload</b>	Reloads the intelligent SSM software.
<b>hw-module module reset</b>	Shuts down an SSM and performs a hardware reset.
<b>show module</b>	Shows SSM information.





## icmp through imap4s Commands

---

# icmp

To configure access rules for ICMP traffic that terminates at a security appliance interface, use the **icmp** command. To remove the configuration, use the **no** form of this command.

```
icmp {permit | deny} ip_address net_mask [icmp_type] if_name
```

```
no icmp {permit | deny} ip_address net_mask [icmp_type] if_name
```

## Syntax Description

<b>deny</b>	Deny access if the conditions are matched.
<i>icmp_type</i>	(Optional) ICMP message type (see Table 3).
<i>if_name</i>	The interface name.
<i>ip_address</i>	The IP address of the host sending ICMP messages to the interface.
<i>net_mask</i>	The mask to be applied to <i>ip_address</i> .
<b>permit</b>	Permit access if the conditions are matched.

## Defaults

The default behavior of the security appliance is to allow all ICMP traffic *to* the security appliance interfaces. However, by default the security appliance does not respond to ICMP echo requests directed to a broadcast address. The security appliance also denies ICMP messages received at the outside interface for destinations on a protected interface.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
6.0	This command was introduced.

## Usage Guidelines

The **icmp** command controls ICMP traffic that terminates on any security appliance interface. If no ICMP control list is configured, then the security appliance accepts all ICMP traffic that terminates at any interface, including the outside interface. However, by default, the security appliance does not respond to ICMP echo requests directed to a broadcast address.

The **icmp deny** command disables pinging to an interface, and the **icmp permit** command enables pinging to an interface. With pinging disabled, the security appliance cannot be detected on the network. This is also referred to as configurable proxy pinging.

Use the **access-list extended** or **access-group** commands for ICMP traffic that is routed *through* the security appliance for destinations on a protected interface.

We recommend that you grant permission for the ICMP unreachable message type (type 3). Denying ICMP unreachable messages disables ICMP Path MTU discovery, which can halt IPsec and PPTP traffic. See RFC 1195 and RFC 1435 for details about Path MTU Discovery.

If an ICMP control list is configured for an interface, then the security appliance first matches the specified ICMP traffic and then applies an implicit deny for all other ICMP traffic on that interface. That is, if the first matched entry is a permit entry, the ICMP packet continues to be processed. If the first matched entry is a deny entry or an entry is not matched, the security appliance discards the ICMP packet and generates a syslog message. An exception is when an ICMP control list is not configured; in that case, a **permit** statement is assumed.

Table 3 lists the supported ICMP type values.

**Table 14-1 ICMP Type Literals**

ICMP Type	Literal
0	echo-reply
3	unreachable
4	source-quench
5	redirect
6	alternate-address
8	echo
9	router-advertisement
10	router-solicitation
11	time-exceeded
12	parameter-problem
13	timestamp-request
14	timestamp-reply
15	information-request
16	information-reply
17	mask-request
18	mask-reply
31	conversion-error
32	mobile-redirect

### Examples

The following example denies all ping requests and permits all unreachable messages at the outside interface:

```
hostname(config)# icmp permit any unreachable outside
```

Continue entering the **icmp deny any interface** command for each additional interface on which you want to deny ICMP traffic.

The following example permits host 172.16.2.15 or hosts on subnet 172.22.1.0/16 to ping the outside interface:

```
hostname(config)# icmp permit host 172.16.2.15 echo-reply outside
hostname(config)# icmp permit 172.22.1.0 255.255.0.0 echo-reply outside
```

```
hostname(config)# icmp permit any unreachable outside
```

---

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>clear configure icmp</b>	Clears the ICMP configuration.
<b>debug icmp</b>	Enables the display of debug information for ICMP.
<b>show icmp</b>	Displays ICMP configuration.
<b>timeout icmp</b>	Configures the idle timeout for ICMP.



# icmp-object

To add icmp-type object groups, use the **icmp-object** command in icmp-type configuration mode. To remove network object groups, use the **no** form of this command.

**icmp-object** *icmp\_type*

**no group-object** *icmp\_type*

## Syntax Description

*icmp\_type* Specifies an icmp-type name.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Icmp-type configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **icmp-object** command is used with the **object-group** command to define an icmp-type object. It is used in icmp-type configuration mode.

ICMP type numbers and names include:

Number	ICMP Type Name
0	echo-reply
3	unreachable
4	source-quench
5	redirect
6	alternate-address
8	echo
9	router-advertisement
10	router-solicitation
11	time-exceeded
12	parameter-problem

Number	ICMP Type Name
13	timestamp-request
14	timestamp-reply
15	information-request
16	information-reply
17	address-mask-request
18	address-mask-reply
31	conversion-error
32	mobile-redirect

### Examples

The following example shows how to use the **icmp-object** command in icmp-type configuration mode:

```
hostname(config)# object-group icmp-type icmp_allowed
hostname(config-icmp-type)# icmp-object echo
hostname(config-icmp-type)# icmp-object time-exceeded
hostname(config-icmp-type)# exit
```

### Related Commands

Command	Description
<b>clear configure object-group</b>	Removes all the <b>object-group</b> commands from the configuration.
<b>network-object</b>	Adds a network object to a network object group.
<b>object-group</b>	Defines object groups to optimize your configuration.
<b>port-object</b>	Adds a port object to a service object group.
<b>show running-config object-group</b>	Displays the current object groups.

# id-cert-issuer

To indicate whether the system accepts peer certificates issued by the CA associated with this trustpoint, use the **id-cert-issuer** command in `crypto ca trustpoint` configuration mode. Use the **no** form of this command to disallow certificates that were issued by the CA associated with the trustpoint. This is useful for trustpoints that represent widely used root CAs.

**id-cert-issuer**

**no id-cert-issuer**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default setting is enabled (identity certificates are accepted).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto ca trustpoint configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use this command to limit certificate acceptance to those issued by the subordinate certificate of a widely used root certificate. If you do not allow this feature, the security appliance rejects any IKE peer certificate signed by this issuer.

## Examples

The following example enters `crypto ca trustpoint` configuration mode for trustpoint central, and lets an administrator accept identity certificates signed by the issuer for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# id-cert-issuer
hostname(ca-trustpoint)#
```

## Related Commands

Command	Description
<b>crypto ca trustpoint</b>	Enters trustpoint submode.
<b>default enrollment</b>	Returns enrollment parameters to their defaults.
<b>enrollment retry count</b>	Specifies the number of retries to attempt to send an enrollment request.

<b>Command</b>	<b>Description</b>
<b>enrollment retry period</b>	Specifies the number of minutes to wait before trying to send an enrollment request.
<b>enrollment terminal</b>	Specifies cut and paste enrollment with this trustpoint.

# id-mismatch

To enable logging for excessive DNS ID mismatches, use the **id-mismatch** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

**id-mismatch** [*count number duration seconds*] **action log**

**no id-mismatch** [*count number duration seconds*] [**action log**]

## Syntax Description

<b>count</b> <i>number</i>	The maximum number of mismatch instances before a system message log is sent.
<b>duration</b> <i>seconds</i>	The period, in seconds, to monitor.

## Defaults

This command is disabled by default. The default rate is 30 in the a period of 3 seconds if the options are not specified when the command is enabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

A high rate of DNS ID mismatches may indicate a cache poisoning attack. This command can be enabled to monitor and alert such attempts. A summarized system message log will be printed if the mismatch rate exceeds the configured value. The **id-mismatch** command provides the system administrator with additional information to the regular event-based system message log.

## Examples

The following example shows how to enable ID mismatch in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# id-mismatch action log
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# id-randomization

To randomize the DNS identifier for a DNS query, use the **id-randomization** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

**id-randomization**

**no id-randomization**

## Syntax Description

This command has no arguments or keywords.

## Defaults

Disabled by default. The DNS identifier from the DNS query does not get modified.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

ID randomization helps protect against cache poisoning attacks.

## Examples

The following example shows how to enable ID randomization in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# id-randomization
```

## Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# igmp

To reinstate IGMP processing on an interface, use the **igmp** command in interface configuration mode. To disable IGMP processing on an interface, use the **no igmp** form of this command.

**igmp**

**no igmp**

**Syntax Description** This command has no arguments or keywords.

**Defaults** Enabled.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Only the **no** form of this command appears in the running configuration.

**Examples** The following example disables IGMP processing on the selected interface:

```
hostname(config-if)# no igmp
```

Related Commands	Command	Description
	<b>show igmp groups</b>	Displays the multicast groups with receivers that are directly connected to the security appliance and that were learned through IGMP.
	<b>show igmp interface</b>	Displays multicast information for an interface.



# igmp access-group

To control the multicast groups that hosts on the subnet serviced by an interface can join, use the **igmp access-group** command in interface configuration mode. To disable groups on the interface, use the **no** form of this command.

**igmp access-group** *acl*

**no igmp access-group** *acl*

## Syntax Description

*acl* Name of an IP access list. You can specify a standard or an extended access list. However, if you specify an extended access list, only the destination address is matched; you should specify **any** for the source.

## Defaults

All groups are allowed to join on an interface.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was moved to interface configuration mode. Earlier versions required you to enter multicast interface configuration mode, which is no longer available.

## Examples

The following example limits hosts permitted by access list 1 to join the group:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp access-group 1
```

## Related Commands

Command	Description
<b>show igmp interface</b>	Displays multicast information for an interface.

# igmp forward interface

To enable forwarding of all IGMP host reports and leave messages received to the interface specified, use the **igmp forward interface** command in interface configuration mode. To remove the forwarding, use the **no** form of this command.

**igmp forward interface** *if-name*

**no igmp forward interface** *if-name*

## Syntax Description

*if-name* Logical name of the interface.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was moved to interface configuration mode. Earlier versions required you to enter multicast interface configuration mode, which is no longer available.

## Usage Guidelines

Enter this command on the input interface. This command is used for stub multicast routing and cannot be configured concurrently with PIM.

## Examples

The following example forwards IGMP host reports from the current interface to the specified interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp forward interface outside
```

## Related Commands

Command	Description
<b>show igmp interface</b>	Displays multicast information for an interface.

# igmp join-group

To configure an interface to be a locally connected member of the specified group, use the **igmp join-group** command in interface configuration mode. To cancel membership in the group, use the **no** form of this command.

```
igmp join-group group-address
```

```
no igmp join-group group-address
```

## Syntax Description

*group-address* IP address of the multicast group.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was moved to interface configuration mode. Earlier versions required you to enter multicast interface configuration mode, which is no longer available.

## Usage Guidelines

This command configures a security appliance interface to be a member of a multicast group. The **igmp join-group** command causes the security appliance to both accept and forward multicast packets destined for the specified multicast group.

To configure the security appliance to forward the multicast traffic without being a member of the multicast group, use the **igmp static-group** command.

## Examples

The following example configures the selected interface to join the IGMP group 255.2.2.2:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp join-group 255.2.2.2
```

## Related Commands

Command	Description
<b>igmp static-group</b>	Configure the interface to be a statically connected member of the specified multicast group.

# igmp limit

To limit the number of IGMP states on a per-interface basis, use the **igmp limit** command in interface configuration mode. To restore the default limit, use the **no** form of this command.

**igmp limit** *number*

**no igmp limit** [*number*]

## Syntax Description

<i>number</i>	Number of IGMP states allowed on the interface. Valid values range from 0 to 500. The default value is 500. Setting this value to 0 prevents learned groups from being added, but manually defined memberships (using the <b>igmp join-group</b> and <b>igmp static-group</b> commands) are still permitted.
---------------	--

## Defaults

The default is 500.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced. It replaced the <b>igmp max-groups</b> command.

## Examples

The following example limits the number of IGMP states on the interface to 250:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp limit 250
```

## Related Commands

Command	Description
<b>igmp</b>	Reinstates IGMP processing on an interface.
<b>igmp join-group</b>	Configure an interface to be a locally connected member of the specified group.
<b>igmp static-group</b>	Configure the interface to be a statically connected member of the specified multicast group.

# igmp query-interval

To configure the frequency at which IGMP host query messages are sent by the interface, use the **igmp query-interval** command in interface configuration mode. To restore the default frequency, use the **no** form of this command.

**igmp query-interval** *seconds*

**no igmp query-interval** *seconds*

## Syntax Description

*seconds* Frequency, in seconds, at which to send IGMP host query messages. Valid values range from 1 to 3600. The default is 125 seconds.

## Defaults

The default query interval is 125 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was moved to interface configuration mode. Earlier versions required you to enter multicast interface configuration mode, which is no longer available.

## Usage Guidelines

Multicast routers send host query messages to discover which multicast groups have members on the networks attached to the interface. Hosts respond with IGMP report messages indicating that they want to receive multicast packets for specific groups. Host query messages are addressed to the all-hosts multicast group, which has an address of 224.0.0.1 TTL value of 1.

The designated router for a LAN is the only router that sends IGMP host query messages:

- For IGMP Version 1, the designated router is elected according to the multicast routing protocol that runs on the LAN.
- For IGMP Version 2, the designated router is the lowest IP-addressed multicast router on the subnet.

If the router hears no queries for the timeout period (controlled by the **igmp query-timeout** command), it becomes the querier.



### Caution

Changing this value may severely impact multicast forwarding.

---

**Examples**

The following example changes the IGMP query interval to 120 seconds:

```
hostname(config)# interface gigabitethernet 0/0  
hostname(config-if)# igmp query-interval 120
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>igmp query-max-response-time</b>	Configures the maximum response time advertised in IGMP queries.
<b>igmp query-timeout</b>	Configures the timeout period before the router takes over as the querier for the interface after the previous querier has stopped querying.

## igmp query-max-response-time

To specify the maximum response time advertised in IGMP queries, use the **igmp query-max-response-time** command in interface configuration mode. To restore the default response time value, use the **no** form of this command.

**igmp query-max-response-time** *seconds*

**no igmp query-max-response-time** [*seconds*]

<b>Syntax Description</b>	<i>seconds</i>	Maximum response time, in seconds, advertised in IGMP queries. Valid values are from 1 to 25. The default value is 10 seconds.
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<b>Defaults</b>	10 seconds.
-----------------	-------------

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was moved to interface configuration mode. Earlier versions required you to enter multicast interface configuration mode, which is no longer available.

**Usage Guidelines** This command is valid only when IGMP Version 2 or 3 is running.

This command controls the period during which the responder can respond to an IGMP query message before the router deletes the group.

**Examples** The following example changes the maximum query response time to 8 seconds:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp query-max-response-time 8
```

### Related Commands



Command	Description
<b>igmp query-interval</b>	Configures the frequency at which IGMP host query messages are sent by the interface.
<b>igmp query-timeout</b>	Configures the timeout period before the router takes over as the querier for the interface after the previous querier has stopped querying.

# igmp query-timeout

To configure the timeout period before the interface takes over as the querier after the previous querier has stopped querying, use the **igmp query-timeout** command in interface configuration mode. To restore the default value, use the **no** form of this command.

**igmp query-timeout** *seconds*

**no igmp query-timeout** [*seconds*]

## Syntax Description

<i>seconds</i>	Number of seconds that the router waits after the previous querier has stopped querying and before it takes over as the querier. Valid values are from 60 to 300 seconds. The default value is 255 seconds.
----------------	---

## Defaults

The default query interval is 255 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command requires IGMP Version 2 or 3.

## Examples

The following example configures the router to wait 200 seconds from the time it received the last query before it takes over as the querier for the interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp query-timeout 200
```

## Related Commands

Command	Description
<b>igmp query-interval</b>	Configures the frequency at which IGMP host query messages are sent by the interface.
<b>igmp query-max-response-time</b>	Configures the maximum response time advertised in IGMP queries.

# igmp static-group

To configure the interface to be a statically connected member of the specified multicast group, use the **igmp static-group** command in interface configuration mode. To remove the static group entry, use the **no** form of this command.

```
igmp static-group group
```

```
no igmp static-group group
```

## Syntax Description

<i>group</i>	IP multicast group address.
--------------	-----------------------------

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

When configured with the **igmp static-group** command, the security appliance interface does not accept multicast packets destined for the specified group itself; it only forwards them. To configure the security appliance both accept and forward multicast packets for a specific multicast group, use the **igmp join-group** command. If the **igmp join-group** command is configured for the same group address as the **igmp static-group** command, the **igmp join-group** command takes precedence, and the group behaves like a locally joined group.

## Examples

The following example adds the selected interface to the multicast group 239.100.100.101:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp static-group 239.100.100.101
```

## Related Commands

Command	Description
<b>igmp join-group</b>	Configures an interface to be a locally connected member of the specified group.

# igmp version

To configure which version of IGMP the interface uses, use the **igmp version** command in interface configuration mode. To restore version to the default, use the **no** form of this command.

**igmp version** {1 | 2}

**no igmp version** [1 | 2]

## Syntax Description

<b>1</b>	IGMP Version 1.
<b>2</b>	IGMP Version 2.

## Defaults

IGMP Version 2.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was moved to interface configuration mode. Earlier versions required you to enter multicast interface configuration mode, which is no longer available.

## Usage Guidelines

All routers on the subnet must support the same version of IGMP. Hosts can have any IGMP version (1 or 2) and the security appliance will correctly detect their presence and query them appropriately.

Some commands require IGMP Version 2, such as the **igmp query-max-response-time** and **igmp query-timeout** commands.

## Examples

The following example configures the selected interface to use IGMP Version 1:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# igmp version 1
```

## Related Commands

Command	Description
<b>igmp query-max-response-time</b>	Configures the maximum response time advertised in IGMP queries.
<b>igmp query-timeout</b>	Configures the timeout period before the router takes over as the querier for the interface after the previous querier has stopped querying.

# ignore lsa mospf

To suppress the sending of syslog messages when the router receives link-state advertisement (LSA) Type 6 Multicast OSPF (MOSPF) packets, use the **ignore lsa mospf** command in router configuration mode. To restore the sending of the syslog messages, use the **no** form of this command.

**ignore lsa mospf**

**no ignore lsa mospf**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Router configuration	•	—	•	—	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** Type 6 MOSPF packets are unsupported.

**Examples** The following example cause LSA Type 6 MOSPF packets to be ignored:

```
hostname(config-router)# ignore lsa mospf
```

Related Commands	Command	Description
	<b>show running-config</b> <b>router ospf</b>	Displays the OSPF router configuration.

# im

To enable instant messaging over SIP, use the **im** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no im** form of this command.

**im**

**no im**

## Syntax Description

This command has no arguments or keywords.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to enable instant messaging over SIP in a SIP inspection policy map:

```
hostname(config)# policy-map type inspect sip sip_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# im
```

## Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# imap4s

To enter IMAP4S configuration mode, use the **imap4s** command in global configuration mode. To remove any commands entered in IMAP4S command mode, use the **no** form of this command.

IMAP4 is a client/server protocol in which your Internet server receives and holds e-mail for you. You (or your e-mail client) can view just the heading and the sender of the letter and then decide whether to download the mail. You can also create and manipulate multiple folders or mailboxes on the server, delete messages, or search for certain parts or an entire note. IMAP requires continual access to the server during the time that you are working with your mail. IMAP4S lets you receive e-mail over an SSL connection.

**imap4s**

**no imap4s**

## Syntax Description

This command has no arguments or keywords.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example shows how to enter IMAP4S configuration mode:

```
hostname(config)# imap4s
hostname(config-imap4s)#
```

## Related Commands

Command	Description
<b>clear configure imap4s</b>	Removes the IMAP4S configuration.
<b>show running-config imap4s</b>	Displays the running configuration for IMAP4S.









## **inspect ctique through inspect xdmcp Commands**

---

# inspect ctiqbe

To enable CTIQBE protocol inspection, use the **inspect ctiqbe** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To disable inspection, use the **no** form of this command.

**inspect ctiqbe**

**no inspect ctiqbe**

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced in 7.0(1). It replaces the previously existing <b>fixup</b> command, which is now deprecated.

## Usage Guidelines

The **inspect ctiqbe** command enables CTIQBE protocol inspection, which supports NAT, PAT, and bidirectional NAT. This enables Cisco IP SoftPhone and other Cisco TAPI/JTAPI applications to work successfully with Cisco CallManager for call setup across the security appliance.

The Telephony Application Programming Interface (TAPI) and Java Telephony Application Programming Interface (JTAPI) are used by many Cisco VoIP applications. Computer Telephony Interface Quick Buffer Encoding (CTIQBE) is used by Cisco TAPI Service Provider (TSP) to communicate with Cisco CallManager.

The following summarizes limitations that apply when using CTIQBE application inspection:

- CTIQBE application inspection does not support configurations using the **alias** command.
- Stateful Failover of CTIQBE calls is *not* supported.
- Using the **debug ctiqbe** command may delay message transmission, which may have a performance impact in a real-time environment. When you enable this debugging or logging and Cisco IP SoftPhone seems unable to complete call setup through the security appliance, increase the timeout values in the Cisco TSP settings on the system running Cisco IP SoftPhone.
- CTIQBE application inspection does *not* support CTIQBE messages fragmented in multiple TCP packets.

The following summarizes special considerations when using CTIQBE application inspection in specific scenarios:

- If two Cisco IP SoftPhones are registered with different Cisco CallManagers, which are connected to different interfaces of the security appliance, calls between these two phones will fail.
- When Cisco CallManager is located on the higher security interface compared to Cisco IP SoftPhones, if NAT or outside NAT is required for the Cisco CallManager IP address, the mapping must be static as Cisco IP SoftPhone requires the Cisco CallManager IP address to be specified explicitly in its Cisco TSP configuration on the PC.
- When using PAT or Outside PAT, if the Cisco CallManager IP address is to be translated, its TCP port 2748 must be statically mapped to the **same port** of the PAT (interface) address for Cisco IP SoftPhone registrations to succeed. The CTIQBE listening port (TCP 2748) is fixed and is not user-configurable on Cisco CallManager, Cisco IP SoftPhone, or Cisco TSP.

### Inspecting Signaling Messages

For inspecting signaling messages, the **inspect ctiqbe** command often needs to determine locations of the media endpoints (for example, IP phones).

This information is used to prepare access-control and NAT state for media traffic to traverse the firewall transparently without manual configuration.

In determining these locations, the **inspect ctiqbe** command does **not** use the tunnel default gateway route. A tunnel default gateway route is a route of the form **route interface 0 0 metric tunneled**. This route overrides the default route for packets that egress from IPSec tunnels. Therefore, if the **inspect ctiqbe** command is desired for VPN traffic, do not configure the tunnel default gateway route. Instead, use other static routing or dynamic routing.

### Examples

You enable the CTIQBE inspection engine as shown in the following example, which creates a class map to match CTIQBE traffic on the default port (2748). The service policy is then applied to the outside interface.

```
hostname(config)# class-map ctiqbe-port
hostname(config-cmap)# match port tcp eq 2748
hostname(config-cmap)# exit
hostname(config)# policy-map ctiqbe_policy
hostname(config-pmap)# class ctiqbe-port
hostname(config-pmap-c)# inspect ctiqbe
hostname(config-pmap-c)# exit
hostname(config)# service-policy ctiqbe_policy interface outside
```

To enable CTIQBE inspection for all interfaces, use the **global** parameter in place of **interface outside**.

### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>show conn</b>	Displays the connection state for different connection types.
<b>show ctiqbe</b>	Displays information regarding the CTIQBE sessions established across the security appliance. Displays information about the media connections allocated by the CTIQBE inspection engine.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types.

# inspect dcerpc

To enable inspection of DCERPC traffic destined for the endpoint-mapper, use the **inspect dcerpc** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

```
inspect dcerpc [map_name]
```

```
no inspect dcerpc [map_name]
```

## Syntax Description

*map\_name* (Optional) The name of the DCERPC map.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **inspect dcerpc** command enables or disables application inspection for the DCERPC protocol.

## Examples

The following example shows how to define a DCERPC inspection policy map with the timeout configured for DCERPC pinholes.

```
hostname(config)# policy-map type inspect dcerpc dcerpc_map
hostname(config-pmap)# timeout pinhole 0:10:00
```

```
hostname(config)# class-map dcerpc
hostname(config-cmap)# match port tcp eq 135
```

```
hostname(config)# policy-map global-policy
hostname(config-pmap)# class dcerpc
hostname(config-pmap-c)# inspect msrpc dcerpc-map
```

```
hostname(config)# service-policy global-policy global
```

## Related Commands

<b>Commands</b>	<b>Description</b>
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config</b> <b>policy-map</b>	Display all current policy map configurations.
<b>timeout pinhole</b>	Configures the timeout for DCERPC pinholes and overrides the global system pinhole timeout.

# inspect dns

To enable DNS inspection (if it has been previously disabled), use the **inspect dns** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. Use the **inspect dns** command to specify the maximum DNS packet length. To disable DNS inspection, use the **no** form of this command.

```
inspect dns [map_name]
```

```
no inspect dns [map_name]
```

Syntax Description	<i>map_name</i>	(Optional) The name of the DNS map.
--------------------	-----------------	-------------------------------------

Defaults	This command is enabled by default.
----------	-------------------------------------

Command Modes	The following table shows the modes in which you can enter the command:
---------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

Usage Guidelines	DNS guard tears down the DNS session associated with a DNS query as soon as the DNS reply is forwarded by the security appliance. DNS guard also monitors the message exchange to ensure that the ID of the DNS reply matches the ID of the DNS query.
------------------	--

When DNS inspection is enabled, which it is the default, the security appliance performs the following additional tasks:

- Translates the DNS record based on the configuration completed using the **alias**, **static** and **nat** commands (DNS rewrite). Translation only applies to the A-record in the DNS reply. Therefore, reverse lookups, which request the PTR record, are not affected by DNS rewrite.



Note	DNS rewrite is not applicable for PAT because multiple PAT rules are applicable for each A-record and the PAT rule to use is ambiguous.
------	---

- Enforces the maximum DNS message length (the default is 512 bytes and the maximum length is 65535 bytes). Reassembly is performed as necessary to verify that the packet length is less than the maximum length configured. The packet is dropped if it exceeds the maximum length.



- Enforces a domain-name length of 255 bytes and a label length of 63 bytes.
- Verifies the integrity of the domain-name referred to by the pointer if compression pointers are encountered in the DNS message.
- Checks to see if a compression pointer loop exists.

A single connection is created for multiple DNS sessions, as long as they are between the same two hosts, and the sessions have the same 5-tuple (source/destination IP address, source/destination port, and protocol). DNS identification is tracked by *app\_id*, and the idle timer for each *app\_id* runs independently.

Because the *app\_id* expires independently, a legitimate DNS response can only pass through the security appliance within a limited period of time and there is no resource build-up. However, if you enter the **show conn** command, you will see the idle timer of a DNS connection being reset by a new DNS session. This is due to the nature of the shared DNS connection and is by design.

### How DNS Rewrite Works

When DNS inspection is enabled, DNS rewrite provides full support for NAT of DNS messages originating from any interface.

If a client on an inside network requests DNS resolution of an inside address from a DNS server on an outside interface, the DNS A-record is translated correctly. If the DNS inspection engine is disabled, the A-record is not translated.

DNS rewrite performs two functions:

- Translating a public address (the routable or “mapped” address) in a DNS reply to a private address (the “real” address) when the DNS client is on a private interface.
- Translating a private address to a public address when the DNS client is on the public interface.

As long as DNS inspection remains enabled, you can configure DNS rewrite using the **alias**, **static**, or **nat** commands. For details about the syntax and function of these commands, refer to the appropriate command page.

### Examples

The following example changes the maximum DNS packet length to 1500 bytes. Although DNS inspection is enabled by default, you still need to create a traffic map to identify DNS traffic and then apply the policy map to the appropriate interface.

```
hostname(config)# class-map dns-port
hostname(config-cmap)# match port udp eq 53
hostname(config-cmap)# exit
hostname(config)# policy-map sample_policy
hostname(config-pmap)# class dns-port
hostname(config-pmap-c)# inspect dns maximum-length 1500
hostname(config-pmap-c)# exit
hostname(config)# service-policy sample_policy interface outside
```

To change the maximum DNS packet length for all interfaces, use the **global** parameter in place of **interface outside**.

The following example shows how to disable DNS:

```
hostname(config)# policy-map sample_policy
hostname(config-pmap)# class dns-port
hostname(config-pmap-c)# no inspect dns
hostname(config-pmap-c)# exit
hostname(config)# service-policy sample_policy interface outside
```

Related Commands	Commands	Description
	<b>class-map</b>	Defines the traffic class to which to apply security actions.
	<b>debug dns</b>	Enables debug information for DNS.
	<b>policy-map</b>	Associates a class map with specific security actions.
	<b>service-policy</b>	Applies a policy map to one or more interfaces.

# inspect esmtp

To enable SMTP application inspection or to change the ports to which the security appliance listens, use the **inspect esmtp** command in class configuration mode. The class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

**inspect esmtp**

**no inspect esmtp**

## Syntax Description

This command has no arguments or keywords.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

## Usage Guidelines

ESMTP application inspection provides improved protection against SMTP-based attacks by restricting the types of SMTP commands that can pass through the security appliance and by adding monitoring capabilities.



**Note** ESMTP inspection policy is only applied for traffic flows inbound from low security to high security interfaces. The inspection does not take place for flows from high security to low security interfaces.

ESMTP is an enhancement to the SMTP protocol and is similar in most respects to SMTP. For convenience, the term SMTP is used in this document to refer to both SMTP and ESMTP. The application inspection process for extended SMTP is similar to SMTP application inspection and includes support for SMTP sessions. Most commands used in an extended SMTP session are the same as those used in an SMTP session but an ESMTP session is considerably faster and offers more options related to reliability and security, such as delivery status notification.

The **inspect esmtp** command includes the functionality previously provided by the **fixup smtp** command, and provides additional support for some extended SMTP commands. Extended SMTP application inspection adds support for eight extended SMTP commands, including AUTH, EHLO,

ETRN, HELP, SAML, SEND, SOML and VRFY. Along with the support for seven RFC 821 commands (DATA, HELO, MAIL, NOOP, QUIT, RCPT, RSET), the security appliance supports a total of fifteen SMTP commands.

Other extended SMTP commands, such as ATRN, STARTLS, ONEX, VERB, CHUNKING, and private extensions are not supported. Unsupported commands are translated into Xs, which are rejected by the internal server. This results in a message such as “500 Command unknown: 'XXX'.” Incomplete commands are discarded.

The **inspect esmtp** command changes the characters in the server SMTP banner to asterisks except for the “2”, “0”, “0” characters. Carriage return (CR) and linefeed (LF) characters are ignored.

With SMTP inspection enabled, a Telnet session used for interactive SMTP waits for a valid command and the firewall esmtp state machine keeps the correct states for the session if the following rules are not observed: SMTP commands must be at least four characters in length; must be terminated with carriage return and line feed; and must wait for a response before issuing the next reply.

An SMTP server responds to client requests with numeric reply codes and optional human readable strings. SMTP application inspection controls and reduces the commands that the user can use as well as the messages that the server returns. SMTP inspection performs three primary tasks:

- Restricts SMTP requests to seven basic SMTP commands and eight extended commands.
- Monitors the SMTP command-response sequence.
- Generates an audit trail—Audit record 108002 is generated when invalid character embedded in the mail address is replaced. For more information, see RFC 821.

SMTP inspection monitors the command and response sequence for the following anomalous signatures:

- Truncated commands.
- Incorrect command termination (not terminated with <CR><LR>).
- If the PIPE signature is found as a parameter to a MAIL from or RCPT to command, the session is closed. It is not configurable by the user.
- Unexpected transition by the SMTP server.
- For unknown commands, the security appliance changes all the characters in the packet to X. In this case, the server will generate an error code to the client. Because of the change in the packet, the TCP checksum has to be recalculated or adjusted.
- TCP stream editing.
- Command pipelining.

## Examples

You enable the SMTP inspection engine as shown in the following example, which creates a class map to match SMTP traffic on the default port (25). The service policy is then applied to the outside interface.

```
hostname(config)# class-map smtp-port
hostname(config-cmap)# match port tcp eq 25
hostname(config-cmap)# exit
hostname(config)# policy-map smtp_policy
hostname(config-pmap)# class smtp-port
hostname(config-pmap-c)# inspect esmtp
hostname(config-pmap-c)# exit
hostname(config)# service-policy smtp_policy interface outside
```

To enable SMTP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug esmtp</b>	Enables debug information for SMTP.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.
<b>show conn</b>	Displays the connection state for different connection types, including SMTP.

# inspect ftp

To configure the port for FTP inspection or to enable enhanced inspection, use the **inspect ftp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

**inspect ftp** [**strict** [*map\_name*]]

**no inspect ftp** [**strict** [*map\_name*]]

## Syntax Description

<i>map_name</i>	The name of the FTP map.
<b>strict</b>	(Optional) Enables enhanced inspection of FTP traffic and forces compliance with RFC standards.



### Caution

Use caution when moving FTP to a higher port. For example, if you set the FTP port to 2021, all connections that initiate to port 2021 will have their data payload interpreted as FTP commands.

## Defaults

The security appliance listens to port 21 for FTP by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated. The <i>map_name</i> option was added.

## Usage Guidelines

The FTP application inspection inspects the FTP sessions and performs four tasks:

- Prepares dynamic secondary data connections
- Tracks **ftp** command-response sequence
- Generates an audit trail
- NATs embedded IP addresses



### Note

Except for the banner, **inspect ftp** does not support FTP servers that segment FTP command or response.

FTP application inspection prepares secondary channels for FTP data transfer. The channels are allocated in response to a file upload, a file download, or a directory listing event and must be pre-negotiated. The port is negotiated through the PORT or PASV commands.

**Note**

If you disable FTP inspection engines with the **no inspect ftp** command, outbound users can start connections only in passive mode, and all inbound FTP is disabled.

**Using the strict Option**

The **strict** option prevents web browsers from sending embedded commands in FTP requests. Each **ftp** command must be acknowledged before a new command is allowed. Connections sending embedded commands are dropped. The **strict** option only lets an FTP server generate the 227 command and only lets an FTP client generate the PORT command. The 227 and PORT commands are checked to ensure they do not appear in an error string.

**Caution**

The use of the **strict** option may break FTP clients that do not comply with the RFC standards.

If the **strict** option is enabled, each **ftp** command and response sequence is tracked for the following anomalous activity:

- Truncated command—Number of commas in the PORT and PASV reply command is checked to see if it is five. If it is not five, then the PORT command is assumed to be truncated and the TCP connection is closed.
- Incorrect command—Checks the **ftp** command to see if it ends with <CR><LF> characters, as required by the RFC. If it does not, the connection is closed.
- Size of RETR and STOR commands—These are checked against a fixed constant. If the size is greater, then an error message is logged and the connection is closed.
- Command spoofing—The PORT command should always be sent from the client. The TCP connection is denied if a PORT command is sent from the server.
- Reply spoofing—PASV reply command (227) should always be sent from the server. The TCP connection is denied if a PASV reply command is sent from the client. This prevents the security hole when the user executes “227 xxxxx a1, a2, a3, a4, p1, p2.”
- TCP stream editing.
- Invalid port negotiation—The negotiated dynamic port value is checked to see if it is less than 1024. As port numbers in the range from 1 to 1024 are reserved for well-known connections, if the negotiated port falls in this range, then the TCP connection is freed.
- Command pipelining—The number of characters present after the port numbers in the PORT and PASV reply command is cross checked with a constant value of 8. If it is more than 8, then the TCP connection is closed.
- The security appliance replaces the FTP server response to the SYST command with a series of Xs. to prevent the server from revealing its system type to FTP clients. To override this default behavior, use the **no mask-syst-reply** command in FTP map configuration mode.

**Note**

To identify specific FTP commands that are not permitted to pass through the security appliance, identify an FTP map and use the **request-command deny** command. For details, see the **ftp-map** and the **request-command deny** command pages.

### FTP Log Messages

FTP application inspection generates the following log messages:

- An Audit record 302002 is generated for each file that is retrieved or uploaded.
- The **ftp** command is checked to see if it is RETR or STOR and the retrieve and store commands are logged.
- The username is obtained by looking up a table providing the IP address.
- The username, source IP address, destination IP address, NAT address, and the file operation are logged.
- Audit record 201005 is generated if the secondary dynamic channel preparation failed due to memory shortage.

In conjunction with NAT, the FTP application inspection translates the IP address within the application payload. This is described in detail in RFC 959.

### Examples

The following example identifies FTP traffic, defines an FTP map, defines a policy, enables strict FTP inspection, and applies the policy to the outside interface:

```
hostname(config)# class-map ftp-port
hostname(config-cmap)# match port tcp eq 21
hostname(config-cmap)# exit
hostname(config)# ftp-map inbound_ftp
hostname(config-inbound_ftp)# request-command deny put stou appe
hostname(config-ftp-map)# exit
hostname(config)# policy-map inbound_policy
hostname(config-pmap)# class ftp-port
hostname(config-pmap-c)# inspect ftp strict inbound_ftp
hostname(config-pmap-c)# exit
hostname(config-pmap)# exit
hostname(config)# service-policy inbound_policy interface outside
```

To enable strict FTP application inspection for all interfaces, use the **global** parameter in place of **interface outside**.



#### Note

Only specify the port for the FTP control connection and not the data connection. The security appliance stateful inspection engine dynamically prepares the data connection as necessary.

### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>mask-syst-reply</b>	Hides the FTP server response from clients.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>request-command deny</b>	Specifies FTP commands to disallow.
<b>service-policy</b>	Applies a policy map to one or more interfaces.



# inspect gtp

To enable or disable GTP inspection or to define a GTP map for controlling GTP traffic or tunnels, use the **inspect gtp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. Use the **no** form of this command to remove the command.

```
inspect gtp [map_name]
```

```
no inspect gtp [map_name]
```



## Note

GTP inspection requires a special license. If you enter the **inspect gtp** command on a security appliance without the required license, the security appliance displays an error message.

## Syntax Description

*map\_name* (Optional) Name for the GTP map.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

GTP is the tunnelling protocol for GPRS, and helps provide secure access over wireless networks. GPRS is a data network architecture that is designed to integrate with existing GSM networks. It offers mobile subscribers uninterrupted, packet-switched data services to corporate networks and the Internet. For an overview of GTP, refer to the “Applying Application Layer Protocol Inspection” chapter in the *Cisco Security Appliance Command Line Configuration Guide*.

Use the **gtp-map** command to identify a specific map to use for defining the parameters for GTP. When you enter this command, the system enters a configuration mode that lets you enter the different commands used for defining the specific map. The actions that you can specify for messages that fail the criteria set using the different configuration commands include **drop** and **rate-limit**. In addition to these actions, you can specify to **log** the event or not.

After defining the GTP map, you use the **inspect gtp** command to enable the map. Then you use the **class-map**, **policy-map**, and **service-policy** commands to define a class of traffic, to apply the **inspect** command to the class, and to apply the policy to one or more interfaces.

The well-known ports for GTP are as follows:

- 3386
- 2123

The following features are not supported in 7.0(1):

- NAT, PAT, Outside NAT, alias, and Policy NAT
- Ports other than 3386, 2123, and 2152
- Validating the tunneled IP packet and its contents

### Inspecting Signaling Messages

For inspecting signaling messages, the **inspect gtp** command often needs to determine locations of the media endpoints (for example, IP phones).

This information is used to prepare access-control and NAT state for media traffic to traverse the firewall transparently without manual configuration.

In determining these locations, the **inspect gtp** command does **not** use the tunnel default gateway route. A tunnel default gateway route is a route of the form **route interface 0 0 metric tunneled**. This route overrides the default route for packets that egress from IPsec tunnels. Therefore, if the **inspect gtp** command is desired for VPN traffic, do not configure the tunnel default gateway route. Instead, use other static routing or dynamic routing.

### Examples

The following example shows how to use access lists to identify GTP traffic, define a GTP map, define a policy, and apply the policy to the outside interface:

```
hostname(config)# access-list gtp-acl permit udp any any eq 3386
hostname(config)# access-list gtp-acl permit udp any any eq 2123
hostname(config)# class-map gtp-traffic
hostname(config)# match access-list gtp-acl
hostname(config)# gtp-map gtp-policy
hostname(config)# policy-map inspection_policy
hostname(config-pmap)# class gtp-traffic
hostname(config-pmap-c)# inspect gtp gtp-policy
hostname(config)# service-policy inspection_policy interface outside
```



#### Note

This example enables GTP inspection with the default values. To change the default values, refer to the **gtp-map** command page and to the command pages for each command that is entered from GTP map configuration mode.

### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>clear service-policy</b>	Clears global GTP statistics.
<b>inspect gtp</b>	
<b>debug gtp</b>	Displays detailed information about GTP inspection.
<b>service-policy</b>	Applies a policy map to one or more interfaces.
<b>show service-policy</b>	Shows that status and statistics of the <b>inspect gtp</b> policy.
<b>inspect gtp</b>	

# inspect h323

To enable H.323 application inspection or to change the ports to which the security appliance listens, use the **inspect h323** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

```
inspect h323 {h225 | ras}
```

```
no inspect h323 {h225 | ras}
```

## Syntax Description

<b>h225</b>	Enables H.225 signalling inspection.
<b>ras</b>	Enables RAS inspection.

## Defaults

The default port assignments are as follows:

- h323 h225 1720
- h323 ras 1718-1719

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

## Usage Guidelines

The **inspect h323** command provides support for H.323 compliant applications such as Cisco CallManager and VocalTec Gatekeeper. H.323 is a suite of protocols defined by the International Telecommunication Union (ITU) for multimedia conferences over LANs. The security appliance supports H.323 through Version 4, including the H.323 v3 feature Multiple Calls on One Call Signaling Channel.

With H.323 inspection enabled, the security appliance supports multiple calls on the same call signaling channel, a feature introduced with H.323 Version 3. This feature reduces call setup time and reduces the use of ports on the security appliance.

The two major functions of H.323 inspection are as follows:

- NAT the necessary embedded IPv4 addresses in the H.225 and H.245 messages. Because H.323 messages are encoded in PER encoding format, the security appliance uses an ASN.1 decoder to decode the H.323 messages.

- Dynamically allocate the negotiated H.245 and RTP/RTCP connections.

### How H.323 Works

The H.323 collection of protocols collectively may use up to two TCP connection and four to six UDP connections. FastStart uses only one TCP connection, and RAS uses a single UDP connection for registration, admissions, and status.

An H.323 client may initially establish a TCP connection to an H.323 server using TCP port 1720 to request Q.931 call setup. As part of the call setup process, the H.323 terminal supplies a port number to the client to use for an H.245 TCP connection. The H.245 connection is for call negotiation and media channel setup. In environments where H.323 gatekeeper is in use, the initial packet is transmitted using UDP.

H.323 inspection monitors the Q.931 TCP connection to determine the H.245 port number. If the H.323 terminals are not using FastStart, the security appliance dynamically allocates the H.245 connection based on the inspection of the H.225 messages.



#### Note

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The H.225 connection can also be dynamically allocated when using RAS.

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Within each H.245 message, the H.323 endpoints exchange port numbers that are used for subsequent UDP data streams. H.323 inspection inspects the H.245 messages to identify these ports and dynamically creates connections for the media exchange. Real-Time Transport Protocol (RTP) uses the negotiated port number, while RTP Control Protocol (RTCP) uses the next higher port number.

The H.323 control channel handles H.225 and H.245 and H.323 RAS. H.323 inspection uses the following ports.

- 1718—UDP port used for gatekeeper discovery
- 1719—UDP port used for RAS and for gatekeeper discovery
- 1720—TCP Control Port

If the ACF message from the gatekeeper goes through the security appliance, a pinhole will be opened for the H.225 connection. The H.245 signaling ports are negotiated between the endpoints in the H.225 signaling. When an H.323 gatekeeper is used, the security appliance opens an H.225 connection based on inspection of the ACF message. If the security appliance does not see the ACF message, you might need to open an access list for the well-known H.323 port 1720 for the H.225 call signaling.

The security appliance dynamically allocates the H.245 channel after inspecting the H.225 messages and then hooks up to the H.245 channel to be fixed up as well. That means whatever H.245 messages pass through the security appliance pass through the H.245 application inspection, NATing embedded IP addresses and opening the negotiated media channels.

The H.323 ITU standard requires that a TPKT header, defining the length of the message, precede the H.225 and H.245, before being passed on to the reliable connection. Because the TPKT header does not necessarily need to be sent in the same TCP packet as the H.225/H.245 message, the security appliance must remember the TPKT length to process/decode the messages properly. The security appliance keeps a data structure for each connection and that data structure contains the TPKT length for the next expected message.

If the security appliance needs to NAT any IP addresses, then it will have to change the checksum, the UUIE (user-user information element) length, and the TPKT, if included in the TCP packet with the H.225 message. If the TPKT is sent in a separate TCP packet, then the security appliance will proxy ACK that TPKT and append a new TPKT to the H.245 message with the new length.

**Note**

The security appliance does not support TCP options in the Proxy ACK for the TPKT.

Each UDP connection with a packet going through H.323 inspection is marked as an H.323 connection and will time out with the H.323 timeout as configured using the **timeout** command.

**Limitations and Restrictions**

The following are some of the known issues and limitations when using H.323 application inspection:

- Static PAT may not properly translate IP addresses embedded in optional fields within H.323 messages. If you experience this kind of problem, do not use static PAT with H.323.
- H.323 application inspection is not supported with NAT between same-security-level interfaces.
- It has been observed that when a NetMeeting client registers with an H.323 gatekeeper and tries to call an H.323 gateway that is also registered with the H.323 gatekeeper, the connection is established but no voice is heard in either direction. This problem is unrelated to the security appliance.
- If you configure a network static where the network static is the same as a third-party netmask and address, then any outbound H.323 connection fails.

**Inspecting Signaling Messages**

For inspecting signaling messages, the **inspect h323** command often needs to determine locations of the media endpoints (for example, IP phones).

This information is used to prepare access-control and NAT state for media traffic to traverse the firewall transparently without manual configuration.

In determining these locations, the **inspect h323** command does **not** use the tunnel default gateway route. A tunnel default gateway route is a route of the form **route interface 0 0 metric tunneled**. This route overrides the default route for packets that egress from IPsec tunnels. Therefore, if the **inspect h323** command is desired for VPN traffic, do not configure the tunnel default gateway route. Instead, use other static routing or dynamic routing.

**Examples**

You enable the H.323 inspection engine as shown in the following example, which creates a class map to match H.323 traffic on the default port (1720). The service policy is then applied to the outside interface.

```
hostname(config)# class-map h323-port
hostname(config-cmap)# match port tcp eq 1720
hostname(config-cmap)# exit
hostname(config)# policy-map h323_policy
hostname(config-pmap)# class h323-port
hostname(config-pmap-c)# inspect h323
hostname(config-pmap-c)# exit
hostname(config)# service-policy h323_policy interface outside
```

To enable H.323 inspection for all interfaces, use the **global** parameter in place of **interface outside**.

**Related Commands**

Commands	Description
<b>debug h323</b>	Enables the display of debug information for H.323.
<b>show h225</b>	Displays information for H.225 sessions established across the security appliance.

Commands	Description
<b>show h245</b>	Displays information for H.245 sessions established across the security appliance by endpoints using slow start.
<b>show h323-ras</b>	Displays information for H.323 RAS sessions established across the security appliance.
<b>timeout {h225   h323}</b>	Configures idle time after which an H.225 signalling connection or an H.323 control connection will be closed.

# inspect http

To enable HTTP application inspection or to change the ports to which the security appliance listens, use the **inspect http command** in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

```
inspect http [map_name]
```

```
no inspect http [map_name]
```

## Syntax Description

*map\_name* (Optional) The name of the HTTP map.

## Defaults

The default port for HTTP is 80.

Enhanced HTTP inspection is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

## Usage Guidelines

The **inspect http** command protects against specific attacks and other threats that may be associated with HTTP traffic. HTTP inspection performs enhanced HTTP inspection.

Enhanced HTTP inspection verifies that HTTP messages conform to RFC 2616, use RFC-defined methods or supported extension methods, and comply with various other criteria. In many cases, you can configure these criteria and the system response when the criteria are not met. The actions that you can specify for messages that fail the criteria set using the different configuration commands include **allow**, **reset**, or **drop**. In addition to these actions, you can specify to log the event or not.

The criteria that you can apply to HTTP messages include the following:

- Does not include any method on a configurable list.
- Specific transfer encoding method or application type.
- HTTP transaction adheres to RFC specification.
- Message body size is within configurable limits.
- Request and response message header size is within a configurable limit.

- URI length is within a configurable limit.
- The content-type in the message body matches the header.
- The content-type in the response message matches the *accept-type* field in the request message.
- The content-type in the message is included in a predefined internal list.
- Message meets HTTP RFC format criteria.
- Presence or absence of selected supported applications.
- Presence or absence of selected encoding types.

**Note**

The actions that you can specify for messages that fail the criteria set using the different configuration commands include **allow**, **reset**, or **drop**. In addition to these actions, you can specify to log the event or not.

To enable enhanced HTTP inspection, enter the **inspect http http-map** command. The rules that this applies to HTTP traffic are defined by the specific HTTP map, which you configure by entering the **http-map** command and HTTP map configuration mode commands.

**Note**

When you enable HTTP inspection with an HTTP map, strict HTTP inspection with the action reset and log is enabled by default. You can change the actions performed in response to inspection failure, but you cannot disable strict inspection as long as the HTTP map remains enabled.

The **inspect http** command enables or disables logging of the GET request via syslog message 304001.

**Note**

If the **inspect http** command is configured with the **inspect im** command, the **inspect im** command is disabled.

**Examples**

The following example shows how to identify HTTP traffic, define an HTTP map, define a policy, and apply the policy to the outside interface:

```
hostname(config)# class-map http-port
hostname(config-cmap)# match port tcp eq 80
hostname(config-cmap)# exit
hostname(config)# http-map inbound_http
hostname(config-http-map)# content-length min 100 max 2000 action reset log
hostname(config-http-map)# content-type-verification match-req-rsp reset log
hostname(config-http-map)# max-header-length request bytes 100 action log reset
hostname(config-http-map)# max-uri-length 100 action reset log
hostname(config-http-map)# exit
hostname(config)# policy-map inbound_policy
hostname(config-pmap)# class http-port
hostname(config-pmap-c)# inspect http inbound_http
hostname(config-pmap-c)# exit
hostname(config-pmap)# exit
hostname(config)# service-policy inbound_policy interface outside
```

This example causes the security appliance to reset the connection and create a syslog entry when it detects any traffic that contain the following:



- Messages less than 100 bytes or exceeding 2000 bytes
- Unsupported content types
- HTTP headers exceeding 100 bytes
- URIs exceeding 100 bytes

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug appfw</b>	Displays detailed information about HTTP application inspection.
<b>debug http-map</b>	Displays detailed information about traffic associated with an HTTP map.
<b>http-map</b>	Defines an HTTP map for configuring enhanced HTTP inspection.
<b>policy-map</b>	Associates a class map with specific security actions.

# inspect icmp

To configure the ICMP inspection engine, use the **inspect icmp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode.

**inspect icmp**

**no inspect icmp**

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

## Usage Guidelines

The ICMP inspection engine allows ICMP traffic to be inspected like TCP and UDP traffic. Without the ICMP inspection engine, we recommend that you do not allow ICMP through the security appliance in an ACL. Without stateful inspection, ICMP can be used to attack your network. The ICMP inspection engine ensures that there is only one response for each request, and that the sequence number is correct.

When ICMP inspection is disabled, which is the default configuration, ICMP echo reply messages are denied from a lower security interface to a higher security interface, even if it is in response to an ICMP echo request.

## Examples

You enable the ICMP application inspection engine as shown in the following example, which creates a class map to match ICMP traffic using the ICMP protocol ID, which is 1 for IPv4 and 58 for IPv6. The service policy is then applied to the outside interface.

```
hostname(config)# class-map icmp-class
hostname(config-cmap)# match default-inspection-traffic
hostname(config-cmap)# exit
hostname(config)# policy-map icmp_policy
hostname(config-pmap)# class icmp-class
hostname(config-pmap-c)# inspect icmp
hostname(config-pmap-c)# exit
hostname(config)# service-policy icmp_policy interface outside
```

To enable ICMP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

Related Commands	Commands	Description
	<b>class-map</b>	Defines the traffic class to which to apply security actions.
	<b>icmp</b>	Configures access rules for ICMP traffic that terminates at a security appliance interface.
	<b>policy-map</b>	Defines a policy that associates security actions with one or more traffic classes.
	<b>service-policy</b>	Applies a policy map to one or more interfaces.

# inspect icmp error

To enable application inspection for ICMP error messages, use the **inspect icmp error** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode.

**inspect icmp error**

**no inspect icmp error**

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

## Usage Guidelines

Use the **icmp error** command to create xlates for intermediate hops that send ICMP error messages, based on the static/NAT configuration. The security appliance overwrites the packet with the translated IP addresses.

When enabled, the ICMP error inspection engine makes the following changes to the ICMP packet:

- In the IP Header, the NAT IP is changed to the Client IP (Destination Address) and the IP checksum is modified.
- In the ICMP Header, the ICMP checksum is modified due to the changes in the ICMP packet.
- In the Payload, the following changes are made:
  - Original packet NAT IP is changed to the Client IP
  - Original packet NAT port is changed to the Client Port
  - Original packet IP checksum is recalculated

When an ICMP error message is retrieved, whether ICMP error inspection is enabled or not, the ICMP payload is scanned to retrieve the five-tuple (src ip , dest ip, src port, dest port, and ip protocol) from the original packet. A lookup is performed, using the retrieved five-tuple, to determine the original address of the client and to locate an existing session associated with the specific five-tuple. If the session is not found, the ICMP error message is dropped.

**Examples**

You enable the ICMP error application inspection engine as shown in the following example, which creates a class map to match ICMP traffic using the ICMP protocol ID, which is 1 for IPv4 and 58 for IPv6. The service policy is then applied to the outside interface.

```
hostname(config)# class-map icmp-class
hostname(config-cmap)# match default-inspection-traffic
hostname(config-cmap)# exit
hostname(config)# policy-map icmp_policy
hostname(config-pmap)# class icmp-class
hostname(config-pmap-c)# inspect icmp error
hostname(config-pmap-c)# exit
hostname(config)# service-policy icmp_policy interface outside
```

To enable ICMP error inspection for all interfaces, use the **global** parameter in place of **interface outside**.

**Related Commands**

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>icmp</b>	Configures access rules for ICMP traffic that terminates at a security appliance interface.
<b>inspect icmp</b>	Enables or disables the ICMP inspection engine.
<b>policy-map</b>	Defines a policy that associates security actions with one or more traffic classes.
<b>service-policy</b>	Applies a policy map to one or more interfaces.

# inspect ils

To enable ILS application inspection, use the **inspect ils command** in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

**inspect ils**

**no inspect ils**

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

## Usage Guidelines

The **inspect ils** command provides NAT support for Microsoft NetMeeting, SiteServer, and Active Directory products that use LDAP to exchange directory information with an ILS server.

The security appliance supports NAT for ILS, which is used to register and locate endpoints in the ILS or SiteServer Directory. PAT cannot be supported because only IP addresses are stored by an LDAP database.

For search responses, when the LDAP server is located outside, NAT should be considered to allow internal peers to communicate locally while registered to external LDAP servers. For such search responses, xlates are searched first, and then DNAT entries to obtain the correct address. If both of these searches fail, then the address is not changed. For sites using NAT 0 (no NAT) and not expecting DNAT interaction, we recommend that the inspection engine be turned off to provide better performance.

Additional configuration may be necessary when the ILS server is located inside the security appliance border. This would require a hole for outside clients to access the LDAP server on the specified port, typically TCP 389.

Because ILS traffic only occurs on the secondary UDP channel, the TCP connection is disconnected after the TCP inactivity interval. By default, this interval is 60 minutes and can be adjusted using the **timeout** command.

ILS/LDAP follows a client/server model with sessions handled over a single TCP connection. Depending on the client's actions, several of these sessions may be created.

During connection negotiation time, a BIND PDU is sent from the client to the server. Once a successful BIND RESPONSE from the server is received, other operational messages may be exchanged (such as ADD, DEL, SEARCH, or MODIFY) to perform operations on the ILS Directory. The ADD REQUEST and SEARCH RESPONSE PDUs may contain IP addresses of NetMeeting peers, used by H.323 (SETUP and CONNECT messages) to establish the NetMeeting sessions. Microsoft NetMeeting v2.X and v3.X provides ILS support.

The ILS inspection performs the following operations:

- Decodes the LDAP REQUEST/RESPONSE PDUs using the BER decode functions
- Parses the LDAP packet
- Extracts IP addresses
- Translates IP addresses as necessary
- Encodes the PDU with translated addresses using BER encode functions
- Copies the newly encoded PDU back to the TCP packet
- Performs incremental TCP checksum and sequence number adjustment

ILS inspection has the following limitations:

- Referral requests and responses are not supported
- Users in multiple directories are not unified
- Single users having multiple identities in multiple directories cannot be recognized by NAT



#### Note

Because H225 call signalling traffic only occurs on the secondary UDP channel, the TCP connection is disconnected after the interval specified by the TCP **timeout** command. By default, this interval is set at 60 minutes.

#### Examples

You enable the ILS inspection engine as shown in the following example, which creates a class map to match ILS traffic on the default port (389). The service policy is then applied to the outside interface.

```
hostname(config)# class-map ils-port
hostname(config-cmap)# match port tcp eq 389
hostname(config-cmap)# exit
hostname(config)# policy-map ils_policy
hostname(config-pmap)# class ils-port
hostname(config-pmap-c)# inspect ils
hostname(config-pmap-c)# exit
hostname(config)# service-policy ils_policy interface outside
```

To enable ILS inspection for all interfaces, use the **global** parameter in place of **interface outside**.

#### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug ils</b>	Enables debug information for ILS.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.

# inspect im

To enable inspection of IM traffic, use the **inspect im** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

```
inspect im [map_name]
```

```
no inspect im [map_name]
```

## Syntax Description

*map\_name* (Optional) The name of the IM map.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **inspect im** command enables or disables application inspection for the IM protocol.



### Note

The **inspect im** command is disabled if it is configured with the **inspect http** command or the following **filter** commands on port 80: **filter activex**, **filter java**, or **filter url**.

## Examples

The following example shows how to define an IM inspection policy map.

```
hostname(config)# regex loginname1 "ying@yahoo.com"
hostname(config)# regex loginname2 "Kevin@yahoo.com"
hostname(config)# regex loginname3 "rahul@yahoo.com"
hostname(config)# regex loginname3 "darshant@yahoo.com"
hostname(config)# regex yhoo_version_regex "1\."

hostname(config)# class-map type regex match-any yahoo_src_login_name_regex
hostname(config-cmap)# match regex loginname1
hostname(config-cmap)# match regex loginname2

hostname(config)# class-map type regex match-any yahoo_dst_login_name_regex
hostname(config-cmap)# match regex loginname3
```



```

hostname(config-cmap)# match regex loginname4

hostname(config)# class-map type regex match-any yhoo_file_block_list
hostname(config-cmap)# match regex ".*\.gif"
hostname(config-cmap)# match regex ".*\.exe"

hostname(config)# class-map type regex match-any new_im_regexp
hostname(config-cmap)# match regexp "new_im_regexp"

hostname(config)# class-map type inspect im match-all yahoo_im_policy
hostname(config-cmap)# match login-name regex class yhoo_src_login_name_regex
hostname(config-cmap)# match peer-login-name regex class yhoo_dst_login_name_regex

hostname(config)# class-map type inspect im yahoo_im_policy2
hostname(config-cmap)# match version regex yahoo_version_regex

hostname(config)# class-map im_inspect_class_map
hostname(config-cmap)# match default-inspection-traffic

hostname(config)# policy-map type im im_policy_all
hostname(config-pmap)# class yahoo_in_file_xfer_policy
hostname(config-pmap-c)# drop-connection
hostname(config-pmap)# class yhoo_im_policy
hostname(config-pmap-c)# drop-connection
hostname(config-pmap)# class yhoo_im_policy2
hostname(config-pmap-c)# reset
hostname(config-pmap)# match im-pattern regex class new_im_regexp
hostname(config-pmap-c)# action log
hostname(config)# policy-map global_policy_name
hostname(config-pmap)# class im_inspection_class_map
hostname(config-pmap-c)# inspect im im_policy_all

```

**Related Commands**

Commands	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.
<b>match protocol</b>	Matches a specific IM protocol in an inspection class or policy map.

# inspect ipsec-pass-thru

To enable IPsec Pass Thru inspection, use the **inspect ipsec-pass-thru** command in class map configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

```
inspect ipsec-pass-thru [map_name]
```

```
no inspect ipsec-pass-thru [map_name]
```

## Syntax Description

*map\_name* (Optional) The name of the IPsec Pass Thru map.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **inspect ipsec-pass-thru** command enables or disables application inspection. IPsec Pass Through application inspection provides convenient traversal of ESP (IP protocol 50) and/or AH (IP protocol 51) traffic associated with an IKE UDP port 500 connection. It avoids lengthy access list configuration to permit ESP and AH traffic and also provides security using timeout and max connections.

Use the IPsec Pass Through parameter map to identify a specific map to use for defining the parameters for the inspection. Use the **policy-map type inspect** command to access the parameters configuration, which lets you specify the restrictions for ESP or AH traffic. You can set the per client max connections and the idle timeout in parameters configuration.

Use **class-map**, **policy-map**, and **service-policy** commands to define a class of traffic, to apply the **inspect** command to the class, and to apply the policy to one or more interfaces. The parameter map defined is enabled when used with the **inspect IPsec-pass-thru** command.

NAT and non-NAT traffic is permitted. However, PAT is not supported.

## Examples

The following example shows how to use access lists to identify IKE traffic, define an IPsec Pass Thru parameter map, define a policy, and apply the policy to the outside interface:

```
hostname(config)# access-list ipsecpassthruacl permit udp any any eq 500
```

```

hostname(config)# class-map ipsecpassthru-traffic
hostname(config-cmap)# match access-list ipsecpassthruacl
hostname(config)# policy-map type inspect ipsec-pass-thru iptmap
hostname(config-pmap)# parameters
hostname(config-pmap-p)# esp per-client-max 10 timeout 0:11:00
hostname(config-pmap-p)# ah per-client-max 5 timeout 0:06:00
hostname(config)# policy-map inspection_policy
hostname(config-pmap)# class ipsecpassthru-traffic
hostname(config-pmap-c)# inspect ipsec-pass-thru iptmap
hostname(config)# service-policy inspection_policy interface outside

```

**Related Commands**

Commands	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.
<b>match protocol</b>	Matches a specific IM protocol in an inspection class or policy map.

# inspect mgcp

To enable MGCP application inspection or to change the ports to which the security appliance listens, use the **inspect mgcp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

```
inspect mgcp [map_name]
```

```
no inspect mgcp [map_name]
```

## Syntax Description

*map\_name* (Optional) The name of the MGCP map.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

## Usage Guidelines

To use MGCP, you usually need to configure at least two **inspect** commands: one for the port on which the gateway receives commands, and one for the port on which the Call Agent receives commands. Normally, a Call Agent sends commands to the default MGCP port for gateways, 2427, and a gateway sends commands to the default MGCP port for Call Agents, 2727.

MGCP is used for controlling media gateways from external call control elements called media gateway controllers or call agents. A media gateway is typically a network element that provides conversion between the audio signals carried on telephone circuits and data packets carried over the Internet or over other packet networks. Using NAT and PAT with MGCP lets you support a large number of devices on an internal network with a limited set of external (global) addresses.

Examples of media gateways are:

- Trunking gateways, that interface between the telephone network and a Voice over IP network. Such gateways typically manage a large number of digital circuits.
- Residential gateways, that provide a traditional analog (RJ11) interface to a Voice over IP network. Examples of residential gateways include cable modem/cable set-top boxes, xDSL devices, broad-band wireless devices.

- Business gateways, that provide a traditional digital PBX interface or an integrated soft PBX interface to a Voice over IP network.

MGCP messages are transmitted over UDP. A response is sent back to the source address (IP address and UDP port number) of the command, but the response may not arrive from the same address as the command was sent to. This can happen when multiple call agents are being used in a failover configuration and the call agent that received the command has passed control to a backup call agent, which then sends the response.

**Note**

MGCP call agents send AUEP messages to determine if MGCP end points are present. This establishes a flow through the security appliance and allows MGCP end points to register with the call agent.

Use the **call-agent** and **gateway** commands in MGCP map configuration mode to configure the IP addresses of one or more call agents and gateways. Use the **command-queue** command in MGCP map configuration mode to specify the maximum number of MGCP commands that will be allowed in the command queue at one time.

**Inspecting Signaling Messages**

For inspecting signaling messages, the **inspect mgcp** command often needs to determine locations of the media endpoints (for example, IP phones).

This information is used to prepare access-control and NAT state for media traffic to traverse the firewall transparently without manual configuration.

In determining these locations, the **inspect mgcp** command does **not** use the tunnel default gateway route. A tunnel default gateway route is a route of the form **route interface 0 0 metric tunneled**. This route overrides the default route for packets that egress from IPsec tunnels. Therefore, if the **inspect mgcp** command is desired for VPN traffic, do not configure the tunnel default gateway route. Instead, use other static routing or dynamic routing.

**Examples**

The following example shows how to identify MGCP traffic, define a MGCP map, define a policy, and apply the policy to the outside interface. This creates a class map to match MGCP traffic on the default ports (2427 and 2727). The service policy is then applied to the outside interface.

```
hostname(config)# access-list mgcp_acl permit tcp any any eq 2427
hostname(config)# access-list mgcp_acl permit tcp any any eq 2727
hostname(config)# class-map mgcp_port
hostname(config-cmap)# match access-list mgcp_acl
hostname(config-cmap)# exit
hostname(config)# mgcp-map inbound_mgcp
hostname(config-mgcp-map)# call-agent 10.10.11.5 101
hostname(config-mgcp-map)# call-agent 10.10.11.6 101
hostname(config-mgcp-map)# call-agent 10.10.11.7 102
hostname(config-mgcp-map)# call-agent 10.10.11.8 102
hostname(config-mgcp-map)# gateway 10.10.10.115 101
hostname(config-mgcp-map)# gateway 10.10.10.116 102
hostname(config-mgcp-map)# gateway 10.10.10.117 102
hostname(config-mgcp-map)# command-queue 150
hostname(config-mgcp-map)# exit
hostname(config)# policy-map inbound_policy
hostname(config-pmap)# class mgcp_port
hostname(config-pmap-c)# inspect mgcp mgcp-map inbound_mgcp
hostname(config-pmap-c)# exit
hostname(config)# service-policy inbound_policy interface outside
```

This configuration allows call agents 10.10.11.5 and 10.10.11.6 to control gateway 10.10.10.115, and allows call agents 10.10.11.7 and 10.10.11.8 to control both gateways 10.10.10.116 and 10.10.10.117. The maximum number of MGCP commands that can be queued is 150.

To enable MGCP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

---

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug mgcp</b>	Enables MGCP debug information.
<b>mgcp-map</b>	Defines an MGCP map and enables MGCP map configuration mode.
<b>show mgcp</b>	Displays information about MGCP sessions established through the security appliance.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types.

# inspect netbios

To enable NetBIOS application inspection or to change the ports to which the security appliance listens, use the **inspect netbios command** in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

```
inspect netbios [map_name]
```

```
no inspect netbios [map_name]
```

## Syntax

<i>map_name</i>	(Optional) The name of the NetBIOS map.
-----------------	---

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

## Usage Guidelines

The **inspect netbios** command enables or disables application inspection for the NetBIOS protocol.

## Examples

The following example shows how to define a NetBIOS inspection policy map:

```
hostname(config)# policy-map type inspect netbios netbios_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# protocol-violation drop
```

## Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.

# inspect pptp

To enable PPTP application inspection or to change the ports to which the security appliance listens, use the **inspect pptp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

**inspect pptp**

**no inspect pptp**

## Syntax Description

This command has no arguments or keywords.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

## Usage Guidelines

The Point-to-Point Tunneling Protocol (PPTP) is a protocol for tunneling PPP traffic. A PPTP session is composed of one TCP channel and usually two PPTP GRE tunnels. The TCP channel is the control channel used for negotiating and managing the PPTP GRE tunnels. The GRE tunnels carries PPP sessions between the two hosts.

When enabled, PPTP application inspection inspects PPTP protocol packets and dynamically creates the GRE connections and xlates necessary to permit PPTP traffic. Only Version 1, as defined in RFC 2637, is supported.

PAT is only performed for the modified version of GRE [RFC 2637] when negotiated over the PPTP TCP control channel. Port Address Translation is *not* performed for the unmodified version of GRE [RFC 1701, RFC 1702].

Specifically, the security appliance inspects the PPTP version announcements and the outgoing call request/response sequence. Only PPTP Version 1, as defined in RFC 2637, is inspected. Further inspection on the TCP control channel is disabled if the version announced by either side is not Version 1. In addition, the outgoing-call request and reply sequence are tracked. Connections and xlates are dynamic allocated as necessary to permit subsequent secondary GRE data traffic.



The PPTP inspection engine must be enabled for PPTP traffic to be translated by PAT. Additionally, PAT is only performed for a modified version of GRE (RFC2637) and only if it is negotiated over the PPTP TCP control channel. PAT is not performed for the unmodified version of GRE (RFC 1701 and RFC 1702).

As described in RFC 2637, the PPTP protocol is mainly used for the tunneling of PPP sessions initiated from a modem bank PAC (PPTP Access Concentrator) to the headend PNS (PPTP Network Server). When used this way, the PAC is the remote client and the PNS is the server.

However, when used for VPN by Windows, the interaction is inverted. The PNS is a remote single-user PC that initiates connection to the head-end PAC to gain access to a central network.

### Examples

You enable the PPTP inspection engine as shown in the following example, which creates a class map to match PPTP traffic on the default port (1723). The service policy is then applied to the outside interface.

```
hostname(config)# class-map pptp-port
hostname(config-cmap)# match port tcp eq 1723
hostname(config-cmap)# exit
hostname(config)# policy-map pptp_policy
hostname(config-pmap)# class pptp-port
hostname(config-pmap-c)# inspect pptp
hostname(config-pmap-c)# exit
hostname(config)# service-policy pptp_policy interface outside
```

To enable PPTP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug pptp</b>	Enables debug information for PPTP.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.

# inspect radius-accounting

To enable or disable RADIUS accounting inspection or to define a map for controlling traffic or tunnels, use the **inspect radius-accounting** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. Use the **no** form of this command to remove the command.

**inspect radius-accounting** [*map\_name*]

**no inspect radius-accounting** [*map\_name*]

---

**Syntax Description**     *map\_name*                      (Optional) Name for the RADIUS accounting map.

---



---

**Defaults**                      This command is disabled by default.

---

**Command Modes**            The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class configuration	•	•	•	•	—

---

Command History	Release	Modification
	7.2(1)	This command was introduced.

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**Usage Guidelines**            Use the **radius-accounting** command to create a specific map to use for defining the parameters for RADIUS accounting. When you enter this command, the system enters a configuration mode that lets you enter the different commands used for defining the specific map. The actions that you can specify for messages that fail the criteria set using the different configuration commands include **send**, **host**, **validate-attribute**, **enable gprs**, and **timeout users**. You can access these commands from **parameter** mode.

After defining the RADIUS accounting map, you use the **inspect gtp** command to enable the map. Then you use the **class-map**, **policy-map**, and **service-policy** commands to define a class of traffic, to apply the **inspect** command to the class, and to apply the policy to one or more interfaces.




---

**Note**                              The **inspect radius-accounting** command can only be used with the **class-map type management** command.

---

**Examples**

The following example shows how to use access lists to identify RADIUS accounting traffic, define a RADIUS accounting map, define a policy, and apply the policy to the outside interface:

```
hostname(config)# policy-map type inspect radius-accountin ra
```

**Note**

This example enables RADIUS accounting inspection with the default values. To change the default values, refer to the **parameters** command page and to the command pages for each command that is entered from RADIUS accounting configuration mode.

**Related Commands**

Commands	Description
<b>parameters</b>	Defines the traffic class to which to apply security actions.
<b>class-map type management</b>	Lets you identify Layer 3 or 4 management traffic destined for the security appliance to which you want to apply actions.
<b>show and clear service-policy</b>	Lets you view and clear service policy settings.
<b>debug inspect radius-accounting</b>	Lets you debug RADIUS accounting inspection.
<b>service-policy</b>	Applies a policy map to one or more interfaces.

# inspect rsh

To enable RSH application inspection or to change the ports to which the security appliance listens, use the **inspect rsh** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

**inspect rsh**

**no inspect rsh**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command is disabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

**Usage Guidelines** The RSH protocol uses a TCP connection from the RSH client to the RSH server on TCP port 514. The client and server negotiate the TCP port number where the client listens for the STDERR output stream. RSH inspection supports NAT of the negotiated port number if necessary.

**Examples** You enable the RSH inspection engine as shown in the following example, which creates a class map to match RSH traffic on the default port (514). The service policy is then applied to the outside interface.

```
hostname(config)# class-map rsh-port
hostname(config-cmap)# match port tcp eq 514
hostname(config-cmap)# exit
hostname(config)# policy-map rsh_policy
hostname(config-pmap)# class rsh-port
hostname(config-pmap-c)# inspect rsh
hostname(config-pmap-c)# exit
hostname(config)# service-policy rsh_policy interface outside
```

To enable RSH inspection for all interfaces, use the **global** parameter in place of **interface outside**.

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.



# inspect rtsp

To enable RTSP application inspection or to change the ports to which the security appliance listens, use the **inspect rtsp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

**inspect rtsp**

**no inspect rtsp**

## Syntax Description

This command has no arguments or keywords.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

## Usage Guidelines

The **inspect rtsp** command lets the security appliance pass RTSP packets. RTSP is used by RealAudio, RealNetworks, Apple QuickTime 4, RealPlayer, and Cisco IP/TV connections.



### Note

For Cisco IP/TV, use RTSP TCP port 554 and TCP 8554.

RTSP applications use the well-known port 554 with TCP (rarely UDP) as a control channel. The security appliance only supports TCP, in conformity with RFC 2326. This TCP control channel is used to negotiate the data channels that will be used to transmit audio/video traffic, depending on the transport mode that is configured on the client.

The supported RDT transports are: rtp/avp, rtp/avp/udp, x-real-rdt, x-real-rdt/udp, and x-pn-tng/udp.

The security appliance parses Setup response messages with a status code of 200. If the response message is travelling inbound, the server is outside relative to the security appliance and dynamic channels need to be opened for connections coming inbound from the server. If the response message is outbound, then the security appliance does not need to open dynamic channels.

Because RFC 2326 does not require that the client and server ports must be in the SETUP response message, the security appliance will need to keep state and remember the client ports in the SETUP message. QuickTime places the client ports in the SETUP message and then the server responds with only the server ports.

### Using RealPlayer

When using RealPlayer, it is important to properly configure transport mode. For the security appliance, add an **access-list** command statement from the server to the client or vice versa. For RealPlayer, change transport mode by clicking **Options>Preferences>Transport>RTSP Settings**.

If using TCP mode on the RealPlayer, select the **Use TCP to Connect to Server** and **Attempt to use TCP for all content** check boxes. On the security appliance, there is no need to configure the inspection engine.

If using UDP mode on the RealPlayer, select the **Use TCP to Connect to Server** and **Attempt to use UDP for static content** check boxes, and for live content not available via Multicast. On the security appliance, add a **inspect rtsp port** command statement.

### Restrictions and Limitations

The following restrictions apply to the **inspect rtsp** command:

- The security appliance does not support multicast RTSP or RTSP messages over UDP.
- PAT is not supported with the **inspect rtsp** command.
- The security appliance does not have the ability to recognize HTTP cloaking where RTSP messages are hidden in the HTTP messages.
- The security appliance cannot perform NAT on RTSP messages because the embedded IP addresses are contained in the SDP files as part of HTTP or RTSP messages. Packets could be fragmented and the security appliance cannot perform NAT on fragmented packets.
- With Cisco IP/TV, the number of NATs the security appliance performs on the SDP part of the message is proportional to the number of program listings in the Content Manager (each program listing can have at least six embedded IP addresses).
- You can configure NAT for Apple QuickTime 4 or RealPlayer. Cisco IP/TV only works with NAT if the Viewer and Content Manager are on the outside network and the server is on the inside network.
- Media streams delivered over HTTP are not supported by RTSP application inspection. This is because RTSP inspection does not support HTTP cloaking (RTSP wrapped in HTTP).

### Examples

You enable the RTSP inspection engine as shown in the following example, which creates a class map to match RTSP traffic on the default ports (554 and 8554). The service policy is then applied to the outside interface.

```
hostname(config)# access-list rtsp-acl permit tcp any any eq 554
hostname(config)# access-list rtsp-acl permit tcp any any eq 8554
hostname(config)# class-map rtsp-traffic
hostname(config-cmap)# match access-list rtsp-acl
hostname(config-cmap)# exit
hostname(config)# policy-map rtsp_policy
hostname(config-pmap)# class rtsp-port
hostname(config-pmap-c)# inspect rtsp
hostname(config-pmap-c)# exit
hostname(config)# service-policy rtsp_policy interface outside
```



To enable RTSP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug rtsp</b>	Enables debug information for RTSP.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.

# inspect sip

To enable SIP application inspection or to change the ports to which the security appliance listens, use the **inspect sip** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

**inspect sip**

**no inspect sip**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command is disabled by default.  
The default port assignment for SIP is 5060.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

**Usage Guidelines** SIP, as defined by the IETF, enables VoIP calls. SIP works with SDP for call signalling. SDP specifies the details of the media stream. Using SIP, the security appliance can support any SIP Voice over IP (VoIP) gateways and VoIP proxy servers. SIP and SDP are defined in the following RFCs:

- SIP: Session Initiation Protocol, RFC 2543
- SDP: Session Description Protocol, RFC 2327

To support SIP calls through the security appliance, signaling messages for the media connection addresses, media ports, and embryonic connections for the media must be inspected, because while the signaling is sent over a well-known destination port (UDP/TCP 5060), the media streams are dynamically allocated. Also, SIP embeds IP addresses in the user-data portion of the IP packet. SIP inspection applies NAT for these embedded IP addresses.

**Note**

If a remote endpoint tries to register with a SIP proxy on a network protected by the security appliance, the registration will fail under very specific conditions. These conditions are when PAT is configured for the remote endpoint, the SIP registrar server is on the outside network, and when the port is missing in the contact field in the REGISTER message sent by the endpoint to the proxy server.

**Instant Messaging**

Instant Messaging refers to the transfer of messages between users in near real-time. The MESSAGE/INFO methods and 202 Accept response are used to support IM as defined in the following RFCs:

- Session Initiation Protocol (SIP)-Specific Event Notification, RFC 3265
- Session Initiation Protocol (SIP) Extension for Instant Messaging, RFC 3428

MESSAGE/INFO requests can come in at any time after registration/subscription. For example, two users can be online at any time, but not chat for hours. Therefore, the SIP inspection engine opens pinholes, which will time out according to the configured SIP timeout value. This value must be configured at least five minutes longer than the subscription duration. The subscription duration is defined in the Contact Expires value and is typically 30 minutes.

Because MESSAGE/INFO requests are typically sent using a dynamically allocated port other than port 5060, they are required to go through the SIP inspection engine.

**Note**

Only the Chat feature is currently supported. Whiteboard, File Transfer, and Application Sharing are not supported. RTC Client 5.0 is not supported.

**Technical Details**

SIP inspection NATs the SIP text-based messages, recalculates the content length for the SDP portion of the message, and recalculates the packet length and checksum. It dynamically opens media connections for ports specified in the SDP portion of the SIP message as address/ports on which the endpoint should listen.

SIP inspection has a database with indices CALL\_ID/FROM/TO from the SIP payload that identifies the call, as well as the source and destination. Contained within this database are the media addresses and media ports that were contained in the SDP media information fields and the media type. There can be multiple media addresses and ports for a session. RTP/RTCP connections are opened between the two endpoints using these media addresses/ports.

The well-known port 5060 must be used on the initial call setup (INVITE) message. However, subsequent messages may not have this port number. The SIP inspection engine opens signaling connection pinholes, and marks these connections as SIP connections. This is done for the messages to reach the SIP application and be NATed.

As a call is set up, the SIP session is considered in the “transient” state. This state remains until a Response message is received indicating the RTP media address and port on which the destination endpoint is listening. If there is a failure to receive the response messages within one minute, the signaling connection will be torn down.

Once the final handshake is made, the call state is moved to active and the signaling connection will remain until a BYE message is received.

If an inside endpoint initiates a call to an outside endpoint, a media hole is opened to the outside interface to allow RTP/RTCP UDP packets to flow to the inside endpoint media address and media port specified in the INVITE message from the inside endpoint. Unsolicited RTP/RTCP UDP packets to an inside interface will not traverse the security appliance, unless the security appliance configuration specifically allows it.

The media connections are torn down within two minutes after the connection becomes idle. This is, however, a configurable timeout and can be set for a shorter or longer period of time.

### Inspecting Signaling Messages

For inspecting signaling messages, the **inspect sip** command often needs to determine locations of the media endpoints (for example, IP phones).

This information is used to prepare access-control and NAT state for media traffic to traverse the firewall transparently without manual configuration.

In determining these locations, the **inspect sip** command does **not** use the tunnel default gateway route. A tunnel default gateway route is a route of the form **route interface 0 0 metric tunneled**. This route overrides the default route for packets that egress from IPsec tunnels. Therefore, if the **inspect sip** command is desired for VPN traffic, do not configure the tunnel default gateway route. Instead, use other static routing or dynamic routing.

### Examples

You enable the SIP inspection engine as shown in the following example, which creates a class map to match SIP traffic on the default port (5060). The service policy is then applied to the outside interface.

```
hostname(config)# class-map sip-port
hostname(config-cmap)# match port tcp eq 5060
hostname(config-cmap)# exit
hostname(config)# policy-map sip_policy
hostname(config-pmap)# class sip-port
hostname(config-pmap-c)# inspect sip
hostname(config-pmap-c)# exit
hostname(config)# service-policy sip_policy interface outside
```

To enable SIP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>show sip</b>	Displays information about SIP sessions established through the security appliance.
<b>debug sip</b>	Enables debug information for SIP.
<b>show conn</b>	Displays the connection state for different connection types.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types.

# inspect skinny

To enable SCCP (Skinny) application inspection or to change the ports to which the security appliance listens, use the **inspect skinny** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

**inspect skinny**

**no inspect skinny**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command is disabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

**Usage Guidelines** Skinny (or Simple) Client Control Protocol (SCCP) is a simplified protocol used in VoIP networks. Cisco IP Phones using SCCP can coexist in an H.323 environment. When used with Cisco CallManager, the SCCP client can interoperate with H.323-compliant terminals. Application layer functions in the security appliance recognize SCCP Version 3.3. The functionality of the application layer software ensures that all SCCP signaling and media packets can traverse the security appliance by providing NAT of the SCCP Signaling packets.

There are 5 versions of the SCCP protocol: 2.4, 3.0.4, 3.1.1, 3.2, and 3.3.2. The security appliance supports all versions through Version 3.3.2. The security appliance provides both PAT and NAT support for SCCP. PAT is necessary if you have limited numbers of global IP addresses for use by IP phones.

Normal traffic between the Cisco CallManager and Cisco IP Phones uses SCCP and is handled by SCCP inspection without any special configuration. The security appliance also supports DHCP options 150 and 66, which allow the security appliance to send the location of a TFTP server to Cisco IP Phones and other DHCP clients. For more information, see the **dhcp-server** command.

### Supporting Cisco IP Phones

In topologies where Cisco CallManager is located on the higher security interface with respect to the Cisco IP Phones, if NAT is required for the Cisco CallManager IP address, the mapping must be **static** as a Cisco IP Phone requires the Cisco CallManager IP address to be specified explicitly in its configuration. An identity static entry allows the Cisco CallManager on the higher security interface to accept registrations from the Cisco IP Phones.

Cisco IP Phones require access to a TFTP server to download the configuration information they need to connect to the Cisco CallManager server.

When the Cisco IP Phones are on a lower security interface compared to the TFTP server, you must use an access list to connect to the protected TFTP server on UDP port 69. While you do need a static entry for the TFTP server, this does not have to be an "identity" static entry. When using NAT, an identity static entry maps to the same IP address. When using PAT, it maps to the same IP address and port.

When the Cisco IP Phones are on a *higher* security interface compared to the TFTP server and Cisco CallManager, no access list or static entry is required to allow the Cisco IP Phones to initiate the connection.

### Restrictions and Limitations

The following are limitations that apply to the current version of PAT and NAT support for SCCP:

- PAT will not work with configurations using the **alias** command.
- Outside NAT or PAT is **not** supported.



#### Note

---

Stateful Failover of SCCP calls is now supported except for calls that are in the middle of call setup.

---

If the address of an internal Cisco CallManager is configured for NAT or PAT to a different IP address or port, registrations for external Cisco IP Phones will fail because the security appliance currently does not support NAT or PAT for the file content transferred via TFTP. Although the security appliance does support NAT of TFTP messages, and opens a pinhole for the TFTP file to traverse the security appliance, the security appliance cannot translate the Cisco CallManager IP address and port embedded in the Cisco IP Phone's configuration files that are being transferred using TFTP during phone registration.

### Inspecting Signaling Messages

For inspecting signaling messages, the **inspect skinny** command often needs to determine locations of the media endpoints (for example, IP phones).

This information is used to prepare access-control and NAT state for media traffic to traverse the firewall transparently without manual configuration.

In determining these locations, the **inspect skinny** command does **not** use the tunnel default gateway route. A tunnel default gateway route is a route of the form **route interface 0 0 metric tunneled**. This route overrides the default route for packets that egress from IPsec tunnels. Therefore, if the **inspect skinny** command is desired for VPN traffic, do not configure the tunnel default gateway route. Instead, use other static routing or dynamic routing.

### Examples

You enable the SCCP inspection engine as shown in the following example, which creates a class map to match SCCP traffic on the default port (2000). The service policy is then applied to the outside interface.

```
hostname(config)# class-map skinny-port
hostname(config-cmap)# match port tcp eq 2000
hostname(config-cmap)# exit
```

```
hostname(config)# policy-map skinny_policy
hostname(config-pmap)# class skinny-port
hostname(config-pmap-c)# inspect skinny
hostname(config-pmap-c)# exit
hostname(config)# service-policy skinny_policy interface outside
```

To enable SCCP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug skinny</b>	Enables SCCP debug information.
<b>show skinny</b>	Displays information about SCCP sessions established through the security appliance.
<b>show conn</b>	Displays the connection state for different connection types.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types.

# inspect snmp

To enable SNMP application inspection or to change the ports to which the security appliance listens, use the **inspect snmp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

**inspect snmp** *map\_name*

**no inspect snmp** *map\_name*

## Syntax Description

*map\_name* The name of the SNMP map.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the **inspect snmp** command to enable SNMP inspection, using the settings configured with an SNMP map, which you create using the **snmp-map** command. Use the **deny version** command in SNMP map configuration mode to restrict SNMP traffic to a specific version of SNMP.

Earlier versions of SNMP are less secure so restricting SNMP traffic to Version 2 may be required by your security policy. To deny a specific version of SNMP, use the **deny version** command within an SNMP map, which you create using the **snmp-map** command. After configuring the SNMP map, you enable the map using the **inspect snmp** command and then apply it to one or more interfaces using the **service-policy** command.

## Examples

The following example identifies SNMP traffic, defines an SNMP map, defines a policy, enables SNMP inspection, and applies the policy to the outside interface:

```
hostname(config)# access-list snmp-acl permit tcp any any eq 161
hostname(config)# access-list snmp-acl permit tcp any any eq 162
hostname(config)# class-map snmp-port
hostname(config-cmap)# match access-list snmp-acl
hostname(config-cmap)# exit
hostname(config)# snmp-map inbound_snmp
hostname(config-snmpp-map)# deny version 1
```



```
hostname(config-snmp-map)# exit
hostname(config)# policy-map inbound_policy
hostname(config-pmap)# class snmp-port
hostname(config-pmap-c)# inspect snmp inbound_snmp
hostname(config-pmap-c)# exit
```

To enable strict snmp application inspection for all interfaces, use the **global** parameter in place of **interface outside**.

**Related Commands**

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>deny version</b>	Disallows traffic using a specific version of SNMP.
<b>snmp-map</b>	Defines an SNMP map and enables SNMP map configuration mode.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.

# inspect sqlnet

To enable Oracle SQL\*Net application inspection, use the **inspect sqlnet** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

**inspect sqlnet**

**no inspect sqlnet**

## Syntax Description

This command has no arguments or keywords.

## Defaults

This command is enabled by default.

The default port assignment is 1521.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced, replacing the previously existing <b>fixup</b> command, which is now deprecated.

## Usage Guidelines

The SQL\*Net protocol consists of different packet types that the security appliance handles to make the data stream appear consistent to the Oracle applications on either side of the security appliance.

The default port assignment for SQL\*Net is 1521. This is the value used by Oracle for SQL\*Net, but this value does not agree with IANA port assignments for Structured Query Language (SQL). Use the **class-map** command to apply SQL\*Net inspection to a range of port numbers.

The security appliance NATs all addresses and looks in the packets for all embedded ports to open for SQL\*Net Version 1.

For SQL\*Net Version 2, all DATA or REDIRECT packets that immediately follow REDIRECT packets with a zero data length will be fixed up.

The packets that need fix-up contain embedded host/port addresses in the following format:

```
(ADDRESS=(PROTOCOL=tcp) (DEV=6) (HOST=a.b.c.d) (PORT=a))
```

SQL\*Net Version 2 TNSFrame types (Connect, Accept, Refuse, Resend, and Marker) will not be scanned for addresses to NAT nor will inspection open dynamic connections for any embedded ports in the packet.

SQL\*Net Version 2 TNSFrames, Redirect, and Data packets will be scanned for ports to open and addresses to NAT, if preceded by a REDIRECT TNSFrame type with a zero data length for the payload. When the Redirect message with data length zero passes through the security appliance, a flag will be set in the connection data Structure to expect the Data or Redirect message that follows to be NATed and ports to be dynamically opened. If one of the TNS frames in the preceding paragraph arrive after the Redirect message, the flag will be reset.

The SQL\*Net inspection engine will recalculate the checksum, change IP, TCP lengths, and readjust Sequence Numbers and Acknowledgment Numbers using the delta of the length of the new and old message.

SQL\*Net Version 1 is assumed for all other cases. TNSFrame types (Connect, Accept, Refuse, Resend, Marker, Redirect, and Data) and all packets will be scanned for ports and addresses. Addresses will be NATed and port connections will be opened.

### Examples

You enable the SQL\*Net inspection engine as shown in the following example, which creates a class map to match SQL\*Net traffic on the default port (1521). The service policy is then applied to the outside interface.

```
hostname(config)# class-map sqlnet-port
hostname(config-cmap)# match port tcp eq 1521
hostname(config-cmap)# exit
hostname(config)# policy-map sqlnet_policy
hostname(config-pmap)# class sqlnet-port
hostname(config-pmap-c)# inspect sqlnet
hostname(config-pmap-c)# exit
hostname(config)# service-policy sqlnet_policy interface outside
```

To enable SQL\*Net inspection for all interfaces, use the **global** parameter in place of **interface outside**.

### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug sqlnet</b>	Enables debug information for SQL*Net.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.
<b>show conn</b>	Displays the connection state for different connection types, including SQL*net.

# inspect sunrpc

To enable Sun RPC application inspection or to change the ports to which the security appliance listens, use the **inspect sunrpc** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

**inspect sunrpc**

**no inspect sunrpc**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command is disabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced, replacing the <b>fixup</b> command, which is now deprecated.

**Usage Guidelines** To enable Sun RPC application inspection or to change the ports to which the security appliance listens, use the **inspect sunrpc** command in policy map class configuration mode, which is accessible by using the **class** command within policy map configuration mode. To remove the configuration, use the **no** form of this command.

The **inspect sunrpc** command enables or disables application inspection for the Sun RPC protocol. Sun RPC is used by NFS and NIS. Sun RPC services can run on any port on the system. When a client attempts to access a Sun RPC service on a server, it must find out which port that service is running on. It does this by querying the portmapper process on the well-known port of 111.

The client sends the Sun RPC program number of the service, and gets back the port number. From this point on, the client program sends its Sun RPC queries to that new port. When a server sends out a reply, the security appliance intercepts this packet and opens both embryonic TCP and UDP connections on that port.



**Note** NAT or PAT of Sun RPC payload information is not supported.

**Examples**

You enable the RPC inspection engine as shown in the following example, which creates a class map to match RPC traffic on the default port (111). The service policy is then applied to the outside interface.

```
hostname(config)# class-map sunrpc-port
hostname(config-cmap)# match port tcp eq 111
hostname(config-cmap)# exit
hostname(config)# policy-map sample_policy
hostname(config-pmap)# class sunrpc-port
hostname(config-pmap-c)# inspect sunrpc
hostname(config-pmap-c)# exit
hostname(config)# service-policy sample_policy interface outside
```

To enable RPC inspection for all interfaces, use the **global** parameter in place of **interface outside**.

**Related Commands**

Commands	Description
<b>clear configure sunrpc_server</b>	Removes the configuration performed using the <b>sunrpc-server</b> command.
<b>clear sunrpc-server active</b>	Clears the pinholes that are opened by Sun RPC application inspection for specific services, such as NFS or NIS.
<b>show running-config sunrpc-server</b>	Displays the information about the Sun RPC service table configuration.
<b>sunrpc-server</b>	Allows pinholes to be created with a specified timeout for Sun RPC services, such as NFS or NIS.
<b>show sunrpc-server active</b>	Displays the pinholes open for Sun RPC services.

# inspect tftp

To disable TFTP application inspection, or to enable it if it has been previously disabled, use the **inspect tftp** command in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

**inspect tftp**

**no inspect tftp**

## Syntax Description

This command has no arguments or keywords.

## Defaults

This command is enabled by default.

The default port assignment is 69.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced, replacing the previously existing <b>fixup</b> command, which is now deprecated.

## Usage Guidelines

Trivial File Transfer Protocol (TFTP), described in RFC 1350, is a simple protocol to read and write files between a TFTP server and client.

The security appliance inspects TFTP traffic and dynamically creates connections and translations, if necessary, to permit file transfer between a TFTP client and server. Specifically, the inspection engine inspects TFTP read request (RRQ), write request (WRQ), and error notification (ERROR).

A dynamic secondary channel and a PAT translation, if necessary, are allocated on a reception of a valid read (RRQ) or write (WRQ) request. This secondary channel is subsequently used by TFTP for file transfer or error notification.

Only the TFTP server can initiate traffic over the secondary channel, and at most one incomplete secondary channel can exist between the TFTP client and server. An error notification from the server closes the secondary channel.

TFTP inspection must be enabled if static PAT is used to redirect TFTP traffic.

**Examples**

You enable the TFTP inspection engine as shown in the following example, which creates a class map to match TFTP traffic on the default port (69). The service policy is then applied to the outside interface.

```
hostname(config)# class-map tftp-port
hostname(config-cmap)# match port udp eq 69
hostname(config-cmap)# exit
hostname(config)# policy-map tftp_policy
hostname(config-pmap)# class tftp-port
hostname(config-pmap-c)# inspect tftp
hostname(config-pmap-c)# exit
hostname(config)# service-policy tftp_policy interface outside
```

To enable TFTP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

**Related Commands**

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.

# inspect xdmcp

To enable XDMCP application inspection or to change the ports to which the security appliance listens, use the **inspect xdmcp command** in class configuration mode. Class configuration mode is accessible from policy map configuration mode. To remove the configuration, use the **no** form of this command.

**inspect xdmcp**

**no inspect xdmcp**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command is disabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced, replacing the previously existing <b>fixup</b> command, which is now deprecated.

**Usage Guidelines** The **inspect xdmcp** command enables or disables application inspection for the XDMCP protocol. XDMCP is a protocol that uses UDP port 177 to negotiate X sessions, which use TCP when established. For successful negotiation and start of an XWindows session, the security appliance must allow the TCP back connection from the Xhosted computer. To permit the back connection, use the **established** command on the security appliance. Once XDMCP negotiates the port to send the display, The **established** command is consulted to verify if this back connection should be permitted.

During the XWindows session, the manager talks to the display Xserver on the well-known port 6000 + n. Each display has a separate connection to the Xserver, as a result of the following terminal setting.

```
setenv DISPLAY Xserver:n
```

where *n* is the display number.

When XDMCP is used, the display is negotiated using IP addresses, which the security appliance can NAT if needed. XDCMP inspection does not support PAT.



**Examples**

You enable the XDMCP inspection engine as shown in the following example, which creates a class map to match XDMCP traffic on the default port (177). The service policy is then applied to the outside interface.

```
hostname(config)# class-map xdmcp-port
hostname(config-cmap)# match port tcp eq 177
hostname(config-cmap)# exit
hostname(config)# policy-map xdmcp_policy
hostname(config-pmap)# class xdmcp-port
hostname(config-pmap-c)# inspect xdmcp
hostname(config-pmap-c)# exit
hostname(config)# service-policy xdmcp_policy interface outside
```

To enable XDMCP inspection for all interfaces, use the **global** parameter in place of **interface outside**.

**Related Commands**

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug xdmcp</b>	Enables debug information for XDMCP.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.





## **interface-dhcp through issuer-name Commands**

---

# intercept-dhcp

To enable DHCP Intercept, use the **intercept-dhcp enable** command in group-policy configuration mode. To disable DHCP Intercept, use the **intercept-dhcp disable** command.

To remove the intercept-dhcp attribute from the running configuration, use the **no intercept-dhcp** command. This lets users inherit a DHCP Intercept configuration from the default or other group policy.

DHCP Intercept lets Microsoft XP clients use split-tunneling with the security appliance. The security appliance replies directly to the Microsoft Windows XP client DHCP Inform message, providing that client with the subnet mask, domain name, and classless static routes for the tunnel IP address. For Windows clients prior to XP, DHCP Intercept provides the domain name and subnet mask. This is useful in environments in which using a DHCP server is not advantageous.

**intercept-dhcp netmask {enable | disable}**

**no intercept-dhcp**

## Syntax Description

<b>disable</b>	Disables DHCP Intercept.
<b>enable</b>	Enables DHCP Intercept.
<i>netmask</i>	Provides the subnet mask for the tunnel IP address.

## Defaults

DHCP Intercept is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

A Microsoft XP anomaly results in the corruption of domain names if split tunnel options exceed 255 bytes. To avoid this problem, the security appliance limits the number of routes it sends to 27 to 40 routes, with the number of routes dependent on the classes of the routes.

## Examples

The following example shows how to set DHCP Intercepts for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# intercept-dhcp enable
```

# interface

To configure an interface and enter interface configuration mode, use the **interface** command in global configuration mode. In interface configuration mode, you can configure hardware settings, assign a name, assign a VLAN, assign an IP address, and configure many other settings, depending on the type of interface and the security context mode.

All models can configure parameters for physical interfaces. All models except for those with a built-in switch, such as the ASA 5505 adaptive security appliance, can create logical subinterfaces that are assigned to a VLAN. Models with a built-in switch include switch ports (called physical interfaces in this command) that you can assign to a VLAN interface; in this case, you do not create a subinterface for the VLAN, but instead create a VLAN interface independent of any physical interfaces. You can then assign one or more physical interfaces to the VLAN interface. To remove a subinterface or VLAN interface, use the **no** form of this command; you cannot remove a physical interface.

For physical interfaces (for all models):

```
interface {physical_interface | mapped_name}
```

For subinterfaces (not available for models with a built-in switch):

```
interface {physical_interface.subinterface | mapped_name}
```

```
no interface physical_interface.subinterface
```

For VLAN interfaces (for models with a built-in switch):

```
interface vlan number
```

```
no interface vlan number
```

**Syntax Description**

<i>mapped_name</i>	In multiple context mode, specifies the mapped name if it was assigned using the <b>allocate-interface</b> command.
<i>physical_interface</i>	<p>Specifies the physical interface type, slot, and port number as <i>type[slot/]port</i>. A space between the type and slot/port is optional.</p> <p>The physical interface types include the following:</p> <ul style="list-style-type: none"> <li>• <b>ethernet</b></li> <li>• <b>gigabitethernet</b></li> </ul> <p>For the PIX 500 series security appliance, enter the type followed by the port number, for example, <b>ethernet0</b>.</p> <p>For the ASA 5500 series adaptive security appliance, enter the type followed by slot/port, for example, <b>gigabitethernet0/1</b>. Interfaces that are built into the chassis are assigned to slot 0, while interfaces on the 4GE SSM (or a built-in 4GE SSM) are assigned to slot 1.</p> <p>The ASA 5510 and higher adaptive security appliances also include the following type:</p> <ul style="list-style-type: none"> <li>• <b>management</b></li> </ul> <p>The management interface is a Fast Ethernet interface designed for management traffic only, and is specified as <b>management0/0</b>. You can, however, use it for through traffic if desired (see the <b>management-only</b> command). In transparent firewall mode, you can use the management interface in addition to the two interfaces allowed for through traffic. You can also add subinterfaces to the management interface to provide management in each security context for multiple context mode.</p> <p>See the hardware documentation that came with your model to identify the interface type, slot, and port number.</p>
<b>subinterface</b>	(Optional) Specifies an integer between 1 and 4294967293 designating a logical subinterface. The maximum number of subinterfaces varies depending on your security appliance model. Subinterfaces are not available for models with a built-in switch, such as the ASA 5505 adaptive security appliance. See the <i>Cisco Security Appliance Command Line Configuration Guide</i> for the maximum subinterfaces (or VLANs) per platform. An interface with one or more VLAN subinterfaces is automatically configured as an 802.1Q trunk.
<b>vlan number</b>	For models with a built-in switch, specifies a VLAN ID number between 1 and 1001.

**Defaults**

By default, the security appliance automatically generates **interface** commands for all physical interfaces.

In multiple context mode, the security appliance automatically generates **interface** commands for all interfaces allocated to the context using the **allocate-interface** command.

All physical interfaces are shut down by default. Allocated interfaces in contexts are not shut down in the configuration. VLAN interfaces are not shut down by default.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

**Command History**

Release	Modification
7.0(1)	This command was modified to allow for new subinterface naming conventions and to change arguments to be separate commands under interface configuration mode.
7.2(1)	The <b>interface vlan</b> command was added to support a built-in switch, as on the ASA 5505 adaptive security appliance.

**Usage Guidelines**

By default, all physical interfaces are shut down. You must enable the physical interface before any traffic can pass through an enabled subinterface. For multiple context mode, if you allocate a physical interface or subinterface to a context, the interfaces are enabled by default in the context. However, before traffic can pass through the context interface, you must also enable the interface in the system configuration. If you shut down an interface in the system execution space, then that interface is down in all contexts that share it. VLAN interfaces are enabled by default.

For an enabled interface to pass traffic, configure the following interface configuration mode commands: **nameif**, and, for routed mode, **ip address**. For subinterfaces, configure the **vlan** command. For switch physical interfaces, assign the physical interface to the VLAN interface using the **switchport access vlan** command (for an access port) or the **switch trunk allowed vlan** command (for a trunk port). The security level is 0 (lowest) by default. See the **security-level** command for default levels for some interfaces or to change from the default of 0 so interfaces can communicate with each other.

In multiple context mode, you configure physical parameters, subinterfaces, and VLAN assignments in the system configuration only. You configure all other parameters in the context configuration only.

For models with a built-in switch, you configure physical parameters and switch parameters (including the VLAN assignment) for the physical interfaces only. You configure all other parameters for the VLAN interface.

For the ASA 5505 adaptive security appliance in transparent firewall mode, you can configure two active VLANs in the Base license and three active VLANs in the Security Plus license, one of which must be for failover. In routed mode, you can configure up to three active VLANs with the Base license, and up to 20 active VLANs with the Security Plus license. An active VLAN is a VLAN with a **nameif** command configured. With the Base license, the third VLAN can only be configured to initiate traffic to one other VLAN. You limit the third VLAN using the **no forward interface** command.

The ASA 5510 and higher adaptive security appliances include a dedicated management interface called Management 0/0, which is meant to support traffic to the security appliance. However, you can configure any interface to be a management-only interface using the **management-only** command. Also, for Management 0/0, you can disable management-only mode so the interface can pass through traffic just like any other interface.

**Note**

Transparent firewall mode allows only two interfaces to pass through traffic; however, on the ASA 5510 and higher adaptive security appliances, you can use the dedicated management interface (either the physical interface or a subinterface) as a third interface for management traffic. The mode is not configurable in this case and must always be management-only.

If you change interface settings, and you do not want to wait for existing connections to time out before the new security information is used, you can clear the connections using the **clear local-host** command.

**Examples**

The following example configures parameters for the physical interface in single mode:

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# speed 1000
hostname(config-if)# duplex full
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown
```

The following example configures parameters for a subinterface in single mode:

```
hostname(config)# interface gigabitethernet0/1.1
hostname(config-subif)# vlan 101
hostname(config-subif)# nameif dmz1
hostname(config-subif)# security-level 50
hostname(config-subif)# ip address 10.1.2.1 255.255.255.0
hostname(config-subif)# no shutdown
```

The following example configures interface parameters in multiple context mode for the system configuration, and allocates the gigabitethernet 0/1.1 subinterface to contextA:

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# speed 1000
hostname(config-if)# duplex full
hostname(config-if)# no shutdown
hostname(config-if)# interface gigabitethernet0/1.1
hostname(config-subif)# vlan 101
hostname(config-subif)# no shutdown
hostname(config-subif)# context contextA
hostname(config-ctx)# ...
hostname(config-ctx)# allocate-interface gigabitethernet0/1.1
```

The following example configures parameters in multiple context mode for the context configuration:

```
hostname/contextA(config)# interface gigabitethernet0/1.1
hostname/contextA(config-if)# nameif inside
hostname/contextA(config-if)# security-level 100
hostname/contextA(config-if)# ip address 10.1.2.1 255.255.255.0
hostname/contextA(config-if)# no shutdown
```

The following example configures three VLAN interfaces. The third home interface cannot forward traffic to the work interface.

```
hostname(config)# interface vlan 100
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address dhcp
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 200
```



```

hostname(config-if)# nameif work
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 300
hostname(config-if)# no forward interface vlan 200
hostname(config-if)# nameif home
hostname(config-if)# security-level 50
hostname(config-if)# ip address 10.2.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/2
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/3
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/4
hostname(config-if)# switchport access vlan 300
hostname(config-if)# no shutdown

...

```

The following example configures five VLAN interfaces, including the failover interface which is configured separately using the **failover lan** command:

```

hostname(config)# interface vlan 100
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 200
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.2.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 300
hostname(config-if)# nameif dmz
hostname(config-if)# security-level 50
hostname(config-if)# ip address 10.3.1.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# interface vlan 400
hostname(config-if)# nameif backup-isp
hostname(config-if)# security-level 50
hostname(config-if)# ip address 10.1.2.1 255.255.255.0
hostname(config-if)# no shutdown

hostname(config-if)# failover lan faillink vlan500
hostname(config)# failover interface ip faillink 10.4.1.1 255.255.255.0 standby 10.4.1.2 255.255.255.0

```

```

hostname(config)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/2
hostname(config-if)# switchport access vlan 300
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/3
hostname(config-if)# switchport access vlan 400
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/4
hostname(config-if)# switchport access vlan 500
hostname(config-if)# no shutdown

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>allocate-interface</b>	Assigns interfaces and subinterfaces to a security context.
<b>clear configure interface</b>	Clears all configuration for an interface.
<b>clear interface</b>	Clears counters for the <b>show interface</b> command.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.
<b>show running-config interface</b>	Shows the interface configuration in the running configuration.

## interface (vpn load-balancing)

To specify a non-default public or private interface for VPN load-balancing in the VPN load-balancing virtual cluster, use the **interface** command in vpn load-balancing mode. To remove the interface specification and revert to the default interface, use the **no** form of this command.

```
interface {lbprivate | lbpublic} interface-name
```

```
no interface {lbprivate | lbpublic}
```

### Syntax Description

<i>interface-name</i>	The name of the interface to be configured as the public or private interface for the VPN load-balancing cluster.
<b>lbprivate</b>	Specifies that this command configures the private interface for VPN load-balancing.
<b>lbpublic</b>	Specifies that this command configures the public interface for VPN load-balancing.

### Defaults

If you omit the **interface** command, the **lbprivate** interface defaults to **inside**, and the **lbpublic** interface defaults to **outside**.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
vpn load-balancing	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

You must have first used the **vpn load-balancing** command to enter vpn load-balancing mode.

You must also have previously used the **interface**, **ip address** and **nameif** commands to configure and assign a name to the interface that you are specifying in this command.

The no form of this command reverts the interface to its default.

### Examples

The following is an example of a **vpn load-balancing** command sequence that includes an **interface** command that specifies the public interface of the cluster as “test” one that reverts the private interface of the cluster to the default (inside):

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
```

## interface (vpn load-balancing)

```

hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# no interface lbprivate
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# participate

```

### Related Commands

Command	Description
vpn load-balancing	Enter VPN load-balancing mode.

# interface-policy

To specify the policy for failover when monitoring detects an interface failure, use the **interface-policy** command in failover group configuration mode. To restore the default values, use the **no** form of this command.

```
interface-policy num[%]
```

```
no interface-policy num[%]
```

## Syntax Description

<i>num</i>	Specifies a number from 1 to 100 when used as a percentage, or 1 to the maximum number of interfaces.
<i>%</i>	(Optional) Specifies that the number <i>num</i> is a percentage of the monitored interfaces.

## Defaults

If the **failover interface-policy** command is configured for the unit, then the default for the **interface-policy** failover group command assumes that value. If not, then *num* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Failover group configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

There is no space between the *num* argument and the optional *%* keyword.

If the number of failed interfaces meets the configured policy and the other security appliance is functioning properly, the security appliance will mark itself as failed and a failover may occur (if the active security appliance is the one that fails). Only interfaces that are designated as monitored by the **monitor-interface** command count towards the policy.

## Examples

The following partial example shows a possible configuration for a failover group:

```
hostname(config)# failover group 1
hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# interface-policy 25%
hostname(config-fover-group)# exit
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>failover group</b>	Defines a failover group for Active/Active failover.
<b>failover interface-policy</b>	Configures the interface monitoring policy.
<b>monitor-interface</b>	Specifies the interfaces being monitored for failover.

# interval maximum

To configure the maximum interval between update attempts by a DDNS update method, use the **interval** command in DDNS-update-method mode. To remove an interval for a DDNS update method from the running configuration, use the **no** form of this command.

**interval maximum** *days hours minutes seconds*

**no interval maximum** *days hours minutes seconds*

## Syntax Description

<i>days</i>	Specifies the number of days between update attempts with a range of 0 to 364.
<i>hours</i>	Specifies the number of hours between update attempts with a range of 0 to 23.
<i>minutes</i>	Specifies the number of minutes between update attempts with a range of 0 to 59.
<i>seconds</i>	Specifies the number of seconds between update attempts with a range of 0 to 59.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
DDNS-update-method configuration	•	—	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The days, hours, minutes, and seconds are added together to arrive at the total interval.

## Examples

The following example configures a method called ddns-2 to attempt an update every 3 minutes and 15 seconds:

```
hostname(config)# ddns update method ddns-2
hostname(DDNS-update-method)# interval maximum 0 0 3 15
```

## Related Commands

Command	Description
<b>ddns (DDNS-update-method mode)</b>	Specifies a DDNS update method type for a created DDNS method.
<b>ddns update (interface config mode)</b>	Associates a dynamic DNS (DDNS) update method with a security appliance interface or a DDNS update hostname.
<b>ddns update method (global config mode)</b>	Creates a method for dynamically updating DNS resource records.
<b>dhcp-client update dns</b>	Configures the update parameters that the DHCP client passes to the DHCP server.
<b>dhcpd update dns</b>	Enables a DHCP server to perform dynamic DNS updates.



# ip address

To set the IP address for an interface (in routed mode) or for the management address (transparent mode), use the **ip address** command. For routed mode, enter this command in interface configuration mode. In transparent mode, enter this command in global configuration mode. To remove the IP address, use the **no** form of this command. This command also sets the standby address for failover.

```
ip address ip_address [mask] [standby ip_address]
```

```
no ip address [ip_address]
```

## Syntax Description

<i>ip_address</i>	The IP address for the interface (routed mode) or the management IP address (transparent mode).
<i>mask</i>	(Optional) The subnet mask for the IP address. If you do not set the mask, the security appliance uses the default mask for the IP address class.
<b>standby</b> <i>ip_address</i>	(Optional) The IP address for the standby unit for failover.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	•	—
Global configuration	—	•	•	•	—

## Command History

Release	Modification
7.0(1)	For routed mode, this command was changed from a global configuration command to an interface configuration mode command.

## Usage Guidelines

In single context routed firewall mode, each interface address must be on a unique subnet. In multiple context mode, if this interface is on a shared interface, then each IP address must be unique but on the same subnet. If the interface is unique, this IP address can be used by other contexts if desired.

A transparent firewall does not participate in IP routing. The only IP configuration required for the security appliance is to set the management IP address. This address is required because the security appliance uses this address as the source address for traffic originating on the security appliance, such as system messages or communications with AAA servers. You can also use this address for remote management access. This address must be on the same subnet as the upstream and downstream routers. For multiple context mode, set the management IP address within each context.

The standby IP address must be on the same subnet as the main IP address.

**Examples**

The following example sets the IP addresses and standby addresses of two interfaces:

```
hostname(config)# interface gigabitethernet0/2
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0 standby 10.1.1.2
hostname(config-if)# no shutdown
hostname(config-if)# interface gigabitethernet0/3
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address 10.1.2.1 255.255.255.0 standby 10.1.2.2
hostname(config-if)# no shutdown
```

The following example sets the management address and standby address of a transparent firewall:

```
hostname(config)# ip address 10.1.1.1 255.255.255.0 standby 10.1.1.2
```

**Related Commands**

Command	Description
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>ip address dhcp</b>	Sets the interface to obtain an IP address from a DHCP server.
<b>show ip address</b>	Shows the IP address assigned to an interface.

# ip address dhcp

To use DHCP to obtain an IP address for an interface, use the **ip address dhcp** command in interface configuration mode. To disable the DHCP client for this interface, use the **no** form of this command.

**ip address dhcp [setroute]**

**no ip address dhcp**

## Syntax Description

**setroute** (Optional) Allows the security appliance to use the default route supplied by the DHCP server.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was changed from a global configuration command to an interface configuration mode command. You can also enable this command on any interface, instead of only the outside interface.

## Usage Guidelines

Reenter this command to reset the DHCP lease and request a new lease.

If you do not enable the interface using the **no shutdown** command before you enter the **ip address dhcp** command, some DHCP requests might not be sent.

## Examples

The following example enables DHCP on the gigabitethernet0/1 interface:

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# no shutdown
hostname(config-if)# ip address dhcp
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>ip address</b>	Sets the IP address for the interface or sets the management IP address for a transparent firewall.
<b>show ip address dhcp</b>	Shows the IP address obtained from the DHCP server.

# ip address pppoe

To enable PPPoE, use the **ip address pppoe** command in interface configuration mode. To disable PPPoE, use the **no** form of this command.

```
ip address [ip_address [mask]] pppoe [setroute]
```

```
no ip address [ip_address [mask]] pppoe
```

## Syntax Description

<i>ip_address</i>	Manually sets the IP address instead of receiving an address from the PPPoE server.
<i>mask</i>	Specifies the subnet mask for the IP address. If you do not set the mask, the security appliance uses the default mask for the IP address class.
<b>setroute</b>	Lets the security appliance use the default route supplied by the PPPoE server. If the PPPoE server does not send a default route, the security appliance creates a default route with the address of the access concentrator as the gateway.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

PPPoE combines two widely accepted standards, Ethernet and PPP, to provide an authenticated method of assigning IP addresses to client systems. ISPs deploy PPPoE because it supports high-speed broadband access using their existing remote access infrastructure and because it is easier for customers to use.

Before you set the IP address using PPPoE, configure the **vpdn** commands to set the username, password, and authentication protocol. If you enable this command on more than one interface, for example for a backup link to your ISP, then you can assign each interface to a different VPDN group if necessary using the **pppoe client vpdn group** command.

The maximum transmission unit (MTU) size is automatically set to 1492 bytes, which is the correct value to allow PPPoE transmission within an Ethernet frame.

Reenter this command to reset and restart the PPPoE session.

You cannot set this command at the same time as the **ip address** command or the **ip address dhcp** command.

### Examples

The following example enables PPPoE on the Gigabitethernet 0/1 interface:

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address pppoe
hostname(config-if)# no shutdown
```

The following example manually sets the IP address for a PPPoE interface:

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address 10.1.1.1 255.255.255.0 pppoe
hostname(config-if)# no shutdown
```

### Related Commands

Command	Description
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>ip address</b>	Sets the IP address for an interface.
<b>pppoe client vpdn group</b>	Assigns this interface to a particular VPDN group.
<b>show ip address pppoe</b>	Shows the IP address obtained from the PPPoE server.
<b>vpdn group</b>	Creates a

# ip-address-privacy

To enable IP address privacy, use the **ip-address-privacy** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

**ip-address-privacy**

**no ip-address-privacy**

## Syntax Description

This command has no arguments or keywords.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to enable IP address privacy over SIP in a SIP inspection policy map:

```
hostname(config)# policy-map type inspect sip sip_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# ip-address-privacy
```

## Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# ip audit attack

To set the default actions for packets that match an attack signature, use the **ip audit attack** command in global configuration mode. To restore the default action (to reset the connection), use the **no** form of this command. You can specify multiple actions, or no actions.

```
ip audit attack [action [alarm] [drop] [reset]]
```

```
no ip audit attack
```

## Syntax Description

<b>action</b>	(Optional) Specifies that you are defining a set of default actions. If you do not follow this keyword with any actions, then the security appliance takes no action. If you do not enter the <b>action</b> keyword, the security appliance assumes you entered it, and the <b>action</b> keyword appears in the configuration.
<b>alarm</b>	(Default) Generates a system message showing that a packet matched a signature.
<b>drop</b>	(Optional) Drops the packet.
<b>reset</b>	(Optional) Drops the packet and closes the connection.

## Defaults

The default action is to send and alarm.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

You can override the action you set with this command when you configure an audit policy using the **ip audit name** command. If you do not specify the action in the **ip audit name** command, then the action you set with this command is used.

For a list of signatures, see the **ip audit signature** command.

## Examples

The following example sets the default action to alarm and reset for packets that match an attack signature. The audit policy for the inside interface overrides this default to be alarm only, while the policy for the outside interface uses the default setting set with the **ip audit attack** command.

```
hostname(config)# ip audit attack action alarm reset
```



```

hostname(config)# ip audit name insidepolicy attack action alarm
hostname(config)# ip audit name outsidepolicy attack
hostname(config)# ip audit interface inside insidepolicy
hostname(config)# ip audit interface outside outsidepolicy

```

**Related Commands**

Command	Description
<b>ip audit name</b>	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
<b>ip audit info</b>	Sets the default actions for packets that match an informational signature.
<b>ip audit interface</b>	Assigns an audit policy to an interface.
<b>ip audit signature</b>	Disables a signature.
<b>show running-config ip audit attack</b>	Shows the configuration for the <b>ip audit attack</b> command.

# ip audit info

To set the default actions for packets that match an informational signature, use the **ip audit info** command in global configuration mode. To restore the default action (to generate an alarm), use the **no** form of this command. You can specify multiple actions, or no actions.

**ip audit info [action [alarm] [drop] [reset]]**

**no ip audit info**

## Syntax Description

<b>action</b>	(Optional) Specifies that you are defining a set of default actions. If you do not follow this keyword with any actions, then the security appliance takes no action. If you do not enter the <b>action</b> keyword, the security appliance assumes you entered it, and the <b>action</b> keyword appears in the configuration.
<b>alarm</b>	(Default) Generates a system message showing that a packet matched a signature.
<b>drop</b>	(Optional) Drops the packet.
<b>reset</b>	(Optional) Drops the packet and closes the connection.

## Defaults

The default action is to generate an alarm.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

You can override the action you set with this command when you configure an audit policy using the **ip audit name** command. If you do not specify the action in the **ip audit name** command, then the action you set with this command is used.

For a list of signatures, see the **ip audit signature** command.

## Examples

The following example sets the default action to alarm and reset for packets that match an informational signature. The audit policy for the inside interface overrides this default to be alarm and drop, while the policy for the outside interface uses the default setting set with the **ip audit info** command.

```
hostname(config)# ip audit info action alarm reset
```

```

hostname(config)# ip audit name insidepolicy info action alarm drop
hostname(config)# ip audit name outsidepolicy info
hostname(config)# ip audit interface inside insidepolicy
hostname(config)# ip audit interface outside outsidepolicy

```

**Related Commands**

Command	Description
<b>ip audit name</b>	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
<b>ip audit attack</b>	Sets the default actions for packets that match an attack signature.
<b>ip audit interface</b>	Assigns an audit policy to an interface.
<b>ip audit signature</b>	Disables a signature.
<b>show running-config ip audit info</b>	Shows the configuration for the <b>ip audit info</b> command.

# ip audit interface

To assign an audit policy to an interface, use the **ip audit interface** command in global configuration mode. To remove the policy from the interface, use the **no** form of this command.

**ip audit interface** *interface\_name* *policy\_name*

**no ip audit interface** *interface\_name* *policy\_name*

## Syntax Description

<i>interface_name</i>	Specifies the interface name.
<i>policy_name</i>	The name of the policy you added with the <b>ip audit name</b> command. You can assign an <b>info</b> policy and an <b>attack</b> policy to each interface.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example applies audit policies to the inside and outside interfaces:

```
hostname(config)# ip audit name insidepolicy1 attack action alarm
hostname(config)# ip audit name insidepolicy2 info action alarm
hostname(config)# ip audit name outsidepolicy1 attack action reset
hostname(config)# ip audit name outsidepolicy2 info action alarm
hostname(config)# ip audit interface inside insidepolicy1
hostname(config)# ip audit interface inside insidepolicy2
hostname(config)# ip audit interface outside outsidepolicy1
hostname(config)# ip audit interface outside outsidepolicy2
```

## Related Commands

Command	Description
<b>ip audit attack</b>	Sets the default actions for packets that match an attack signature.
<b>ip audit info</b>	Sets the default actions for packets that match an informational signature.
<b>ip audit name</b>	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.

Command	Description
<b>ip audit signature</b>	Disables a signature.
<b>show running-config ip audit interface</b>	Shows the configuration for the <b>ip audit interface</b> command.

# ip audit name

To create a named audit policy that identifies the actions to take when a packet matches a predefined attack signature or informational signature, use the **ip audit name** command in global configuration mode. Signatures are activities that match known attack patterns. For example, there are signatures that match DoS attacks. To remove the policy, use the **no** form of this command.

**ip audit name** *name* {**info** | **attack**} [**action** [**alarm**] [**drop**] [**reset**]]

**no ip audit name** *name* {**info** | **attack**} [**action** [**alarm**] [**drop**] [**reset**]]

## Syntax Description

<b>action</b>	(Optional) Specifies that you are defining a set of actions. If you do not follow this keyword with any actions, then the security appliance takes no action. If you do not enter the <b>action</b> keyword, then the security appliance uses the default action set by the <b>ip audit attack</b> and <b>ip audit info</b> commands.
<b>alarm</b>	(Optional) Generates a system message showing that a packet matched a signature.
<b>attack</b>	Creates an audit policy for attack signatures; the packet might be part of an attack on your network, such as a DoS attack or illegal FTP commands.
<b>drop</b>	(Optional) Drops the packet.
<b>info</b>	Creates an audit policy for informational signatures; the packet is not currently attacking your network, but could be part of an information-gathering activity, such as a port sweep.
<i>name</i>	Sets the name of the policy.
<b>reset</b>	(Optional) Drops the packet and closes the connection.

## Defaults

If you do not change the default actions using the **ip audit attack** and **ip audit info** commands, then the default action for attack signatures and informational signatures is to generate an alarm.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To apply the policy, assign it to an interface using the **ip audit interface** command. You can assign an **info** policy and an **attack** policy to each interface.

For a list of signatures, see the **ip audit signature** command.

If traffic matches a signature, and you want to take action against that traffic, use the **shun** command to prevent new connections from the offending host and to disallow packets from any existing connection.

### Examples

The following example sets an audit policy for the inside interface to generate an alarm for attack and informational signatures, while the policy for the outside interface resets the connection for attacks:

```
hostname(config)# ip audit name insidepolicy1 attack action alarm
hostname(config)# ip audit name insidepolicy2 info action alarm
hostname(config)# ip audit name outsidepolicy1 attack action reset
hostname(config)# ip audit name outsidepolicy2 info action alarm
hostname(config)# ip audit interface inside insidepolicy1
hostname(config)# ip audit interface inside insidepolicy2
hostname(config)# ip audit interface outside outsidepolicy1
hostname(config)# ip audit interface outside outsidepolicy2
```

### Related Commands

Command	Description
<b>ip audit attack</b>	Sets the default actions for packets that match an attack signature.
<b>ip audit info</b>	Sets the default actions for packets that match an informational signature.
<b>ip audit interface</b>	Assigns an audit policy to an interface.
<b>ip audit signature</b>	Disables a signature.
<b>shun</b>	Blocks packets with a specific source and destination address.

# ip audit signature

To disable a signature for an audit policy, use the **ip audit signature** command in global configuration mode. To reenable the signature, use the **no** form of this command. You might want to disable a signature if legitimate traffic continually matches a signature, and you are willing to risk disabling the signature to avoid large numbers of alarms.

**ip audit signature** *signature\_number* **disable**

**no ip audit signature** *signature\_number*

## Syntax Description

<i>signature_number</i>	Specifies the signature number to disable. See Table 16-1 for a list of supported signatures.
<b>disable</b>	Disables the signature.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Table 16-1 lists supported signatures and system message numbers.

**Table 16-1** Signature IDs and System Message Numbers

Signature ID	Message Number	Signature Title	Signature Type	Description
1000	400000	IP options-Bad Option List	Informational	Triggers on receipt of an IP datagram where the list of IP options in the IP datagram header is incomplete or malformed. The IP options list contains one or more options that perform various network management or debugging tasks.
1001	400001	IP options-Record Packet Route	Informational	Triggers on receipt of an IP datagram where the IP option list for the datagram includes option 7 (Record Packet Route).



**Table 16-1** Signature IDs and System Message Numbers (continued)

Signature ID	Message Number	Signature Title	Signature Type	Description
1002	400002	IP options-Timestamp	Informational	Triggers on receipt of an IP datagram where the IP option list for the datagram includes option 4 (Timestamp).
1003	400003	IP options-Security	Informational	Triggers on receipt of an IP datagram where the IP option list for the datagram includes option 2 (Security options).
1004	400004	IP options-Loose Source Route	Informational	Triggers on receipt of an IP datagram where the IP option list for the datagram includes option 3 (Loose Source Route).
1005	400005	IP options-SATNET ID	Informational	Triggers on receipt of an IP datagram where the IP option list for the datagram includes option 8 (SATNET stream identifier).
1006	400006	IP options-Strict Source Route	Informational	Triggers on receipt of an IP datagram in which the IP option list for the datagram includes option 2 (Strict Source Routing).
1100	400007	IP Fragment Attack	Attack	Triggers when any IP datagram is received with an offset value less than 5 but greater than 0 indicated in the offset field.
1102	400008	IP Impossible Packet	Attack	Triggers when an IP packet arrives with source equal to destination address. This signature will catch the so-called Land Attack.
1103	400009	IP Overlapping Fragments (Teardrop)	Attack	Triggers when two fragments contained within the same IP datagram have offsets that indicate that they share positioning within the datagram. This could mean that fragment A is being completely overwritten by fragment B, or that fragment A is partially being overwritten by fragment B. Some operating systems do not properly handle fragments that overlap in this manner and may throw exceptions or behave in other undesirable ways upon receipt of overlapping fragments, which is how the Teardrop attack works to create a DoS.
2000	400010	ICMP Echo Reply	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 0 (Echo Reply).
2001	400011	ICMP Host Unreachable	Informational	Triggers when an IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 3 (Host Unreachable).

Table 16-1 Signature IDs and System Message Numbers (continued)

Signature ID	Message Number	Signature Title	Signature Type	Description
2002	400012	ICMP Source Quench	Informational	Triggers when an IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 4 (Source Quench).
2003	400013	ICMP Redirect	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 5 (Redirect).
2004	400014	ICMP Echo Request	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 8 (Echo Request).
2005	400015	ICMP Time Exceeded for a Datagram	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 11 (Time Exceeded for a Datagram).
2006	400016	ICMP Parameter Problem on Datagram	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 12 (Parameter Problem on Datagram).
2007	400017	ICMP Timestamp Request	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 13 (Timestamp Request).
2008	400018	ICMP Timestamp Reply	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 14 (Timestamp Reply).
2009	400019	ICMP Information Request	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 15 (Information Request).
2010	400020	ICMP Information Reply	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 16 (ICMP Information Reply).
2011	400021	ICMP Address Mask Request	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 17 (Address Mask Request).
2012	400022	ICMP Address Mask Reply	Informational	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and the type field in the ICMP header set to 18 (Address Mask Reply).

Table 16-1 Signature IDs and System Message Numbers (continued)

Signature ID	Message Number	Signature Title	Signature Type	Description
2150	400023	Fragmented ICMP Traffic	Attack	Triggers when a IP datagram is received with the protocol field of the IP header set to 1 (ICMP) and either the more fragments flag is set to 1 (ICMP) or there is an offset indicated in the offset field.
2151	400024	Large ICMP Traffic	Attack	Triggers when a IP datagram is received with the protocol field of the IP header set to 1(ICMP) and the IP length > 1024.
2154	400025	Ping of Death Attack	Attack	Triggers when a IP datagram is received with the protocol field of the IP header set to 1(ICMP), the Last Fragment bit is set, and $(IP\ offset * 8) + (IP\ data\ length) > 65535$ that is to say, the IP offset (which represents the starting position of this fragment in the original packet, and which is in 8 byte units) plus the rest of the packet is greater than the maximum size for an IP packet.
3040	400026	TCP NULL flags	Attack	Triggers when a single TCP packet with none of the SYN, FIN, ACK, or RST flags set has been sent to a specific host.
3041	400027	TCP SYN+FIN flags	Attack	Triggers when a single TCP packet with the SYN and FIN flags are set and is sent to a specific host.
3042	400028	TCP FIN only flags	Attack	Triggers when a single orphaned TCP FIN packet is sent to a privileged port (having port number less than 1024) on a specific host.
3153	400029	FTP Improper Address Specified	Informational	Triggers if a port command is issued with an address that is not the same as the requesting host.
3154	400030	FTP Improper Port Specified	Informational	Triggers if a port command is issued with a data port specified that is <1024 or >65535.
4050	400031	UDP Bomb attack	Attack	Triggers when the UDP length specified is less than the IP length specified. This malformed packet type is associated with a denial of service attempt.
4051	400032	UDP Snork attack	Attack	Triggers when a UDP packet with a source port of either 135, 7, or 19 and a destination port of 135 is detected.
4052	400033	UDP Chargen DoS attack	Attack	This signature triggers when a UDP packet is detected with a source port of 7 and a destination port of 19.
6050	400034	DNS HINFO Request	Informational	Triggers on an attempt to access HINFO records from a DNS server.

Table 16-1 Signature IDs and System Message Numbers (continued)

Signature ID	Message Number	Signature Title	Signature Type	Description
6051	400035	DNS Zone Transfer	Informational	Triggers on normal DNS zone transfers, in which the source port is 53.
6052	400036	DNS Zone Transfer from High Port	Informational	Triggers on an illegitimate DNS zone transfer, in which the source port is not equal to 53.
6053	400037	DNS Request for All Records	Attack	Triggers on a DNS request for all records.
6100	400038	RPC Port Registration	Informational	Triggers when attempts are made to register new RPC services on a target host.
6101	400039	RPC Port Unregistration	Informational	Triggers when attempts are made to unregister existing RPC services on a target host.
6102	400040	RPC Dump	Informational	Triggers when an RPC dump request is issued to a target host.
6103	400041	Proxied RPC Request	Attack	Triggers when a proxied RPC request is sent to the portmapper of a target host.
6150	400042	ypserv (YP server daemon) Portmap Request	Informational	Triggers when a request is made to the portmapper for the YP server daemon (ypserv) port.
6151	400043	ypbind (YP bind daemon) Portmap Request	Informational	Triggers when a request is made to the portmapper for the YP bind daemon (ypbind) port.
6152	400044	yppasswdd (YP password daemon) Portmap Request	Informational	Triggers when a request is made to the portmapper for the YP password daemon (yppasswdd) port.
6153	400045	ypupdated (YP update daemon) Portmap Request	Attack	Triggers when a request is made to the portmapper for the YP update daemon (ypupdated) port.
6154	400046	ypxfrd (YP transfer daemon) Portmap Request	Attack	Triggers when a request is made to the portmapper for the YP transfer daemon (ypxfrd) port.
6155	400047	mountd (mount daemon) Portmap Request	Informational	Triggers when a request is made to the portmapper for the mount daemon (mountd) port.
6175	400048	rexid (remote execution daemon) Portmap Request	Informational	Triggers when a request is made to the portmapper for the remote execution daemon (rexid) port.

Table 16-1 Signature IDs and System Message Numbers (continued)

Signature ID	Message Number	Signature Title	Signature Type	Description
6180	400049	rexid (remote execution daemon) Attempt	Informational	Triggers when a call to the rexd program is made. The remote execution daemon is the server responsible for remote program execution. This may be indicative of an attempt to gain unauthorized access to system resources.
6190	400050	statd Buffer Overflow	Attack	Triggers when a large statd request is sent. This could be an attempt to overflow a buffer and gain access to system resources.

**Examples**

The following example disables signature 6100:

```
hostname(config)# ip audit signature 6100 disable
```

**Related Commands**

Command	Description
<b>ip audit attack</b>	Sets the default actions for packets that match an attack signature.
<b>ip audit info</b>	Sets the default actions for packets that match an informational signature.
<b>ip audit interface</b>	Assigns an audit policy to an interface.
<b>ip audit name</b>	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
<b>show running-config ip audit signature</b>	Shows the configuration for the <b>ip audit signature</b> command.

# ip-comp

To enable LZS IP compression, use the **ip-comp enable** command in group-policy configuration mode. To disable IP compression, use the **ip-comp disable** command.

To remove the **ip-comp** attribute from the running configuration, use the **no** form of this command. This enables inheritance of a value from another group policy.

**ip-comp {enable | disable}**

**no ip-comp**

## Syntax Description

<b>disable</b>	Disables IP compression.
<b>enable</b>	Enables IP compression.

## Defaults

IP compression is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Enabling data compression might speed up data transmission rates for remote dial-in users connecting with modems.



### Caution

Data compression increases the memory requirement and CPU utilization for each user session and consequently decreases the overall throughput of the security appliance. For this reason, we recommend that you enable data compression only for remote users connecting with a modem. Design a group policy specific to modem users, and enable compression only for them.

## Examples

The following example shows how to enable IP compression for the group policy named “FirstGroup”:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# ip-comp enable
```

# ip local pool

To configure IP address pools to be used for VPN remote access tunnels, use the **ip local pool** command in global configuration mode. To delete address pools, use the **no** form of this command.

**ip local pool** *poolname first-address—last-address [mask mask]*

**no ip local pool** *poolname*

## Syntax Description

<i>first-address</i>	Specifies the starting address in the range of IP addresses.
<i>last-address</i>	Specifies the final address in the range of IP addresses.
<b>mask</b> <i>mask</i>	(Optional) Specifies a subnet mask for the pool of addresses.
<i>poolname</i>	Specifies the name of the IP address pool.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You must supply the mask value when the IP addresses assigned to VPN clients belong to a non-standard network and the data could be routed incorrectly if you use the default mask. A typical example is when the IP local pool contains 10.10.10.0/255.255.255.0 addresses, since this is a Class A network by default. This could cause some routing issues when the VPN client needs to access different subnets within the 10 network over different interfaces. For example, if a printer, address 10.10.100.1/255.255.255.0 is available via interface 2, but the 10.10.10.0 network is available over the VPN tunnel and therefore interface 1, the VPN client would be confused as to where to route data destined for the printer. Both the 10.10.10.0 and 10.10.100.0 subnets fall under the 10.0.0.0 Class A network so the printer data may be sent over the VPN tunnel.

## Examples

The following example configures an IP address pool named firstpool. The starting address is 10.20.30.40 and the ending address is 10.20.30.50. The network mask is 255.255.255.0.

```
hostname(config)# ip local pool firstpool 10.20.30.40-10.20.30.50 mask 255.255.255.0
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure ip local pool</b>	Removes all ip local pools.
<b>show running-config ip local pool</b>	Displays the ip pool configuration. To specify a specific IP address pool, include the name in the command.



# ip-phone-bypass

To enable IP Phone Bypass, use the **ip-phone-bypass enable** command in group-policy configuration mode. To disable IP Phone Bypass, use the **ip-phone-bypass disable** command. To remove the IP phone Bypass attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a value for IP Phone Bypass from another group policy.

IP Phone Bypass lets IP phones behind hardware clients connect without undergoing user authentication processes. If enabled, secure unit authentication remains in effect.

**ip-phone-bypass {enable | disable}**

**no ip-phone-bypass**

## Syntax Description

<b>disable</b>	Disables IP Phone Bypass.
<b>enable</b>	Enables IP Phone Bypass.

## Defaults

IP Phone Bypass is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You need to configure IP Phone Bypass only if you have enabled user authentication.

## Examples

The following example shows how to enable IP Phone Bypass. for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# ip-phone-bypass enable
```

## Related Commands

Command	Description
<b>user-authentication</b>	Requires users behind a hardware client to identify themselves to the security appliance before connecting.

# ips

The ASA 5500 series adaptive security appliance supports the AIP SSM, which runs advanced IPS software that provides further security inspection either in inline mode or promiscuous mode. The security appliance diverts packets to the AIP SSM just before the packet exits the egress interface (or before VPN encryption occurs, if configured) and after other firewall policies are applied. For example, packets that are blocked by an access list are not forwarded to the AIP SSM.

To assign traffic from the security appliance to the AIP SSM, use the **ips** command in class configuration mode. To remove this command, use the **no** form of this command.

**ips** {inline | promiscuous} {fail-close | fail-open}

**no ips** {inline | promiscuous} {fail-close | fail-open}

## Syntax Description

<b>fail-close</b>	Blocks traffic if the AIP SSM fails.
<b>fail-open</b>	Permits traffic if the AIP SSM fails.
<b>inline</b>	Directs packets to the AIP SSM; the packet might be dropped as a result of IPS operation.
<b>promiscuous</b>	Duplicates packets for the AIP SSM; the original packet cannot be dropped by the AIP SSM.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

To configure the **ips** command, you must first configure the **class-map** command, **policy-map** command and the **class** command.

After you configure the security appliance to divert traffic to the AIP SSM, configure the AIP SSM inspection and protection policy, which determines how to inspect traffic and what to do when an intrusion is detected. You can either session to the AIP SSM from the security appliance (the **session** command) or you can connect directly to the AIP SSM using SSH or Telnet on its management interface. Alternatively, you can use ASDM. For more information about configuring the AIP SSM, see *Configuring the Cisco Intrusion Prevention System Sensor Using the Command Line Interface*.

**Examples**

The following example diverts all IP traffic to the AIP SSM in promiscuous mode, and blocks all IP traffic should the AIP SSM card fail for any reason:

```
hostname(config)# access-list IPS permit ip any any
hostname(config)# class-map my-ips-class
hostname(config-cmap)# match access-list IPS
hostname(config-cmap)# policy-map my-ids-policy
hostname(config-pmap)# class my-ips-class
hostname(config-pmap-c)# ips promiscuous fail-close
hostname(config-pmap-c)# service-policy my-ips-policy global
```

**Related Commands**

Command	Description
<b>class</b>	Specifies a class map to use for traffic classification.
<b>class-map</b>	Identifies traffic for use in a policy map.
<b>clear configure policy-map</b>	Removes all <b>policy-map</b> configuration, except that if a policy map is in use in a <b>service-policy</b> command, that policy map is not removed.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>show running-config policy-map</b>	Displays all current <b>policy-map</b> configurations.

# ipsec-udp

To enable IPsec over UDP, use the **ipsec-udp enable** command in group-policy configuration mode. To disable IPsec over UDP, use the **ipsec-udp disable** command. To remove the IPsec over UDP attribute from the running configuration, use the **no** form of this command. This enables inheritance of a value for IPsec over UDP from another group policy.

IPsec over UDP, sometimes called IPsec through NAT, lets a Cisco VPN Client or hardware client connect via UDP to a security appliance that is running NAT.

**ipsec-udp {enable | disable}**

**no ipsec-udp**

## Syntax Description

<b>disable</b>	Disables IPsec over UDP.
<b>enable</b>	Enables IPsec over UDP.

## Defaults

IPsec over UDP is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

To use IPsec over UDP, you must also configure the **ipsec-udp-port** command.

The Cisco VPN Client must also be configured to use IPsec over UDP (it is configured to use it by default). The VPN 3002 requires no configuration to use IPsec over UDP.

IPsec over UDP is proprietary, it applies only to remote-access connections, and it requires mode configuration, means the security appliance exchanges configuration parameters with the client while negotiating SAs.

Using IPsec over UDP may slightly degrade system performance.

## Examples

The following example shows how to set IPsec over UDP for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# ipsec-udp enable
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>ipsec-udp-port</b>	Specifies the port on which the security appliance listens for UDP traffic.

# ipsec-udp-port

To set a UDP port number for IPSec over UDP, use the **ipsec-udp-port** command in group-policy configuration mode. To disable the UDP port, use the **no** form of this command. This enables inheritance of a value for the IPSec over UDP port from another group policy.

In IPSec negotiations, the security appliance listens on the configured port and forwards UDP traffic for that port even if other filter rules drop UDP traffic.

**ipsec-udp-port** *port*

**no ipsec-udp-port**

Syntax Description	<i>port</i>	Identifies the UDP port number using an integer in the range 4001 through 49151.
--------------------	-------------	--

**Defaults** The default port is 10000.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** You can configure multiple group policies with this feature enabled, and each group policy can use a different port number.

**Examples** The following example shows how to set an IPSec UDP port to port 4025 for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# ipsec-udp-port 4025
```

Related Commands	Command	Description
	<b>ipsec-udp</b>	Lets a Cisco VPN Client or hardware client connect via UDP to a security appliance that is running NAT.

## ip verify reverse-path

To enable Unicast RPF, use the **ip verify reverse-path** command in global configuration mode. To disable this feature, use the **no** form of this command. Unicast RPF guards against IP spoofing (a packet uses an incorrect source IP address to obscure its true source) by ensuring that all packets have a source IP address that matches the correct source interface according to the routing table.

```
ip verify reverse-path interface interface_name
```

```
no ip verify reverse-path interface interface_name
```

### Syntax Description

*interface\_name* The interface on which you want to enable Unicast RPF.

### Defaults

This feature is disabled by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

Normally, the security appliance only looks at the destination address when determining where to forward the packet. Unicast RPF instructs the security appliance to also look at the source address; this is why it is called Reverse Path Forwarding. For any traffic that you want to allow through the security appliance, the security appliance routing table must include a route back to the source address. See RFC 2267 for more information.

For outside traffic, for example, the security appliance can use the default route to satisfy the Unicast RPF protection. If traffic enters from an outside interface, and the source address is not known to the routing table, the security appliance uses the default route to correctly identify the outside interface as the source interface.

If traffic enters the outside interface from an address that is known to the routing table, but is associated with the inside interface, then the security appliance drops the packet. Similarly, if traffic enters the inside interface from an unknown source address, the security appliance drops the packet because the matching route (the default route) indicates the outside interface.

Unicast RPF is implemented as follows:

- ICMP packets have no session, so each packet is checked.

- UDP and TCP have sessions, so the initial packet requires a reverse route lookup. Subsequent packets arriving during the session are checked using an existing state maintained as part of the session. Non-initial packets are checked to ensure they arrived on the same interface used by the initial packet.

### Examples

The following example enables Unicast RPF on the outside interface:

```
hostname(config)# ip verify reverse-path interface outside
```

### Related Commands

Command	Description
<b>clear configure ip verify reverse-path</b>	Clears the <b>ip verify reverse-path</b> configuration.
<b>clear ip verify statistics</b>	Clears the Unicast RPF statistics.
<b>show ip verify statistics</b>	Shows the Unicast RPF statistics.
<b>show running-config ip verify reverse-path</b>	Shows the <b>ip verify reverse-path</b> configuration.



## ipv6 access-list

To configure an IPv6 access list, use the **ipv6 access-list** command in global configuration mode. To remove an ACE, use the **no** form of this command. Access lists define the traffic that the security appliance allows to pass through or blocks.

```
ipv6 access-list id [line line-num] {deny | permit} {protocol | object-group protocol_obj_grp_id}
  {source-ipv6-prefix/prefix-length | any | host source-ipv6-address | object-group
  network_obj_grp_id} [operator {port [port] | object-group service_obj_grp_id}]
  {destination-ipv6-prefix/prefix-length | any | host destination-ipv6-address | object-group
  network_obj_grp_id} [{operator port [port] | object-group service_obj_grp_id}] [log [[level]]]
  [interval secs] | disable | default]]
```

```
no ipv6 access-list id [line line-num] {deny | permit} {protocol | object-group
  protocol_obj_grp_id} {source-ipv6-prefix/prefix-length | any | host source-ipv6-address |
  object-group network_obj_grp_id} [operator {port [port] | object-group
  service_obj_grp_id}] {destination-ipv6-prefix/prefix-length | any | host
  destination-ipv6-address | object-group network_obj_grp_id} [{operator port [port] |
  object-group service_obj_grp_id}] [log [[level]]] [interval secs] | disable | default]]
```

```
ipv6 access-list id [line line-num] {deny | permit} icmp6 {source-ipv6-prefix/prefix-length | any |
  host source-ipv6-address | object-group network_obj_grp_id}
  {destination-ipv6-prefix/prefix-length | any | host destination-ipv6-address | object-group
  network_obj_grp_id} [icmp_type | object-group icmp_type_obj_grp_id] [log [[level]]] [interval
  secs] | disable | default]]
```

```
no ipv6 access-list id [line line-num] {deny | permit} icmp6 {source-ipv6-prefix/prefix-length |
  any | host source-ipv6-address | object-group network_obj_grp_id}
  {destination-ipv6-prefix/prefix-length | any | host destination-ipv6-address | object-group
  network_obj_grp_id} [icmp_type | object-group icmp_type_obj_grp_id] [log [[level]]] [interval
  secs] | disable | default]]
```

### Syntax Description

<b>any</b>	An abbreviation for the IPv6 prefix ::/0, indicating any IPv6 address.
<b>default</b>	(Optional) Specifies that a syslog message 106100 is generated for the ACE.
<b>deny</b>	Denies access if the conditions are matched.
<i>destination-ipv6-address</i>	The IPv6 address of the host receiving the traffic.
<i>destination-ipv6-prefix</i>	The IPv6 network address where the traffic is destined.
<b>disable</b>	(Optional) Disables syslog messaging.
<b>host</b>	Indicates that the address refers to a specific host.
<b>icmp6</b>	Specifies that the access rule applies to ICMPv6 traffic passing through the security appliance.

<i>icmp_type</i>	<p>Specifies the ICMP message type being filtered by the access rule. The value can be a valid ICMP type number (from 0 to 255) or one of the following ICMP type literals:</p> <ul style="list-style-type: none"> <li>• destination-unreachable</li> <li>• packet-too-big</li> <li>• time-exceeded</li> <li>• parameter-problem</li> <li>• echo-request</li> <li>• echo-reply</li> <li>• membership-query</li> <li>• membership-report</li> <li>• membership-reduction</li> <li>• router-renumbering</li> <li>• router-solicitation</li> <li>• router-advertisement</li> <li>• neighbor-solicitation</li> <li>• neighbor-advertisement</li> <li>• neighbor-redirect</li> </ul> <p>Omitting the <i>icmp_type</i> argument indicates all ICMP types.</p>
<i>icmp_type_obj_grp_id</i>	(Optional) Specifies the object group ICMP type ID.
<i>id</i>	Name or number of an access list.
<b>interval</b> <i>secs</i>	(Optional) Specifies the time interval at which to generate an 106100 syslog message; valid values are from 1 to 600 seconds. The default interval is 300 seconds. This value is also used as the timeout value for deleting an inactive flow.
<i>level</i>	(Optional) Specifies the syslog level for message 106100; valid values are from 0 to 7. The default level is 6 (informational).
<b>line</b> <i>line-num</i>	(Optional) The line number where the access rule is being inserted into the list. If you do not specify a line number, the ACE is added to the end of the access list.
<b>log</b>	(Optional) Specifies the logging action for the ACE. If you do not specify the <b>log</b> keyword or you specify the <b>log default</b> keyword, then message 106023 is generated when a packet is denied by the ACE. If you specify the <b>log</b> keyword alone or with a level or interval, then message 106100 is generated when a packet is denied by the ACE. Packets that are denied by the implicit deny at the end of an access list are not logged. You must explicitly deny packets with an ACE to enable logging.
<i>network_obj_grp_id</i>	Existing network object group identification.
<b>object-group</b>	(Optional) Specifies an object group.

<i>operator</i>	(Optional) Specifies the operand to compare the source IP address to the destination IP address. The <i>operator</i> compares the source IP address or destination IP address ports. Possible operands include <b>lt</b> for less than, <b>gt</b> for greater than, <b>eq</b> for equal, <b>neq</b> for not equal, and <b>range</b> for an inclusive range. Use the <b>ipv6 access-list</b> command without an operator and port to indicate all ports by default.
<b>permit</b>	Permits access if the conditions are matched.
<i>port</i>	(Optional) Specifies the port that you permit or deny access. When entering the <i>port</i> argument, you can specify the port by either a number in the range of 0 to 65535 or a using literal name if the <i>protocol</i> is <b>tcp</b> or <b>udp</b> .  Permitted TCP literal names are <b>aol</b> , <b>bgp</b> , <b>chargen</b> , <b>cifs</b> , <b>citrix-ica</b> , <b>cmd</b> , <b>ctiqbe</b> , <b>daytime</b> , <b>discard</b> , <b>domain</b> , <b>echo</b> , <b>exec</b> , <b>finger</b> , <b>ftp</b> , <b>ftp-data</b> , <b>gopher</b> , <b>h323</b> , <b>hostname</b> , <b>http</b> , <b>https</b> , <b>ident</b> , <b>irc</b> , <b>kerberos</b> , <b>klogin</b> , <b>kshell</b> , <b>ldap</b> , <b>ldaps</b> , <b>login</b> , <b>lotusnotes</b> , <b>lpd</b> , <b>netbios-ssn</b> , <b>nntp</b> , <b>pop2</b> , <b>pop3</b> , <b>pptp</b> , <b>rsh</b> , <b>rtsp</b> , <b>smtp</b> , <b>sqlnet</b> , <b>ssh</b> , <b>sunrpc</b> , <b>tacacs</b> , <b>talk</b> , <b>telnet</b> , <b>uucp</b> , <b>whois</b> , and <b>www</b> .  Permitted UDP literal names are <b>biff</b> , <b>bootpc</b> , <b>bootps</b> , <b>cifs</b> , <b>discard</b> , <b>dnsix</b> , <b>domain</b> , <b>echo</b> , <b>http</b> , <b>isakmp</b> , <b>kerberos</b> , <b>mobile-ip</b> , <b>nameserver</b> , <b>netbios-dgm</b> , <b>netbios-ns</b> , <b>ntp</b> , <b>pcanywhere-status</b> , <b>pim-auto-rp</b> , <b>radius</b> , <b>radius-acct</b> , <b>rip</b> , <b>secureid-udp</b> , <b>snmp</b> , <b>snmptrap</b> , <b>sunrpc</b> , <b>syslog</b> , <b>tacacs</b> , <b>talk</b> , <b>tftp</b> , <b>time</b> , <b>who</b> , <b>www</b> , and <b>xmcp</b> .
<i>prefix-length</i>	Indicates how many of the high-order, contiguous bits of the address comprise the IPv6 prefix (the network portion of the IPv6 address).
<i>protocol</i>	Name or number of an IP protocol; valid values are <b>icmp</b> , <b>ip</b> , <b>tcp</b> , or <b>udp</b> , or an integer in the range 1 to 254 representing an IP protocol number.
<i>protocol_obj_grp_id</i>	Existing protocol object group identification.
<i>service_obj_grp_id</i>	(Optional) Specifies the object group.
<i>source-ipv6-address</i>	The IPv6 address of the host sending the traffic.
<i>source-ipv6-prefix</i>	The IPv6 network address of the where the network traffic originated.

### Defaults

When the **log** keyword is specified, the default level for syslog message 106100 is 6 (informational). The default logging interval is 300 seconds.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

The **ipv6 access-list** command allows you to specify if an IPv6 address is permitted or denied access to a port or protocol. Each command is called an ACE. One or more ACEs with the same access list name are referred to as an access list. Apply an access list to an interface using the **access-group** command.

The security appliance denies all packets from an outside interface to an inside interface unless you specifically permit access using an access list. All packets are allowed by default from an inside interface to an outside interface unless you specifically deny access.

The **ipv6 access-list** command is similar to the **access-list** command, except that it is IPv6-specific. For additional information about access lists, refer to the **access-list extended** command.

The **ipv6 access-list icmp** command is used to filter ICMPv6 messages that pass through the security appliance. To configure the ICMPv6 traffic that is allowed to originate and terminate at a specific interface, use the **ipv6 icmp** command.

Refer to the **object-group** command for information on how to configure object groups.

**Examples**

The following example will allow any host using TCP to access the 3001:1::203:A0FF:FED6:162D server:

```
hostname(config)# ipv6 access-list acl_grp permit tcp any host 3001:1::203:A0FF:FED6:162D
```

The following example uses **eq** and a port to deny access to just FTP:

```
hostname(config)# ipv6 access-list acl_out deny tcp any host 3001:1::203:A0FF:FED6:162D eq ftp
hostname(config)# access-group acl_out in interface inside
```

The following example uses **lt** to permit access to all ports less than port 2025, which permits access to the well-known ports (1 to 1024):

```
hostname(config)# ipv6 access-list acl_dmz1 permit tcp any host 3001:1::203:A0FF:FED6:162D lt 1025
hostname(config)# access-group acl_dmz1 in interface dmz1
```

**Related Commands**

Command	Description
<b>access-group</b>	Assigns an access list to an interface.
<b>ipv6 icmp</b>	Configures access rules for ICMP messages that terminate at an interface of the security appliance.
<b>object-group</b>	Creates an object group (addresses, ICMP types, and services).

# ipv6 address

To enable IPv6 and configure the IPv6 addresses on an interface, use the **ipv6 address** command in interface configuration mode. To remove the IPv6 addresses, use the **no** form of this command.

```
ipv6 address { autoconfig | ipv6-prefix/prefix-length [eui-64] | ipv6-address link-local }
```

```
no ipv6 address { autoconfig | ipv6-prefix/prefix-length [eui-64] | ipv6-address link-local }
```

## Syntax Description

<b>autoconfig</b>	Enables automatic configuration of IPv6 addresses using stateless autoconfiguration on an interface.
<b>eui-64</b>	(Optional) Specifies an interface ID in the low order 64 bits of the IPv6 address.
<i>ipv6-address</i>	The IPv6 link-local address assigned to the interface.
<i>ipv6-prefix</i>	The IPv6 network address assigned to the interface.
<b>link-local</b>	Specifies that the address is a link-local address.
<i>prefix-length</i>	Indicates how many of the high-order, contiguous bits of the address comprise the IPv6 prefix (the network portion of the IPv6 address).

## Defaults

IPv6 is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Configuring an IPv6 address on an interface enables IPv6 on that interface; you do not need to use the **ipv6 enable** command after specifying an IPv6 address.

The **ipv6 address autoconfig** command is used to enable automatic configuration of IPv6 addresses on an interface using stateless autoconfiguration. The addresses are configured based on the prefixes received in Router Advertisement messages. If a link-local address has not been configured, then one is automatically generated for this interface. An error message is displayed if another host is using the link-local address.

The **ipv6 address eui-64** command is used to configure an IPv6 address for an interface. If the optional **eui-64** is specified, the EUI-64 interface ID will be used in the low order 64 bits of the address. If the value specified for the *prefix-length* argument is greater than 64 bits, the prefix bits have precedence over the interface ID. An error message will be displayed if another host is using the specified address.

The Modified EUI-64 format interface ID is derived from the 48-bit link-layer (MAC) address by inserting the hex number FFFE between the upper three bytes (OUI field) and the lower 3 bytes (serial number) of the link layer address. To ensure the chosen address is from a unique Ethernet MAC address, the next-to-lowest order bit in the high-order byte is inverted (universal/local bit) to indicate the uniqueness of the 48-bit address. For example, an interface with a MAC address of 00E0.B601.3B7A would have a 64 bit interface ID of 02E0:B6FF:FE01:3B7A.

The **ipv6 address link-local** command is used to configure an IPv6 link-local address for an interface. The *ipv6-address* specified with this command overrides the link-local address that is automatically generated for the interface. The link-local address is composed of the link-local prefix FE80::/64 and the interface ID in Modified EUI-64 format. An interface with a MAC address of 00E0.B601.3B7A would have a link-local address of FE80::2E0:B6FF:FE01:3B7A. An error message will be displayed if another host is using the specified address.

---

## Examples

The following example assigns 3FFE:C00:0:1::576/64 as the global address for the selected interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 address 3ffe:c00:0:1::576/64
```

The following example assigns an IPv6 address automatically for the selected interface:

```
hostname(config)# interface gigabitethernet 0/1
hostname(config-if)# ipv6 address autoconfig
```

The following example assigns IPv6 address 3FFE:C00:0:1::/64 to the selected interface and specifies an EUI-64 interface ID in the low order 64 bits of the address:

```
hostname(config)# interface gigabitethernet 0/2
hostname(config-if)# ipv6 address 3ffe:c00:0:1::/64 eui-64
```

The following example assigns FE80::260:3EFF:FE11:6670 as the link-level address for the selected interface:

```
hostname(config)# interface gigabitethernet 0/3
hostname(config-if)# ipv6 address FE80::260:3EFF:FE11:6670 link-local
```

---

## Related Commands

Command	Description
<b>debug ipv6 interface</b>	Displays debug information for IPv6 interfaces.
<b>show ipv6 interface</b>	Displays the status of interfaces configured for IPv6.

# ipv6 enable

To enable IPv6 processing on an interface that has not been configured with an explicit IPv6 address, use the **ipv6 enable** command in interface configuration mode. To disable IPv6 processing on an interface that has not been configured with an explicit IPv6 address, use the **no** form of this command.

**ipv6 enable**

**no ipv6 enable**

## Syntax Description

This command has no arguments or keywords.

## Defaults

IPv6 is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **ipv6 enable** command automatically configures an IPv6 link-local unicast address on the interface while also enabling the interface for IPv6 processing.

The **no ipv6 enable** command does not disable IPv6 processing on an interface that is configured with an explicit IPv6 address.

## Examples

The following example enables IPv6 processing on the selected interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 enable
```

## Related Commands

Command	Description
<b>ipv6 address</b>	Configures an IPv6 address for an interface and enables IPv6 processing on the interface.
<b>show ipv6 interface</b>	Displays the usability status of interfaces configured for IPv6.

## ipv6 enforce-eui64

To enforce the use of Modified EUI-64 format interface identifiers in IPv6 addresses on a local link, use the **ipv6 enforce-eui64** command in global configuration mode. To disable Modified EUI-64 address format enforcement, use the **no** form of this command.

**ipv6 enforce-eui64** *if\_name*

**no ipv6 enforce-eui64** *if\_name*

### Syntax Description

*if\_name* Specifies the name of the interface, as designated by the **nameif** command, for which you are enabling Modified EUI-64 address format enforcement.

### Defaults

Modified EUI-64 format enforcement is disabled.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	•	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

When this command is enabled on an interface, the source addresses of IPv6 packets received on that interface are verified against the source MAC addresses to ensure that the interface identifiers use the Modified EUI-64 format. If the IPv6 packets do not use the Modified EUI-64 format for the interface identifier, the packets are dropped and the following system log message is generated:

```
%PIX|ASA-3-325003: EUI-64 source address check failed.
```

The address format verification is only performed when a flow is created. Packets from an existing flow are not checked. Additionally, the address verification can only be performed for hosts on the local link. Packets received from hosts behind a router will fail the address format verification, and be dropped, because their source MAC address will be the router MAC address and not the host MAC address.

The Modified EUI-64 format interface identifier is derived from the 48-bit link-layer (MAC) address by inserting the hex number FFFE between the upper three bytes (OUI field) and the lower 3 bytes (serial number) of the link layer address. To ensure the chosen address is from a unique Ethernet MAC address, the next-to-lowest order bit in the high-order byte is inverted (universal/local bit) to indicate the uniqueness of the 48-bit address. For example, an interface with a MAC address of 00E0.B601.3B7A would have a 64 bit interface ID of 02E0:B6FF:FE01:3B7A.



---

**Examples**

The following example enables Modified EUI-64 format enforcement for IPv6 addresses received on the inside interface:

```
hostname(config)# ipv6 enforce-eui64 inside
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>ipv6 address</b>	Configures an IPv6 address on an interface.
<b>ipv6 enable</b>	Enables IPv6 on an interface.

## ipv6 icmp

To configure ICMP access rules for an interface, use the **ipv6 icmp** command in global configuration mode. To remove an ICMP access rule, use the **no** form of this command.

```
ipv6 icmp {permit | deny} {ipv6-prefix/prefix-length | any | host ipv6-address} [icmp-type]  
if-name
```

```
no ipv6 icmp {permit | deny} {ipv6-prefix/prefix-length | any | host ipv6-address} [icmp-type]  
if-name
```

<b>Syntax Description</b>	<b>any</b>	Keyword specifying any IPv6 address. An abbreviation for the IPv6 prefix <code>::/0</code> .
	<b>deny</b>	Prevents the specified ICMP traffic on the selected interface.
	<b>host</b>	Indicates that the address refers to a specific host.
	<i>icmp-type</i>	Specifies the ICMP message type being filtered by the access rule. The value can be a valid ICMP type number (from 0 to 255) or one of the following ICMP type literals: <ul style="list-style-type: none"> <li>• destination-unreachable</li> <li>• packet-too-big</li> <li>• time-exceeded</li> <li>• parameter-problem</li> <li>• echo-request</li> <li>• echo-reply</li> <li>• membership-query</li> <li>• membership-report</li> <li>• membership-reduction</li> <li>• router-renumbering</li> <li>• router-solicitation</li> <li>• router-advertisement</li> <li>• neighbor-solicitation</li> <li>• neighbor-advertisement</li> <li>• neighbor-redirect</li> </ul>
	<i>if-name</i>	The name of the interface, as designated by the <b>nameif</b> command, the access rule applies to.
	<i>ipv6-address</i>	The IPv6 address of the host sending ICMPv6 messages to the interface.
	<i>ipv6-prefix</i>	The IPv6 network that is sending ICMPv6 messages to the interface.
	<b>permit</b>	Allows the specified ICMP traffic on the selected interface.
	<i>prefix-length</i>	The length of the IPv6 prefix. This value indicates how many of the high-order, contiguous bits of the address comprise the network portion of the prefix. The slash (/) must precede the prefix length.

**Defaults**

If no ICMP access rules are defined, all ICMP traffic is permitted.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

ICMP in IPv6 functions the same as ICMP in IPv4. ICMPv6 generates error messages, such as ICMP destination unreachable messages and informational messages like ICMP echo request and reply messages. Additionally, ICMP packets in IPv6 are used in the IPv6 neighbor discovery process and path MTU discovery.

If there are no ICMP rules defined for an interface, all IPv6 ICMP traffic is permitted.

If there are ICMP rules defined for an interface, then the rules are processed in order on a first-match basis followed by an implicit deny all rule. For example, if the first matched rule is a permit rule, the ICMP packet is processed. If the first matched rule is a deny rule, or if the ICMP packet did not match any rule on that interface, then the security appliance discards the ICMP packet and generates a syslog message.

For this reason, the order that you enter the ICMP rules is important. If you enter a rule denying all ICMP traffic from a specific network, and then follow it with a rule permitting ICMP traffic from a particular host on that network, the host rule will never be processed. The ICMP traffic is blocked by the network rule. However, if you enter the host rule first, followed by the network rule, the host ICMP traffic will be allowed, while all other ICMP traffic from that network is blocked.

The **ipv6 icmp** command configures access rules for ICMP traffic that terminates at the security appliance interfaces. To configure access rules for pass-through ICMP traffic, refer to the **ipv6 access-list** command.

**Examples**

The following example denies all ping requests and permits all Packet Too Big messages (to support Path MTU Discovery) at the outside interface:

```
hostname(config)# ipv6 icmp deny any echo-reply outside
hostname(config)# ipv6 icmp permit any packet-too-big outside
```

The following example permits host 2000:0:0:4::2 or hosts on prefix 2001::/64 to ping the outside interface:

```
hostname(config)# ipv6 icmp permit host 2000:0:0:4::2 echo-reply outside
hostname(config)# ipv6 icmp permit 2001::/64 echo-reply outside
hostname(config)# ipv6 icmp permit any packet-too-big outside
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>ipv6 access-list</b>	Configures access lists.

## ipv6 nd dad attempts

To configure the number of consecutive neighbor solicitation messages that are sent on an interface during duplicate address detection, use the **ipv6 nd dad attempts** command in interface configuration mode. To return to the default number of duplicate address detection messages sent, use the **no** form of this command.

**ipv6 nd dad attempts** *value*

**no ipv6 nd dad** [*attempts value*]

### Syntax Description

<i>value</i>	A number from 0 to 600. Entering 0 disables duplicate address detection on the specified interface. Entering 1 configures a single transmission without follow-up transmissions. The default value is 1 message.
--------------	--

### Defaults

The default number of attempts is 1.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	•	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

Duplicate address detection verifies the uniqueness of new unicast IPv6 addresses before the addresses are assigned to interfaces (the new addresses remain in a tentative state while duplicate address detection is performed). Duplicate address detection uses neighbor solicitation messages to verify the uniqueness of unicast IPv6 addresses. The frequency at which the neighbor solicitation messages are sent is configured using the **ipv6 nd ns-interval** command.

Duplicate address detection is suspended on interfaces that are administratively down. While an interface is administratively down, the unicast IPv6 addresses assigned to the interface are set to a pending state.

Duplicate address detection is automatically restarted on an interface when the interface returns to being administratively up. An interface returning to administratively up restarts duplicate address detection for all of the unicast IPv6 addresses on the interface.

**Note**

While duplicate address detection is performed on the link-local address of an interface, the state for the other IPv6 addresses is still set to tentative. When duplicate address detection is completed on the link-local address, duplicate address detection is performed on the remaining IPv6 addresses.

When duplicate address detection identifies a duplicate address, the state of the address is set to DUPLICATE and the address is not used. If the duplicate address is the link-local address of the interface, the processing of IPv6 packets is disabled on the interface and an error message similar to the following is issued:

```
%PIX-4-DUPLICATE: Duplicate address FE80::1 on outside
```

If the duplicate address is a global address of the interface, the address is not used and an error message similar to the following is issued:

```
%PIX-4-DUPLICATE: Duplicate address 3000::4 on outside
```

All configuration commands associated with the duplicate address remain as configured while the state of the address is set to DUPLICATE.

If the link-local address for an interface changes, duplicate address detection is performed on the new link-local address and all of the other IPv6 address associated with the interface are regenerated (duplicate address detection is performed only on the new link-local address).

**Examples**

The following example configures 5 consecutive neighbor solicitation messages to be sent when duplicate address detection is being performed on the tentative unicast IPv6 address of the interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd dad attempts 5
```

The following example disables duplicate address detection on the selected interface:

```
hostname(config)# interface gigabitethernet 0/1
hostname(config-if)# ipv6 nd dad attempts 0
```

**Related Commands**

Command	Description
<b>ipv6 nd ns-interval</b>	Configures the interval between IPv6 neighbor solicitation transmissions on an interface.
<b>show ipv6 interface</b>	Displays the usability status of interfaces configured for IPv6.

# ipv6 nd ns-interval

To configure the interval between IPv6 neighbor solicitation retransmissions on an interface, use the **ipv6 nd ns-interval** command in interface configuration mode. To restore the default value, use the **no** form of this command.

**ipv6 nd ns-interval** *value*

**no ipv6 nd ns-interval** [*value*]

## Syntax Description

<i>value</i>	The interval between IPv6 neighbor solicitation transmissions, in milliseconds. Valid values range from 1000 to 3600000 milliseconds. The default value is 1000 milliseconds.
--------------	---

## Defaults

1000 milliseconds between neighbor solicitation transmissions.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This value will be included in all IPv6 router advertisements sent out this interface.

## Examples

The following example configures an IPv6 neighbor solicitation transmission interval of 9000 milliseconds for GigabitEthernet 0/0:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd ns-interval 9000
```

## Related Commands

Command	Description
<b>show ipv6 interface</b>	Displays the usability status of interfaces configured for IPv6.

## ipv6 nd prefix

To configure which IPv6 prefixes are included in IPv6 router advertisements, use the **ipv6 nd prefix** command in interface configuration mode. To remove the prefixes, use the **no** form of this command.

**ipv6 nd prefix** *ipv6-prefix/prefix-length* | **default** [[*valid-lifetime preferred-lifetime*] | [**at** *valid-date preferred-date*] | **infinite** | **no-advertise** | **off-link** | **no-autoconfig**]

**no ipv6 nd prefix** *ipv6-prefix/prefix-length* | **default** [[*valid-lifetime preferred-lifetime*] | [**at** *valid-date preferred-date*] | **infinite** | **no-advertise** | **off-link** | **no-autoconfig**]

### Syntax Description

<i>at valid-date preferred-date</i>	The date and time at which the lifetime and preference expire. The prefix is valid until this specified date and time are reached. Dates are expressed in the form <i>date-valid-expire month-valid-expire hh:mm-valid-expire date-prefer-expire month-prefer-expire hh:mm-prefer-expire</i> .
<b>default</b>	Default values are used.
<b>infinite</b>	(Optional) The valid lifetime does not expire.
<i>ipv6-prefix</i>	The IPv6 network number to include in router advertisements.  This argument must be in the form documented in RFC 2373 where the address is specified in hexadecimal using 16-bit values between colons.
<b>no-advertise</b>	(Optional) Indicates to hosts on the local link that the specified prefix is not to be used for IPv6 autoconfiguration.
<b>no-autoconfig</b>	(Optional) Indicates to hosts on the local link that the specified prefix cannot be used for IPv6 autoconfiguration.
<b>off-link</b>	(Optional) Indicates that the specified prefix is not used for on-link determination.
<i>preferred-lifetime</i>	The amount of time (in seconds) that the specified IPv6 prefix is advertised as being preferred. Valid values range from 0 to 4294967295 seconds. The maximum value represents infinity, which can also be specified with <b>infinite</b> . The default is 604800 (7 days).
<i>prefix-length</i>	The length of the IPv6 prefix. This value indicates how many of the high-order, contiguous bits of the address comprise the network portion of the prefix. The slash (/) must precede the prefix length.
<i>valid-lifetime</i>	The amount of time that the specified IPv6 prefix is advertised as being valid. Valid values range from 0 to 4294967295 seconds. The maximum value represents infinity, which can also be specified with <b>infinite</b> . The default is 2592000 (30 days).

### Defaults

All prefixes configured on interfaces that originate IPv6 router advertisements are advertised with a valid lifetime of 2592000 seconds (30 days) and a preferred lifetime of 604800 seconds (7 days), and with both the “onlink” and “autoconfig” flags set.



**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

This command allows control over the individual parameters per prefix, including whether or not the prefix should be advertised.

By default, prefixes configured as addresses on an interface using the **ipv6 address** command are advertised in router advertisements. If you configure prefixes for advertisement using the **ipv6 nd prefix** command, then only these prefixes are advertised.

The **default** keyword can be used to set default parameters for all prefixes.

A date can be set to specify the expiration of a prefix. The valid and preferred lifetimes are counted down in real time. When the expiration date is reached, the prefix will no longer be advertised.

When onlink is “on” (by default), the specified prefix is assigned to the link. Nodes sending traffic to such addresses that contain the specified prefix consider the destination to be locally reachable on the link.

When autoconfig is “on” (by default), it indicates to hosts on the local link that the specified prefix can be used for IPv6 autoconfiguration.

**Examples**

The following example includes the IPv6 prefix 2001:200::/35, with a valid lifetime of 1000 seconds and a preferred lifetime of 900 seconds, in router advertisements sent out on the specified interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd prefix 2001:200::/35 1000 900
```

**Related Commands**

Command	Description
<b>ipv6 address</b>	Configures an IPv6 address and enables IPv6 processing on an interface.
<b>show ipv6 interface</b>	Displays the usability status of interfaces configured for IPv6.

# ipv6 nd ra-interval

To configure the interval between IPv6 router advertisement transmissions on an interface, use the **ipv6 nd ra-interval** command in interface configuration mode. To restore the default interval, use the **no** form of this command.

**ipv6 nd ra-interval** [*msec*] *value*

**no ipv6 nd ra-interval** [[*msec*] *value*]

## Syntax Description

<b>msec</b>	(Optional) indicates that the value provided is in milliseconds. If this keyword is not present, the value provided is seconds.
<i>value</i>	The interval between IPv6 router advertisement transmissions. Valid values range from 3 to 1800 seconds, or from 500 to 1800000 milliseconds if the <b>msec</b> keyword is provided. The default is 200 seconds.

## Defaults

200 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The interval between transmissions should be less than or equal to the IPv6 router advertisement lifetime if the security appliance is configured as a default router by using the **ipv6 nd ra-lifetime** command. To prevent synchronization with other IPv6 nodes, randomly adjust the actual value used to within 20 percent of the specified value.

## Examples

The following example configures an IPv6 router advertisement interval of 201 seconds for the selected interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd ra-interval 201
```

## Related Commands

Command	Description
<b>ipv6 nd ra-lifetime</b>	Configures the lifetime of an IPv6 router advertisement.
<b>show ipv6 interface</b>	Displays the usability status of interfaces configured for IPv6.

# ipv6 nd ra-lifetime

To configure the “router lifetime” value in IPv6 router advertisements on an interface, use the **ipv6 nd ra-lifetime** command in interface configuration mode. To restore the default value, use the **no** form of this command.

**ipv6 nd ra-lifetime** *seconds*

**no ipv6 nd ra-lifetime** [*seconds*]

## Syntax Description

<i>seconds</i>	The validity of the security appliance as a default router on this interface. Valid values range from 0 to 9000 seconds. The default is 1800 seconds. 0 indicates that the security appliance should not be considered a default router on the selected interface.
----------------	--

## Defaults

1800 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The “router lifetime” value is included in all IPv6 router advertisements sent out the interface. The value indicates the usefulness of the security appliance as a default router on this interface.

Setting the value to a non-zero value to indicates that the security appliance should be considered a default router on this interface. The no-zero value for the “router lifetime” value should not be less than the router advertisement interval.

Setting the value to 0 indicates that the security appliance should not be considered a default router on this interface.

## Examples

The following example configures an IPv6 router advertisement lifetime of 1801 seconds for the selected interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd ra-lifetime 1801
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>ipv6 nd ra-interval</b>	Configures the interval between IPv6 router advertisement transmissions on an interface.
<b>show ipv6 interface</b>	Displays the usability status of interfaces configured for IPv6.

## ipv6 nd reachable-time

To configure the amount of time that a remote IPv6 node is considered reachable after a reachability confirmation event has occurred, use the **ipv6 nd reachable-time** command in interface configuration mode. To restore the default time, use the **no** form of this command.

**ipv6 nd reachable-time** *value*

**no ipv6 nd reachable-time** [*value*]

### Syntax Description

<i>value</i>	The amount of time, in milliseconds, that a remote IPv6 node is considered reachable. Valid values range from 0 to 3600000 milliseconds. The default value is 0.  When 0 is used for the <i>value</i> , the reachable time is sent as undetermined. It is up to the receiving devices to set and track the reachable time value.
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### Defaults

0 milliseconds.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	•	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

The configured time enables detecting unavailable neighbors. Shorter configured times enable detecting unavailable neighbors more quickly; however, shorter times consume more IPv6 network bandwidth and processing resources in all IPv6 network devices. Very short configured times are not recommended in normal IPv6 operation.

To see the reachable time used by the security appliance, including the actual value when this command is set to 0, use the **show ipv6 interface** command to display information about the IPv6 interface, including the ND reachable time being used.

### Examples

The following example configures an IPv6 reachable time of 1700000 milliseconds for the selected interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd reachable-time 1700000
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show ipv6 interface</b>	Displays the usability status of interfaces configured for IPv6.

## ipv6 nd suppress-ra

To suppress IPv6 router advertisement transmissions on a LAN interface, use the **ipv6 nd suppress-ra** command in interface configuration mode. To reenable the sending of IPv6 router advertisement transmissions on a LAN interface, use the **no** form of this command.

**ipv6 nd suppress-ra**

**no ipv6 nd suppress-ra**

**Syntax Description** This command has no arguments or keywords.

**Defaults** Router advertisements are automatically sent on LAN interfaces if IPv6 unicast routing is enabled.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Use the **no ipv6 nd suppress-ra** command to enable the sending of IPv6 router advertisement transmissions on non-LAN interface types (for example serial or tunnel interfaces).

**Examples** The following example suppresses IPv6 router advertisements on the selected interface:

```
hostname(config)# interface gigabitethernet 0/0
hostname(config-if)# ipv6 nd suppress-ra
```

Related Commands	Command	Description
	<b>show ipv6 interface</b>	Displays the usability status of interfaces configured for IPv6.



# ipv6 neighbor

To configure a static entry in the IPv6 neighbor discovery cache, use the **ipv6 neighbor** command in global configuration mode. To remove a static entry from the neighbor discovery cache, use the **no** form of this command.

```
ipv6 neighbor ipv6_address if_name mac_address
```

```
no ipv6 neighbor ipv6_address if_name [mac_address]
```

## Syntax Description

<i>if_name</i>	The internal or external interface name designated by the <b>nameif</b> command.
<i>ipv6_address</i>	The IPv6 address that corresponds to the local data-link address.
<i>mac_address</i>	The local data-line (hardware MAC) address.

## Defaults

Static entries are not configured in the IPv6 neighbor discovery cache.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **ipv6 neighbor** command is similar to the **arp** command. If an entry for the specified IPv6 address already exists in the neighbor discovery cache—learned through the IPv6 neighbor discovery process—the entry is automatically converted to a static entry. These entries are stored in the configuration when the **copy** command is used to store the configuration.

Use the **show ipv6 neighbor** command to view static entries in the IPv6 neighbor discovery cache.

The **clear ipv6 neighbors** command deletes all entries in the IPv6 neighbor discovery cache except static entries. The **no ipv6 neighbor** command deletes a specified static entry from the neighbor discovery cache; the command does not remove dynamic entries—entries learned from the IPv6 neighbor discovery process—from the cache. Disabling IPv6 on an interface by using the **no ipv6 enable** command deletes all IPv6 neighbor discovery cache entries configured for that interface except static entries (the state of the entry changes to INCOMP [Incomplete]).

Static entries in the IPv6 neighbor discovery cache are not modified by the neighbor discovery process.

---

**Examples**

The following example adds a static entry for the an inside host with an IPv6 address of 3001:1::45A and a MAC address of 0002.7D1A.9472 to the neighbor discovery cache:

```
hostname(config)# ipv6 neighbor 3001:1::45A inside 0002.7D1A.9472
```

---

**Related Commands**

Command	Description
<b>clear ipv6 neighbors</b>	Deletes all entries in the IPv6 neighbor discovery cache, except static entries.
<b>show ipv6 neighbor</b>	Displays IPv6 neighbor cache information.

---

# ipv6 route

To add an IPv6 route to the IPv6 routing table, use the **ipv6 route** command in global configuration mode. To remove an IPv6 default route, use the **no** form of this command.

```
ipv6 route if_name ipv6-prefix/prefix-length ipv6-address [administrative-distance]
```

```
no ipv6 route if_name ipv6-prefix/prefix-length ipv6-address [administrative-distance]
```

## Syntax Description

<i>administrative-distance</i>	(Optional) The administrative distance of the route. The default value is 1, which gives static routes precedence over any other type of routes except connected routes.
<i>if_name</i>	The name of the interface the route is being configured for.
<i>ipv6-address</i>	The IPv6 address of the next hop that can be used to reach the specified network.
<i>ipv6-prefix</i>	The IPv6 network that is the destination of the static route.  This argument must be in the form documented in RFC 2373 where the address is specified in hexadecimal using 16-bit values between colons.
<i>prefix-length</i>	The length of the IPv6 prefix. This value indicates how many of the high-order, contiguous bits of the address comprise the network portion of the prefix. The slash (/) must precede the prefix length.

## Defaults

By default, the *administrative-distance* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the **show ipv6 route** command to view the contents of the IPv6 routing table.

## Examples

The following example routes packets for network 7fff::0/32 to a networking device on the inside interface at 3FFE:1100:0:CC00::1 with an administrative distance of 110:

```
hostname(config)# ipv6 route inside 7fff::0/32 3FFE:1100:0:CC00::1 110
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>debug ipv6 route</b>	Displays debug messages for IPv6 routing table updates and route cache updates.
<b>show ipv6 route</b>	Displays the current contents of the IPv6 routing table.

# isakmp am-disable

To disable inbound aggressive mode connections, use the **isakmp am-disable** command in global configuration mode. To enable inbound aggressive mode connections, use the **no** form of this command.

**isakmp am-disable**

**no isakmp am-disable**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default value is enabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command was deprecated. The <b>crypto isakmp am-disable</b> command replaces it.

## Examples

The following example, entered in global configuration mode, disables inbound aggressive mode connections:

```
hostname(config)# isakmp am-disable
```

## Related Commands

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config isakmp</b>	Displays all the active configuration.

# isakmp disconnect-notify

To enable disconnect notification to peers, use the **isakmp disconnect-notify** command in global configuration mode. To disable disconnect notification, use the **no** form of this command.

**isakmp disconnect-notify**

**no isakmp disconnect-notify**

**Syntax Description** This command has no arguments or keywords.

**Defaults** The default value is disabled.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.
7.2(1)	This command was deprecated. The <b>crypto isakmp disconnect-notify</b> command replaces it.

## Examples

The following example, entered in global configuration mode, enables disconnect notification to peers:

```
hostname(config)# isakmp disconnect-notify
```

## Related Commands

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config isakmp</b>	Displays all the active configuration.

# isakmp enable

To enable ISAKMP negotiation on the interface on which the IPsec peer communicates with the security appliance, use the **isakmp enable** command in global configuration mode. To disable ISAKMP on the interface, use the **no** form of this command.

**isakmp enable** *interface-name*

**no isakmp enable** *interface-name*

## Syntax Description

*interface-name* Specifies the name of the interface on which to enable or disable ISAKMP negotiation.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.
7.2(1)	This command was deprecated. The <b>crypto isakmp enable</b> command replaces it.

## Examples

The following example, entered in global configuration mode, shows how to disable ISAKMP on the inside interface:

```
hostname(config)# no isakmp enable inside
```

## Related Commands

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config isakmp</b>	Displays all the active configuration.

# isakmp identity

To set the Phase 2 ID to be sent to the peer, use the **isakmp identity** command in global configuration mode. To return to the default setting, use the **no** form of this command.

**isakmp identity** {**address** | **hostname** | **key-id** *key-id-string* | **auto**}

**no isakmp identity** {**address** | **hostname** | **key-id** *key-id-string* | **auto**}

## Syntax Description

<b>address</b>	Uses the IP address of the host exchanging ISAKMP identity information.
<b>auto</b>	Determines ISKMP negotiation by connection type; IP address for preshared key or cert DN for certificate authentication.
<b>hostname</b>	Uses the fully-qualified domain name of the host exchanging ISAKMP identity information (default). This name comprises the hostname and the domain name.
<b>key-id</b> <i>key_id_string</i>	Specifies the string used by the remote peer to look up the preshared key.

## Defaults

The default ISAKMP identity is **isakmp identity hostname**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.
7.2(1)	This command was deprecated. The <b>crypto isakmp identity</b> command replaces it.

## Examples

The following example, entered in global configuration mode, enables ISAKMP negotiation on the interface for communicating with the IPSec peer, depending on connection type:

```
hostname(config)# isakmp identity auto
```

## Related Commands

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.



Command	Description
<code>clear isakmp sa</code>	Clears the IKE runtime SA database.
<code>show running-config isakmp</code>	Displays all the active configuration.

# isakmp ikev1-user-authentication

To configure hybrid authentication during IKE, use the **isakmp ikev1-user-authentication** command in tunnel-group ipsec-attributes configuration mode. To disable hybrid authentication, use the **no** form of this command.

**isakmp ikev1-user-authentication** [*interface*] { **none** | **xauth** | **hybrid** }

**no isakmp ikev1-user-authentication** [*interface*] { **none** | **xauth** | **hybrid** }

## Syntax Description

<b>hybrid</b>	Specifies hybrid XAUTH authentication during IKE.
<i>interface</i>	(Optional) Specifies the interface on which the user authentication method is configured.
<b>none</b>	Disables user authentication during IKE.
<b>xauth</b>	Specifies XAUTH, also called extended user authentication.

## Defaults

The default authentication method is XAUTH or extended user authentication. The default *interface* is all interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

You use this command when you need to use digital certificates for security appliance authentication and a different, legacy method for remote VPN user authentication, such as RADIUS, TACACS+ or SecurID. This command breaks phase 1 of IKE down into the following two steps, together called hybrid authentication:

1. The security appliance authenticates to the remote VPN user with standard public key techniques. This establishes an IKE security association that is unidirectionally authenticated.
2. An XAUTH exchange then authenticates the remote VPN user. This extended authentication can use one of the supported legacy authentication methods.



### Note

Before the authentication type can be set to hybrid, you must configure the authentication server, create a preshared key, and configure a trustpoint.

When you omit the optional **interface** parameter, the command applies to all the interfaces and serves as a back-up when the per-interface command is not specified. When there are two **isakmp ikev1-user-authentication** commands specified for a tunnel group, and one uses the **interface** parameter and one does not, the one specifying the interface takes precedence for that particular interface.

### Examples

The following example commands enable hybrid XAUTH on the inside interface for a tunnel group called example-group:

```
hostname(config)# tunnel-group example-group type ipsec-ra
hostname(config)# tunnel-group example-group ipsec-attributes
hostname(config-tunnel-ipsec)# isakmp ikev1-user-authentication (inside) hybrid
hostname(config-tunnel-ipsec)#
```

### Related Commands

Command	Description
<b>aaa-server</b>	Defines a AAA server.
<b>pre-shared-key</b>	Creates a preshared key for supporting IKE connections.
<b>tunnel-group</b>	Creates and manages the database of connection specific records for IPsec, L2TP/IPSec and WebVPN connections.

## isakmp ipsec-over-tcp

To enable IPsec over TCP, use the **isakmp ipsec-over-tcp** command in global configuration mode. To disable IPsec over TCP, use the **no** form of this command.

**isakmp ipsec-over-tcp** [**port** *port1...port10*]

**no isakmp ipsec-over-tcp** [**port** *port1...port10*]

<b>Syntax Description</b>	<b>port</b> <i>port1...port10</i>	(Optional) Specifies the ports on which the device accepts IPsec over TCP connections. You can list up to 10 ports. Port numbers can be in the range 1-65535. The default port number is 10000.
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**Defaults** The default value is disabled.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)(1)	This command was introduced.
	7.2(1)	This command was deprecated. The <b>crypto isakmp ipsec-over-tcp</b> command replaces it.

**Examples** This example, entered in global configuration mode, enables IPsec over TCP on port 45:

```
hostname(config)# isakmp ipsec-over-tcp port 45
```

Related Commands	Command	Description
	<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
	<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
	<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
	<b>show running-config isakmp</b>	Displays all the active configuration.

# isakmp keepalive

To configure IKE DPD, use the **isakmp keepalive** command in tunnel-group ipsec-attributes configuration mode. In every tunnel group, IKE keepalives are enabled by default with default threshold and retry values. To return the keepalive parameters to enabled with default threshold and retry values, use the **no** form of this command.

**isakmp keepalive** [**threshold** *seconds*] [**retry** *seconds*] [**disable**]

**no isakmp keepalive disable**

## Syntax Description

<b>disable</b>	Disables IKE keepalive processing, which is enabled by default.
<b>retry</b> <i>seconds</i>	Specifies the interval in seconds between retries after a keepalive response has not been received. The range is 2-10 seconds. The default is 2 seconds.
<b>threshold</b> <i>seconds</i>	Specifies the number of seconds the peer can idle before beginning keepalive monitoring. The range is 10-3600 seconds. The default is 10 seconds for a LAN-to-LAN group, and 300 second for a remote access group.

## Defaults

The default for a remote access group is a threshold of 300 seconds and a retry of 2 seconds.

For a LAN-to-LAN group, the default is a threshold of 10 seconds and a retry of 2 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group ipsec attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You can apply this attribute only to IPSec remote-access and IPSec LAN-to-LAN tunnel-group types.

## Examples

The following example entered in config-ipsec configuration mode, configures IKE DPD, establishes a threshold of 15, and specifies a retry interval of 10 for the IPSec LAN-to-LAN tunnel group with the IP address 209.165.200.225:

```
hostname(config)# tunnel-group 209.165.200.225 type IPSec_L2L
hostname(config)# tunnel-group 209.165.200.225 ipsec-attributes
hostname(config-tunnel-ipsec)# isakmp keepalive threshold 15 retry 10
hostname(config-tunnel-ipsec)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear-configure tunnel-group</b>	Clears all configured tunnel groups.
<b>show running-config tunnel-group</b>	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
<b>tunnel-group ipsec-attributes</b>	Configures the tunnel-group ipsec-attributes for this group.

# isakmp nat-traversal

To enable NAT traversal globally, check that ISAKMP is enabled (you can enable it with the **isakmp enable** command) in global configuration mode and then use the **isakmp nat-traversal** command. If you have enabled NAT traversal, you can disable it with the **no** form of this command.

**isakmp nat-traversal** *natkeepalive*

**no isakmp nat-traversal** *natkeepalive*

## Syntax Description

*natkeepalive* Sets the NAT keep alive interval, from 10 to 3600 seconds. The default is 20 seconds.

## Defaults

By default, NAT traversal (**isakmp nat-traversal**) is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.
7.2(1)	This command was deprecated. The <b>crypto isakmp nat-traversal</b> command replaces it.

## Usage Guidelines

Network Address Translation (NAT), including Port Address Translation (PAT), is used in many networks where IPsec is also used, but there are a number of incompatibilities that prevent IPsec packets from successfully traversing NAT devices. NAT traversal enables ESP packets to pass through one or more NAT devices.

The security appliance supports NAT traversal as described by Version 2 and Version 3 of the IETF “UDP Encapsulation of IPsec Packets” draft, available at <http://www.ietf.org/html.charters/ipsec-charter.html>, and NAT traversal is supported for both dynamic and static crypto maps.

This command enables NAT-T globally on the security appliance. To disable in a crypto-map entry, use the **crypto map set nat-t-disable** command.

## Examples

The following example, entered in global configuration mode, enables ISAKMP and then enables NAT traversal with an interval of 30 seconds:

```
hostname(config)# isakmp enable
hostname(config)# isakmp nat-traversal 30
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config isakmp</b>	Displays all the active configuration.



# isakmp policy authentication

To specify an authentication method within an IKE policy, use the **isakmp policy authentication** command in global configuration mode. IKE policies define a set of parameters for IKE negotiation. To remove the ISAKMP authentication method, use the related **clear configure** command.

**isakmp policy *priority* authentication {crack | pre-share | rsa-sig}**

Syntax Description	crack	Specifies IKE Challenge/Response for Authenticated Cryptographic Keys (CRACK) as the authentication method.
	<b>pre-share</b>	Specifies preshared keys as the authentication method.
	<i>priority</i>	Uniquely identifies the IKE policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.
	<b>rsa-sig</b>	Specifies RSA signatures as the authentication method.  RSA signatures provide non-repudiation for the IKE negotiation. This basically means you can prove to a third party whether you had an IKE negotiation with the peer.

## Defaults

The default ISAKMP policy authentication is **pre-share**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting. DSA-Sig was added in 7.0.

## Usage Guidelines

If you specify RSA signatures, you must configure the security appliance and its peer to obtain certificates from a certification authority (CA). If you specify preshared keys, you must separately configure these preshared keys within the security appliance and its peer.

## Examples

The following example, entered in global configuration mode, shows use of the **isakmp policy authentication** command. This example sets the authentication method of RSA Signatures to be used within the IKE policy with the priority number of 40.

```
hostname(config)# isakmp policy 40 authentication rsa-sig
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config isakmp</b>	Displays all the active configuration.

# isakmp policy encryption

To specify the encryption algorithm to use within an IKE policy, use the **isakmp policy encryption** command in global configuration mode. To reset the encryption algorithm to the default value, which is **des**, use the **no** form of this command.

```
isakmp policy priority encryption {aes | aes-192| aes-256 | des | 3des}
```

```
no isakmp policy priority encryption {aes | aes-192| aes-256 | des | 3des}
```

## Syntax Description

<b>3des</b>	Specifies that the Triple DES encryption algorithm be used in the IKE policy.
<b>aes</b>	Specifies that the encryption algorithm to use in the IKE policy is AES with a 128-bit key.
<b>aes-192</b>	Specifies that the encryption algorithm to use in the IKE policy is AES with a 192-bit key.
<b>aes-256</b>	Specifies that the encryption algorithm to use in the IKE policy is AES with a 256-bit key.
<b>des</b>	Specifies that the encryption algorithm to use in the IKE policy is 56-bit DES-CBC.
<i>priority</i>	Uniquely identifies the Internet Key Exchange (IKE) policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.

## Defaults

The default ISAKMP policy encryption is **3des**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.
7.2(1)	This command was deprecated. The <b>crypto isakmp policy encryption</b> command replaces it.

## Examples

The following example, entered in global configuration mode, shows use of the **isakmp policy encryption** command; it sets 128-bit key AES encryption as the algorithm to be used within the IKE policy with the priority number of 25.

```
hostname(config)# isakmp policy 25 encryption aes
```

The following example, entered in global configuration mode, sets the 3DES algorithm to be used within the IKE policy with the priority number of 40.

```
hostname(config)# isakmp policy 40 encryption 3des
hostname(config)#
```

#### Related Commands

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config isakmp</b>	Displays all the active configuration.

# isakmp policy group

To specify the Diffie-Hellman group for an IKE policy, use the **isakmp policy group** command in global configuration mode. IKE policies define a set of parameters to use during IKE negotiation. To reset the Diffie-Hellman group identifier to the default value, use the **no** form of this command.

**isakmp policy priority group** {1 | 2 | 5 | 7}

**no isakmp policy priority group**

## Syntax Description

<b>group 1</b>	Specifies that the 768-bit Diffie-Hellman group be used in the IKE policy. This is the default value.
<b>group 2</b>	Specifies that the 1024-bit Diffie-Hellman group 2 be used in the IKE policy.
<b>group 5</b>	Specifies that the 1536-bit Diffie-Hellman group 5 be used in the IKE policy.
<b>group 7</b>	Specifies that Diffie-Hellman Group 7 be used in the IKE policy. Group 7 generates IPsec SA keys, where the elliptical curve field size is 163 bits.
<i>priority</i>	Uniquely identifies the Internet Key Exchange (IKE) policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.

## Defaults

The default is group 2.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting. Group 7 was added.
7.2(1)	This command was deprecated. The <b>crypto isakmp policy group</b> command replaces it.

## Usage Guidelines

There are four group options: 768-bit (DH Group 1), 1024-bit (DH Group 2), 1536-bit (DH Group 5), and DH Group 7. The 1024-bit and 1536-bit Diffie-Hellman Groups provide stronger security, but require more CPU time to execute.



### Note

The Cisco VPN Client Version 3.x or higher requires **isakmp policy** to have DH **group 2** configured. (If you have DH **group 1** configured, the Cisco VPN Client cannot connect.)

AES support is available on security appliances licensed for VPN-3DES only. Due to the large key sizes provided by AES, ISAKMP negotiation should use Diffie-Hellman (DH) **group 5** instead of **group 1** or **group 2**. This is done with the **isakmp policy priority group 5** command.

### Examples

The following example, entered in global configuration mode, shows use of the **isakmp policy group** command. This example sets group 2, the 1024-bit Diffie Hellman, to use for the IKE policy with the priority number of 40.

```
hostname(config)# isakmp policy 40 group 2
```

### Related Commands

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config isakmp</b>	Displays all the active configuration.

# isakmp policy hash

To specify the hash algorithm for an IKE policy, use the **isakmp policy hash** command in global configuration mode. IKE policies define a set of parameters to be used during IKE negotiation.

To reset the hash algorithm to the default value of SHA-1, use the **no** form of this command.

```
isakmp policy priority hash { md5 | sha }
```

```
no isakmp policy priority hash
```

## Syntax Description

<b>md5</b>	Specifies that MD5 (HMAC variant) as the hash algorithm be used in the IKE policy.
<i>priority</i>	Uniquely identifies the Internet Key Exchange (IKE) policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.
<b>sha</b>	Specifies that SHA-1 (HMAC variant) as the hash algorithm be used in the IKE policy.

## Defaults

The default hash algorithm is SHA-1 (HMAC variant).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.
7.2(1)	This command was deprecated. The <b>crypto isakmp policy hash</b> command replaces it.

## Usage Guidelines

There are two hash algorithm options: SHA-1 and MD5. MD5 has a smaller digest and is considered to be slightly faster than SHA-1.

## Examples

The following example, entered in global configuration mode, shows use of the **isakmp policy hash** command. This example specifies that the MD5 hash algorithm be used within the IKE policy, with the priority number of 40.

```
hostname(config)# isakmp policy 40 hash md5
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config isakmp</b>	Displays all the active configuration.



# isakmp policy lifetime

To specify the lifetime of an IKE security association before it expires, use the **isakmp policy lifetime** command in global configuration mode. You can specify an infinite lifetime if the peer does not propose a lifetime. Use the **no** form of this command to reset the security association lifetime to the default value of 86,400 seconds (one day).

**isakmp policy** *priority* **lifetime** *seconds*

**no isakmp policy** *priority* **lifetime**

## Syntax Description

<i>priority</i>	Uniquely identifies the Internet Key Exchange (IKE) policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.
<i>seconds</i>	Specifies how many seconds each security association should exist before expiring. To propose a finite lifetime, use an integer from 120 to 2147483647 seconds. Use 0 seconds for infinite lifetime.

## Defaults

The default value is 86,400 seconds (one day).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.
7.2(1)	This command was deprecated. The <b>crypto isakmp policy lifetime</b> command replaces it.

## Usage Guidelines

When IKE begins negotiations, it seeks to agree upon the security parameters for its own session. Then the security association at each peer refers to the agreed-upon parameters. The peers retain the security association until the lifetime expires. Before a security association expires, subsequent IKE negotiations can use it, which can save time when setting up new IPSec security associations. The peers negotiate new security associations before current security associations expire.

With longer lifetimes, the security appliance sets up future IPSec security associations more quickly. Encryption strength is great enough to ensure security without using very fast rekey times, on the order of every few minutes. We recommend that you accept the default.

**Note**

If the IKE security association is set to an infinite lifetime, but the peer proposes a finite lifetime, then the negotiated finite lifetime from the peer is used.

The following example, entered in global configuration mode, shows use of the **isakmp policy lifetime** command. This example sets the lifetime of the IKE security association to 50,400 seconds (14 hours) within the IKE policy with the priority number of 40.

**Examples**

The following example, entered in global configuration mode, sets the lifetime of the IKE security association to 50,400 seconds (14 hours) within the IKE policy with the priority number of 40.

```
hostname(config)# isakmp policy 40 lifetime 50400
```

The following example, entered in global configuration mode, sets the IKE security association to an infinite lifetime.

```
hostname(config)# isakmp policy 40 lifetime 0
```

**Related Commands**

<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config isakmp</b>	Displays all the active configuration.

# isakmp reload-wait

To enable waiting for all active sessions to voluntarily terminate before rebooting the security appliance, use the **isakmp reload-wait** command in global configuration mode. To disable waiting for active sessions to terminate and to proceed with a reboot of the security appliance, use the **no** form of this command.

**isakmp reload-wait**

**no isakmp reload-wait**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.
	7.2(1)	This command was deprecated. The <b>crypto isakmp reload-wait</b> command replaces it.

**Examples** The following example, entered in global configuration mode, tells the security appliance to wait until all active sessions have terminated before rebooting.

```
hostname(config)# isakmp reload-wait
```

Related Commands	Command	Description
	<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
	<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
	<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
	<b>show running-config isakmp</b>	Displays all the active configuration.

## issuer-name

To identify the DN from the CA certificate to be compared to the rule entry string, use the **issuer-name** command in CA certificate map configuration mode. To remove an issuer-name, use the **no** form of the command.

**issuer-name** [**attr tag**] {**eq** | **ne** | **co** | **nc**} *string*

**no issuer-name** [**attr tag**] {**eq** | **ne** | **co** | **nc**} *string*

### Syntax Description

<b>attr tag</b>	Indicates that only the specified attribute value from the certificate DN string will be compared to the rule entry string. The tag values are as follows:  DNQ = DN qualifier GENQ = Generational qualifier I = Initials GN = Given name N = Name SN = Surname IP = IP address SER = Serial number UNAME = Unstructured name EA = Email address T = Title O = Organization Name L = Locality SP = State/Province C = Country OU = Organizational unit CN = Common name
<b>co</b>	Specifies that the DN string or indicated attribute must be a substring in the rule entry string.
<b>eq</b>	Specifies that the DN string or indicated attribute must match the entire rule string.
<b>nc</b>	Specifies that the DN string or indicated attribute must not be a substring in the rule entry string.
<b>ne</b>	Specifies that the DN string or indicated attribute must not match the entire rule string.
<i>string</i>	Specifies the rule entry information.

### Defaults

No default behavior or values.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples**

The following example enters the CA certificate map mode for certificate map 4 and configures the issuer name as O = central:

```
hostname(config)# crypto ca certificate map 4
hostname(ca-certificate-map)# issuer-name attr o eq central
hostname(ca-certificate-map)# exit
```

**Related Commands**

Command	Description
<b>crypto ca certificate map</b>	Enters CA certificate map mode.
<b>subject-name (crypto ca certificate map)</b>	Identifies the DN from the CA certificate that is to be compared to the rule entry string.





## java-trustpoint through kill Commands

---

# java-trustpoint

To configure the WebVPN Java object signing facility to use a PKCS12 certificate and keying material from a specified trustpoint location, use the **java-trustpoint** command in Webvpn configuration mode.

To remove a trustpoint for Java object signing, use the **no** form of this command.

**java-trustpoint** *trustpoint*

**no java-trustpoint**

## Syntax Description

<i>trustpoint</i>	Specifies the trustpoint location configured by the <b>crypto ca import</b> command.
-------------------	--

## Defaults

By default, a trustpoint for Java object signing is set to none.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(2)	This command was introduced.

## Usage Guidelines

A trustpoint is a representation of a certificate authority (CA) or identity key pair. For the **java-trustpoint** command, the given trustpoint must contain the X.509 certificate of the application signing entity, the RSA private key corresponding to that certificate, and a certificate authority chain extending up to a root CA. This is typically achieved by using the **crypto ca import** command to import a PKCS12 formatted bundle. You can obtain a PKCS12 bundle from a trusted CA authority or you can manually create one from an existing X.509 certificate and an RSA private key using open source tools such as openssl.

## Examples

This following example first configures a new trustpoint and then configures it for WebVPN Java object signing. The following command creates a new trustpoint called my trustpoint:

```
hostname(config)# crypto ca import mytrustpoint pkcs12 mypassphrase
Enter the base 64 encoded PKCS12.
End with the word "quit" on a line by itself.
[ PKCS12 data omitted ]
quit
INFO: Import PKCS12 operation completed successfully.
hostname(config)#
```

The following example configures the new trustpoint for signing WebVPN Java objects:



```
hostname(config)# webvpn
hostname(config)# java-trustpoint mytrustpoint
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>crypto ca import</b>	Imports the certificate and key pair for a trustpoint using PKCS12 data.

# join-failover-group

To assign a context to a failover group, use the **join-failover-group** command in context configuration mode. To restore the default setting, use the **no** form of this command.

**join-failover-group** *group\_num*

**no join-failover-group** *group\_num*

## Syntax Description

*group\_num* Specifies the failover group number.

## Defaults

Failover group 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Context configuration	•	•	—	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The admin context is always assigned to failover group 1. You can use the **show context detail** command to display the failover group and context association.

Before you can assign a context to a failover group, you must create the failover group with the **failover group** command in the system context. Enter this command on the unit where the context is in the active state. By default, unassigned contexts are members of failover group 1, so if the context had not been previously assigned to a failover group, you should enter this command on the unit that has failover group 1 in the active state.

You must remove all contexts from a failover group, using the **no join-failover-group** command, before you can remove a failover group from the system.

## Examples

The following example assigns a context named `ctx1` to failover group 2:

```
hostname(config)# context ctx1
hostname(config-context)# join-failover-group 2
hostname(config-context)# exit
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>context</b>	Enters context configuration mode for the specified context.
<b>failover group</b>	Defines a failover group for Active/Active failover.
<b>show context detail</b>	Displays context detail information, including name, class, interfaces, failover group association, and configuration file URL.

# kerberos-realm

To specify the realm name for this Kerberos server, use the **kerberos-realm** command in aaa-server host configuration mode. To remove the realm name, use the **no** form of this command:

```
kerberos-realm string
```

```
no kerberos-realm
```

## Syntax Description

*string* A case-sensitive, alphanumeric string, up to 64 characters long. Spaces are not permitted in the string.

**Note** Kerberos realm names use numbers and upper-case letters only. Although the security appliance accepts lower-case letters in the *string* argument, it does not translate lower-case letters to upper-case letters. Be sure to use upper-case letters only.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Aaa-server host configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	Introduced in this release.

## Usage Guidelines

This command is valid only for Kerberos servers.

The value of the *string* argument should match the output of the Microsoft Windows **set USERDNSDOMAIN** command when it is run on the Windows 2000 Active Directory server for the Kerberos realm. In the following example, EXAMPLE.COM is the Kerberos realm name:

```
C:\>set USERDNSDOMAIN
USERDNSDOMAIN=EXAMPLE.COM
```

The *string* argument must use numbers and upper-case letters only. The **kerberos-realm** command is case sensitive and the security appliance does not translate lower-case letters to upper-case letters.

## Examples

The following sequence shows the **kerberos-realm** command to set the kerberos realm to “EXAMPLE.COM” in the context of configuring a AAA server host:

```
hostname(config)# aaa-server svrgrp1 protocol kerberos
```

```

hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# kerberos-realm EXAMPLE.COM
hostname(config-aaa-server-host)# exit
hostname(config)#

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa-server host</b>	Enter AAA server host configuration submode so you can configure AAA server parameters that are host-specific.
<b>clear configure aaa-server</b>	Remove all AAA command statements from the configuration.
<b>show running-config aaa-server</b>	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol

# key

To specify the server secret value used to authenticate the NAS to the AAA server, use the **key** command in aaa-server host mode. Aaa-server host configuration mode is accessible from aaa-server protocol configuration mode. To remove the key, use the **no** form of this command. The key (server secret) value authenticates the security appliance to the AAA server.

**key** *key*

**no key**

Syntax Description	<i>key</i>	An alphanumeric keyword, up to 127 characters long.
--------------------	------------	---

Defaults	No default behaviors or values.
----------	---------------------------------

Command Modes	The following table shows the modes in which you can enter the command:
---------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Aaa-server host	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

Usage Guidelines	<p>The <i>key</i> value is a case-sensitive, alphanumeric keyword of up to 127 characters that is the same value as the key on the TACACS+ server. Any characters entered past 127 are ignored. The key is used between the client and the server for encrypting data between them. The key must be the same on both the client and server systems. The key cannot contain spaces, but other special characters are allowed.</p>
------------------	--

This command is valid only for RADIUS and TACACS+ servers.

The **key** parameter of the **aaa-server** command in earlier PIX Firewall versions is automatically converted to the equivalent **key** command.

Examples	<p>The following example configures a TACACS+ AAA server named “svrgrp1” on host “1.2.3.4”, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the key as “myexclusivemumblekey”.</p>
----------	--

```
hostname(config)# aaa-server svrgrp1 protocol tacacs+
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry-interval 7
hostname(config-aaa-server-host)# key myexclusivemumblekey
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>aaa-server host</b>	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
	<b>clear configure aaa-server</b>	Removes all AAA command statements from the configuration.
	<b>show running-config aaa-server</b>	Displays AAA server configuration.

# keypair

To specify the key pair whose public key is to be certified, use the **keypair** command in crypto ca trustpoint configuration mode. To restore the default setting, use the **no** form of the command.

**keypair** *name*

**no keypair**

## Syntax Description

*name* Specify the name of the key pair.

## Defaults

The default setting is not to include the key pair.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto ca trustpoint configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and specifies a key pair to be certified for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# keypair exchange
```

## Related Commands

Command	Description
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.
<b>crypto key generate dsa</b>	Generates DSA keys.
<b>crypto key generate rsa</b>	Generates RSA keys.
<b>default enrollment</b>	Returns enrollment parameters to their defaults.



# kill

To terminate a Telnet session, use the **kill** command in privileged EXEC mode.

```
kill telnet_id
```

<b>Syntax Description</b>	<i>telnet_id</i> Specifies the Telnet session ID.
---------------------------	---

<b>Defaults</b>	No default behaviors or values.
-----------------	---------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Preexisting	This command was preexisting.

<b>Usage Guidelines</b>	The <b>kill</b> command lets you terminate a Telnet session. Use the <b>who</b> command to see the Telnet session ID. When you kill a Telnet session, the security appliance lets any active commands terminate and then drops the connection without warning.
-------------------------	--

<b>Examples</b>	The following example shows how to terminate a Telnet session with the ID “2”. First, the <b>who</b> command is entered to display the list of active Telnet sessions. Then the <b>kill 2</b> command is entered to terminate the Telnet session with the ID “2”.
-----------------	---

```
hostname# who
2: From 10.10.54.0

hostname# kill 2
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>telnet</b>	Configures Telnet access to the security appliance.
	<b>who</b>	Displays a list of active Telnet sessions.





## **I2tp tunnel hello through log-adj-changes Commands**

---

# I2tp tunnel hello

To specify the interval between hello messages on L2TP over IPsec connections, use the **i2tp tunnel hello** command in global configuration mode. To remove the command from the configuration and set the default, use the no form of the command:

**i2tp tunnel hello** *interval*

**no i2tp tunnel hello** *interval*

<b>Syntax Description</b>	<i>interval</i>	Interval between hello messages in seconds. The Default is 60 seconds. The range is 10 to 300 seconds.
---------------------------	-----------------	--

**Defaults** The default is 60 seconds.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** The **i2tp tunnel hello** command enables the security appliance to detect problems with the physical layer of the L2TP connection. The default is 60 secs. If you configure it to a lower value, connections that are experiencing problems are disconnected earlier.

**Examples** The following example configures the interval between hello messages to 30 seconds:

```
hostname(config)# i2tp tunnel hello 30
```

Related Commands	Command	Description
	<b>show vpn-sessiondb detail remote filter protocol L2TPOverIPsec</b>	Displays the details of L2TP connections.
	<b>vpn-tunnel-protocol i2tp-ipsec</b>	Enables L2TP as a tunneling protocol for a specific tunnel group.

## ldap-attribute-map (aaa-server host mode)

To bind an existing mapping configuration to an LDAP host, use the **ldap-attribute-map** command in aaa-server host mode.

To remove the binding, use the **no** form of this command.

**ldap-attribute-map** *map-name*

**no ldap-attribute-map** *map-name*

### Syntax Description

<i>map-name</i>	Specifies an LDAP attribute mapping configuration.
-----------------	--

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
aaa-server host configuration	•	•	•	•	—

### Command History

Release	Modification
7.1(1)	This command was introduced.

### Usage Guidelines

If the Cisco-defined LDAP attribute names do not meet your ease-of-use or other requirements, you can create your own attribute names, map them to Cisco attributes, and then bind the resulting attribute configuration to an LDAP server. Your typical steps would include:

1. Use the **ldap attribute-map** command in global configuration mode to create an unpopulated attribute map. This command enters ldap-attribute-map mode. Note that there is no hyphen after “ldap” in this command.
2. Use the **map-name** and **map-value** commands in ldap-attribute-map mode to populate the attribute mapping configuration.
3. Use the **ldap-attribute-map** command in aaa-server host mode to bind the attribute map configuration to an LDAP server.

### Examples

The following example commands, entered in aaa-server host configuration mode, bind an existing attribute map named myldapmap to an LDAP server named ldapsvr1:

```
hostname(config)# aaa-server ldapsvr1 host 10.10.0.1
hostname(config-aaa-server-host)# ldap-attribute-map myldapmap
hostname(config-aaa-server-host)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>ldap attribute-map (global configuration mode)</b>	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.
<b>map-name</b>	Maps a user-defined LDAP attribute name with a Cisco LDAP attribute name.
<b>map-value</b>	Maps a user-defined attribute value to a Cisco attribute.
<b>show running-config ldap attribute-map</b>	Displays a specific running ldap attribute mapping configuration or all running attribute mapping configurations.
<b>clear configure ldap attribute-map</b>	Removes all LDAP attribute maps.

## ldap attribute-map (global configuration mode)

To create and name an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names, use the **ldap attribute-map** command in global configuration mode.

To remove the map, use the **no** form of this command.

```
ldap attribute-map map-name
```

```
no ldap attribute-map map-name
```

### Syntax Description

<i>map-name</i>	Specifies a user-defined name for an LDAP attribute map.
-----------------	--

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
global configuration	•	•	•	•	—

### Command History

Release	Modification
7.1(1)	This command was introduced.

### Usage Guidelines

With the **ldap attribute-map** command, you can map your own attribute names and values to Cisco attribute names. You can then bind the resulting attribute map to an LDAP server. Your typical steps would be as follows:

1. Use the **ldap attribute-map** command in global configuration mode to create an unpopulated attribute map. This command enters ldap-attribute-map mode.
2. Use the **map-name** and **map-value** commands in ldap-attribute-map mode to populate the attribute map.
3. Use the **ldap-attribute-map** command in aaa-server host mode to bind the attribute map to an LDAP server. Note the hyphen after ldap in this command.



#### Note

To use the attribute mapping features correctly, you need to understand both the Cisco LDAP attribute names and values as well as the user-defined attribute names and values.

**Examples**

The following example command, entered in global configuration mode, creates an LDAP attribute map named myldapmap prior to populating it or binding it to an LDAP server:

```
hostname(config)# ldap attribute-map myldapmap
hostname(config-ldap-attribute-map)#
```

**Related Commands**

Command	Description
<b>ldap-attribute-map (aaa-server host mode)</b>	Binds an LDAP attribute map to an LDAP server.
<b>map-name</b>	Maps a user-defined LDAP attribute name to a Cisco LDAP attribute name.
<b>map-value</b>	Maps a user-defined attribute value to the Cisco attribute name.
<b>show running-config ldap attribute-map</b>	Displays a specific running LDAP attribute map or all running attribute maps.
<b>clear configure ldap attribute-map</b>	Removes all LDAP attribute maps.



# ldap-base-dn

To specify the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request, use the **ldap-base-dn** command in aaa-server host configuration mode. Aaa-server host configuration mode is accessible from aaa-server protocol configuration mode. To remove this specification, thus resetting the search to start at the top of the list, use the **no** form of this command.

**ldap-base-dn** *string*

**no ldap-base-dn**

## Syntax Description

*string* A case-sensitive string of up to 128 characters that specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request; for example, OU=Cisco. Spaces are not permitted in the string, but other special characters are allowed.

## Defaults

Start the search at the top of the list.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Aaa-server host	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	Pre-existing command, modified for this release

## Usage Guidelines

This command is valid only for LDAP servers.

## Examples

The following example configures an LDAP AAA server named svrgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP base DN as starthere.

```
hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# ldap-base-dn starthere
hostname(config-aaa-server-host)# exit
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa-server host</b>	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
<b>ldap-scope</b>	Specifies the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request.
<b>ldap-naming-attribute</b>	Specifies the Relative Distinguished Name attribute (or attributes) that uniquely identifies an entry on the LDAP server.
<b>ldap-login-dn</b>	Specifies the name of the directory object that the system should bind as.
<b>ldap-login-password</b>	Specifies the password for the login DN.

# ldap-defaults

To define LDAP default values, use the **ldap-defaults** command in **crl configure** configuration mode. **Crl configure** configuration mode is accessible from **crypto ca trustpoint** configuration mode. These default values are used only when the LDAP server requires them. To specify no LDAP defaults, use the **no** form of this command.

**ldap-defaults** *server* [*port*]

**no ldap-defaults**

## Syntax Description

<i>port</i>	(Optional) Specifies the LDAP server port. If this parameter is not specified, the security appliance uses the standard LDAP port (389).
<i>server</i>	Specifies the IP address or domain name of the LDAP server. If one exists within the CRL distribution point, it overrides this value.

## Defaults

The default setting is not set.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crl configure configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example defines LDAP default values on the default port (389):

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# ldap-defaults ldapdomain4 8389
```

## Related Commands

Command	Description
<b>crl configure</b>	Enters ca-crl configuration mode.
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.
<b>protocol ldap</b>	Specifies LDAP as a retrieval method for CRLs

# ldap-dn

To pass a X.500 distinguished name and password to an LDAP server that requires authentication for CRL retrieval, use the **ldap-dn** command in `crl configure` configuration mode. `Crl configure` configuration mode is accessible from `crypto ca trustpoint` configuration mode. These parameters are used only when the LDAP server requires them.

To specify no LDAP DN, use the **no** form of this command.

**ldap-dn** *x.500-name password*

**no ldap-dn**

## Syntax Description

<i>password</i>	Defines a password for this distinguished name. The maximum field length is 128 characters.
<i>x.500-name</i>	Defines the directory path to access this CRL database, for example: <code>cn=crl,ou=certs,o=CAName,c=US</code> . The maximum field length is 128 characters.

## Defaults

The default setting is not on.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crl configure configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example specifies an X.500 name `CN=admin,OU=devtest,O=engineering` and a password `xxzzyy` for `trustpoint central`:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# ldap-dn cn=admin,ou=devtest,o=engineering xxzzyy
```

## Related Commands

Command	Description
<b>crl configure</b>	Enters <code>crl configure</code> configuration mode.

Command	Description
<code>crypto ca trustpoint</code>	Enters ca trustpoint configuration mode.
<code>protocol ldap</code>	Specifies LDAP as a retrieval method for CRLs.

# ldap-login-dn

To specify the name of the directory object that the system should bind this as, use the **ldap-login-dn** command in aaa-server host mode. Aaa-server host configuration mode is accessible from aaa-server protocol configuration mode. To remove this specification, use the **no** form of this command.

**ldap-login-dn** *string*

**no ldap-login-dn**

## Syntax Description

<i>string</i>	A case-sensitive string of up to 128 characters that specifies the name of the directory object in the LDAP hierarchy. Spaces are not permitted in the string, but other special characters are allowed.
---------------	--

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Aaa-server host	•	•	•	•	—

## Command History

Release	Modification
7.0	This command was introduced.
(1)	

## Usage Guidelines

This command is valid only for LDAP servers. The maximum supported string length is 128 characters.

Some LDAP servers, including the Microsoft Active Directory server, require that the security appliance establish a handshake via authenticated binding before they will accept requests for any other LDAP operations. The security appliance identifies itself for authenticated binding by attaching a Login DN field to the user authentication request. The Login DN field describes the authentication characteristics of the security appliance. These characteristics should correspond to those of a user with administrator privileges.

For the *string* variable, enter the name of the directory object for VPN Concentrator authenticated binding, for example: cn=Administrator, cn=users, ou=people, dc=XYZ Corporation, dc=com. For anonymous access, leave this field blank.

## Examples

The following example configures an LDAP AAA server named svrgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP login DN as myobjectname.

```

hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# ldap-login-dn myobjectname
hostname(config-aaa-server-host)#

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa-server host</b>	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
<b>ldap-base-dn</b>	Specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request.
<b>ldap-login-password</b>	Specifies the password for the login DN. This command is valid only for LDAP servers.
<b>ldap-naming-attribute</b>	Specifies the Relative Distinguished Name attribute (or attributes) that uniquely identifies an entry on the LDAP server.
<b>ldap-scope</b>	Specifies the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request.

# ldap-login-password

To specify the login password for the LDAP server, use the **ldap-login-password** command in aaa-server host mode. Aaa-server host configuration mode is accessible from aaa-server protocol configuration mode. To remove this password specification, use the **no** form of this command:

**ldap-login-password** *string*

**no ldap-login-password**

## Syntax Description

*string* A case-sensitive, alphanumeric password, up to 64 characters long. The password cannot contain space characters.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Aaa-server host	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command is valid only for LDAP servers. The maximum password string length is 64 characters.

## Examples

The following example configures an LDAP AAA server named svrgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP login password as obscurepassword.

```
hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server)# timeout 9
hostname(config-aaa-server)# retry 7
hostname(config-aaa-server)# ldap-login-password obscurepassword
hostname(config-aaa-server)#
```

## Related Commands



Command	Description
<b>aaa-server host</b>	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
<b>ldap-base-dn</b>	Specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request.
<b>ldap-login-dn</b>	Specifies the name of the directory object that the system should bind as.
<b>ldap-naming-attribute</b>	Specifies the Relative Distinguished Name attribute (or attributes) that uniquely identifies an entry on the LDAP server.
<b>ldap-scope</b>	Specifies the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request.

# ldap-naming-attribute

To specify the Relative Distinguished Name attribute, use the **ldap-naming-attribute** command in aaa-server host mode. Aaa-server host configuration mode is accessible from aaa-server protocol configuration mode. To remove this specification, use the **no** form of this command:

**ldap-naming-attribute** *string*

**no ldap-naming-attribute**

## Syntax Description

*string* The case-sensitive, alphanumeric Relative Distinguished Name attribute, consisting of up to 128 characters, that uniquely identifies an entry on the LDAP server. Spaces are not permitted in the string, but other special characters are allowed.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
aaa-server host	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Enter the Relative Distinguished Name attribute that uniquely identifies an entry on the LDAP server. Common naming attributes are Common Name (cn) and User ID (uid).

This command is valid only for LDAP servers. The maximum supported string length is 128 characters.

## Examples

The following example configures an LDAP AAA server named svrgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP naming attribute as cn.

```
hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# ldap-naming-attribute cn
hostname(config-aaa-server-host)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>aaa-server host</b>	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
<b>ldap-base-dn</b>	Specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request.
<b>ldap-login-dn</b>	Specifies the name of the directory object that the system should bind as.
<b>ldap-login-password</b>	Specifies the password for the login DN. This command is valid only for LDAP servers.
<b>ldap-scope</b>	Specifies the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request.

# ldap-over-ssl

To establish a secure SSL connection between the security appliance and the LDAP server, use the **ldap-over-ssl** command in aaa-server host configuration mode.

To disable SSL for the connection, use the **no** form of this command.

**ldap-over-ssl enable**

**no ldap-over-ssl enable**

## Syntax Description

<b>enable</b>	Specifies that SSL secures a connection to an LDAP server.
---------------	--

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
aaa-server host configuration	•	•	•	•	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

Use this command to specify that SSL secures a connection between the security appliance and an LDAP server.



### Note

We recommend enabling this feature if you are using plain text authentication. See the **sasl-mechanism** command.

## Examples

The following commands, entered in aaa-server host configuration mode, enable SSL for a connection between the security appliance and the LDAP server named ldapsvr1 at IP address 10.10.0.1. They also configure the plain SASL authentication mechanism.

```
hostname(config)# aaa-server ldapsvr1 protocol ldap
hostname(config-aaa-server-host)# aaa-server ldapsvr1 host 10.10.0.1
hostname(config-aaa-server-host)# ldap-over-ssl enable
hostname(config-aaa-server-host)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>sasl-mechanism</b>	Specifies SASL authentication between the LDAP client and server.
<b>server-type</b>	Specifies the LDAP server vendor as either Microsoft or Sun.
<b>ldap attribute-map (global configuration mode)</b>	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.

# ldap-scope

To specify the extent of the search in the LDAP hierarchy that the server should make when it receives an authorization request, use the **ldap-scope** command in aaa-server host configuration mode. Aaa-server host configuration mode is accessible from aaa-server protocol configuration mode. To remove this specification, use the **no** form of this command:

**ldap-scope** *scope*

**no ldap-scope**

## Syntax Description

<i>scope</i>	The number of levels in the LDAP hierarchy for the server to search when it receives an authorization request. Valid values are: <ul style="list-style-type: none"> <li><b>onelevel</b>—Search only one level beneath the Base DN</li> <li><b>subtree</b>—Search all levels beneath the Base DN</li> </ul>
--------------	--

## Defaults

The default value is **onelevel**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Aaa-server host	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	Pre-existing command, modified for this release

## Usage Guidelines

Specifying the scope as **onelevel** results in a faster search, because only one level beneath the Base DN is searched. Specifying **subtree** is slower, because all levels beneath the Base DN are searched.

This command is valid only for LDAP servers.

## Examples

The following example configures an LDAP AAA server named svrgrp1 on host 1.2.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures the LDAP scope to include the subtree levels.

```
hostname(config)# aaa-server svrgrp1 protocol ldap
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# ldap-scope subtree
hostname(config-aaa-server-host)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa-server host</b>	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
<b>ldap-base-dn</b>	Specifies the location in the LDAP hierarchy where the server should begin searching when it receives an authorization request.
<b>ldap-login-dn</b>	Specifies the name of the directory object that the system should bind as.
<b>ldap-login-password</b>	Specifies the password for the login DN. This command is valid only for LDAP servers.
<b>ldap-naming-attribute</b>	Specifies the Relative Distinguished Name attribute (or attributes) that uniquely identifies an entry on the LDAP server.

# leap-bypass

To enable LEAP Bypass, use the **leap-bypass enable** command in group-policy configuration mode. To disable LEAP Bypass, use the **leap-bypass disable** command. To remove the LEAP Bypass attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a value for LEAP Bypass from another group policy.

LEAP Bypass lets LEAP packets from wireless devices behind a VPN hardware client travel across a VPN tunnel prior to user authentication, when enabled. This lets workstations using Cisco wireless access point devices establish LEAP authentication. Then they authenticate again per user authentication.

**leap-bypass {enable | disable}**

**no leap-bypass**

## Syntax Description

<b>disable</b>	Disables LEAP Bypass.
<b>enable</b>	Enables LEAP Bypass.

## Defaults

LEAP Bypass is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This feature does not work as intended if you enable interactive hardware client authentication. For further information, see the *Cisco Security Appliance Command Line Configuration Guide*.



### Note

There may be security risks in allowing any unauthenticated traffic to traverse the tunnel.

## Examples

The following example shows how to set LEAP Bypass for the group policy named “FirstGroup”:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# leap-bypass enable
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>secure-unit-authentication</b>	Requires VPN hardware clients to authenticate with a username and password each time the client initiates a tunnel.
<b>user-authentication</b>	Requires users behind VPN hardware clients to identify themselves to the security appliance before connecting.

# lifetime

To specify the lifetime of an IKE security association before it expires, use the **lifetime** command in `crypto isakmp policy configuration configuration mode`. You can specify an infinite lifetime if the peer does not propose a lifetime. Use the **no** form of this command to reset the security association lifetime to the default value of 86,400 seconds (one day).

**lifetime** *seconds*

**no lifetime**

## Syntax Description

<i>priority</i>	Uniquely identifies the Internet Key Exchange (IKE) policy and assigns a priority to the policy. Use an integer from 1 to 65,534, with 1 being the highest priority and 65,534 the lowest.
<i>seconds</i>	Specifies how many seconds each security association should exist before expiring. To propose a finite lifetime, use an integer from 120 to 2147483647 seconds. Use 0 seconds for infinite lifetime.

## Defaults

The default value is 86,400 seconds (one day).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto isakmp policy configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	The <b>isakmp policy lifetime</b> command was preexisting.
7.2.(1)	The <b>lifetime</b> command replaces the <b>isakmp policy lifetime</b> command.

## Usage Guidelines

When IKE begins negotiations, it seeks to agree upon the security parameters for its own session. Then the security association at each peer refers to the agreed-upon parameters. The peers retain the security association until the lifetime expires. Before a security association expires, subsequent IKE negotiations can use it, which can save time when setting up new IPsec security associations. The peers negotiate new security associations before current security associations expire.

With longer lifetimes, the security appliance sets up future IPsec security associations more quickly. Encryption strength is great enough to ensure security without using very fast rekey times, on the order of every few minutes. We recommend that you accept the default.

**Note**

If the IKE security association is set to an infinite lifetime, but the peer proposes a finite lifetime, then the negotiated finite lifetime from the peer is used.

**Examples**

The following example, entered in global configuration mode, sets the lifetime of the IKE security association to 50,4000 seconds (14 hours) for the IKE policy with the priority number of 40.

```
hostname(config)# crypto isakmp policy 40
hostname(config-isakmp-policy)# lifetime 50400
```

The following example, entered in global configuration mode, sets the IKE security association to an infinite lifetime.

```
hostname(config)# crypto isakmp policy 40
hostname(config-isakmp-policy)# lifetime 0
```

**Related Commands**

<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
<b>show running-config crypto isakmp</b>	Displays all the active configuration.

# limit-resource

To specify a resource limit for a class in multiple context mode, use the **limit-resource** command in class configuration mode. To restore the limit to the default, use the **no** form of this command. The security appliance manages resources by assigning contexts to resource classes. Each context uses the resource limits set by the class.

```
limit-resource { all 0 | [rate] resource_name number[%]}
```

```
no limit-resource { all | [rate] resource_name }
```

## Syntax Description

<b>all 0</b>	Sets the limit for all resources as unlimited.
<i>number</i> [%]	Specifies the resource limit as a fixed number greater than or equal to 1, or as a percentage of the system limit between 1 and 100 (when used with the percent sign (%)). Set the limit to <b>0</b> to indicate an unlimited resource. For resources that do not have a system limit, you cannot set the percentage (%); you can only set an absolute value.
<b>rate</b>	Specifies that you want to set the rate per second for a resource. See Table 18-1 for resources for which you can set the rate per second.
<i>resource_name</i>	Specifies the resource name for which you want to set a limit. This limit overrides the limit set for <b>all</b> .

## Defaults

All resources are set to unlimited, except for the following limits, which are by default set to the maximum allowed per context:

- Telnet sessions—5 sessions.
- SSH sessions—5 sessions.
- IPSec sessions—5 sessions.
- MAC addresses—65,535 entries.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class configuration	•	•	—	—	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

**Usage Guidelines**

When you limit a resource for a class, the security appliance does not set aside a portion of the resources for each context assigned to the class; rather, the security appliance sets the maximum limit for a context. If you oversubscribe resources, or allow some resources to be unlimited, a few contexts can “use up” those resources, potentially affecting service to other contexts.

Table 18-1 lists the resource types and the limits. See also the **show resource types** command.

**Table 18-1 Resource Names and Limits**

Resource Name	Rate or Concurrent	Minimum and Maximum Number per Context	System Limit <sup>1</sup>	Description
mac-addresses	Concurrent	N/A	65,535	For transparent firewall mode, the number of MAC addresses allowed in the MAC address table.
conns	Concurrent or Rate	N/A	Concurrent connections: See the <i>Cisco Security Appliance Command Line Configuration Guide</i> for the connection limit for your platform. Rate: N/A	TCP or UDP connections between any two hosts, including connections between one host and multiple other hosts.
inspects	Rate	N/A	N/A	Application inspections.
hosts	Concurrent	N/A	N/A	Hosts that can connect through the security appliance.
asdm	Concurrent	1 minimum 5 maximum	32	ASDM management sessions. <b>Note</b> ASDM sessions use two HTTPS connections: one for monitoring that is always present, and one for making configuration changes that is present only when you make changes. For example, the system limit of 32 ASDM sessions represents a limit of 64 HTTPS sessions.
ssh	Concurrent	1 minimum 5 maximum	100	SSH sessions.
syslogs	Rate	N/A	N/A	System log messages.
telnet	Concurrent	1 minimum 5 maximum	100	Telnet sessions.
xlates	Concurrent	N/A	N/A	Address translations.

1. If this column value is N/A, then you cannot set a percentage of the resource because there is no hard system limit for the resource.

**Examples**

The following example sets the default class limit for conns to 10 percent instead of unlimited:

```
hostname(config)# class default
hostname(config-class)# limit-resource conns 10%
```

All other resources remain at unlimited.

To add a class called gold, enter the following commands:

```
hostname(config)# class gold
hostname(config-class)# limit-resource mac-addresses 10000
hostname(config-class)# limit-resource conns 15%
hostname(config-class)# limit-resource rate conns 1000
hostname(config-class)# limit-resource rate inspects 500
hostname(config-class)# limit-resource hosts 9000
hostname(config-class)# limit-resource asdm 5
hostname(config-class)# limit-resource ssh 5
hostname(config-class)# limit-resource rate syslogs 5000
hostname(config-class)# limit-resource telnet 5
hostname(config-class)# limit-resource xlates 36000
```

#### Related Commands

Command	Description
<b>class</b>	Creates a resource class.
<b>context</b>	Configures a security context.
<b>member</b>	Assigns a context to a resource class.
<b>show resource allocation</b>	Shows how you allocated resources across classes.
<b>show resource types</b>	Shows the resource types for which you can set limits.

# Imfactor

To set a revalidation policy for caching objects that have only the last-modified timestamp, and no other server-set expiration values, use the **Imfactor** command in cache mode. To set a new policy for revalidating such objects, use the command again. To reset the attribute to the default value of 20, enter the **no** version of the command.

**Imfactor** *value*

**no Imfactor**

## Syntax Description

*value* An integer in the range of 0 to 100.

## Defaults

The default value is 20.

## Command Modes

The following table shows the modes in which you enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Cache mode	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The security appliance uses the value of the Imfactor to estimate the length of time for which it considers a cached object to be unchanged. This is known as the expiration time. The security appliance estimates the expiration time by the time elapsed since the last modification multiplied by the Imfactor.

Setting the Imfactor to zero is equivalent to forcing an immediate revalidation, while setting it to 100 results in the longest allowable time until revalidation.

## Examples

The following example shows how to set an Imfactor of 30:

```
hostname(config)# webvpn
hostname(config-webvpn)# cache
hostname(config-webvpn-cache)# Imfactor 30
hostname(config-webvpn-cache)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>cache</b>	Enters WebVPN Cache mode.
<b>cache-compressed</b>	Configures WebVPN cache compression.
<b>disable</b>	Disables caching.
<b>expiry-time</b>	Configures the expiration time for caching objects without revalidating them.
<b>max-object-size</b>	Defines the maximum size of an object to cache.
<b>min-object-size</b>	Defines the minimum size of an object to cache.



# log

When using the Modular Policy Framework, log packets that match a **match** command or class map by using the **log** command in match or class configuration mode. This log action is available in an inspection policy map (the **policy-map type inspect** command) for application traffic. To disable this action, use the **no** form of this command.

**log**

**no log**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Match and class configuration	•	•	•	•	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** An inspection policy map consists of one or more **match** and **class** commands. The exact commands available for an inspection policy map depends on the application. After you enter the **match** or **class** command to identify application traffic (the **class** command refers to an existing **class-map type inspect** command that in turn includes **match** commands), you can enter the **log** command to log all packets that match the **match** command or **class** command.

When you enable application inspection using the **inspect** command in a Layer 3/4 policy map (the **policy-map** command), you can enable the inspection policy map that contains this action, for example, enter the **inspect http http\_policy\_map** command where **http\_policy\_map** is the name of the inspection policy map.

**Examples** The following example sends a log when packets match the http-traffic class map.

```
hostname(config-cmap)# policy-map type inspect http http-map1
hostname(config-pmap)# class http-traffic
hostname(config-pmap-c)# log
```

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>policy-map type inspect</b>	Defines special actions for application inspection.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# log-adj-changes

To configure the router to send a syslog message when an OSPF neighbor goes up or down, use the **log-adj-changes** command in router configuration mode. To turn off this function, use the **no** form of this command.

**log-adj-changes** [detail]

**no log-adj-changes** [detail]

## Syntax Description

**detail** (Optional) Sends a syslog message for each state change, not just when a neighbor goes up or down.

## Defaults

This command is enabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **log-adj-changes** command is enabled by default; it appears in the running configuration unless removed with the **no** form of the command.

## Examples

The following example disables the sending of a syslog message when an OSPF neighbor goes up or down:

```
hostname(config)# router ospf 5
hostname(config-router)# no log-adj-changes
```

## Related Commands

Command	Description
<b>router ospf</b>	Enters router configuration mode.
<b>show ospf</b>	Displays general information about the OSPF routing processes.





## logging asdm through logout message Commands

---

# logging asdm

To send system log messages to the ASDM log buffer, use the **logging asdm** command in global configuration mode. To disable logging to the ASDM log buffer, use the **no** form of this command.

**logging asdm** [*logging\_list* | *level*]

**no logging asdm** [*logging\_list* | *level*]

Syntax Description	<i>level</i>	
		Sets the maximum level for system log messages. For example, if you set the level to 3, then the security appliance generates system log messages for level 3, 2, 1, and 0. You can specify either the number or the name, as follows: <ul style="list-style-type: none"> <li>• <b>0</b> or <b>emergencies</b>—System unusable.</li> <li>• <b>1</b> or <b>alerts</b>—Take immediate action.</li> <li>• <b>2</b> or <b>critical</b>—Critical condition.</li> <li>• <b>3</b> or <b>errors</b>—Error.</li> <li>• <b>4</b> or <b>warnings</b>—Warning.</li> <li>• <b>5</b> or <b>notifications</b>—Normal but significant condition.</li> <li>• <b>6</b> or <b>informational</b>—Information.</li> <li>• <b>7</b> or <b>debugging</b>—Debug messages, log FTP commands, and WWW URLs.</li> </ul>
	<i>logging_list</i>	Specifies the list that identifies the messages to send to the ASDM log buffer. For information about creating lists, see the <b>logging list</b> command.

**Defaults** ASDM logging is disabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)(1)	This command was introduced.

**Usage Guidelines** Before any messages are sent to the ASDM log buffer, you must enable logging using the **logging enable** command.

When the ASDM log buffer is full, security appliance deletes the oldest message to make room in the buffer for new messages. To control the number of system log messages retained in the ASDM log buffer, use the **logging asdm-buffer-size** command.

The ASDM log buffer is a different buffer than the log buffer enabled by the **logging buffered** command.

### Examples

This example shows how enable logging and send to the ASDM log buffer messages of severity levels 0, 1, and 2. It also shows how to set the ASDM log buffer size to 200 messages.

```
hostname(config)# logging enable
hostname(config)# logging asdm 2
hostname(config)# logging asdm-buffer-size 200
hostname(config)# show logging
Syslog logging: enabled
  Facility: 20
  Timestamp logging: disabled
  Standby logging: disabled
  Deny Conn when Queue Full: disabled
  Console logging: disabled
  Monitor logging: disabled
  Buffer logging: disabled
  Trap logging: disabled
  History logging: disabled
  Device ID: disabled
  Mail logging: disabled
  ASDM logging: level critical, 48 messages logged
```

### Related Commands

Command	Description
<b>clear logging asdm</b>	Clears the ASDM log buffer of all messages it contains.
<b>logging asdm-buffer-size</b>	Specifies the number of ASDM messages retained in the ASDM log buffer
<b>logging enable</b>	Enables logging.
<b>logging list</b>	Creates a reusable list of message selection criteria.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging configuration.

# logging asdm-buffer-size

To specify the number of system log messages retained in the ASDM log buffer, use the **logging asdm-buffer-size** command in global configuration mode. To reset the ASDM log buffer to its default size of 100 messages, use the **no** form of this command.

**logging asdm-buffer-size** *num\_of\_msgs*

**no logging asdm-buffer-size** *num\_of\_msgs*

## Syntax Description

*num\_of\_msgs* Specifies the number of system log messages that the security appliance retains in the ASDM log buffer.

## Defaults

The default ASDM syslog buffer size is 100 messages.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

When the ASDM log buffer is full, security appliance deletes the oldest message to make room in the buffer for new messages. To control whether logging to the ASDM log buffer is enabled or to control the kind of system log messages retained in the ASDM log buffer, use the **logging asdm** command.

The ASDM log buffer is a different buffer than the log buffer enabled by the **logging buffered** command.

## Examples

This example shows how enable logging and send to the ASDM log buffer messages of severity levels 0, 1, and 2. It also shows how to set the ASDM log buffer size to 200 messages.

```
hostname(config)# logging enable
hostname(config)# logging asdm 2
hostname(config)# logging asdm-buffer-size 200
hostname(config)# show logging
Syslog logging: enabled
  Facility: 20
  Timestamp logging: disabled
  Standby logging: disabled
  Deny Conn when Queue Full: disabled
  Console logging: disabled
  Monitor logging: disabled
```



```
Buffer logging: disabled
Trap logging: disabled
History logging: disabled
Device ID: disabled
Mail logging: disabled
ASDM logging: level critical, 48 messages logged
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear logging asdm</b>	Clears the ASDM log buffer of all messages it contains.
<b>logging asdm</b>	Enables logging to the ASDM log buffer.
<b>logging enable</b>	Enables logging.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the currently running logging configuration.

# logging buffered

To enable the security appliance to send system log messages to the log buffer, use the **logging buffered** command in global configuration mode. To disable logging to the log buffer, use the **no** form of this command.

**logging buffered** [*logging\_list* | *level*]

**no logging buffered** [*logging\_list* | *level*]

## Syntax Description

<i>level</i>	Sets the maximum level for system log messages. For example, if you set the level to 3, then the security appliance generates system log messages for level 3, 2, 1, and 0. You can specify either the number or the name, as follows: <ul style="list-style-type: none"> <li>• <b>0</b> or <b>emergencies</b>—System unusable.</li> <li>• <b>1</b> or <b>alerts</b>—Take immediate action.</li> <li>• <b>2</b> or <b>critical</b>—Critical condition.</li> <li>• <b>3</b> or <b>errors</b>—Error.</li> <li>• <b>4</b> or <b>warnings</b>—Warning.</li> <li>• <b>5</b> or <b>notifications</b>—Normal but significant condition.</li> <li>• <b>6</b> or <b>informational</b>—Information.</li> <li>• <b>7</b> or <b>debugging</b>—Debug messages, log FTP commands, and WWW URLs.</li> </ul>
<i>logging_list</i>	Specifies the list that identifies the messages to send to the log buffer. For information about creating lists, see the <b>logging list</b> command.

## Defaults

The defaults are as follows:

- Logging to the buffer is disabled.
- Buffer size is 4 KB.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

Before any messages are sent to the log buffer, you must enable logging using the **logging enable** command.

New messages append to the end of the buffer. When the buffer fills up, the security appliance clears it and continues adding messages to it. When the log buffer is full, security appliance deletes the oldest message to make room in the buffer for new messages. You can have buffer contents automatically saved each time the contents of the buffer have “wrapped”, meaning that all the messages since the last save have been replaced by new messages. For more information, see the **logging flash-bufferwrap** and **logging ftp-bufferwrap** commands.

At any time, you can save the contents of the buffer to Flash memory. For more information, see the **logging saveolog** command.

System Log messages sent to the buffer can be viewed with the **show logging** command.

**Examples**

This example configures logging to the buffer for level 0 and level 1 events:

```
hostname(config)# logging buffered alerts
hostname(config)#
```

This example creates a list named notif-list with a maximum logging level of 7 and configures logging to the buffer for system log messages identified by the notif-list list.

```
hostname(config)# logging list notif-list level 7
hostname(config)# logging buffered notif-list
hostname(config)#
```

**Related Commands**

Command	Description
<b>clear logging buffer</b>	Clears the log buffer of all system log messages it contains.
<b>logging buffer-size</b>	Specifies log buffer size.
<b>logging enable</b>	Enables logging.
<b>logging flash-bufferwrap</b>	Writes the log buffer to Flash memory when the log buffer is full.
<b>logging ftp-bufferwrap</b>	Sends the log buffer to an FTP server when the log buffer is full.
<b>logging list</b>	Creates a reusable list of message selection criteria.
<b>logging saveolog</b>	Saves the contents of the log buffer to Flash memory.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the currently running logging configuration.

# logging buffer-size

To specify the size of the log buffer, use the **logging buffer-size** command in global configuration mode. To reset the log buffer to its default size of 4 KB of memory, use the **no** form of this command.

**logging buffer-size** *bytes*

**no logging buffer-size** *bytes*

<b>Syntax Description</b>	<i>bytes</i>	Sets the amount of memory used for the log buffer, in bytes. For example, if you specify 8192, the security appliance uses 8 KB of memory for the log buffer.
---------------------------	--------------	---

**Defaults** The log buffer size is 4 KB of memory.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)(1)	This command was introduced.

**Usage Guidelines** To see whether the security appliance is using a log buffer of a size other than the default buffer size, use the **show running-config logging** command. If the **logging buffer-size** command is not shown, then the security appliance uses a log buffer of 4 KB.

For more information about how the security appliance uses the buffer, see the **logging buffered** command.

**Examples** This example enables logging, enables the logging buffer, and specifies that the security appliance uses 16 KB of memory for the log buffer:

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# logging buffer-size 16384
hostname(config)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>clear logging buffer</b>	Clears the log buffer of all system log messages it contains.
<b>logging buffered</b>	Enables logging to the log buffer.
<b>logging enable</b>	Enables logging.
<b>logging flash-bufferwrap</b>	Writes the log buffer to Flash memory when the log buffer is full.
<b>logging savelog</b>	Saves the contents of the log buffer to Flash memory.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the currently running logging configuration.

# logging class

To configure for a message class the maximum logging level per logging destination, use the **logging class** command in global configuration mode. To remove a message class logging level configuration, use the **no** form of the command.

**logging class** *class destination level* [*destination level . . .*]

**no logging class** *class*

## Syntax Description

<i>class</i>	Specifies the message class whose maximum logging levels per destination you are configuring. For valid values of class, see the “Usage Guidelines” section that follows.
<i>destination</i>	Specifies a logging destination for <i>class</i> . For the destination, the <i>level</i> determines the maximum logging level sent to <i>destination</i> . For valid values of <i>destination</i> , see the “Usage Guidelines” section that follows.
<i>level</i>	Sets the maximum level for system log messages. For example, if you set the level to 3, then the security appliance generates system log messages for level 3, 2, 1, and 0. You can specify either the number or the name, as follows: <ul style="list-style-type: none"> <li>• <b>0</b> or <b>emergencies</b>—System unusable.</li> <li>• <b>1</b> or <b>alerts</b>—Take immediate action.</li> <li>• <b>2</b> or <b>critical</b>—Critical condition.</li> <li>• <b>3</b> or <b>errors</b>—Error.</li> <li>• <b>4</b> or <b>warnings</b>—Warning.</li> <li>• <b>5</b> or <b>notifications</b>—Normal but significant condition.</li> <li>• <b>6</b> or <b>informational</b>—Information.</li> <li>• <b>7</b> or <b>debugging</b>—Debug messages, log FTP commands, and WWW URLs.</li> </ul>

## Defaults

By default, the security appliance does not apply logging levels on a logging destination and message class basis. Instead, each enabled logging destination receives messages for all classes at the logging level determined by the logging list or level specified when you enabled the logging destination.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.2(1)	This command was introduced.

### Usage Guidelines

Valid values for *class* include the following:

- **auth**—User authentication.
- **bridge**—Transparent firewall.
- **ca**—PKI certificate authority.
- **config**—Command interface.
- **eap**—Extensible Authentication Protocol (EAP). Logs the following types of events to support Network Admission Control: EAP session state changes, EAP status query events, and a hexadecimal dump of EAP header and packet contents.
- **eapoudp**—Extensible Authentication Protocol (EAP) over UDP. Logs EAPoUDP events to support Network Admission Control, and generates a complete record of EAPoUDP header and packet contents.
- **email**—Email proxy.
- **ha**—Failover.
- **ids**—Intrusion detection system.
- **ip**—IP stack.
- **nac**—Network Admission Control. Logs the following types of events: initializations, exception list matches, ACS transactions, clientless authentications, default ACL applications, and revalidations.
- **np**—Network processor.
- **ospf**—OSPF routing.
- **rip**—RIP routing.
- **session**—User session.
- **snmp**—SNMP.
- **sys**—System.
- **vpn**—IKE and IPSec.
- **vpnc**—VPN client.
- **vpnfo**—VPN failover.
- **vpnfb**—VPN load balancing.

Valid logging destinations are as follows:

- **asdm**—To learn about this destination, see the **logging asdm** command.
- **buffered**—To learn about this destination, see the **logging buffered** command.
- **console**—To learn about this destination, see the **logging console** command.
- **history**—To learn about this destination, see the **logging history** command.
- **mail**—To learn about this destination, see the **logging mail** command.
- **monitor**—To learn about this destination, see the **logging monitor** command.
- **trap**—To learn about this destination, see the **logging trap** command.

**Examples**

This example specifies that, for Failover-related messages, the maximum logging level for the ASDM log buffer is 2 and the maximum logging level for the system log buffer is 7:

```
hostname(config)# logging class ha asdm 2 buffered 7
hostname(config)#
```

**Related Commands**

Command	Description
<b>logging enable</b>	Enables logging.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.



# logging console

To enable the security appliance to display system log messages in console sessions, use the **logging console** command in global configuration mode. To disable the display of system log messages in console sessions, use the **no logging console** form of this command.

**logging console** [*logging\_list* | *level*]

**no logging console**



## Note

We recommend that you do not use this command because it may cause many system log messages to be dropped due to buffer overflow. For more information, see the “Usage Guidelines” section that follows.

## Syntax Description

<i>level</i>	Sets the maximum level for system log messages. For example, if you set the level to 3, then the security appliance generates system log messages for level 3, 2, 1, and 0. You can specify either the number or the name, as follows: <ul style="list-style-type: none"> <li>• <b>0</b> or <b>emergencies</b>—System unusable.</li> <li>• <b>1</b> or <b>alerts</b>—Take immediate action.</li> <li>• <b>2</b> or <b>critical</b>—Critical condition.</li> <li>• <b>3</b> or <b>errors</b>—Error.</li> <li>• <b>4</b> or <b>warnings</b>—Warning.</li> <li>• <b>5</b> or <b>notifications</b>—Normal but significant condition.</li> <li>• <b>6</b> or <b>informational</b>—Information.</li> <li>• <b>7</b> or <b>debugging</b>—Debug messages, log FTP commands, and WWW URLs.</li> </ul>
<i>logging_list</i>	Specifies the list that identifies the messages to send to the console session. For information about creating lists, see the <b>logging list</b> command.

## Defaults

The security appliance does not display system log messages in console sessions by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

Before any messages are sent to the console, you must enable logging using the **logging enable** command.

**Caution**

Using the **logging console** command could drastically degrade system performance. Instead, use the **logging buffered** command to start logging and the **show logging** command to see the messages. To make viewing the most current messages easier, use the **clear logging buffer** command to clear the buffer.

**Examples**

This example shows how to enable system log messages of levels 0, 1, 2, and 3 to appear in console sessions:

```
hostname(config)# logging enable
hostname(config)# logging console errors
hostname(config)#
```

**Related Commands**

Command	Description
<b>logging enable</b>	Enables logging.
<b>logging list</b>	Creates a reusable list of message selection criteria.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.

# logging debug-trace

To redirect debugging messages to logs as syslog message 711011 issued at severity level 7, use the **logging debug-trace** command in global configuration mode. To stop sending debugging messages to logs, use the **no** form of this command.

**logging debug-trace**

**no logging debug-trace**

## Syntax Description

This command has no arguments or keywords.

## Defaults

By default, the security appliance does not include debug output in system log messages.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

Debug messages are generated as severity level 7 messages. They appear in logs with the syslog message number 711011.

## Examples

This example shows how enable logging, send log messages to the system log buffer, redirect debugging output to logs, and turn on debugging disk activity.

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# logging debug-trace
hostname(config)# debug disk filesystem
```

An example of a debug message that could appear in the logs follows:

```
%PIX-7-711001: IFS: Read: fd 3, bytes 4096
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>logging enable</b>	Enables logging.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.

# logging device-id

To configure the security appliance to include a device ID in non-EMBLEM-format system log messages, use the **logging device-id** command in global configuration mode. To disable the use of a device ID, use the **no** form of this command.

```
logging device-id { context-name | hostname | ipaddress interface_name | string text }
```

```
no logging device-id { context-name | hostname | ipaddress interface_name | string text }
```

## Syntax Description

<b>context-name</b>	Use the name of the current context as the device ID.
<b>hostname</b>	Use the host name of the security appliance as the device ID.
<b>ipaddress</b> <i>interface_name</i>	Use as the device ID the IP address of the interface specified as <i>interface_name</i> . If you use the <b>ipaddress</b> keyword, system log messages sent to an external server contain the IP address of the interface specified, regardless of which interface the security appliance uses to send the log data to the external server.
<b>string</b> <i>text</i>	Use as the device ID the characters contained in <i>text</i> , which can be up to 16 characters long. You cannot use white space characters or any of the following characters in <i>text</i> : <ul style="list-style-type: none"> <li>• &amp;—ampersand</li> <li>• '—single quote</li> <li>• "—double quote</li> <li>• &lt;—less than</li> <li>• &gt;—greater than</li> <li>• ?—question mark</li> </ul>

## Defaults

No default device ID is used in system log messages.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

If you use the **ipaddress** keyword, the device ID becomes the specified security appliance interface IP address, regardless of the interface from which the message is sent. This keyword provides a single, consistent device ID for all messages that are sent from the device.

**Examples**

This example shows how to configure a host named secappl-1:

```
hostname(config)# logging device-id hostname
hostname(config)# show logging
Syslog logging: disabled
Facility: 20
Timestamp logging: disabled
Standby logging: disabled
Console logging: disabled
Monitor logging: disabled
Buffer logging: level informational, 991 messages logged
Trap logging: disabled
History logging: disabled
Device ID: hostname "secappl-1"
```

In syslog messages, the host name secappl-1 appears at the beginning of messages, such as the following message:

```
secappl-1 %PIX-5-111008: User 'enable_15' executed the 'logging buffer-size 4096' command.
```

**Related Commands**

Command	Description
<b>logging enable</b>	Enables logging.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.

# logging emblem

To use the EMBLEM format for system log messages sent to destinations other than a syslog server, use the **logging emblem** command in global configuration mode. To disable the use of EMBLEM format, use the **no** form of this command.

**logging emblem**

**no logging emblem**

## Syntax Description

This command has no arguments or keywords.

## Defaults

By default, the security appliance does not use EMBLEM format for system log messages.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)(1)	This command was changed to be independent of the <b>logging host</b> command.

## Usage Guidelines

The **logging emblem** command lets you to enable EMBLEM-format logging for all logging destinations other than syslog servers. If you also enable the **logging timestamp** keyword, the messages with a time stamp are sent.

To enable EMBLEM-format logging for syslog servers, use the **format emblem** option with the **logging host** command.

## Examples

This example shows how to enable logging and enable the use of EMBLEM-format for logging to all logging destinations except syslog servers:

```
hostname(config)# logging enable
hostname(config)# logging emblem
hostname(config)#
```

## Related Commands

Command	Description
<b>logging enable</b>	Enables logging.

<b>Command</b>	<b>Description</b>
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.



# logging enable

To enable logging for all configured output locations, use the **logging enable** command in global configuration mode. To disable logging, use the **no** form of this command.

**logging enable**

**no logging enable**

**Syntax Description** This command has no arguments or keywords.

**Defaults** Logging is disabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)(1)	This command was changed from the <b>logging on</b> command.

**Usage Guidelines** The **logging enable** command allows you to enable or disable sending system log messages to any of the supported logging destinations. You can stop all logging with the **no logging enable** command.

You can enable logging to individual logging destinations with the following commands:

- **logging asdm**
- **logging buffered**
- **logging console**
- **logging history**
- **logging mail**
- **logging monitor**
- **logging trap**

**Examples** This example shows how to enable logging. The output of the **show logging** command illustrates how each possible logging destination must be enabled separately.

```
hostname(config)# logging enable
hostname(config)# show logging
Syslog logging: enabled
```

## logging enable

```

Facility: 20
Timestamp logging: disabled
Standby logging: disabled
Deny Conn when Queue Full: disabled
Console logging: disabled
Monitor logging: disabled
Buffer logging: disabled
Trap logging: disabled
History logging: disabled
Device ID: disabled
Mail logging: disabled
ASDM logging: disabled

```

### Related Commands

Command	Description
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.

# logging facility

To specify the logging facility used for messages sent to syslog servers, use the **logging facility** command in global configuration mode. To reset the logging facility to its default of 20, use the **no** form of this command.

**logging facility** *facility*

**no logging facility**

## Syntax Description

*facility* Specifies the syslog facility; valid values are 16 through 23.

## Defaults

The default facility is 20 (LOCAL4).

## Command Modes

The following table shows the modes in which you can enter the command, with the exceptions noted above in the Syntax Description section:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Syslog servers file messages based on the *facility* number in the message. There are eight possible facilities, 16 (LOCAL0) through 23 (LOCAL7).

## Examples

This example shows how to specify that the security appliance specify the logging facility as 16 in system log messages. The output of the **show logging** command includes the facility being used by the security appliance.

```
hostname(config)# logging facility 16
hostname(config)# show logging
Syslog logging: enabled
  Facility: 16
  Timestamp logging: disabled
  Standby logging: disabled
  Deny Conn when Queue Full: disabled
  Console logging: disabled
  Monitor logging: disabled
  Buffer logging: disabled
  Trap logging: level errors, facility 16, 3607 messages logged
    Logging to infrastructure 10.1.2.3
```

```

History logging: disabled
Device ID: 'inside' interface IP address "10.1.1.1"
Mail logging: disabled
ASDM logging: disabled

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>logging enable</b>	Enables logging.
<b>logging host</b>	Defines a syslog server.
<b>logging trap</b>	Enables logging to syslog servers.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.

# logging flash-bufferwrap

To enable the security appliance to write the log buffer to Flash memory every time the buffer is full of messages that have never been saved, use the **logging flash-bufferwrap** command in global configuration mode. To disable writing of the log buffer to Flash memory, use the **no** form of this command.

**logging flash-bufferwrap**

**no logging flash-bufferwrap**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The defaults are as follows:

- Logging to the buffer is disabled.
- Writing the log buffer to Flash memory is disabled.
- Buffer size is 4 KB.
- Minimum free Flash memory is 3 MB.
- Maximum Flash memory allocation for buffer logging is 1 MB.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

For the security appliance to write the log buffer to Flash memory, you must enable logging to the buffer; otherwise, the log buffer never has data to be written to Flash memory. To enable logging to the buffer, use the **logging buffered** command.

While the security appliance writes log buffer contents to Flash memory, it continues storing to the log buffer continues any new event messages.

The security appliance creates log files with names that use a default time-stamp format, as follows:

`LOG-YYYY-MM-DD-HHMMSS.TXT`

where *YYYY* is the year, *MM* is the month, *DD* is the day of the month, and *HHMMSS* is the time in hours, minutes, and seconds.

The availability of Flash memory affects how the security appliance saves system log messages using the **logging flash-bufferwrap** command. For more information, see the **logging flash-maximum-allocation** and the **logging flash-minimum-free** commands.

### Examples

This example shows how enable logging, enable the log buffer, and enable the security appliance to write the log buffer to Flash memory:

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# logging flash-bufferwrap
hostname(config)#
```

### Related Commands

Command	Description
<b>clear logging buffer</b>	Clears the log buffer of all system log messages it contains.
<b>copy</b>	Copies a file from one location to another, including to a TFTP or FTP server.
<b>delete</b>	Deletes a file from the disk partition, such as saved log files.
<b>logging buffered</b>	Enables logging to the log buffer.
<b>logging buffer-size</b>	Specifies log buffer size.
<b>logging enable</b>	Enables logging.
<b>logging flash-maximum-allocation</b>	Specifies the maximum amount of Flash memory that can be used for writing log buffer contents.
<b>logging flash-minimum-free</b>	Specifies the minimum amount of Flash memory that must be available for the security appliance to permit writing the log buffer to Flash memory.
<b>show logging</b>	Displays the enabled logging options.

# logging flash-maximum-allocation

To specify the maximum amount of Flash memory that the security appliance uses to store log data, use the **logging flash-maximum-allocation** command in global configuration mode. This command determines how much Flash memory is available for the **logging save log** and **logging flash-bufferwrap** commands. To reset the maximum amount of Flash memory used for this purpose to its default size of 1 MB of Flash memory, use the **no** form of this command.

**logging flash-maximum-allocation** *kbytes*

**no logging flash-maximum-allocation** *kbytes*

## Syntax Description

*kbytes* The largest amount of Flash memory, in kilobytes, that the security appliance can use to save log buffer data.

## Defaults

The default maximum Flash memory allocation for log data is 1 MB.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

If a log file to be saved by **logging save log** or **logging flash-bufferwrap** causes Flash memory use for log files to exceed the maximum amount specified by the **logging flash-maximum-allocation** command, the security appliance deletes the oldest log files to free sufficient memory for the new log file. If there are no files to delete or if, after all old files are deleted, free memory is too small for the new log file, the security appliance fails to save the new log file.

To see whether the security appliance has a maximum Flash memory allocation of a size different than the default size, use the **show running-config logging** command. If the **logging flash-maximum-allocation** command is not shown, then the security appliance uses a maximum of 1 MB for saved log buffer data. The memory allocated is used for both the **logging save log** and **logging flash-bufferwrap** commands.

For more information about how the security appliance uses the log buffer, see the **logging buffered** command.

**Examples**

This example shows how to enable logging, enable the log buffer, enable the security appliance to write the log buffer to Flash memory, with the maximum amount of Flash memory used for writing log files set to approximately 1.2 MB of memory:

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# logging flash-bufferwrap
hostname(config)# logging flash-maximum-allocation 1200
hostname(config)#
```

**Related Commands**

Command	Description
<b>clear logging buffer</b>	Clears the log buffer of all system log messages it contains.
<b>logging buffered</b>	Enables logging to the log buffer.
<b>logging enable</b>	Enables logging.
<b>logging flash-bufferwrap</b>	Writes the log buffer to Flash memory when the log buffer is full.
<b>logging flash-minimum-free</b>	Specifies the minimum amount of Flash memory that must be available for the security appliance to permit writing the log buffer to Flash memory.
<b>logging saveolog</b>	Saves the contents of the log buffer to Flash memory.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the currently running logging configuration.



# logging flash-minimum-free

To specify the minimum amount of free Flash memory that must exist before the security appliance saves a new log file, use the **logging flash-minimum-free** command in global configuration mode. This command affects how much free Flash memory must exist before the security appliance saves log files created by the **logging saveolog** and **logging flash-bufferwrap** commands. To reset the minimum required amount of free Flash memory to its default size of 3 MB, use the **no** form of this command.

**logging flash-minimum-free** *kbytes*

**no logging flash-minimum-free** *kbytes*

## Syntax Description

*kbytes* The minimum amount of Flash memory, in kilobytes, that must be available before the security appliance saves a new log file.

## Defaults

The default minimum free Flash memory is 3 MB.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

The **logging flash-minimum-free** command specifies how much Flash memory the **logging saveolog** and **logging flash-bufferwrap** commands must preserve at all times.

If a log file to be saved by **logging saveolog** or **logging flash-bufferwrap** would cause the amount of free Flash memory to fall below the limit specified by the **logging flash-minimum-free** command, the security appliance deletes the oldest log files to ensure that the minimum amount of memory remains free after saving the new log file. If there are no files to delete or if, after all old files are deleted, free memory would still be below the limit, the security appliance fails to save the new log file.

## Examples

This example shows how to enable logging, enable the log buffer, enable the security appliance to write the log buffer to Flash memory, and specify that the minimum amount of free Flash memory must be 4000 KB:

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# logging flash-bufferwrap
hostname(config)# logging flash-minimum-free 4000
```

```
hostname(config)#
```

Related Commands	Command	Description
	<b>clear logging buffer</b>	Clears the log buffer of all system log messages it contains.
	<b>logging buffered</b>	Enables logging to the log buffer.
	<b>logging enable</b>	Enables logging.
	<b>logging flash-bufferwrap</b>	Writes the log buffer to Flash memory when the log buffer is full.
	<b>logging flash-maximum-allocation</b>	Specifies the maximum amount of Flash memory that can be used for writing log buffer contents.
	<b>logging save log</b>	Saves the contents of the log buffer to Flash memory.
	<b>show logging</b>	Displays the enabled logging options.
	<b>show running-config logging</b>	Displays the currently running logging configuration.

# logging from-address

To specify the sender email address for system log messages emailed by the security appliance, use the **logging from-address** command in global configuration mode. All emailed system log messages appear to come from the address you specify. To remove the sender email address, use the **no** form of this command.

**logging from-address** *from-email-address*

**no logging from-address** *from-email-address*

## Syntax Description

*from-email-address* Source email address, that is, the email address that syslog emails appear to come from. For example, cdb@example.com.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

Sending system log messages by email is enabled by the **logging mail** command.

The address specified with this command need not correspond to an existing email account.

## Examples

To enable logging and set up the security appliance to send system log messages by email, using the following criteria:

- Send messages that are critical, alerts, or emergencies.
- Send messages using ciscosecurityappliance@example.com as the sender's address.
- Send messages to admin@example.com
- Send messages using SMTP the primary servers pri-smtp-host and secondary server sec-smtp-host.

you would enter the following commands:

```
hostname(config)# logging enable
hostname(config)# logging mail critical
hostname(config)# logging from-address ciscosecurityappliance@example.com
```

```
hostname(config)# logging recipient-address admin@example.com
hostname(config)# smtp-server pri-smtp-host sec-smtp-host
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>logging enable</b>	Enables logging.
<b>logging mail</b>	Enables the security appliance to send system log messages by email and determines which messages are sent by email.
<b>logging recipient-address</b>	Specifies the email address to which emailed system log messages are sent.
<b>smtp-server</b>	Configures an SMTP server.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the currently running logging configuration.

# logging ftp-bufferwrap

To enable the security appliance to send the log buffer to an FTP server every time the buffer is full of messages that have never been saved, use the **logging ftp-bufferwrap** command in global configuration mode. To disable sending the log buffer to an FTP server, use the **no** form of this command.

**logging ftp-bufferwrap**

**no logging ftp-bufferwrap**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The defaults are as follows:

- Logging to the buffer is disabled.
- Sending the log buffer to an FTP server is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

When you enable **logging ftp-bufferwrap**, the security appliance sends log buffer data to the FTP server you specify with the **logging ftp-server** command. While the security appliance sends log data to the FTP server, it continues storing to the log buffer continues any new event messages.

For the security appliance to send log buffer contents to an FTP server, you must enable logging to the buffer; otherwise, the log buffer never has data to be written to Flash memory. To enable logging to the buffer, use the **logging buffered** command.

The security appliance creates log files with names that use a default time-stamp format, as follows:

`LOG-YYYY-MM-DD-HHMMSS.TXT`

where *YYYY* is the year, *MM* is the month, *DD* is the day of the month, and *HHMMSS* is the time in hours, minutes, and seconds.

**Examples**

This example shows how enable logging, enable the log buffer, specify an FTP server, and enable the security appliance to write the log buffer to an FTP server. This example specifies an FTP server whose host name is logserver-352. The server can be accessed with the username logsupervisor and password 1luvMy10gs. Log files are to be stored in the /syslogs directory.

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# logging ftp-server logserver-352 /syslogs logsupervisor 1luvMy10gs
hostname(config)# logging ftp-bufferwrap
hostname(config)#
```

**Related Commands**

Command	Description
<b>clear logging buffer</b>	Clears the log buffer of all system log messages it contains.
<b>logging buffered</b>	Enables logging to the log buffer.
<b>logging buffer-size</b>	Specifies log buffer size.
<b>logging enable</b>	Enables logging.
<b>logging ftp-server</b>	Specifies FTP server parameters for use with the <b>logging ftp-bufferwrap</b> command.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the currently running logging configuration.

# logging ftp-server

To specify details about the FTP server the security appliance sends log buffer data to when **logging ftp-bufferwrap** is enabled, use the **logging ftp-server** command in global configuration mode. To remove all details about an FTP server, use the **no** form of this command.

**logging ftp-server** *ftp-server ftp\_server path username password*

**no logging ftp-server** *ftp-server ftp\_server path username password*

## Syntax Description

<i>ftp-server</i>	External FTP server IP address or host name.  <b>Note</b> If you specify a host name, be sure DNS is operating correctly on your network.
<i>path</i>	Directory path on the FTP server where the log buffer data is to be saved. This path is relative to the FTP root directory. For example:  /security_appliances/syslogs/appliance107
<i>username</i>	A username that is valid for logging into the FTP server.
<i>password</i>	The password for the username specified.

## Defaults

No FTP server is specified by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

You can only specify one FTP server. If a logging FTP server is already specified, using the **logging ftp-server** command replaces that FTP server configuration with the new one you enter.

The security appliance does not verify the FTP server information you specify. If you misconfigure any of the details, the security appliance fails to send log buffer data to the FTP server.

## Examples

This example shows how enable logging, enable the log buffer, specify an FTP server, and enable the security appliance to write the log buffer to an FTP server. This example specifies an FTP server whose host name is logserver-352. The server can be accessed with the username logsupervisor and password 1luvMy10gs. Log files are to be stored in the /syslogs directory.

```

hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# logging ftp-server logserver-352 /syslogs logsupervisor 1luvMy10gs
hostname(config)# logging ftp-bufferwrap
hostname(config)#

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear logging buffer</b>	Clears the log buffer of all system log messages it contains.
<b>logging buffered</b>	Enables logging to the log buffer.
<b>logging buffer-size</b>	Specifies log buffer size.
<b>logging enable</b>	Enables logging.
<b>logging ftp-bufferwrap</b>	Sends the log buffer to an FTP server when the log buffer is full.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the currently running logging configuration.



# logging history

To enable SNMP logging and specify which messages are to be sent to SNMP servers, use the **logging history** command in global configuration mode. To disable SNMP logging, use the **no** form of this command.

**logging history** [*logging\_list* | *level*]

**no logging history**

## Syntax Description

<i>level</i>	Sets the maximum level for system log messages. For example, if you set the level to 3, then the security appliance generates system log messages for level 3, 2, 1, and 0. You can specify either the number or the name, as follows: <ul style="list-style-type: none"> <li>• <b>0</b> or <b>emergencies</b>—System unusable.</li> <li>• <b>1</b> or <b>alerts</b>—Take immediate action.</li> <li>• <b>2</b> or <b>critical</b>—Critical condition.</li> <li>• <b>3</b> or <b>errors</b>—Error.</li> <li>• <b>4</b> or <b>warnings</b>—Warning.</li> <li>• <b>5</b> or <b>notifications</b>—Normal but significant condition.</li> <li>• <b>6</b> or <b>informational</b>—Information.</li> <li>• <b>7</b> or <b>debugging</b>—Debug messages, log FTP commands, and WWW URLs.</li> </ul>
<i>logging_list</i>	Specifies the list that identifies the messages to send to the SNMP server. For information about creating lists, see the <b>logging list</b> command.

## Defaults

The security appliance does not log to SNMP servers by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **logging history** command allows you to enable logging to an SNMP server and to set the SNMP message level or event list.

**Examples**

This example shows how to enable SNMP logging and specify that messages of levels 0, 1, 2, and 3 are sent to the SNMP server configured:

```
hostname(config)# logging enable
hostname(config)# snmp-server host infrastructure 10.2.3.7 trap community gam327
hostname(config)# snmp-server enable traps syslog
hostname(config)# logging history errors
hostname(config)#
```

**Related Commands**

Command	Description
<b>logging enable</b>	Enables logging.
<b>logging list</b>	Creates a reusable list of message selection criteria.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.
<b>snmp-server</b>	Specifies SNMP server details.

# logging host

To define a syslog server, use the **logging host** command in global configuration mode. To remove a syslog server definition, use the **no** form of this command.

```
logging host interface_name syslog_ip [tcp/port | udp/port] [format emblem]
```

```
logging host interface_name syslog_ip
```

## Syntax Description

<b>format emblem</b>	(Optional) Enables EMBLEM format logging for the syslog server.
<i>interface_name</i>	Interface on which the syslog server resides.
<i>syslog_ip</i>	The IP address of the syslog server.
<b>tcp</b>	Specifies that the security appliance should use TCP to send messages to the syslog server.
<b>udp</b>	Specifies that the security appliance should use UDP to send messages to the syslog server.
<i>port</i>	The port that the syslog server listens to for messages. Valid port values are 1025 through 65535, for either protocol.

## Defaults

The defaults are as follows:

- The default port numbers are as follows:
  - UDP port is 514
  - TCP port is 1470
- The default protocol is UDP.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **logging host ip\_address format emblem** command allows you to enable EMBLEM-format logging for each syslog server. EMBLEM-format logging is available for UDP system log messages only. If you enable EMBLEM-format logging for a particular syslog host, then the messages are sent to that host. If you also enable the **logging timestamp** keyword, the messages with a time stamp are sent.

You can use multiple **logging host** commands to specify additional servers that would all receive the system log messages. However, a server can only be specified to receive either UDP or TCP, not both.

**Note**

When the **tcp** option is used in the **logging host** command, the security appliance will drop connections across the firewall if the syslog server is unreachable.

You can display only the *port* and *protocol* values that you previously entered by using the **show running-config logging** command and finding the command in the listing—the TCP protocol is listed as 6 and the UDP protocol is listed as 17. TCP ports work only with the security appliance syslog server. The *port* must be the same port on which the syslog server listens.

**Examples**

This example shows how to send system log messages of levels 0, 1, 2, and 3 to a syslog server that resides on the inside interface and uses the default protocol and port number.

```
hostname(config)# logging enable
hostname(config)# logging host inside 10.2.2.3
hostname(config)# logging trap errors
hostname(config)#
```

**Related Commands**

Command	Description
<b>logging enable</b>	Enables logging.
<b>logging trap</b>	Enables logging to syslog servers.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.

# logging list

To create a logging list to use in other commands to specify messages by various criteria (logging level, event class, and message IDs) use the **logging list** command in global configuration mode. To remove the list, use the **no** form of this command.

```
logging list name {level level [class event_class] | message start_id[-end_id]}
```

```
no logging list name
```

## Syntax Description

<b>class</b> <i>event_class</i>	(Optional) Sets the class of events for system log messages. For the level specified, only system log messages of the class specified are identified by the command. See “Usage Guidelines” for a list of classes.
<b>level</b> <i>level</i>	Sets the maximum level for system log messages. For example, if you set the level to 3, then the security appliance generates system log messages for level 3, 2, 1, and 0. You can specify either the number or the name, as follows: <ul style="list-style-type: none"> <li>• <b>0</b> or <b>emergencies</b>—System unusable.</li> <li>• <b>1</b> or <b>alerts</b>—Take immediate action.</li> <li>• <b>2</b> or <b>critical</b>—Critical condition.</li> <li>• <b>3</b> or <b>errors</b>—Error.</li> <li>• <b>4</b> or <b>warnings</b>—Warning.</li> <li>• <b>5</b> or <b>notifications</b>—Normal but significant condition.</li> <li>• <b>6</b> or <b>informational</b>—Information.</li> <li>• <b>7</b> or <b>debugging</b>—Debug messages, log FTP commands, and WWW URLs.</li> </ul>
<b>message</b> <i>start_id</i> [- <i>end_id</i> ]	Specified a message ID or range of IDs. To lookup the default level of a message, use the <b>show logging</b> command or see the <i>Cisco Security Appliance System Log Messages</i> guide.
<i>name</i>	Sets the logging list name.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.2(1)	Support for this command was introduced.

**Usage Guidelines**

Logging commands that can use lists are the following:

- **logging asdm**
- **logging buffered**
- **logging console**
- **logging history**
- **logging mail**
- **logging monitor**
- **logging trap**

Possible values for the *event\_class* include the following:

- **auth**—User authentication.
- **bridge**—Transparent firewall.
- **ca**—PKI certificate authority.
- **config**—Command interface.
- **eap**—Extensible Authentication Protocol (EAP). Logs the following types of events to support Network Admission Control: EAP session state changes, EAP status query events, and a hexadecimal dump of EAP header and packet contents.
- **eapoudp**—Extensible Authentication Protocol (EAP) over UDP. Logs EAPoUDP events to support Network Admission Control, and generates a complete record of EAPoUDP header and packet contents.
- **email**—Email proxy.
- **ha**—Failover.
- **ids**—Intrusion detection system.
- **ip**—IP stack.
- **nac**—Network Admission Control. Logs the following types of events: initializations, exception list matches, ACS transactions, clientless authentications, default ACL applications, and revalidations.
- **np**—Network processor.
- **ospf**—OSPF routing.
- **rip**—RIP routing.
- **session**—User session.
- **snmp**—SNMP.
- **sys**—System.
- **vpn**—IKE and IPsec.
- **vpnc**—VPN client.
- **vpnfo**—VPN failover.
- **vpnlb**—VPN load balancing.

**Examples**

This example shows how to use the logging list command:

```
hostname(config)# logging list my-list 100100-100110
hostname(config)# logging list my-list level critical
```

```
hostname(config)# logging list my-list level warning class vpn
hostname(config)# logging buffered my-list
```

The preceding example states that system log messages that match the criteria specified will be sent to the logging buffer. The criteria specified in this example are:

4. System log message IDs that fall in the range of 100100 to 100110
5. All system Log messages with critical level or higher (emergency, alert, or critical)
6. All VPN class system Log messages with warning level or higher (emergency, alert, critical, error, or warning)

If a system log message satisfies any one of these conditions, it is logged to the buffer.

**Note**

When you design list criteria, criteria can specify overlapping sets of messages. System log messages matching more than one criteria are logged normally.

**Related Commands**

Command	Description
<b>logging enable</b>	Enables logging.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.

# logging mail

To enable the security appliance to send system log messages by email and to determine which messages are sent by email, use the **logging mail** command in global configuration mode. To disable emailing system log messages, use the **no** form of this command.

**logging mail** [*logging\_list* | *level*]

**no logging mail** [*logging\_list* | *level*]

## Syntax Description

<i>level</i>	Sets the maximum level for system log messages. For example, if you set the level to 3, then the security appliance generates system log messages for level 3, 2, 1, and 0. You can specify either the number or the name, as follows: <ul style="list-style-type: none"> <li>• <b>0</b> or <b>emergencies</b>—System unusable.</li> <li>• <b>1</b> or <b>alerts</b>—Take immediate action.</li> <li>• <b>2</b> or <b>critical</b>—Critical condition.</li> <li>• <b>3</b> or <b>errors</b>—Error.</li> <li>• <b>4</b> or <b>warnings</b>—Warning.</li> <li>• <b>5</b> or <b>notifications</b>—Normal but significant condition.</li> <li>• <b>6</b> or <b>informational</b>—Information.</li> <li>• <b>7</b> or <b>debugging</b>—Debug messages, log FTP commands, and WWW URLs.</li> </ul>
<i>logging_list</i>	Specifies the list that identifies the messages to send to the email recipient. For information about creating lists, see the <b>logging list</b> command.

## Defaults

Logging to email is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Emailed system log messages appear in the subject line of the emails sent.



**Examples**

To set up the security appliance to send system log messages by email, using the following criteria:

- Send messages that are critical, alerts, or emergencies.
- Send messages using ciscosecurityappliance@example.com as the sender's address.
- Send messages to admin@example.com
- Send messages using SMTP the primary servers pri-smtp-host and secondary server sec-smtp-host.

you would enter the following commands:

```
hostname(config)# logging mail critical
hostname(config)# logging from-address ciscosecurityappliance@example.com
hostname(config)# logging recipient-address admin@example.com
hostname(config)# smtp-server pri-smtp-host sec-smtp-host
```

**Related Commands**

Command	Description
<b>logging enable</b>	Enables logging.
<b>logging from-address</b>	Specifies the email address from which emailed system log messages appear to come.
<b>logging list</b>	Creates a reusable list of message selection criteria.
<b>logging recipient-address</b>	Specifies the email address to which emailed system log messages are sent.
<b>smtp-server</b>	Configures an SMTP server.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the currently running logging configuration.

# logging message

To specify the logging level of a system log message, use the **logging message** command with the **level** keyword in global configuration mode. To reset the logging level of a message to its default level, use the **no** form of this command. To prevent the security appliance from generating a particular system log message, use the **no** form of the **logging message** command (without the **level** keyword) in global configuration mode. To let the security appliance generate a particular system log message, use the **logging message** command (without the **level** keyword). These two purposes of the **logging message** command can be used in parallel. See the “Examples” section that follows.

**logging message** *syslog\_id* **level** *level*

**no logging message** *syslog\_id* **level** *level*

**logging message** *syslog\_id*

**no logging message** *syslog\_id*

## Syntax Description

<b>level</b> <i>level</i>	Sets the maximum level for system log messages. For example, if you set the level to 3, then the security appliance generates system log messages for level 3, 2, 1, and 0. You can specify either the number or the name, as follows: <ul style="list-style-type: none"> <li>• <b>0</b> or <b>emergencies</b>—System unusable.</li> <li>• <b>1</b> or <b>alerts</b>—Take immediate action.</li> <li>• <b>2</b> or <b>critical</b>—Critical condition.</li> <li>• <b>3</b> or <b>errors</b>—Error.</li> <li>• <b>4</b> or <b>warnings</b>—Warning.</li> <li>• <b>5</b> or <b>notifications</b>—Normal but significant condition.</li> <li>• <b>6</b> or <b>informational</b>—Information.</li> <li>• <b>7</b> or <b>debugging</b>—Debug messages, log FTP commands, and WWW URLs.</li> </ul>
<i>syslog_id</i>	The ID of the system log message that you want to enable or disable or whose severity level you want to modify. To lookup the default level of a message, use the <b>show logging</b> command or see the <i>Cisco Security Appliance System Log Messages</i> guide.

## Defaults

By default, all system log messages are enabled and the severity levels of all messages are set to their default levels.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

You can use the **logging message** command for two purposes:

- To control whether a message is enabled or disabled.
- To control the severity level of a message.

You can use the **show logging** command to determine the level currently assigned to a message and whether the message is enabled.

**Examples**

The series of commands in the following example illustrates the use of the **logging message** command to control both whether a message is enabled and the severity level of the messages

```
hostname(config)# show logging message 403503
syslog 403503: default-level errors (enabled)

hostname(config)# logging message 403503 level 1
hostname(config)# show logging message 403503
syslog 403503: default-level errors, current-level alerts (enabled)

hostname(config)# no logging message 403503
hostname(config)# show logging message 403503
syslog 403503: default-level errors, current-level alerts (disabled)

hostname(config)# logging message 403503
hostname(config)# show logging message 403503
syslog 403503: default-level errors, current-level alerts (enabled)

hostname(config)# no logging message 403503 level 3
hostname(config)# show logging message 403503
syslog 403503: default-level errors (enabled)
```

**Related Commands**

Command	Description
<b>clear configure logging</b>	Clears all logging configuration or message configuration only.
<b>logging enable</b>	Enables logging.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.

# logging monitor

To enable the security appliance to display system log messages in SSH and Telnet sessions, use the **logging monitor** command in global configuration mode. To disable the display of system log messages in SSH and Telnet sessions, use the **no** form of this command.

**logging monitor** [*logging\_list* | *level*]

**no logging monitor**

## Syntax Description

<i>level</i>	Sets the maximum level for system log messages. For example, if you set the level to 3, then the security appliance generates system log messages for level 3, 2, 1, and 0. You can specify either the number or the name, as follows: <ul style="list-style-type: none"> <li>• <b>0</b> or <b>emergencies</b>—System unusable.</li> <li>• <b>1</b> or <b>alerts</b>—Take immediate action.</li> <li>• <b>2</b> or <b>critical</b>—Critical condition.</li> <li>• <b>3</b> or <b>errors</b>—Error.</li> <li>• <b>4</b> or <b>warnings</b>—Warning.</li> <li>• <b>5</b> or <b>notifications</b>—Normal but significant condition.</li> <li>• <b>6</b> or <b>informational</b>—Information.</li> <li>• <b>7</b> or <b>debugging</b>—Debug messages, log FTP commands, and WWW URLs.</li> </ul>
<i>logging_list</i>	Specifies the list that identifies the messages to send to the SSH or Telnet session. For information about creating lists, see the <b>logging list</b> command.

## Defaults

The security appliance does not display system log messages in SSH and Telnet sessions by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

The **logging monitor** command enables system log messages for all sessions in the current context; however, in each session, the **terminal** command controls whether system log messages appear in that session.

**Examples**

This example shows how to enable the display of system log messages in console sessions. The use of the **errors** keyword indicates that messages of levels 0, 1, 2, and 3 should be shown in SSH and Telnet sessions. The **terminal** command enables the messages to appear in the current session.

```
hostname(config)# logging enable
hostname(config)# logging monitor errors
hostname(config)# terminal monitor
hostname(config)#
```

**Related Commands**

Command	Description
<b>logging enable</b>	Enables logging.
<b>logging list</b>	Creates a reusable list of message selection criteria.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.
<b>terminal</b>	Sets terminal line parameters.

# logging permit-hostdown

To make the status of a TCP-based syslog server irrelevant to new user sessions, use the **logging permit-hostdown** command in global configuration mode. To cause the security appliance to deny new user sessions when a TCP-based syslog server is unavailable, use the **no** form of this command.

**logging permit-hostdown**

**no logging permit-hostdown**

## Syntax Description

This command has no arguments or keywords.

## Defaults

By default, if you have enabled logging to a syslog server that uses a TCP connection, the security appliance does not allow new network access sessions when the syslog server is unavailable for any reason.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1) (1)	This command was introduced.

## Usage Guidelines

If you are using TCP as the logging transport protocol for sending messages to a syslog server, the security appliance denies new network access sessions as a security measure if the security appliance is unable to reach the syslog server. You can use the **logging permit-hostdown** command to remove this restriction.

## Examples

The following example makes the status of TCP-based syslog servers irrelevant to whether the security appliance permits new sessions. When the `show running-config logging` command includes in its output the `show running-config logging` command, the status of TCP-based syslog servers is irrelevant to new network access sessions.

```
hostname(config)# logging permit-hostdown
hostname(config)# show running-config logging
logging enable
logging trap errors
logging host infrastructure 10.1.2.3 6/1470
logging permit-hostdown
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>logging enable</b>	Enables logging.
<b>logging host</b>	Defines a syslog server.
<b>logging trap</b>	Enables logging to syslog servers.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.

# logging queue

To specify how many system log messages the security appliance may hold in its syslog queue prior to processing them according to logging configuration, use the **logging queue** command in global configuration mode. To reset the logging queue size to the default of 512 messages, use the **no** form of this command.

**logging queue** *queue\_size*

**no logging queue** *queue\_size*

## Syntax Description

<i>queue_size</i>	The number of system log messages permitted in the queue used for storing system log messages prior to processing them. Valid values are from 0 to 8192 messages. Zero means that the queue is limited only by block memory availability.
-------------------	---

## Defaults

The default queue size is 512 messages.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

When traffic is so heavy that the queue fills up, the security appliance may discard messages.

## Examples

This example shows how to display the output of the **logging queue** and **show logging queue** commands:

```
hostname(config)# logging queue 0
hostname(config)# show logging queue
Logging Queue length limit : Unlimited
Current 5 msg on queue, 3513 msgs most on queue, 1 msg discard.
```

In this example, the **logging queue** command is set to 0, which means that the queue can hold as many messages as block memory availability allows. The system log messages in the queue are processed by the security appliance in the manner dictated by logging configuration, such as sending system log messages to mail recipients, saving them to Flash memory, and so forth.



The output of this example **show logging queue** command shows that 5 messages are queued, 3513 messages was the largest number of messages in the queue at one time since the security appliance was last booted, and that 1 message was discarded. Even though the queue was set for unlimited, the messages was discarded because no block memory was available to add the message to the queue.

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>logging enable</b>	Enables logging.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.

# logging rate-limit

To limit the rate at which system log messages are generated, use the **logging rate-limit** command in privileged EXEC mode. To disable rate limiting, use the **no** form of this command in privileged EXEC mode.

**logging rate-limit** {**unlimited** | {*num* [*interval*]}} **message** *syslog\_id* | **level** *severity\_level*

[**no**] **logging rate-limit** [**unlimited** | {*num* [*interval*]}}] **message** *syslog\_id* | **level** *severity\_level*

## Syntax Description

<i>interval</i>	(Optional) Time interval (in seconds) to use for measuring the rate at which messages are generated. The valid range of values for <i>interval</i> is 0 through 2147483647.
<b>level</b> <i>severity_level</i>	Applies the set rate limits on all system log messages that belong to a certain severity level. All system log messages at a specified severity level are rate-limited individually. The valid range for <i>severity_level</i> is 1 through 7.
<b>message</b>	Suppresses reporting of this system log message.
<i>num</i>	Number of system messages that can be generated during the specified time interval. The valid range of values for <i>num</i> is 0 through 2147483647.
<i>syslog_id</i>	ID of the system log message to be suppressed. The valid range of values for <i>syslog_id</i> is 100000-999999.
<b>unlimited</b>	Disables rate limiting. This means that there is no limit on the logging rate.

## Defaults

The default setting for *interval* is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(4)	This command was introduced.

## Usage Guidelines

The system message severity levels are as follows:

- 0—System Unusable
- 1—Take Immediate Action
- 2—Critical Condition
- 3—Error Message

- 4—Warning Message
- 5—Normal but significant condition
- 6—Informational
- 7—Debug Message

### Examples

To limit the rate of system log message generation, you can enter a specific message ID. The following example shows how to limit the rate of system log message generation using a specific message ID and time interval:

```
hostname(config)# logging rate-limit 100 600 message 302020
```

This example suppresses system log message 302020 from being sent to the host after the rate limit of 100 is reached in the specified interval of 600 seconds.

To limit the rate of system log message generation, you can enter a specific severity level. The following example shows how to limit the rate of system log message generation using a specific severity level and time interval.

```
hostname(config)# logging rate-limit 1000 600 level 6
```

This example suppresses all system log messages under severity level 6 to the specified rate limit of 1000 in the specified time interval of 600 seconds. Each system log message in severity level 6 has a rate limit of 1000.

### Related Commands

Command	Description
<b>clear running-config logging rate-limit</b>	Resets the logging rate-limit setting to its default.
<b>show logging</b>	Shows the messages currently in the internal buffer or to shows logging configuration settings
<b>show running-config logging rate-limit</b>	Shows the current logging rate-limit setting.

## logging recipient-address

To specify the receiving email address for system log messages emailed by the security appliance, use the **logging recipient-address** command in global configuration mode. To remove the receiving email address, use the **no** form of this command. You can configure up to 5 recipient addresses. If you want, each recipient address can have a different message level than that specified by the **logging mail** command.

**logging recipient-address** *address* [**level** *level*]

**no logging recipient-address** *address* [**level** *level*]

Syntax Description	
<i>address</i>	Specifies recipient email address when sending system log messages by email.
<b>level</b>	Indicates that a logging level follows.
<i>level</i>	<p>Sets the maximum level for system log messages. For example, if you set the level to 3, then the security appliance generates system log messages for level 3, 2, 1, and 0. You can specify either the number or the name, as follows:</p> <ul style="list-style-type: none"> <li>• <b>0</b> or <b>emergencies</b>—System unusable.</li> <li>• <b>1</b> or <b>alerts</b>—Take immediate action.</li> <li>• <b>2</b> or <b>critical</b>—Critical condition.</li> <li>• <b>3</b> or <b>errors</b>—Error.</li> <li>• <b>4</b> or <b>warnings</b>—Warning.</li> <li>• <b>5</b> or <b>notifications</b>—Normal but significant condition.</li> <li>• <b>6</b> or <b>informational</b>—Information.</li> <li>• <b>7</b> or <b>debugging</b>—Debug messages, log FTP commands, and WWW URLs.</li> </ul> <p><b>Note</b> We do not recommend using a level greater than 3 with the <b>logging recipient-address</b> command. Higher logging levels are likely to cause dropped system log messages due to buffer overflow.</p> <p>The message level specified by a <b>logging recipient-address</b> command overrides the message level specified by the <b>logging mail</b> command. For example, if a <b>logging recipient-address</b> command specifies a level of 7 but the <b>logging mail</b> command specifies a level of 3, the security appliance sends all messages to the recipient, including those of levels 4, 5, 6, and 7.</p>

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

**Command History**

Release	Modification
7.0(1) (1)	This command was introduced.

**Usage Guidelines**

Sending system log messages by email is enabled by the **logging mail** command.

You can configure up to 5 **logging recipient-address** commands. Each command can have a different logging level than the others. This is useful when you want more urgent messages to go to a larger number of recipients than less urgent messages are sent to.

**Examples**

To set up the security appliance to send system log messages by email, using the following criteria:

- Send messages that are critical, alerts, or emergencies.
- Send messages using ciscosecurityappliance@example.com as the sender's address.
- Send messages to admin@example.com
- Send messages using SMTP the primary servers pri-smtp-host and secondary server sec-smtp-host.

you would enter the following commands:

```
hostname(config)# logging mail critical
hostname(config)# logging from-address ciscosecurityappliance@example.com
hostname(config)# logging recipient-address admin@example.com
hostname(config)# smtp-server pri-smtp-host sec-smtp-host
```

**Related Commands**

Command	Description
<b>logging enable</b>	Enables logging.
<b>logging from-address</b>	Specifies the email address from which emailed system log messages appear to come.
<b>logging mail</b>	Enables the security appliance to send system log messages by email and determines which messages are sent by email.
<b>smtp-server</b>	Configures an SMTP server.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the currently running logging configuration.

# logging savelog

To save the log buffer to Flash memory, use the **logging savelog** command in privileged EXEC mode.

**logging savelog** [*savefile*]

## Syntax Description

*savefile* (Optional) Saved Flash memory file name. If you do not specify the file name, the security appliance, saves the file using a default time-stamp format, as follows:

LOG-YYYY-MM-DD-HHMMSS.TXT

where *YYYY* is the year, *MM* is the month, *DD* is the day of the month, and *HHMMSS* is the time in hours, minutes, and seconds.

## Defaults

The defaults are as follows:

- Buffer size is 4 KB.
- Minimum free Flash memory is 3 MB.
- Maximum Flash memory allocation for buffer logging is 1 MB.
- The default log file name is described in the preceding table.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	—

## Command History

Release	Modification
7.0(1) (1)	This command was introduced.

## Usage Guidelines

Before you can save the log buffer to Flash memory, you must enable logging to the buffer; otherwise, the log buffer never has data to be saved to Flash memory. To enable logging to the buffer, use the **logging buffered** command.



### Note

The **logging savelog** command does not clear the buffer. To clear the buffer, use the **clear logging buffer** command.

## Examples

This example enables logging and the log buffer, exits global configuration mode, and saves the log buffer to Flash memory, using the file name latest-logfile.txt:

```
hostname(config)# logging enable
hostname(config)# logging buffered
hostname(config)# exit
hostname# logging savelog latest-logfile.txt
hostname#
```

**Related Commands**

Command	Description
<b>clear logging buffer</b>	Clears the log buffer of all system log messages it contains.
<b>copy</b>	Copies a file from one location to another, including to a TFTP or FTP server.
<b>delete</b>	Deletes a file from the disk partition, such as saved log files.
<b>logging buffered</b>	Enables logging to the log buffer.
<b>logging enable</b>	Enables logging.
<b>show logging</b>	Displays the enabled logging options.

# logging standby

To enable the failover standby security appliance to send the system log messages of this security appliance to logging destinations, use the **logging standby** command in global configuration mode. To disable syslog and SNMP logging, use the **no** form of this command.

**logging standby**

**no logging standby**

**Syntax Description** This command has no arguments or keywords.

**Defaults** The **logging standby** command is disabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** You can enable **logging standby** to ensure that the system log messages of the failover standby security appliance stay synchronized if failover occurs.



**Note**

Using the **logging standby** command causes twice as much traffic on shared logging destinations, such as syslog servers, SNMP servers, and FTP servers.

**Examples** The following example enables the security appliance to send system log messages to the failover standby security appliance. The output of the **show logging** command reveals that this feature is enabled.

```
hostname(config)# logging standby
hostname(config)# show logging
Syslog logging: enabled
  Facility: 20
  Timestamp logging: disabled
  Standby logging: enabled
  Deny Conn when Queue Full: disabled
  Console logging: disabled
  Monitor logging: disabled
  Buffer logging: disabled
```



```
Trap logging: disabled
History logging: disabled
Device ID: 'inside' interface IP address "10.1.1.1"
Mail logging: disabled
ASDM logging: disabled
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>failover</b>	Enables the failover feature.
	<b>logging enable</b>	Enables logging.
	<b>logging host</b>	Defines a syslog server.
	<b>show logging</b>	Displays the enabled logging options.
	<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.

# logging timestamp

To specify that system log messages should include the date and time that the messages was generated, use the **logging timestamp** command in global configuration mode. To remove the date and time from system log messages, use the **no** form of this command.

**logging timestamp**

**no logging timestamp**

**Syntax Description** This command has no arguments or keywords.

**Defaults** The security appliance does not include the date and time in system log messages by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **logging timestamp** command makes the security appliance include a timestamp in all system log messages.

**Examples** The following example enables the inclusion of timestamp information in all system log messages:

```
hostname(config)# logging enable
hostname(config)# logging timestamp
hostname(config)#
```

Related Commands	Command	Description
	<b>logging enable</b>	Enables logging.
	<b>show logging</b>	Displays the enabled logging options.
	<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.

# logging trap

To specify which system log messages the security appliance sends to a syslog server, use the **logging trap** command in global configuration mode. To remove this command from the configuration, use the **no** form of this command.

**logging trap** [*logging\_list* | *level*]

**no logging trap**

## Syntax Description

<i>level</i>	Sets the maximum level for system log messages. For example, if you set the level to 3, then the security appliance generates system log messages for level 3, 2, 1, and 0. You can specify either the number or the name, as follows: <ul style="list-style-type: none"> <li>• <b>0</b> or <b>emergencies</b>—System unusable.</li> <li>• <b>1</b> or <b>alerts</b>—Take immediate action.</li> <li>• <b>2</b> or <b>critical</b>—Critical condition.</li> <li>• <b>3</b> or <b>errors</b>—Error.</li> <li>• <b>4</b> or <b>warnings</b>—Warning.</li> <li>• <b>5</b> or <b>notifications</b>—Normal but significant condition.</li> <li>• <b>6</b> or <b>informational</b>—Information.</li> <li>• <b>7</b> or <b>debugging</b>—Debug messages, log FTP commands, and WWW URLs.</li> </ul>
<i>logging_list</i>	Specifies the list that identifies the messages to send to the syslog server. For information about creating lists, see the <b>logging list</b> command.

## Defaults

No default syslog trap is defined.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

If you are using TCP as the logging transport protocol, the security appliance denies new network access sessions as a security measure if the security appliance is unable to reach the syslog server, if the syslog server is misconfigured, or if the disk is full.

UDP-based logging does not prevent the security appliance from passing traffic if the syslog server fails.

**Examples**

This example shows how to send system log messages of levels 0, 1, 2, and 3 to a syslog server that resides on the inside interface and uses the default protocol and port number.

```
hostname(config)# logging enable
hostname(config)# logging host inside 10.2.2.3
hostname(config)# logging trap errors
hostname(config)#
```

**Related Commands**

Command	Description
<b>logging enable</b>	Enables logging.
<b>logging host</b>	Defines a syslog server.
<b>logging list</b>	Creates a reusable list of message selection criteria.
<b>show logging</b>	Displays the enabled logging options.
<b>show running-config logging</b>	Displays the logging-related portion of the running configuration.

# login

To log into privileged EXEC mode using the local user database (see the `username` command) or to change user names, use the **login** command in user EXEC mode.

## login

### Syntax Description

This command has no arguments or keywords.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

From user EXEC mode, you can log in to privileged EXEC mode as any username in the local database using the **login** command. The **login** command is similar to the **enable** command when you have enable authentication turned on (see the **aaa authentication console** command). Unlike enable authentication, the **login** command can only use the local username database, and authentication is always required with this command. You can also change users using the **login** command from any CLI mode.

To allow users to access privileged EXEC mode (and all commands) when they log in, set the user privilege level to 2 (the default) through 15. If you configure local command authorization, then the user can only enter commands assigned to that privilege level or lower. See the **aaa authorization command** for more information.



### Caution

If you add users to the local database who can gain access to the CLI and whom you do not want to enter privileged EXEC mode, you should configure command authorization. Without command authorization, users can access privileged EXEC mode (and all commands) at the CLI using their own password if their privilege level is 2 or greater (2 is the default). Alternatively, you can use RADIUS or TACACS+ authentication, or you can set all local users to level 1 so you can control who can use the system enable password to access privileged EXEC mode.

### Examples

The following example shows the prompt after you enter the **login** command:

```
hostname> login
```

Username:

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa authorization command</b>	Enables command authorization for CLI access.
<b>aaa authentication console</b>	Requires authentication for console, Telnet, HTTP, SSH, or <b>enable</b> command access.
<b>logout</b>	Logs out of the CLI.
<b>username</b>	Adds a user to the local database.

# login-button

To customize the Login button of the WebVPN page login box that is displayed to WebVPN users when they connect to the security appliance, use the **login-button** command from webvpn customization mode:

**login-button** {text | style} *value*

[no] **login-button** {text | style} *value*

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>text</b>	Specifies you are changing the text.
<b>style</b>	Specifies you are changing the style.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default login button text is “Login”.

The default login button style is:

```
border: 1px solid black;background-color:white;font-weight:bold; font-size:80%
```

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.

- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

The following example customizes the Login button with the text “OK”:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# login-button text OK
```

**Related Commands**

Command	Description
<b>login-title</b>	Customizes the title of the WebVPN page login box.
<b>group-prompt</b>	Customizes the group prompt of the WebVPN page login box.
<b>password-prompt</b>	Customizes the password prompt of the WebVPN page login box.
<b>username-prompt</b>	Customizes the username prompt of the WebVPN page login box.



# login-message

To customize the login message of the WebVPN page displayed to WebVPN users when they connect to the security appliance, use the **login-message** command from webvpn customization mode:

**login-message** {**text** | **style**} *value*

[**no**] **login-message** {**text** | **style**} *value*

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>text</b>	Specifies you are changing the text.
<b>style</b>	Specifies you are changing the style.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default login message is “Please enter your username and password”.

The default login message style is background-color:#CCCCCC;color:black.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**


---

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

---

**Examples**

In the following example, the login message text is set to “username and password”:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# login-message text username and password
```

**Related Commands**

Command	Description
<b>login-title</b>	Customizes the title of the login box on the WebVPN page.
<b>username-prompt</b>	Customizes the username prompt of the WebVPN page login.
<b>password-prompt</b>	Customizes the password prompt of the WebVPN page login.
<b>group-prompt</b>	Customizes the group prompt of the WebVPN page login.

# login-title

To customize the title of the login box on the WebVPN page displayed to WebVPN users, use the **login-title** command from webvpn customization mode:

```
login-title {text | style} value
```

```
[no] login-title {text | style} value
```

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>text</b>	Specifies you are changing the text.
<b>style</b>	Specifies you are changing the HTML style.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default login text is “Login”.

The default HTML style of the login title is background-color: #666666; color: white.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

The following example configures the login title style:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# login-title style background-color: rgb(51,51,255);color:
rgb(51,51,255); font-family: Algerian; font-size: 12pt; font-style: italic; font-weight:
bold
```

**Related Commands**

Command	Description
<b>login-message</b>	Customizes the login message of the WebVPN login page.
<b>username-prompt</b>	Customizes the username prompt of the WebVPN login page.
<b>password-prompt</b>	Customizes the password prompt of the WebVPN login page.
<b>group-prompt</b>	Customizes the group prompt of the WebVPN login page.

# logo

To customize the logo on the WebVPN page displayed to WebVPN users when they connect to the security appliance, use the **logo** command from webvpn customization mode:

```
logo {none | file {path value}}
[no] logo {none | file {path value}}
```

## Syntax Description

<b>none</b>	Indicates that there is no logo. Sets a null value, thereby disallowing a logo. Prevents inheriting a logo.
<b>file</b>	Indicates you are supplying a file containing a logo.
<i>path</i>	The path of the filename. The possible paths are disk0:, disk1:, or flash:
<i>value</i>	Specifies the filename of the logo. Maximum length is 255 characters, with no spaces. File type must be JPG, PNG, or GIF, and must be less than 100 KB.

## Defaults

The default logo is the Cisco logo.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

To remove a logo from the configuration and reset the default (the Cisco logo), use the **no** form of this command.

To have no logo, use the **logo none** command.

If the filename you specify does not exist, an error message displays. If you remove a logo file but the configuration still points to it, no logo displays.

The filename cannot contain spaces.

## Examples

In the following example, the file cisco\_logo.gif contains a custom logo:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)#logo file disk0:cisco_logo.gif
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>title</b>	Customizes the title of the WebVPN page
<b>page style</b>	Customizes the WebVPN page using Cascading Style Sheet (CSS) parameters.

# logout

To exit from the CLI, use the **logout** command in user EXEC mode.

## logout

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **logout** command lets you log out of the security appliance. You can use the **exit** or **quit** commands to go back to unprivileged mode.

**Examples** The following example shows how to log out of the security appliance:

```
hostname> logout
```

Related Commands	Command	Description
	<b>login</b>	Initiates the log-in prompt.
	<b>exit</b>	Exits an access mode.
	<b>quit</b>	Exits configuration or privileged mode.

# logout-message

To customize the logout message of the WebVPN logout screen that is displayed to WebVPN users when they logout from WebVPN service, use the **logout-message** command from webvpn customization mode:

**logout-message** {**text** | **style**} *value*

[**no**] **logout-message** {**text** | **style**} *value*

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>text</b>	Specifies you are changing the text.
<b>style</b>	Specifies you are changing the style.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default logout message text is “Goodbye”.

The default logout message style is background-color:#999999;color:black.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.



- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

The following example configures the logout message style:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# logout-message style background-color:
rgb(51,51,255);color: rgb(51,51,255); font-family: Algerian; font-size: 12pt; font-style:
italic; font-weight: bold
```

**Related Commands**

Command	Description
<b>logout-title</b>	Customizes the logout title of the WebVPN page.
<b>group-prompt</b>	Customizes the group prompt of the WebVPN page login box.
<b>password-prompt</b>	Customizes the password prompt of the WebVPN page login box.
<b>username-prompt</b>	Customizes the username prompt of the WebVPN page login box.





## mac address through multicast-routing Commands

---

# mac address

To specify the virtual MAC addresses for the active and standby units, use the **mac address** command in failover group configuration mode. To restore the default virtual MAC addresses, use the **no** form of this command.

```
mac address phy_if [active_mac] [standby_mac]
```

```
no mac address phy_if [active_mac] [standby_mac]
```

## Syntax Description

<i>phy_if</i>	The physical name of the interface to set the MAC address.
<i>active_mac</i>	The virtual MAC address for the active unit. The MAC address must be entered in h.h.h format, where h is a 16-bit hexadecimal number.
<i>standby_mac</i>	The virtual MAC address for the standby unit. The MAC address must be entered in h.h.h format, where h is a 16-bit hexadecimal number.

## Defaults

The defaults are as follows:

- Active unit default MAC address: 00a0.c9*physical\_port\_number.failover\_group\_id*01.
- Standby unit default MAC address: 00a0.c9*physical\_port\_number.failover\_group\_id*02.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Failover group configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If the virtual MAC addresses are not defined for the failover group, the default values are used.

If you have more than one Active/Active failover pair on the same network, it is possible to have the same default virtual MAC addresses assigned to the interfaces on one pair as are assigned to the interfaces of the other pairs because of the way the default virtual MAC addresses are determined. To avoid having duplicate MAC addresses on your network, make sure you assign each physical interface a virtual active and standby MAC address.

## Examples

The following partial example shows a possible configuration for a failover group:

```
hostname(config)# failover group 1
hostname(config-fover-group)# primary
```

```
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# exit
hostname(config)# failover group 2
hostname(config-fover-group)# secondary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# mac address e1 0000.a000.a011 0000.a000.a012
hostname(config-fover-group)# exit
hostname(config)#
```

**Related Commands**

Command	Description
<b>failover group</b>	Defines a failover group for Active/Active failover.
<b>failover mac address</b>	Specifies a virtual MAC address for a physical interface.

# mac-address

To manually assign a private MAC address to an interface or subinterface, use the **mac-address** command in interface configuration mode. In multiple context mode, this command can assign a different MAC address to the interface in each context. To revert the MAC address to the default, use the **no** form of this command.

**mac-address** *mac\_address* [**standby** *mac\_address*]

**no mac-address** [*mac\_address* [**standby** *mac\_address*]]

## Syntax Description

<i>mac_address</i>	Sets the MAC address for this interface in H.H.H format, where H is a 16-bit hexadecimal digit. For example, the MAC address 00-0C-F1-42-4C-DE would be entered as 000C.F142.4CDE. If you use failover, this MAC address is the active MAC address.
<b>standby</b> <i>mac_address</i>	(Optional) Sets the standby MAC address for failover. If the active unit fails over and the standby unit becomes active, the new active unit starts using the active MAC addresses to minimize network disruption, while the old active unit uses the standby address.

## Defaults

The default MAC address is the burned-in MAC address of the physical interface. Subinterfaces inherit the physical interface MAC address. Some commands set the physical interface MAC address (including this command in single mode), so the inherited address depends on that configuration.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

In multiple context mode, if you share an interface between contexts, you can assign a unique MAC address to the interface in each context. This feature lets the security appliance easily classify packets into the appropriate context. Using a shared interface without unique MAC addresses is possible, but has some limitations. See the *Cisco Security Appliance Command Line Configuration Guide* for more information.

You can assign each MAC address manually with this command, or you can automatically generate MAC addresses for shared interfaces in contexts using the **mac-address auto** command. If you automatically generate MAC addresses, you can use the **mac-address** command to override the generated address.

For single context mode, or for interfaces that are not shared in multiple context mode, you might want to assign unique MAC addresses to subinterfaces. For example, your service provider might perform access control based on the MAC address.

You can also set the MAC address using other commands or methods. The MAC address methods have the following priority:

1. **mac-address** command in interface configuration mode.

This command works for physical interfaces and subinterfaces. In multiple context mode, you set the MAC address within each context. This feature lets you set a different MAC address for the same interface in multiple contexts.

2. **failover mac address** command for Active/Standby failover in global configuration mode.

This command applies to physical interfaces. Subinterfaces inherit the MAC address of the physical interface unless set separately by the **mac-address** or **mac-address auto** command.

3. **mac address** command for Active/Active failover in failover group configuration mode.

This command applies to physical interfaces. Subinterfaces inherit the MAC address of the physical interface unless set separately by the **mac-address** or **mac-address auto** command.

4. **mac-address auto** command in global configuration mode (multiple context mode only).

This command applies to shared interfaces in contexts.

5. For Active/Active failover, auto-generation of active and standby MAC addresses for physical interfaces.

This method applies to physical interfaces. Subinterfaces inherit the MAC address of the physical interface unless set separately by the **mac-address** or **mac-address auto** command.

6. Burned-in MAC address. This method applies to physical interfaces.

Subinterfaces inherit the MAC address of the physical interface unless set separately by the **mac-address** or **mac-address auto** command.

## Examples

The following example configures the MAC address for GigabitEthernet 0/1.1:

```
hostname/contextA(config)# interface gigabitethernet0/1.1
hostname/contextA(config-if)# nameif inside
hostname/contextA(config-if)# security-level 100
hostname/contextA(config-if)# ip address 10.1.2.1 255.255.255.0
hostname/contextA(config-if)# mac-address 030C.F142.4CDE standby 040C.F142.4CDE
hostname/contextA(config-if)# no shutdown
```

## Related Commands

Command	Description
<b>failover mac address</b>	Sets the active and standby MAC address of a physical interface for Active/Standby failover.
<b>mac address</b>	Sets the active and standby MAC address of a physical interface for Active/Active failover.

<b>Command</b>	<b>Description</b>
<b>mac-address auto</b>	Auto-generates MAC addresses (active and standby) for shared interfaces in multiple context mode.
<b>mode</b>	Sets the security context mode to multiple or single.
<b>show interface</b>	Shows the interface characteristics, including the MAC address.



# mac-address auto

To automatically assign private MAC addresses to each shared context interface, use the **mac-address auto** command in global configuration mode. To disable automatic MAC addresses, use the **no** form of this command.

**mac-address auto**

**no mac-address auto**

## Syntax Description

This command has no arguments or keywords.

## Defaults

Auto-generation is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	—	—	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

To allow contexts to share interfaces, we suggest that you assign unique MAC addresses to each context interface. The MAC address is used to classify packets within a context. If you share an interface, but do not have unique MAC addresses for the interface in each context, then the destination IP address is used to classify packets. The destination address is matched with the context NAT configuration, and this method has some limitations compared to the MAC address method. See the *Cisco Security Appliance Command Line Configuration Guide* for information about classifying packets.

By default, the physical interface uses the burned-in MAC address, and all subinterfaces of a physical interface use the same burned-in MAC address.

For use with failover, the security appliance generates both an active and standby MAC address for each interface. If the active unit fails over and the standby unit becomes active, the new active unit starts using the active MAC addresses to minimize network disruption. Because the **mac-address auto** command only sets shared interfaces, you should still set virtual MAC addresses for unshared interfaces in an Active/Standby configuration using the **mac-address** or **failover mac address** command (Active/Active failover automatically assigns virtual MAC addresses to physical interfaces).

When you assign an interface to a context, the new MAC address is generated immediately. If you enable this command after you create context interfaces, then MAC addresses are generated for all interfaces immediately after you enter the command. If you use the **no mac-address auto** command, the MAC address for each interface reverts to the default MAC address. For example, subinterfaces of GigabitEthernet 0/1 revert to using the MAC address of GigabitEthernet 0/1.

The MAC address is generated using the following format:

- Active unit MAC address: *12\_slot.port\_subid.contextid*.
- Standby unit MAC address: *02\_slot.port\_subid.contextid*.

For platforms with no interface slots, the slot is always 0. The *port* is the interface port. The *subid* is an internal ID for the subinterface, which is not viewable. The *contextid* is an internal ID for the context, viewable with the **show context detail** command. For example, the interface GigabitEthernet 0/1.200 in the context with the ID 1 has the following generated MAC addresses, where the internal ID for subinterface 200 is 31:

- Active: 1200.0131.0001
- Standby: 0200.0131.0001

In the rare circumstance that the generated MAC address conflicts with another private MAC address in your network, you can manually set the MAC address for the interface within the context. See the **mac-address** command to manually set the MAC address.

You can also set the MAC address using other commands or methods. The MAC address methods have the following priority:

1. **mac-address** command in interface configuration mode.

This command works for physical interfaces and subinterfaces. In multiple context mode, you set the MAC address within each context. This feature lets you set a different MAC address for the same interface in multiple contexts.

2. **failover mac address** command for Active/Standby failover in global configuration mode.

This command applies to physical interfaces. Subinterfaces inherit the MAC address of the physical interface unless set separately by the **mac-address** or **mac-address auto** command.

3. **mac address** command for Active/Active failover in failover group configuration mode.

This command applies to physical interfaces. Subinterfaces inherit the MAC address of the physical interface unless set separately by the **mac-address** or **mac-address auto** command.

4. **mac-address auto** command in global configuration mode (multiple context mode only).

This command applies to shared interfaces in contexts.

5. For Active/Active failover, auto-generation of active and standby MAC addresses for physical interfaces.

This method applies to physical interfaces. Subinterfaces inherit the MAC address of the physical interface unless set separately by the **mac-address** or **mac-address auto** command.

6. Burned-in MAC address. This method applies to physical interfaces.

Subinterfaces inherit the MAC address of the physical interface unless set separately by the **mac-address** or **mac-address auto** command.

## Examples

The following example enables automatic MAC address generation:

```
hostname(config)# mac-address auto
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>failover mac address</b>	Sets the active and standby MAC address of a physical interface for Active/Standby failover.
<b>mac address</b>	Sets the active and standby MAC address of a physical interface for Active/Active failover.
<b>mac-address</b>	Manually sets the MAC address (active and standby) for a physical interface or subinterface. In multiple context mode, you can set different MAC addresses in each context for the same interface.
<b>mode</b>	Sets the security context mode to multiple or single.
<b>show interface</b>	Shows the interface characteristics, including the MAC address.

# mac-address-table aging-time

To set the timeout for MAC address table entries, use the **mac-address-table aging-time** command in global configuration mode. To restore the default value of 5 minutes, use the **no** form of this command.

**mac-address-table aging-time** *timeout\_value*

**no mac-address-table aging-time**

## Syntax Description

*timeout\_value* The time a MAC address entry stays in the MAC address table before timing out, between 5 and 720 minutes (12 hours). 5 minutes is the default.

## Defaults

The default timeout is 5 minutes.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	—	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

No usage guidelines.

## Examples

The following example sets the MAC address timeout to 10 minutes:

```
hostname(config)# mac-address-timeout aging time 10
```

## Related Commands

Command	Description
<b>arp-inspection</b>	Enables ARP inspection, which compares ARP packets to static ARP entries.
<b>firewall transparent</b>	Sets the firewall mode to transparent.
<b>mac-address-table static</b>	Adds static MAC address entries to the MAC address table.
<b>mac-learn</b>	Disables MAC address learning.
<b>show mac-address-table</b>	Shows the MAC address table, including dynamic and static entries.

# mac-address-table static

To add a static entry to the MAC address table, use the **mac-address-table static** command in global configuration mode. To remove a static entry, use the **no** form of this command. Normally, MAC addresses are added to the MAC address table dynamically as traffic from a particular MAC address enters an interface. You can add static MAC addresses to the MAC address table if desired. One benefit to adding static entries is to guard against MAC spoofing. If a client with the same MAC address as a static entry attempts to send traffic to an interface that does not match the static entry, then the security appliance drops the traffic and generates a system message.

**mac-address-table static** *interface\_name mac\_address*

**no mac-address-table static** *interface\_name mac\_address*

## Syntax Description

<i>interface_name</i>	The source interface.
<i>mac_address</i>	The MAC address you want to add to the table.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	—	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example adds a static MAC address entry to the MAC address table:

```
hostname(config)# mac-address-table static inside 0010.7cbe.6101
```

## Related Commands

Command	Description
<b>arp</b>	Adds a static ARP entry.
<b>firewall transparent</b>	Sets the firewall mode to transparent.
<b>mac-address-table aging-time</b>	Sets the timeout for dynamic MAC address entries.

Command	Description
mac-learn	Disables MAC address learning.
show mac-address-table	Shows MAC address table entries.

# mac-learn

To disable MAC address learning for an interface, use the **mac-learn** command in global configuration mode. To reenable MAC address learning, use the **no** form of this command. By default, each interface automatically learns the MAC addresses of entering traffic, and the security appliance adds corresponding entries to the MAC address table. You can disable MAC address learning if desired.

**mac-learn** *interface\_name* **disable**

**no mac-learn** *interface\_name* **disable**

## Syntax Description

<i>interface_name</i>	The interface on which you want to disable MAC learning.
<b>disable</b>	Disables MAC learning.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	—	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example disables MAC learning on the outside interface:

```
hostname(config)# mac-learn outside disable
```

## Related Commands

Command	Description
<b>clear configure mac-learn</b>	Sets the <b>mac-learn</b> configuration to the default.
<b>firewall transparent</b>	Sets the firewall mode to transparent.
<b>mac-address-table static</b>	Adds static MAC address entries to the MAC address table.
<b>show mac-address-table</b>	Shows the MAC address table, including dynamic and static entries.
<b>show running-config mac-learn</b>	Shows the <b>mac-learn</b> configuration.

# mac-list

To specify a list of MAC addresses to be used to exempt MAC addresses from authentication and/or authorization, use the **mac-list** command in global configuration mode. To remove a MAC list entry, use the **no** form of this command.

```
mac-list id {deny | permit} mac macmask
```

```
no mac-list id {deny | permit} mac macmask
```

## Syntax Description

<b>deny</b>	Indicates that traffic matching this MAC address does not match the MAC list and is subject to both authentication and authorization when specified in the <b>aaa mac-exempt</b> command. You might need to add a deny entry to the MAC list if you permit a range of MAC addresses using a MAC address mask such as ffff.ffff.0000, and you want to force a MAC address in that range to be authenticated and authorized.
<i>id</i>	Specifies a hexadecimal MAC access list number. To group a set of MAC addresses, enter the <b>mac-list</b> command as many times as needed with the same ID value. The order of entries matters, because the packet uses the first entry it matches, as opposed to a best match scenario. If you have a permit entry, and you want to deny an address that is allowed by the permit entry, be sure to enter the deny entry before the permit entry.
<i>mac</i>	Specifies the source MAC address in 12-digit hexadecimal form; that is, nnnn.nnnn.nnnn
<i>macmask</i>	Specifies the portion of the MAC address that should be used for matching. For example, ffff.ffff.ffff matches the MAC address exactly. ffff.ffff.0000 matches only the first 8 digits.
<b>permit</b>	Indicates that traffic matching this MAC address matches the MAC list and is exempt from both authentication and authorization when specified in the <b>aaa mac-exempt</b> command.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.



**Usage Guidelines**

To enable MAC address exemption from authentication and authorization, use the **aaa mac-exempt** command. You can only add one instance of the **aaa mac-exempt** command, so be sure that your MAC list includes all the MAC addresses you want to exempt. You can create multiple MAC lists, but you can only use one at a time.

**Examples**

The following example bypasses authentication for a single MAC address:

```
hostname(config)# mac-list abc permit 00a0.c95d.0282 ffff.ffff.ffff
hostname(config)# aaa mac-exempt match abc
```

The following entry bypasses authentication for all Cisco IP Phones, which have the hardware ID 0003.E3:

```
hostname(config)# mac-list acd permit 0003.E300.0000 FFFF.FF00.0000
hostname(config)# aaa mac-exempt match acd
```

The following example bypasses authentication for a group of MAC addresses except for 00a0.c95d.02b2. Enter the deny statement before the permit statement, because 00a0.c95d.02b2 matches the permit statement as well, and if it is first, the deny statement will never be matched.

```
hostname(config)# mac-list 1 deny 00a0.c95d.0282 ffff.ffff.ffff
hostname(config)# mac-list 1 permit 00a0.c95d.0000 ffff.ffff.0000
hostname(config)# aaa mac-exempt match 1
```

**Related Commands**

Command	Description
<b>aaa authentication</b>	Enables user authentication.
<b>aaa authorization</b>	Enables user authorization services.
<b>aaa mac-exempt</b>	Exempts a list of MAC addresses from authentication and authorization.
<b>clear configure mac-list</b>	Removes a list of MAC addresses previously specified by the <b>mac-list</b> command.
<b>show running-config mac-list</b>	Displays a list of MAC addresses previously specified in the <b>mac-list</b> command.

# mail-relay

To configure a local domain name, use the **mail-relay** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

**mail-relay** *domain\_name*

**no mail-relay** *domain\_name*

Syntax Description	<i>domain_name</i>	Specifies the domain name.

Defaults	No default behavior or values.

Command Modes	The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Parameters configuration	•	•	•	•	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

Examples	The following example...

Related Commands	Command	Description
	<b>class</b>	Identifies a class map name in the policy map.
	<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
	<b>policy-map</b>	Creates a Layer 3/4 policy map.
	<b>show running-config policy-map</b>	Display all current policy map configurations.

# management-access

To allow management access to an interface other than the one from which you entered the security appliance when using IPsec VPN, use the **management-access** command in global configuration mode. To disable, use the **no** form of this command.

```
management-access mgmt_if
```

```
no management-access mgmt_if
```

## Syntax Description

*mgmt\_if* Specifies the name of the management interface you want to access when entering the security appliance from another interface.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

This command allows you to connect to an interface other than the one you entered the security appliance from when using IPsec VPN. For example, if you enter the security appliance from the outside interface, this command lets you connect to the inside interface using Telnet; or you can ping the inside interface when entering from the outside interface.

You can define only one management-access interface.

## Examples

The following example shows how to configure a firewall interface named “inside” as the management access interface:

```
hostname(config)# management-access inside
hostname(config)# show management-access
management-access inside
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>clear configure management-access</b>	Removes the configuration of an internal interface for management access of the security appliance.
<b>show management-access</b>	Displays the name of the internal interface configured for management access.

# management-only

To set an interface to accept management traffic only, use the **management-only** command in interface configuration mode. To allow through traffic, use the **no** form of this command.

**management-only**

**no management-only**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The Management 0/0 interface on the ASA 5510 and higher adaptive security appliance is set to management-only mode by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The ASA 5510 and higher adaptive security appliance includes a dedicated management interface called Management 0/0, which is meant to support traffic to the security appliance. However, you can configure any interface to be a management-only interface using the **management-only** command. Also, for Management 0/0, you can disable management-only mode so the interface can pass through traffic just like any other interface.

Transparent firewall mode allows only two interfaces to pass through traffic; however, on the ASA 5510 and higher adaptive security appliance, you can use the Management 0/0 interface (either the physical interface or a subinterface) as a third interface for management traffic. The mode is not configurable in this case and must always be management-only. You can also set the IP address of this interface in transparent mode if you want this interface to be on a different subnet from the management IP address, which is assigned to the security appliance or context, and not to individual interfaces.

## Examples

The following example disables management-only mode on the management interface:

```
hostname(config)# interface management0/0
hostname(config-if)# no management-only
```

The following example enables management-only mode on a subinterface:

■ management-only

```
hostname(config)# interface gigabitethernet0/2.1  
hostname(config-subif)# management-only
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>interface</b>	Configures an interface and enters interface configuration mode.

# map-name

To map a user-defined attribute name to a Cisco attribute name, use the **map-name** command in `ldap-attribute-map` configuration mode.

To remove this mapping, use the **no** form of this command.

```
map-name user-attribute-name Cisco-attribute-name
```

```
no map-name user-attribute-name Cisco-attribute-name
```

## Syntax Description

<i>user-attribute-name</i>	Specifies the user-defined attribute name that you are mapping to the Cisco attribute.
<i>Cisco-attribute-name</i>	Specifies the Cisco attribute name that you are mapping to the user-defined name.

## Defaults

By default, no name mappings exist.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
ldap-attribute-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

With the **map-name** command, you can create map your own attribute names to Cisco attribute names. You can then bind the resulting attribute map to an LDAP server. Your typical steps would include:

1. Use the **ldap attribute-map** command in global configuration mode to create an unpopulated attribute map. This command enters `ldap-attribute-map` mode.
2. Use the **map-name** and **map-value** commands in `ldap-attribute-map` mode to populate the attribute map.
3. Use the **ldap-attribute-map** command in `aaa-server` host mode to bind the attribute map to an LDAP server. Note the hyphen after “ldap” in this command.



### Note

To use the attribute mapping features correctly, you need to understand both the Cisco LDAP attribute names and values as well as the user-defined attribute names and values.

**Examples**

The following example commands map a user-defined attribute name Hours to the Cisco attribute name cVPN3000-Access-Hours in the LDAP attribute map myldapmap:

```
hostname(config)# ldap attribute-map myldapmap
hostname(config-ldap-attribute-map)# map-name Hours cVPN3000-Access-Hours
hostname(config-ldap-attribute-map)#
```

Within ldap-attribute-map mode, you can enter “?” to display the complete list of Cisco LDAP attribute names, as shown in the following example:

```
hostname(config-ldap-attribute-map)# map-name ?
ldap mode commands/options:
cisco-attribute-names:
  cVPN3000-Access-Hours
  cVPN3000-Allow-Network-Extension-Mode
  cVPN3000-Auth-Service-Type
  cVPN3000-Authenticated-User-Idle-Timeout
  cVPN3000-Authorization-Required
  cVPN3000-Authorization-Type
  :
  :
  cVPN3000-X509-Cert-Data
hostname(config-ldap-attribute-map)#
```

**Related Commands**

Command	Description
<b>ldap attribute-map (global configuration mode)</b>	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.
<b>ldap-attribute-map (aaa-server host mode)</b>	Binds an LDAP attribute map to an LDAP server.
<b>map-value</b>	Maps a user-defined attribute value to a Cisco attribute.
<b>show running-config ldap attribute-map</b>	Displays a specific running LDAP attribute map or all running attribute maps.
<b>clear configure ldap attribute-map</b>	Removes all LDAP attribute maps.



# map-value

To map a user-defined value to a Cisco LDAP attribute, use the **map-value** command in ldap-attribute-map mode.

To delete an entry within a map, use the **no** form of this command.

**map-value** *user-attribute-name user-value-string Cisco-value-string*

**no map-value** *user-attribute-name user-value-string Cisco-value-string*

## Syntax Description

<i>cisco-value-string</i>	Specifies the Cisco value string for the Cisco attribute.
<i>user-attribute-name</i>	Specifies the user-defined attribute name that you are mapping to the Cisco attribute name.
<i>user-value-string</i>	Specifies the user-defined value string that you are mapping to the Cisco attribute value.

## Defaults

By default, there are no user-defined values mapped to Cisco attributes.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
ldap-attribute-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

With the **map-value** command, you can map your own attribute values to Cisco attribute names and values. You can then bind the resulting attribute map to an LDAP server. Your typical steps would include:

1. Use the **ldap attribute-map** command in global configuration mode to create an unpopulated attribute map. This command enters ldap-attribute-map mode.
2. Use the **map-name** and **map-value** commands in ldap-attribute-map mode to populate the attribute map.
3. Use the **ldap-attribute-map** command in aaa-server host mode to bind the attribute map to an LDAP server. Note the hyphen after “ldap” in this command.



### Note

To use the attribute mapping features correctly, you need to understand both the Cisco LDAP attribute names and values as well as the user-defined attribute names and values.

**Examples**

The following example, entered in ldap-attribute-map mode, sets the user-defined value of the user attribute Hours to a user-defined time policy named workDay and a Cisco-defined time policy named Daytime:

```
hostname(config)# ldap attribute-map myldapmap
hostname(config-ldap-attribute-map)# map-value Hours workDay Daytime
hostname(config-ldap-attribute-map)#
```

**Related Commands**

Command	Description
<b>ldap attribute-map (global configuration mode)</b>	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.
<b>ldap-attribute-map (aaa-server host mode)</b>	Binds an LDAP attribute map to an LDAP server.
<b>map-name</b>	Maps a user-defined LDAP attribute name with a Cisco LDAP attribute name.
<b>show running-config ldap attribute-map</b>	Displays a specific running LDAP attribute map or all running attribute maps.
<b>clear configure ldap attribute-map</b>	Removes all LDAP maps.

# mask

When using the Modular Policy Framework, mask out part of the packet that matches a **match** command or class map by using the **mask** command in match or class configuration mode. This mask action is available in an inspection policy map (the **policy-map type inspect** command) for application traffic; however, not all applications allow this action. For example, you can use **mask** command for the DNS application inspection to mask a header flag before allowing the traffic through the security appliance. To disable this action, use the **no** form of this command.

**mask** [**log**]

**no mask** [**log**]

## Syntax Description

<b>log</b>	Logs the match. The system log message number depends on the application.
------------	---

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Match and class configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

An inspection policy map consists of one or more **match** and **class** commands. The exact commands available for an inspection policy map depends on the application. After you enter the **match** or **class** command to identify application traffic (the **class** command refers to an existing **class-map type inspect** command that in turn includes **match** commands), you can enter the **mask** command to mask part of the packet that matches the **match** command or **class** command.

When you enable application inspection using the **inspect** command in a Layer 3/4 policy map (the **policy-map** command), you can enable the inspection policy map that contains this action, for example, enter the **inspect dns dns\_policy\_map** command where `dns_policy_map` is the name of the inspection policy map.

## Examples

The following example masks the RD and RA flags in the DNS header before allowing the traffic through the security appliance:

```
hostname(config-cmap)# policy-map type inspect dns dns-map1
```

```

hostname(config-pmap-c)# match header-flag RD
hostname(config-pmap-c)# mask log
hostname(config-pmap-c)# match header-flag RA
hostname(config-pmap-c)# mask log

```

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>policy-map type inspect</b>	Defines special actions for application inspection.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# mask-banner

To obfuscate the server banner, use the **mask-banner** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

**mask-banner**

**no mask-banner**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Parameters configuration	•	•	•	•	—

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Examples** The following example...

**Related Commands**

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# mask-syst-reply

To hide the FTP server response from clients, use the **mask-syst-reply** command in FTP map configuration mode, which is accessible by using the **ftp-map** command. To remove the configuration, use the **no** form of this command.

**mask-syst-reply**

**no mask-syst-reply**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command is enabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
FTP map configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Use the **mask-syst-reply** command with strict FTP inspection to protect the FTP server system from clients. After enabling this command, the servers replies to the **syst** command are replaced by a series of Xs.

**Examples** The following example causes the security appliance to replace the FTP server replies to the **syst** command with Xs:

```
hostname(config)# ftp-map inbound_ftp
hostname(config-ftp-map)# mask-syst-reply
hostname(config-ftp-map)#
```

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>ftp-map</b>	Defines an FTP map and enables FTP map configuration mode.
<b>inspect ftp</b>	Applies a specific FTP map to use for application inspection.

<b>Commands</b>	<b>Description</b>
<b>policy-map</b>	Associates a class map with specific security actions.
<b>request-command deny</b>	Specifies FTP commands to disallow.

# match access-list

When using the Modular Policy Framework, use an access list to identify traffic to which you want to apply actions by using the **match access-list** command in class-map configuration mode. To remove the **match access-list** command, use the **no** form of this command.

**match access-list** *access\_list\_name*

**no match access-list** *access\_list\_name*

## Syntax Description

*access\_list\_name* Specifies the name of an access list to be used as match criteria.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Configuring Modular Policy Framework consists of four tasks:

1. Identify the Layer 3 and 4 traffic to which you want to apply actions using the **class-map** command.  
After you enter the **class-map** command, you can enter the **match access-list** command to identify the traffic. Alternatively, you can enter a different type of **match** command, such as the **match port** command. You can only include one **match access-list** command in the class map, and you cannot combine it with other types of **match** commands. The exception is if you define the **match default-inspection-traffic** command which matches the default TCP and UDP ports used by all applications that the security appliance can inspect, then you can narrow the traffic to match using a **match access-list** command. Because the **match default-inspection-traffic** command specifies the ports to match, any ports in the access list are ignored.
2. (Application inspection only) Define special actions for application inspection traffic using the **policy-map type inspect** command.
3. Apply actions to the Layer 3 and 4 traffic using the **policy-map** command.
4. Activate the actions on an interface using the **service-policy** command.

## Examples

The following example creates three Layer 3/4 class maps that match three access lists:



```

hostname(config)# access-list udp permit udp any any
hostname(config)# access-list tcp permit tcp any any
hostname(config)# access-list host_foo permit ip any 10.1.1.1 255.255.255.255

hostname(config)# class-map all_udp
hostname(config-cmap)# description "This class-map matches all UDP traffic"
hostname(config-cmap)# match access-list udp

hostname(config-cmap)# class-map all_tcp
hostname(config-cmap)# description "This class-map matches all TCP traffic"
hostname(config-cmap)# match access-list tcp

hostname(config-cmap)# class-map to_server
hostname(config-cmap)# description "This class-map matches all traffic to server 10.1.1.1"
hostname(config-cmap)# match access-list host_foo

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match any

When using the Modular Policy Framework, match all traffic to which you want to apply actions by using the **match any** command in class-map configuration mode. To remove the **match any** command, use the **no** form of this command.

**match any**

**no match any**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Configuring Modular Policy Framework consists of four tasks:

1. Identify the Layer 3 and 4 traffic to which you want to apply actions using the **class-map** command.  
After you enter the **class-map** command, you can enter the **match any** command to identify all traffic. Alternatively, you can enter a different type of **match** command, such as the **match port** command. You cannot combine the **match any** command with other types of **match** commands.
2. (Application inspection only) Define special actions for application inspection traffic using the **policy-map type inspect** command.
3. Apply actions to the Layer 3 and 4 traffic using the **policy-map** command.
4. Activate the actions on an interface using the **service-policy** command.

**Examples** This example shows how to define a traffic class using a class map and the **match any** command:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match any
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match access-list</b>	Matches traffic according to an access list.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match apn

To configure a match condition for an access point name in GTP messages, use the **match apn** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

**match** [**not**] **apn regex** [*regex\_name* | **class** *regex\_class\_name*]

**no match** [**not**] **apn regex** [*regex\_name* | **class** *regex\_class\_name*]

## Syntax Description

*regex\_name* Specifies a regular expression.

**class** *regex\_class\_name* Specifies a regular expression class map.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command can be configured in a GTP class map or policy map. Only one entry can be entered in a GTP class map.

## Examples

The following example shows how to configure a match condition for an access point name in an GTP inspection class map:

```
hostname(config-cmap)# match apn class gtp_regex_apn
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.

Command	Description
<code>match port</code>	Identifies a specific port number in a class map.
<code>show running-config class-map</code>	Displays the information about the class map configuration.

# match body

To configure a match condition on the length or length of a line of an ESMTP body message, use the **match body** command in class-map or policy-map configuration mode. To remove a configured section, use the **no** form of this command.

**match [not] body [length | line length] gt bytes**

**no match [not] body [length | line length] gt bytes**

## Syntax Description

<b>length</b>	Specifies the length of an ESMTP body message.
<b>line length</b>	Specifies the length of a line of an ESMTP body message.
<i>bytes</i>	Specifies the number to match in bytes.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to...

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match called-party

To configure a match condition on the H.323 called party, use the **match called-party** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

**match** [**not**] **called-party** [**regex** *regex*]

**no match** [**not**] **match** [**not**] **called-party** [**regex** *regex*]

## Syntax Description

**regex** *regex* Specifies to match on the regular expression.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to configure a match condition for the called party in an H.323 inspection class map:

```
hostname(config-cmap)# match called-party regex caller1
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match calling-party

To configure a match condition on the H.323 calling party, use the **match calling-party** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

**match** [**not**] **calling-party** [**regex** *regex*]

**no match** [**not**] **match** [**not**] **calling-party** [**regex** *regex*]

## Syntax Description

**regex** *regex* Specifies to match on the regular expression.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to configure a match condition for the calling party in an H.323 inspection class map:

```
hostname(config-cmap)# match calling-party regex caller1
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.



## match certificate

During the PKI certificate validation process, the security appliance checks certificate revocation status to maintain security. It can use either CRL checking or Online Certificate Status Protocol (OCSP) to accomplish this task. With CRL checking, the security appliance retrieves, parses, and caches Certificate Revocation Lists, which provide a complete list of revoked certificates. OCSP offers a more scalable method of checking revocation status in that it localizes certificate status on a Validation Authority, which it queries for the status of a specific certificate.

Certificate match rules let you configure OCSP URL overrides, which specify a URL to check for revocation status, rather than the URL in the AIA field of the remote user certificate. Match rules also let you configure trustpoints to use to validate OCSP responder certificates, which lets the security appliance validate responder certificates from any CA, including self-signed certificates and certificates external to the validation path of the client certificate.

To configure a certificate match rule, use the **match certificate** command in crypto ca trustpoint mode. To remove the rule from the configuration, use the **no** form of this command.

```
match certificate map-name override oosp [trustpoint trustpoint-name] seq-num url URL
```

```
no match certificate map-name override oosp
```

### Syntax Description

<i>map-name</i>	Specifies the name of the certificate map to match to this rule. You must configure the certificate map prior to configuring a match rule. Maximum 65 characters.
<b>match certificate</b>	Specifies the certificate map for this match rule.
<b>override oosp</b>	Specifies that the purpose of the rule is to override an OCSP URL in a certificate.
<i>seq-num</i>	Sets the priority for this match rule. Range is 1 to 10000. The security appliance evaluates the match rule with the lowest sequence number first, followed by higher numbers until it finds a match.
<b>trustpoint</b>	(Optional) Specifies using a trustpoint for verifying the OCSP responder certificate.
<i>trustpoint-name</i>	(Optional) Identifies the trustpoint. to use with the override to validate responder certificates.
<b>url</b>	Specifies accessing a URL for OCSP revocation status.
<i>URL</i>	Identifies the URL to access for OCSP revocation status.

### Defaults

No default behavior or values.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
crypto ca trustpoint mode	•	•	•	•	•

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Usage Guidelines**

Be aware of the following tips when configuring OCSP:

- You can configure multiple match rules within a trustpoint configuration, but you can have only one match rule for each crypto ca certificate map. You can, however, configure multiple crypto ca certificate maps and associate them with the same trustpoint.
- You must configure the certificate map before configuring a match rule.
- To configure a trustpoint to validate a self-signed OCSP responder certificates, you import the self-signed responder certificate into its own trustpoint as a trusted CA certificate. Then you configure the **match certificate** command in the client certificate validating trustpoint to use the trustpoint that contains the self-signed OCSP responder certificate to validate the responder certificate. The same applies for validating responder certificates external to the validation path of the client certificate.
- A trustpoint can validate both the client certificate and the responder certificate if the same CA issues both of them. But if different CAs issue the client and responder certificates, you need to configure two trustpoints, one trustpoint for each certificate.
- The OCSP server (responder) certificate typically signs the OCSP response. After receiving the response, the security appliance tries to verify the responder certificate. The CA normally sets the lifetime of its OCSP responder certificate to a relatively short period to minimize the chance of it being compromised. The CA typically also includes an `ocsp-no-check` extension in the responder certificate indicating that this certificate does not need revocation status checking. But if this extension is not present, the security appliance tries to check its revocation status using the same method specified in the trustpoint. If the responder certificate is not verifiable, revocation checks fails. To avoid this possibility, configure **revocation-check none** in the responder certificate validating trustpoint, while configuring **revocation-check ocsf** for the client certificate.
- If the security appliance does not find a match, it uses the URL in the **ocsp url** command. If you have not configured the **ocsp url** command, it uses the AIA field of the remote user certificate. If the certificate does not have an AIA extension, revocation status checking fails.

**Examples**

The following example shows how to create a certificate match rule for a trustpoint called newtrust. The rule has a map name called mymap, sequence number of 4, a trustpoint called mytrust, and specifies a URL of 10.22.184.22.

```
hostname(config)# crypto ca trustpoint newtrust
hostname(config-ca-trustpoint)# match certificate mymap override ocsf trustpoint mytrust 4
url 10.22.184.22
hostname(config-ca-trustpoint)#
```

The next example shows step-by-step how to configure a crypto ca certificate map, and then a match certificate rule to identify a trustpoint that contains a CA certificate to validate the responder certificate. This is necessary if the CA identified in the newtrust trustpoint does not issue an OCSP responder certificate.

- Step 1** Configure the certificate map that identifies the client certificates to which the map rule applies. In this example the name of the certificate map is mymap and the sequence number is 1. Any client certificate with a subject-name that contains a CN attribute equal to mycert matches the mymap entry.

```
hostname(config)# crypto ca certificate map mymap 1 subject-name attr cn eq mycert
hostname(config-ca-cert-map)# subject-name attr cn eq mycert
hostname(config-ca-cert-map)#
```

- Step 2** Configure a trustpoint that contains the CA certificate to use to validate the OCSP responder certificate. In the case of self-signed certificates, this is the self-signed certificate itself, which is imported and locally trusted. You can also obtain a certificate for this purpose through external CA enrollment. When prompted to do so, paste in the CA certificate.

```
hostname(config-ca-cert-map)# exit
hostname(config)# crypto ca trustpoint mytrust
hostname(config-ca-trustpoint)# enroll terminal
hostname(config-ca-trustpoint)# crypto ca authenticate mytrust
Enter the base 64 encoded CA certificate.
End with the word "quit" on a line by itself
```

```
MIIBNjCCAQCCEBEPopG4wDQYJKoZIhvcNAQEEBQAwFzEVMBMGA1UEAxQMnJMuNjcu
NzIuMTg4MB4XDTA2MDExODIwMjYyMloXDTA5MDExNzIwMjYyMlowFzEVMBMGA1UE
AxQMnJMuNjcuNzIuMTg4MIGdMA0GCSqGSIb3DQEBAQUAA4GLADCBhwKBGQDnXUHv
7//x1xEAOYfUzJmH5sr/NuxAba5gTUBYA3pcE0KZht761N+/8xGxC3DIVB8u7T/b
v8RqzqpmZYguveV9cLQK5tsxqW3DysMU/4/qUGPfkVZ0iKPCgpIAWmq2ojhCFPyx
ywsDsJl6YamF8mpMoruvwOuaUOsAK6KO54vy0QIBAZANBqkqhkiG9w0BAQQFAAOB
gQCSOihb2NH6mga2eLqEsFP1oVbBteSkeAm+NRCDK7ud113D6UC01EgkKJ81QtCk
tvX2T2Y/5sdNW4gfueavbyqYDbk4yxCKaofPp1ffAD9rrUFQJM1uQX14wclPCcAN
e7kR+rscOKYBSgVHrseqdB8+6QW5NF7f2dd+tSMvHtUMNw==
quit
```

```
INFO: Certificate has the following attributes:
Fingerprint:      7100d897 05914652 25b2f0fc e773df42
Do you accept this certificate? [yes/no]: y
Trustpoint CA certificate accepted.
```

```
% Certificate successfully imported
```

- Step 3** Configure the original trustpoint, newtrust, with OCSP as the revocation checking method. Then set a match rule that includes the certificate map, mymap, and the self-signed trustpoint, mytrust, configured in Step 2.

```
hostname(config)# crypto ca trustpoint newtrust
hostname(config-ca-trustpoint)# enroll terminal
hostname(config-ca-trustpoint)# crypto ca authenticate newtrust
```

```
Enter the base 64 encoded CA certificate.
End with the word "quit" on a line by itself
ywsDsJl6YamF8mpMoruvwOuaUOsAK6KO54vy0QIBAZANBqkqhkiG9w0BAQQFAAOB
gQCSOihb2NH6mga2eLqEsFP1oVbBteSkeAm+NRCDK7ud113D6UC01EgkKJ81QtCk
AxQMnJMuNjcuNzIuMTg4MIGdMA0GCSqGSIb3DQEBAQUAA4GLADCBhwKBGQDnXUHv
7//x1xEAOYfUzJmH5sr/NuxAba5gTUBYA3pcE0KZht761N+/8xGxC3DIVB8u7T/b
gQCSOihb2NH6mga2eLqEsFP1oVbBteSkeAm+NRCDK7ud113D6UC01EgkKJ81QtCk
tvX2T2Y/5sdNW4gfueavbyqYDbk4yxCKaofPp1ffAD9rrUFQJM1uQX14wclPCcAN
NzIuMTg4MB4XDTA2MDExODIwMjYyMloXDTA5MDExNzIwMjYyMlowFzEVMBMGA1UE
OPiBNjCCAQCCEBEPopG4wDQYJKoZIhvcNAQEEBQAwFzEVMBMGA1UEAxQMnJMuNjcu
e7kR+rscOKYBSgVHrseqdB8+6QW5NF7f2dd+tSMvHtUMNw==
quit
```

```
INFO: Certificate has the following attributes:
Fingerprint:      9508g897 82914638 435f9f0fc x9y2p42
Do you accept this certificate? [yes/no]: y
Trustpoint CA certificate accepted.
```

```
% Certificate successfully imported
hostname(config)# crypto ca trustpoint newtrust
hostname(config-ca-trustpoint)# revocation-check oosp
hostname(config-ca-trustpoint)# match certificate mymap override oosp trustpoint mytrust 4
url 10.22.184.22
```

Any connection that uses the newtrust trustpoint for client certificate authentication checks to see if the client certificate matches the attribute rules specified in the mymap certificate map. If so, the security appliance accesses the OOSP responder at 10.22.184.22 for certificate revocation status. It then uses the mytrust trustpoint to validate the responder certificate.

**Note**

The newtrust trustpoint is configured to perform revocation checking via OOSP for the client certificates. However, the mytrust trustpoint is configured for the default revocation-check method which is none, so no revocation checking is performed on the OOSP responder certificate.

**Related Commands**

Command	Description
<b>crypto ca certificate map</b>	Creates crypto ca certificate maps. Use this command in global configuration mode.
<b>crypto ca trustpoint</b>	Enters crypto ca trustpoint mode. Use this command in global configuration mode.
<b>oosp disable-nonce</b>	Disables the nonce extension of the OOSP request.
<b>oosp url</b>	Specifies the OOSP server to use to check all certificates associated with a trustpoint.
<b>revocation-check</b>	Specifies the method(s) to use for revocation checking, and the order in which to try them.

# match cmd

To configure a match condition on the ESMTP command verb, use the **match cmd** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

```
match [not] cmd [verb verb | line length gt bytes | RCPT count gt recipients_number]
```

```
no match [not] cmd [verb verb | line length gt bytes | RCPT count gt recipients_number]
```

## Syntax Description

<b>verb</b> <i>verb</i>	Specifies the ESMTP command verb.
<b>line length gt</b> <i>bytes</i>	Specifies the length of a line.
<b>RCPT count gt</b> <i>recipients_number</i>	Specifies the recipient count.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to configure a match condition in an ESMTP inspection policy map for the verb (method) NOOP exchanged in the ESMTP transaction:

```
hostname(config-pmap)# match cmd verb NOOP
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match default-inspection-traffic

To specify default traffic for the inspect commands in a class map, use the **match default-inspection-traffic** command in class-map configuration mode. To remove this specification, use the **no** form of this command.

**match default-inspection-traffic**

**no match default-inspection-traffic**

**Syntax Description** This command has no arguments or keywords.

**Defaults** See the Usage Guidelines section for the default traffic of each inspection.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class-map configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **match** commands are used to identify the traffic included in the traffic class for a class map. They include different criteria to define the traffic included in a class-map. Define a traffic class using the **class-map** global configuration command as part of configuring a security feature using Modular Policy Framework. From class-map configuration mode, you can define the traffic to include in the class using the **match** command.

After a traffic class is applied to an interface, packets received on that interface are compared to the criteria defined by the **match** statements in the class map. If the packet matches the specified criteria, it is included in the traffic class and is subjected to any actions associated with that traffic class. Packets that do not match any of the criteria in any traffic class are assigned to the default traffic class.

Using the **match default-inspection-traffic** command, you can match default traffic for the individual **inspect** commands. The **match default-inspection-traffic** command can be used in conjunction with one other match command, which is typically an access-list in the form of **permit ip src-ip dst-ip**.

The rule for combining a second **match** command with the **match default-inspection-traffic** command is to specify the protocol and port information using the **match default-inspection-traffic** command and specify all other information (such as IP addresses) using the second **match** command. Any protocol or port information specified in the second **match** command is ignored with respect to the **inspect** commands.

For instance, port 65535 specified in the example below is ignored:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match default-inspection-traffic
hostname(config-cmap)# match port 65535
```

Default traffic for inspections are as follows:

Inspection Type	Protocol Type	Source Port	Destination Port
ctiqbe	tcp	N/A	1748
dcerpc	tcp	N/A	135
dns	udp	53	53
ftp	tcp	N/A	21
gtp	udp	2123,3386	2123,3386
h323 h225	tcp	N/A	1720
h323 ras	udp	N/A	1718-1719
http	tcp	N/A	80
icmp	icmp	N/A	N/A
ils	tcp	N/A	389
im	tcp	N/A	1-65539
ipsec-pass-thru	udp	N/A	500
mgcp	udp	2427,2727	2427,2727
netbios	udp	137-138	N/A
rpc	udp	111	111
rsh	tcp	N/A	514
rtsp	tcp	N/A	554
sip	tcp,udp	N/A	5060
skinny	tcp	N/A	2000
smtp	tcp	N/A	25
sqlnet	tcp	N/A	1521
tftp	udp	N/A	69
xdmcp	udp	177	177

### Examples

The following example shows how to define a traffic class using a class map and the **match default-inspection-traffic** command:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match default-inspection-traffic
hostname(config-cmap)#
```

### Related Commands

Command	Description
<b>class-map</b>	Applies a traffic class to an interface.
<b>clear configure class-map</b>	Removes all of the traffic map definitions.
<b>match access-list</b>	Identifies access list traffic within a class map.

Command	Description
<b>match any</b>	Includes all traffic in the class map.
<b>show running-config</b> <b>class-map</b>	Displays the information about the class map configuration.



# match dns-class

To configure a match condition for the Domain System Class in a DNS Resource Record or Question section, use the **match dns-class** command in class-map or policy-map configuration mode. To remove a configured class, use the **no** form of this command.

```
match [not] dns-class {eq c_well_known | c_val} {range c_val1 c_val2}
```

```
no match [not] dns-class {eq c_well_known | c_val} {range c_val1 c_val2}
```

## Syntax Description

<b>eq</b>	Specifies an exact match.
<i>c_well_known</i>	Specifies DNS class by well-known name, IN.
<i>c_val</i>	Specifies an arbitrary value in the DNS class field (0-65535).
<b>range</b>	Specifies a range.
<i>c_val1</i> <i>c_val2</i>	Specifies values in a range match. Each value between 0 and 65535.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

By default, this command inspects all fields (questions and RRs) of a DNS message and matches the specified class. Both DNS query and response are examined.

The match can be narrowed down to the question portion of a DNS query by the following two commands: **match not header-flag QR** and **match question**.

This command can be configured within a DNS class map or policy map. Only one entry can be entered within a DNS class-map.

## Examples

The following example shows how to configure a match condition for a DNS class in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# match dns-class eq IN
```

Related Commands	Command	Description
	<b>class-map</b>	Creates a Layer 3/4 class map.
	<b>clear configure class-map</b>	Removes all class maps.
	<b>match any</b>	Includes all traffic in the class map.
	<b>match port</b>	Identifies a specific port number in a class map.
	<b>show running-config class-map</b>	Displays the information about the class map configuration.

## match dns-type

To configure a match condition for a DNS type, including Query type and RR type, use the **match dns-type** command in class-map or policy-map configuration mode. To remove a configured dns type, use the **no** form of this command.

```
match [not] dns-type {eq t_well_known | t_val} {range t_val1 t_val2}
```

```
no match [not] dns-type {eq t_well_known | t_val} {range t_val1 t_val2}
```

### Syntax Description

<b>eq</b>	Specifies an exact match.
<i>t_well_known</i>	Specifies DNS type by well-known name: A, NS, CNAME, SOA, TSIG, IXFR, or AXFR.
<i>t_val</i>	Specifies an arbitrary value in the DNS type field (0-65535).
<b>range</b>	Specifies a range.
<i>t_val1</i> <i>t_val2</i>	Specifies values in a range match. Each value between 0 and 65535.

### Defaults

This command is disabled by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

By default, this command inspects all sections of a DNS message (questions and RRs) and matches the specified type. Both DNS query and response are examined.

The match can be narrowed down to the question portion of a DNS query by the following two commands: **match not header-flag QR** and **match question**.

This command can be configured within a DNS class map or policy map. Only one entry can be entered within a DNS class-map.

### Examples

The following example shows how to configure a match condition for a DNS type in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
```

## ■ match dns-type

```
hostname(config-pmap)# match dns-type eq a
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

---

# match domain-name

To configure a match condition for a DNS message domain name list, use the **match domain-name** command in class-map or policy-map configuration mode. To remove a configured section, use the **no** form of this command.

```
match [not] domain-name regex regex_id
```

```
match [not] domain-name regex class class_id
```

```
no match [not] domain-name regex regex_id
```

```
no match [not] domain-name regex class class_id
```

Syntax Description	regex	Specifies a regular expression.
	<i>regex_id</i>	Specifies the regular expression ID.
	<b>class</b>	Specifies the class map that contains multiple regular expression entries.
	<i>class_id</i>	Specifies the regular expression class map ID.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command matches domain names in the DNS message against predefined list. Compressed domain names will be expanded before matching. The match condition can be narrowed down to a particular field in conjunction with other DNS **match** commands.

This command can be configured within a DNS class map or policy map. Only one entry can be entered within a DNS class-map.

## Examples

The following example shows how to match the DNS domain name in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# match domain-name regex
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match dscp

To identify the IETF-defined DSCP value (in an IP header) in a class map, use the **match dscp** command in class-map configuration mode. To remove this specification, use the **no** form of this command.

```
match dscp {values}
```

```
no match dscp {values}
```

## Syntax Description

*values* Specifies up to eight different the IETF-defined DSCP values in the IP header. Range is 0 to 63.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **match** commands are used to identify the traffic included in the traffic class for a class map. They include different criteria to define the traffic included in a class-map. Define a traffic class using the **class-map** global configuration command as part of configuring a security feature using Modular Policy Framework. From class-map configuration mode, you can define the traffic to include in the class using the **match** command.

After a traffic class is applied to an interface, packets received on that interface are compared to the criteria defined by the **match** statements in the class map. If the packet matches the specified criteria, it is included in the traffic class and is subjected to any actions associated with that traffic class. Packets that do not match any of the criteria in any traffic class are assigned to the default traffic class.

Using the **match dscp** command, you can match the IETF-defined DSCP values in the IP header.

## Examples

The following example shows how to define a traffic class using a class map and the **match dscp** command:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match dscp af43 cs1 ef
hostname(config-cmap)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Applies a traffic class to an interface.
<b>clear configure class-map</b>	Removes all of the traffic map definitions.
<b>match access-list</b>	Identifies access list traffic within a class map.
<b>match port</b>	Specifies the TCP/UDP ports as the comparison criteria for packets received on that interface.
<b>show running-config class-map</b>	Displays the information about the class map configuration.



# match ehlo-reply-parameter

To configure a match condition on the ESMTP ehlo reply parameter, use the **match ehlo-reply-parameter** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

**match** [**not**] **ehlo-reply-parameter** *parameter*

**no match** [**not**] **ehlo-reply-parameter** *parameter*

## Syntax Description

*parameter* Specifies the ehlo reply parameter.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to...

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match filename

To configure a match condition for a filename for FTP transfer, use the **match filename** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

**match** [**not**] **filename regex** [*regex\_name* | **class** *regex\_class\_name*]

**no match** [**not**] **filename regex** [*regex\_name* | **class** *regex\_class\_name*]

## Syntax Description

*regex\_name* Specifies a regular expression.

**class** *regex\_class\_name* Specifies a regular expression class map.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command can be configured in an FTP class map or policy map. Only one entry can be entered in a FTP class map.

## Examples

The following example shows how to configure a match condition for an FTP transfer filename in an FTP inspection class map:

```
hostname(config)# class-map type inspect ftp match-all ftp_class1
hostname(config-cmap)# description Restrict FTP users ftp1, ftp2, and ftp3 from accessing /root
hostname(config-cmap)# match username regex class ftp_regex_user
hostname(config-cmap)# match filename regex ftp-file
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match filetype

To configure a match condition for a filetype for FTP transfer, use the **match filetype** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

```
match [not] filetype regex [regex_name | class regex_class_name]
```

```
no match [not] filetype regex [regex_name | class regex_class_name]
```

## Syntax Description

*regex\_name* Specifies a regular expression.

**class** *regex\_class\_name* Specifies a regular expression class map.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command can be configured in an FTP class map or policy map. Only one entry can be entered in a FTP class map.

## Examples

The following example shows how to configure a match condition for an FTP transfer filetype in an FTP inspection policy map:

```
hostname(config-pmap)# match filetype class regex ftp-regex-filetype
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.

Command	Description
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match flow ip destination-address

To specify the flow IP destination address in a class map, use the **match flow ip destination-address** command in class-map configuration mode. To remove this specification, use the **no** form of this command.

**match flow ip destination-address**

**no match flow ip destination-address**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **match** commands are used to identify the traffic included in the traffic class for a class map. They include different criteria to define the traffic included in a class-map. Define a traffic class using the **class-map** global configuration command as part of configuring a security feature using Modular Policy Framework. From class-map configuration mode, you can define the traffic to include in the class using the **match** command.

After a traffic class is applied to an interface, packets received on that interface are compared to the criteria defined by the **match** statements in the class map. If the packet matches the specified criteria, it is included in the traffic class and is subjected to any actions associated with that traffic class. Packets that do not match any of the criteria in any traffic class are assigned to the default traffic class.

To enable flow-based policy actions on a tunnel group, use the **match flow ip destination-address** and **match tunnel-group** commands with the **class-map**, **policy-map**, and **service-policy** commands. The criteria to define flow is the destination IP address. All traffic going to a unique IP destination address is considered a flow. Policy action is applied to each flow instead of the entire class of traffic. QoS action police is applied using the **match flow ip destination-address** command. Use **match tunnel-group** to police every tunnel within a tunnel group to a specified rate.

**Examples**

The following example shows how to enable flow-based policing within a tunnel group and limit each tunnel to a specified rate:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match tunnel-group
hostname(config-cmap)# match flow ip destination-address
hostname(config-cmap)# exit
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# police 56000
hostname(config-pmap)# exit
hostname(config)# service-policy pmap global
hostname(config)#
```

**Related Commands**

Command	Description
<b>class-map</b>	Applies a traffic class to an interface.
<b>clear configure class-map</b>	Removes all of the traffic map definitions.
<b>match access-list</b>	Identifies access list traffic within a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.
<b>tunnel-group</b>	Creates and manages the database of connection-specific records for VPN.





# match header

To configure a match condition on the ESMTP header, use the **match header** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

```
match [not] header [length gt bytes | to-fields count gt to_fields_number]
```

```
no match [not] header [length gt bytes | to-fields count gt to_fields_number]
```

## Syntax Description

<b>length gt</b> <i>bytes</i>	Specifies to match on the length of the ESMTP header message.
<b>to-fields count gt</b> <i>to_fields_number</i>	Specifies to match on the number of To: fields.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to...

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match header-flag

To configure a match condition for a DNS header flag, use the **match header-flag** command in class-map or policy-map configuration mode. To remove a configured header flag, use the **no** form of this command.

```
match [not] header-flag [eq] {f_well_known | f_value}
```

```
no match [not] header-flag [eq] {f_well_known | f_value}
```

## Syntax Description

<b>eq</b>	Specifies an exact match. If not configured, specifies a <b>match-all</b> bit mask match.
<i>f_well_known</i>	Specifies DNS header flag bits by well-known name. Multiple flag bits may be entered and logically OR'd. QR (Query, note: QR=1, indicating a DNS response) AA (Authoritative Answer) TC (TrunCation) RD (Recursion Desired) RA (Recursion Available)
<i>f_value</i>	Specifies an arbitrary 16-bit value in hexadecimal form.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command can be configured in a DNS class map or policy map. Only one entry can be entered in a DNS class map.

## Examples

The following example shows how to configure a match condition for a DNS header flag in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# match header-flag AA
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match im-subscriber

To configure a match condition for a SIP IM subscriber, use the **match im-subscriber** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

```
match [not] im-subscriber regex [regex_name | class regex_class_name]
```

```
no match [not] im-subscriber regex [regex_name | class regex_class_name]
```

## Syntax Description

*regex\_name* Specifies a regular expression.

**class** *regex\_class\_name* Specifies a regular expression class map.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command can be configured in a SIP class map or policy map. Only one entry can be entered in a SIP class map.

## Examples

The following example shows how to configure a match condition for a SIP IM subscriber in a SIP inspection class map:

```
hostname(config-cmap)# match im-subscriber regex class im_sender
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.

<b>Command</b>	<b>Description</b>
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match invalid-recipients

To configure a match condition on the ESMTP invalid recipient address, use the **match invalid-recipients** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

**match** [**not**] **invalid-recipients count gt** *number*

**no match** [**not**] **invalid-recipients count gt** *number*

## Syntax Description

**count gt** *number* Specifies to match on the invalid recipient number.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to...

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match ip address

To redistribute any routes that have a route address or match packet that is passed by one of the access lists specified, use the **match ip address** command in route-map configuration mode. To restore the default settings, use the **no** form of this command.

```
match ip address {acl...}
```

```
no match ip address {acl...}
```

## Syntax Description

*acl* Name an access list. Multiple access lists can be specified.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Route-map configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **route-map global** configuration command and the **match** and **set** configuration commands allow you to define the conditions for redistributing routes from one routing protocol into another. Each **route-map** command has **match** and **set** commands that are associated with it. The **match** commands specify the match criteria—the conditions under which redistribution is allowed for the current **route-map** command. The **set** commands specify the set actions—the particular redistribution actions to perform if the criteria that is enforced by the **match** commands are met. The **no route-map** command deletes the route map.

## Examples

The following example shows how to redistribute internal routes:

```
hostname(config)# route-map name
hostname(config-route-map)# match ip address acl_dmz1 acl_dmz2
```

## Related Commands

Command	Description
<b>match interface</b>	Distributes distribute any routes that have their next hop out one of the interfaces specified,
<b>match ip next-hop</b>	Distributes any routes that have a next-hop router address that is passed by one of the access lists specified.
<b>match metric</b>	Redistributes routes with the metric specified.
<b>route-map</b>	Defines the conditions for redistributing routes from one routing protocol into another.
<b>set metric</b>	Specifies the metric value in the destination routing protocol for a route map.



## match ip next-hop

To redistribute any routes that have a next-hop router address that is passed by one of the access lists specified, use the **match ip next-hop** command in route-map configuration mode. To remove the next-hop entry, use the **no** form of this command.

```
match ip next-hop {acl...} | prefix-list prefix_list
```

```
no match ip next-hop {acl...} | prefix-list prefix_list
```

### Syntax Description

<i>acl</i>	Name of an ACL. Multiple ACLs can be specified.
<b>prefix-list</b> <i>prefix_list</i>	Name of prefix list.

### Defaults

Routes are distributed freely, without being required to match a next-hop address.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Route-map configuration	•	—	•	—	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

An ellipsis (...) in the command syntax indicates that your command input can include multiple values for the *acl* argument.

The **route-map global** configuration command and the **match** and **set** configuration commands allow you to define the conditions for redistributing routes from one routing protocol into another. Each **route-map** command has **match** and **set** commands that are associated with it. The **match** commands specify the match criteria—the conditions under which redistribution is allowed for the current **route-map** command. The **set** commands specify the set actions—the particular redistribution actions to perform if the criteria that is enforced by the **match** commands are met. The **no route-map** command deletes the route map.

The **match** route-map configuration command has multiple formats. You can enter the **match** commands in any order. All **match** commands must “pass” to cause the route to be redistributed according to the set actions given with the **set** commands. The **no** forms of the **match** commands remove the specified match criteria.

When you are passing routes through a route map, a route map can have several parts. Any route that does not match at least one match clause relating to a **route-map** command is ignored. To modify only some data, you must configure a second route map section and specify an explicit match.

**Examples**

The following example shows how to distribute routes that have a next-hop router address passed by access list `acl_dmz1` or `acl_dmz2`:

```
hostname(config)# route-map name
hostname(config-route-map)# match ip next-hop acl_dmz1 acl_dmz2
```

**Related Commands**

Command	Description
<b>match interface</b>	Distributes distribute any routes that have their next hop out one of the interfaces specified.
<b>match ip next-hop</b>	Distributes any routes that have a next-hop router address that is passed by one of the access lists specified.
<b>match metric</b>	Redistributes routes with the metric specified.
<b>route-map</b>	Defines the conditions for redistributing routes from one routing protocol into another.
<b>set metric</b>	Specifies the metric value in the destination routing protocol for a route map.

## match ip route-source

To redistribute routes that have been advertised by routers and access servers at the address that is specified by the ACLs, use the **match ip route-source** command in the route-map configuration mode. To remove the next-hop entry, use the **no** form of this command.

```
match ip route-source {acl...} | prefix-list prefix_list
```

```
no match ip route-source {acl...}
```

### Syntax Description

<i>acl</i>	Name of an ACL. Multiple ACLs can be specified.
<i>prefix_list</i>	Name of prefix list.

### Defaults

No filtering on a route source.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Route-map configuration	•	—	•	—	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

An ellipsis (...) in the command syntax indicates that your command input can include multiple values for the access-list-name argument.

The **route-map global** configuration command and the **match** and **set** configuration commands allow you to define the conditions for redistributing routes from one routing protocol into another. Each **route-map** command has **match** and **set** commands that are associated with it. The **match** commands specify the match criteria—the conditions under which redistribution is allowed for the current **route-map** command. The **set** commands specify the set actions—the particular redistribution actions to perform if the criteria that is enforced by the **match** commands are met. The **no route-map** command deletes the route map.

The **match** route-map configuration command has multiple formats. You can enter the **match** commands in any order. All **match** commands must “pass” to cause the route to be redistributed according to the set actions given with the **set** commands. The **no** forms of the **match** commands remove the specified match criteria.

A route map can have several parts. Any route that does not match at least one match clause relating to a **route-map** command is ignored. To modify only some data, you must configure a second route map section and specify an explicit match. The next-hop and source-router address of the route are not the same in some situations.

**Examples**

The following example shows how to distribute routes that have been advertised by routers and access servers at the addresses specified by ACLs `acl_dmz1` and `acl_dmz2`:

```
hostname(config)# route-map name
hostname(config-route-map)# match ip route-source acl_dmz1 acl_dmz2
```

**Related Commands**

Command	Description
<b>match interface</b>	Distributes distribute any routes that have their next hop out one of the interfaces specified.
<b>match ip next-hop</b>	Distributes any routes that have a next-hop router address that is passed by one of the ACLs specified.
<b>match metric</b>	Redistributes routes with the metric specified.
<b>route-map</b>	Defines the conditions for redistributing routes from one routing protocol into another.
<b>set metric</b>	Specifies the metric value in the destination routing protocol for a route map.

# match media-type

To configure a match condition on the H.323 media type, use the **match media-type** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

**match** [**not**] **media-type** [**audio** | **data** | **video**]

**no match** [**not**] **media-type** [**audio** | **data** | **video**]

## Syntax Description

<b>audio</b>	Specifies to match audio media type.
<b>data</b>	Specifies to match data media type.
<b>video</b>	Specifies to match video media type.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to configure a match condition for audio media type in an H.323 inspection class map:

```
hostname(config-cmap)# match media-type audio
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match message id

To configure a match condition for a GTP message ID, use the **match message id** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

**match** [**not**] **message id** [*message\_id* | **range** *lower\_range* *upper\_range*]

**no match** [**not**] **message id** [*message\_id* | **range** *lower\_range* *upper\_range*]

## Syntax Description

<i>message_id</i>	Specifies an alphanumeric identifier between 1 and 255.
<b>range</b> <i>lower_range</i> <i>upper_range</i>	Specifies a lower and upper range of IDs.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command can be configured in a GTP class map or policy map. Only one entry can be entered in a GTP class map.

## Examples

The following example shows how to configure a match condition for a message ID in a GTP inspection class map:

```
hostname(config-cmap)# match message id 33
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.

<b>Command</b>	<b>Description</b>
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match message length

To configure a match condition for a GTP message ID, use the **match message length** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

**match** [**not**] **message length** **min** *min\_length* **max** *max\_length*

**no match** [**not**] **message length** **min** *min\_length* **max** *max\_length*

## Syntax Description

<b>min</b> <i>min_length</i>	Specifies a minimum message ID length. Value is between 1 and 65536.
<b>max</b> <i>max_length</i>	Specifies a maximum message ID length. Value is between 1 and 65536.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command can be configured in a GTP class map or policy map. Only one entry can be entered in a GTP class map.

## Examples

The following example shows how to configure a match condition for a message length in a GTP inspection class map:

```
hostname(config-cmap)# match message length min 8 max 200
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.



<b>Command</b>	<b>Description</b>
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match message-path

To configure a match condition for the path taken by a SIP message as specified in the Via header field, use the **match message-path** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

```
match [not] message-path regex [regex_name | class regex_class_name]
```

```
no match [not] message-path regex [regex_name | class regex_class_name]
```

## Syntax Description

*regex\_name* Specifies a regular expression.

**class** *regex\_class\_name* Specifies a regular expression class map.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command can be configured in a SIP class map or policy map. Only one entry can be entered in a SIP class map.

## Examples

The following example shows how to configure a match condition for the path taken by a SIP message in a SIP inspection class map:

```
hostname(config-cmap)# match message-path regex class sip_message
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.

<b>Command</b>	<b>Description</b>
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match mime

To configure a match condition on the ESMTP mime encoding type, mime filename length, or mime file type, use the **match mime** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

**match** [**not**] **mime** [**encoding** *type* | **filename length** **gt** *bytes* | **filetype** *regex*]

**no match** [**not**] **mime** [**encoding** *type* | **filename length** **gt** *bytes* | **filetype** *regex*]

## Syntax Description

<b>encoding</b> <i>type</i>	Specifies to match on the encoding type.
<b>filename length</b> <b>gt</b> <i>bytes</i>	Specifies to match on the filename length.
<b>filetype</b> <i>regex</i>	Specifies to match on the file type.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to...

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match port

When using the Modular Policy Framework, match the TCP or UDP ports to which you want to apply actions by using the **match port** command in class-map configuration mode. To remove the **match port** command, use the **no** form of this command.

```
match port {tcp | udp} {eq port | range beg_port end_port}
```

```
no match port {tcp | udp} {eq port | range beg_port end_port}
```

## Syntax Description

<b>eq</b> <i>port</i>	Specifies a single port name or number.
<b>range</b> <i>beg_port</i> <i>end_port</i>	Specifies beginning and ending port range values between 1 and 65535.
<b>tcp</b>	Specifies a TCP port.
<b>udp</b>	Specifies a UDP port.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Configuring Modular Policy Framework consists of four tasks:

1. Identify the Layer 3 and 4 traffic to which you want to apply actions using the **class-map** or **class-map type management** command.

After you enter the **class-map** command, you can enter the **matchport** command to identify the traffic. Alternatively, you can enter a different type of **match** command, such as the **match access-list** command (the **class-map type management** command only allows the match port command). You can only include one **match port** command in the class map, and you cannot combine it with other types of **match** commands.

2. (Application inspection only) Define special actions for application inspection traffic using the **policy-map type inspect** command.
3. Apply actions to the Layer 3 and 4 traffic using the **policy-map** command.
4. Activate the actions on an interface using the **service-policy** command.

**Examples**

The following example shows how to define a traffic class using a class map and the **match port** command:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match port tcp eq 8080
```

**Related Commands**

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match access-list</b>	Matches traffic according to an access list.
<b>match any</b>	Includes all traffic in the class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match precedence

To specify a precedence value in a class map, use the **match precedence** command in class-map configuration mode. To remove this specification, use the **no** form of this command.

**match precedence** *value*

**no match precedence** *value*

## Syntax Description

*value* Specifies up to four precedence values separated by a space. Range is 0 to 7.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **match** commands are used to identify the traffic included in the traffic class for a class map. They include different criteria to define the traffic included in a class-map. Define a traffic class using the **class-map** global configuration command as part of configuring a security feature using Modular Policy Framework. From class-map configuration mode, you can define the traffic to include in the class using the **match** command.

After a traffic class is applied to an interface, packets received on that interface are compared to the criteria defined by the **match** statements in the class map. If the packet matches the specified criteria, it is included in the traffic class and is subjected to any actions associated with that traffic class. Packets that do not match any of the criteria in any traffic class are assigned to the default traffic class.

Use the **match precedence** command to specify the value represented by the TOS byte in the IP header.

## Examples

The following example shows how to define a traffic class using a class map and the **match precedence** command:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match precedence 1
hostname(config-cmap)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Applies a traffic class to an interface.
<b>clear configure class-map</b>	Removes all of the traffic map definitions.
<b>match access-list</b>	Identifies access list traffic within a class map.
<b>match any</b>	Includes all traffic in the class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.



## match question

To configure a match condition for a DNS question or resource record, use the **match question** command in class-map or policy-map configuration mode. To remove a configured section, use the **no** form of this command.

```
match {question | {resource-record answer | authority | additional}}
```

```
no match {question | {resource-record answer | authority | additional}}
```

### Syntax Description

<b>question</b>	Specifies the question portion of a DNS message.
<b>resource-record</b>	Specifies the resource record portion of a DNS message.
<b>answer</b>	Specifies the Answer RR section.
<b>authority</b>	Specifies the Authority RR section.
<b>additional</b>	Specifies the Additional RR section.

### Defaults

This command is disabled by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

By default, this command inspects the DNS header and matches the specified field. It can be used in conjunction with other DNS **match** commands to define inspection of a particular question or RR type..

This command can be configured within a DNS class map or policy map. Only one entry can be entered within a DNS class-map.

### Examples

The following example shows how to configure a match condition for a DNS question in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# match question
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match request-command

To restrict specific FTP commands, use the **match request-command** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

```
match [not] request-command ftp_command [ftp_command...]
```

```
no match [not] request-command ftp_command [ftp_command...]
```

## Syntax Description

*ftp\_command* Specifies one or more FTP commands to restrict.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command can be configured in an FTP class map or policy map. Only one entry can be entered in a FTP class map.

## Examples

The following example shows how to configure a match condition for a specific FTP command in an FTP inspection policy map:

```
hostname(config)# policy-map type inspect ftp ftp_map1
hostname(config-pmap)# match request-command stou
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.

Command	Description
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match request-method

To configure a match condition for the SIP method type, use the **match request-method** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

**match** [**not**] **request-method** *method\_type*

**no match** [**not**] **request-method** *method\_type*

## Syntax Description

<i>method_type</i>	Specifies a method type according to RFC 3261 and supported extensions. Supported method types include: ack, bye, cancel, info, invite, message, notify, options, prack, refer, register, subscribe, unknown, update.
--------------------	---

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command can be configured in a SIP class map or policy map. Only one entry can be entered in a SIP class map.

## Examples

The following example shows how to configure a match condition for the path taken by a SIP message in a SIP inspection class map:

```
hostname(config-cmap)# match request-method ack
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.

<b>Command</b>	<b>Description</b>
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

## match route-type

To redistribute routes of the specified type, use the **match route-type** command in route-map configuration mode. To remove the route type entry, use the **no** form of this command.

```
match route-type {local | internal | {external [type-1 | type-2]} | {nssa-external [type-1 | type-2]}}
```

```
no match route-type {local | internal | {external [type-1 | type-2]} | {nssa-external [type-1 | type-2]}}
```

### Syntax Description

<b>local</b>	Locally generated BGP routes.
<b>internal</b>	OSPF intra-area and interarea routes or EIGRP internal routes.
<b>external</b>	OSPF external routes or EIGRP external routes.
<b>type-1</b>	(Optional) Specifies the route type 1.
<b>type-2</b>	(Optional) Specifies the route type 2.
<b>nssa-external</b>	Specifies the external NSSA.

### Defaults

This command is disabled by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Route-map configuration	•	—	•	—	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

The **route-map** global configuration command and the **match** and **set** configuration commands allow you to define the conditions for redistributing routes from one routing protocol into another. Each **route-map** command has **match** and **set** commands that are associated with it. The **match** commands specify the match criteria—the conditions under which redistribution is allowed for the current **route-map** command. The **set** commands specify the set actions—the particular redistribution actions to perform if the criteria that is enforced by the **match** commands are met. The **no route-map** command deletes the route map.

The **match** route-map configuration command has multiple formats. You can enter the **match** commands in any order. All **match** commands must “pass” to cause the route to be redistributed according to the set actions given with the **set** commands. The **no** forms of the **match** commands remove the specified match criteria.

A route map can have several parts. Any route that does not match at least one match clause relating to a **route-map** command is ignored. To modify only some data, you must configure a second route map section and specify an explicit match.

For OSPF, the **external type-1** keywords match only type 1 external routes and the **external type-2** keywords match only type 2 external routes.

### Examples

The following example shows how to redistribute internal routes:

```
hostname(config)# route-map name
hostname(config-route-map)# match route-type internal
```

### Related Commands

Command	Description
<b>match interface</b>	Distributes distribute any routes that have their next hop out one of the interfaces specified,
<b>match ip next-hop</b>	Distributes any routes that have a next-hop router address that is passed by one of the access lists specified.
<b>match metric</b>	Redistributes routes with the metric specified.
<b>route-map</b>	Defines the conditions for redistributing routes from one routing protocol into another.
<b>set metric</b>	Specifies the metric value in the destination routing protocol for a route map.



# match rtp

To specify a UDP port range of even-number ports in a class map, use the **match rtp** command in class-map configuration mode. To remove this specification, use the **no** form of this command.

**match rtp** *starting\_port range*

**no match rtp** *starting\_port range*

## Syntax Description

<i>starting_port</i>	Specifies lower bound of even-number UDP destination port. Range is 2000-65535
<i>range</i>	Specifies range of RTP ports. Range is 0-16383.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **match** commands are used to identify the traffic included in the traffic class for a class map. They include different criteria to define the traffic included in a class-map. Define a traffic class using the **class-map** global configuration command as part of configuring a security feature using Modular Policy Framework. From class-map configuration mode, you can define the traffic to include in the class using the **match** command.

After a traffic class is applied to an interface, packets received on that interface are compared to the criteria defined by the **match** statements in the class map. If the packet matches the specified criteria, it is included in the traffic class and is subjected to any actions associated with that traffic class. Packets that do not match any of the criteria in any traffic class are assigned to the default traffic class.

Use the **match rtp** command to match RTP ports (even UDP port numbers between the *starting\_port* and the *starting\_port* plus the *range*).

## Examples

The following example shows how to define a traffic class using a class map and the **match rtp** command:

```
hostname(config)# class-map cmap
```

## ■ match rtp

```
hostname(config-cmap)# match rtp 20000 100
hostname(config-cmap)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Applies a traffic class to an interface.
<b>clear configure class-map</b>	Removes all of the traffic map definitions.
<b>match access-list</b>	Identifies access list traffic within a class map.
<b>match any</b>	Includes all traffic in the class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match sender-address

To configure a match condition on the ESMTP sender e-mail address, use the **match sender-address** command in policy-map configuration mode. To disable this feature, use the **no** form of this command.

```
match [not] sender-address [length gt bytes | regex regex]
```

```
no match [not] sender-address [length gt bytes | regex regex]
```

## Syntax Description

<b>length gt bytes</b>	Specifies to match on the sender e-mail address length.
<b>regex regex</b>	Specifies to match on the regular expression.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to configure a match condition for the sender email address of length greater than 320 characters in an ESMTP inspection policy map:

```
hostname(config-pmap)# match sender-address length gt 320
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match server

To configure a match condition for an FTP server, use the **match server** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

**match** [**not**] **server regex** [*regex\_name* | **class** *regex\_class\_name*]

**no match** [**not**] **server regex** [*regex\_name* | **class** *regex\_class\_name*]

## Syntax Description

*regex\_name* Specifies a regular expression.

**class** *regex\_class\_name* Specifies a regular expression class map.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command can be configured in an FTP class map or policy map. Only one entry can be entered in a FTP class map.

## Examples

The following example shows how to configure a match condition for an FTP server in an FTP inspection policy map:

```
hostname(config-pmap)# match server class regex ftp-server
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.

<b>Command</b>	<b>Description</b>
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match third-party-registration

To configure a match condition for the requester of a third-party registration, use the **match third-party-registration** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

```
match [not] third-party-registration regex [regex_name | class regex_class_name]
```

```
no match [not] third-party-registration regex [regex_name | class regex_class_name]
```

## Syntax Description

*regex\_name* Specifies a regular expression.

**class** *regex\_class\_name* Specifies a regular expression class map.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command can be configured in a SIP class map or policy map. Only one entry can be entered in a SIP class map.

The third-party registration match command is used to identify the user who can register others with a SIP registrar or SIP proxy. It is identified by the From header field in the REGISTER message in the case of mismatching From and To values.

## Examples

The following example shows how to configure a match condition for third-party registration in a SIP inspection class map:

```
hostname(config-cmap)# match third-party-registration regex class sip_regist
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match tunnel-group

To match traffic in a class map that belongs to a previously defined tunnel-group, use the **match tunnel-group** command in class-map configuration mode. To remove this specification, use the **no** form of this command.

**match tunnel-group** *name*

**no match tunnel-group** *name*

## Syntax Description

*name* Text for the tunnel group name.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **match** commands are used to identify the traffic included in the traffic class for a class map. They include different criteria to define the traffic included in a class-map. Define a traffic class using the **class-map** global configuration command as part of configuring a security feature using Modular Policy Framework. From class-map configuration mode, you can define the traffic to include in the class using the **match** command.

After a traffic class is applied to an interface, packets received on that interface are compared to the criteria defined by the **match** statements in the class map. If the packet matches the specified criteria, it is included in the traffic class and is subjected to any actions associated with that traffic class. Packets that do not match any of the criteria in any traffic class are assigned to the default traffic class.

To enable flow-based policy actions, use the **match flow ip destination-address** and **match tunnel-group** commands with the **class-map**, **policy-map**, and **service-policy** commands. The criteria to define flow is the destination IP address. All traffic going to a unique IP destination address is considered a flow. Policy action is applied to each flow instead of the entire class of traffic. QoS action police is applied using the **police** command. Use **match tunnel-group** along with **match flow ip destination-address** to police every tunnel within a tunnel group to a specified rate.



**Examples**

The following example shows how to enable flow-based policing within a tunnel group and limit each tunnel to a specified rate:

```
hostname(config)# class-map cmap
hostname(config-cmap)# match tunnel-group
hostname(config-cmap)# match flow ip destination-address
hostname(config-cmap)# exit
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# police 56000
hostname(config-pmap)# exit
hostname(config)# service-policy pmap global
```

**Related Commands**

Command	Description
<b>class-map</b>	Applies a traffic class to an interface.
<b>clear configure class-map</b>	Removes all of the traffic map definitions.
<b>match access-list</b>	Identifies access list traffic within a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.
<b>tunnel-group</b>	Creates and manages the database of connection-specific records for IPsec and L2TP,

# match uri

To configure a match condition for the URI in the SIP headers, use the **match uri** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

```
match [not] uri {sip | tel} length gt gt_bytes
```

```
no match [not] uri {sip | tel} length gt gt_bytes
```

Syntax Description	Parameter	Description
	<b>sip</b>	Specifies a SIP URI.
	<b>tel</b>	Specifies a TEL URI.
	<b>length gt gt_bytes</b>	Specifies the maximum length of the URI. Value is between 0 and 65536.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** This command can be configured in a SIP class map or policy map. Only one entry can be entered in a SIP class map.

**Examples** The following example shows how to configure a match condition for the URI in the SIP message:

```
hostname(config-cmap)# match uri sip length gt
```

Related Commands	Command	Description
	<b>class-map</b>	Creates a Layer 3/4 class map.
	<b>clear configure class-map</b>	Removes all class maps.
	<b>match any</b>	Includes all traffic in the class map.

<b>Command</b>	<b>Description</b>
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# match username

To configure a match condition for an FTP username, use the **match username** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

**match** [**not**] **username regex** [*regex\_name* | **class** *regex\_class\_name*]

**no match** [**not**] **username regex** [*regex\_name* | **class** *regex\_class\_name*]

## Syntax Description

*regex\_name* Specifies a regular expression.

**class** *regex\_class\_name* Specifies a regular expression class map.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command can be configured in an FTP class map or policy map. Only one entry can be entered in a FTP class map.

## Examples

The following example shows how to configure a match condition for an FTP username in an FTP inspection class map:

```
hostname(config)# class-map type inspect ftp match-all ftp_class1
hostname(config-cmap)# match username regex class ftp_regex_user
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.
<b>match any</b>	Includes all traffic in the class map.

<b>Command</b>	<b>Description</b>
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

## match version

To configure a match condition for a GTP message ID, use the **match message length** command in class-map or policy-map configuration mode. To remove the match condition, use the **no** form of this command.

**match** [**not**] **version** [*version\_id* | **range** *lower\_range* *upper\_range*]

**no match** [**not**] **version** [*version\_id* | **range** *lower\_range* *upper\_range*]

### Syntax Description

<i>version_id</i>	Specifies a version between 0 and 255.
<b>range</b> <i>lower_range</i> <i>upper_range</i>	Specifies a lower and upper range of versions.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map or policy map configuration	•	•	•	•	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

This command can be configured in a GTP class map or policy map. Only one entry can be entered in a GTP class map.

### Examples

The following example shows how to configure a match condition for a message version in a GTP inspection class map:

```
hostname(config-cmap)# match version 1
```

### Related Commands

Command	Description
<b>class-map</b>	Creates a Layer 3/4 class map.
<b>clear configure class-map</b>	Removes all class maps.

<b>Command</b>	<b>Description</b>
<b>match any</b>	Includes all traffic in the class map.
<b>match port</b>	Identifies a specific port number in a class map.
<b>show running-config class-map</b>	Displays the information about the class map configuration.

# max-failed-attempts

To specify the number of failed attempts allowed for any given server in the server group before that server is deactivated, use the **max-failed-attempts** command in AAA-server group mode. To remove this specification and revert to the default value, use the **no** form of this command:

```
max-failed-attempts number
```

```
no max-failed-attempts
```

## Syntax Description

*number* An integer in the range 1-5, specifying the number of failed connection attempts allowed for any given server in the server group specified in a prior **aaa-server** command.

## Defaults

The default value of *number* is 3.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
AAA-server group	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You must have configured the AAA server/group before issuing this command.

## Examples

```
hostname(config)# aaa-server svrgrp1 protocol tacacs+
hostname(config-aaa-server-group)# max-failed-attempts 4
hostname(config-aaa-server-group)#
```

## Related Commands

Command	Description
<b>aaa-server</b> <i>server-tag</i> <b>protocol</b> <i>protocol</i>	Enters AAA server group configuration mode so you can configure AAA server parameters that are group-specific and common to all hosts in the group.



---

<b>clear configure aaa-server</b>	Removes all AAA server configuration.
<b>show running-config aaa</b>	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol

---

# max-forwards-validation

To enable check on Max-forwards header field of 0, use the **max-forwards-validation** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

**max-forwards-validation action { drop | drop-connection | reset | log } [log]**

**no max-forwards-validation action { drop | drop-connection | reset | log } [log]**

## Syntax Description

<b>drop</b>	Drops the packet if validation occurs.
<b>drop-connection</b>	Drops the connection of a violation occurs.
<b>reset</b>	Resets the connection of a violation occurs.
<b>log</b>	Specifies standalone or additional log in case of violation. It can be associated to any of the actions.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command counts the number of hops to destination, which cannot be 0 before reaching the destination.

## Examples

The following example shows how to enable max forwards validation in a SIP inspection policy map:

```
hostname(config)# policy-map type inspect sip sip_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# max-forwards-validation action log
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# max-header-length

To restrict HTTP traffic based on the HTTP header length, use the **max-header-length** command in HTTP map configuration mode, which is accessible using the **http-map** command. To remove this command, use the **no** form of this command.

```
max-header-length { request bytes [response bytes] | response bytes } action { allow | reset | drop }
[log]
```

```
no max-header-length { request bytes [response bytes] | response bytes } action { allow | reset |
drop } [log]
```

## Syntax Description

<b>action</b>	The action taken when a message fails this command inspection.
<b>allow</b>	Allow the message.
<b>drop</b>	Closes the connection.
<b>bytes</b>	Number of bytes, range is 1 to 65535.
<b>log</b>	(Optional) Generate a syslog.
<b>request</b>	Request message.
<b>reset</b>	Send a TCP reset message to client and server.
<b>response</b>	(Optional) Response message.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
HTTP map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

After enabling the **max-header-length** command, the security appliance only allows messages having an HTTP header within the configured limit and otherwise takes the specified action. Use the **action** keyword to cause the security appliance to reset the TCP connection and optionally create a syslog entry.

**Examples**

The following example restricts HTTP requests to those with HTTP headers that do not exceed 100 bytes. If a header is too large, the security appliance resets the TCP connection and creates a syslog entry.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# max-header-length request bytes 100 action log reset
hostname(config-http-map)#
```

**Related Commands**

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug appfw</b>	Displays detailed information about traffic associated with enhanced HTTP inspection.
<b>http-map</b>	Defines an HTTP map for configuring enhanced HTTP inspection.
<b>inspect http</b>	Applies a specific HTTP map to use for application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.

# max-object-size

To set a maximum size for objects that the security appliance can cache for WebVPN sessions, use the `max-object-size` command in cache mode. To change the size, use the command again.

**max-object-size** *integer range*

<b>Syntax Description</b>	<i>integer range</i> 0 - 10000 KB
---------------------------	-----------------------------------

<b>Defaults</b>	1000 KB
-----------------	---------

**Command Modes**    The following table shows the modes in which you enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
			Context	System	
Cache mode	•	—	•	—	—

Command History	Release	Modification
	7.1(1)	This command was introduced.

**Usage Guidelines**    The Maximum object size must be larger than the minimum object size. The security appliance calculates the size after compressing the object, if cache compression is enabled.

**Examples**    The following example shows how to set a maximum object size of 4000 KB:

```
hostname(config)# webvpn
hostname(config-webvpn)# cache
hostname(config-webvpn-cache)# max-object-size 4000
hostname(config-webvpn-cache)#
```

Related Commands	Command	Description
	<code>cache</code>	Enters WebVPN Cache mode.
	<code>cache-compressed</code>	Configures WebVPN cache compression.
	<code>disable</code>	Disables caching.
	<code>expiry-time</code>	Configures the expiration time for caching objects without revalidating them.
	<code>lmfactor</code>	Sets a revalidation policy for caching objects that have only the last-modified timestamp.
	<code>min-object-size</code>	Defines the minimum size of an object to cache.

# max-uri-length

To restrict HTTP traffic based on the length of the URI in the HTTP request message, use the **max-uri-length** command in HTTP map configuration mode, which is accessible using the **http-map** command. To remove this command, use the **no** form of this command.

```
max-uri-length bytes action {allow | reset | drop} [log]
```

```
no max-uri-length bytes action {allow | reset | drop} [log]
```

## Syntax Description

<b>action</b>	The action taken when a message fails this command inspection.
<b>allow</b>	Allow the message.
<b>drop</b>	Closes the connection.
<b>bytes</b>	Number of bytes, range is 1 to 65535.
<b>log</b>	(Optional) Generate a syslog.
<b>reset</b>	Send a TCP reset message to client and server.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
HTTP map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

After enabling the **max-uri-length** command, the security appliance only allows messages having a URI within the configured limit and otherwise takes the specified action. Use the **action** keyword to cause the security appliance to reset the TCP connection and create a syslog entry.

URIs with a length less than or equal to the configured value will be allowed. Otherwise, the specified action will be taken.

## Examples

The following example restricts HTTP requests to those with URIs that do not exceed 100 bytes. If a URI is too large, the security appliance resets the TCP connection and creates a syslog entry.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# max-uri-length 100 action reset log
hostname(config-http-map)#
```

Related Commands	Commands	Description
	<b>class-map</b>	Defines the traffic class to which to apply security actions.
	<b>debug appfw</b>	Displays detailed information about traffic associated with enhanced HTTP inspection.
	<b>http-map</b>	Defines an HTTP map for configuring enhanced HTTP inspection.
	<b>inspect http</b>	Applies a specific HTTP map to use for application inspection.
	<b>policy-map</b>	Associates a class map with specific security actions.



## mcc

To identify the mobile country code and the mobile network code for IMSI prefix filtering, use the **mcc** command in GTP map configuration mode. To remove the configuration, use the **no** form of this command.

```
mcc country_code mnc network_code
```

```
no mcc country_code mnc network_code
```

### Syntax Description

<i>country_code</i>	A non-zero, three-digit value identifying the mobile country code. One or two-digit entries will be prepended by 0 to create a three-digit value.
<i>network_code</i>	A two or three-digit value identifying the network code.

### Defaults

By default, the security appliance does not check for valid MCC/MNC combinations.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
GTP map configuration	•	•	•	•	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

This command is used for IMSI Prefix filtering. The MCC and MNC in the IMSI of the received packet is compared with the MCC/MNC configured with this command and is dropped if it does not match.

This command must be used to enable IMSI Prefix filtering. You can configure multiple instances to specify permitted MCC and MNC combinations. By default, the security appliance does not check the validity of MNC and MCC combinations, so you must verify the validity of the combinations configured. To find more information about MCC and MNC codes, see the ITU E.212 recommendation, *Identification Plan for Land Mobile Stations*.

### Examples

The following example identifies traffic for IMSI Prefix filtering with an MCC of 111 and an MNC of 222:

```
hostname(config)# gtp-map gtp-policy
hostname(config-gtpmap)# mcc 111 mnc 222
hostname(config-gtpmap)#
```

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>clear service-policy inspect gtp</b>	Clears global GTP statistics.
<b>debug gtp</b>	Displays detailed information about GTP inspection.
<b>gtp-map</b>	Defines a GTP map and enables GTP map configuration mode.
<b>inspect gtp</b>	Applies a specific GTP map to use for application inspection.
<b>show service-policy inspect gtp</b>	Displays the GTP configuration.

# media-type

To set the media type to copper or fiber Gigabit Ethernet, use the **media-type** command in interface configuration mode. The fiber SFP connector is available on the 4GE SSM for the ASA 5500 series adaptive security appliance. To restore the media type setting to the default, use the **no** form of this command.

```
media-type {rj45 | sfp}
```

```
no media-type [rj45 | sfp]
```

## Syntax Description

<b>rj45</b>	(Default) Sets the media type to the copper RJ-45 connector.
<b>sfp</b>	Sets the media type to the fiber SFP connector.

## Defaults

The default is **rj45**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	•	•	—	•

## Command History

Release	Modification
7.2(1)(4)	This command was introduced.

## Usage Guidelines

The **sfp** setting uses a fixed speed (1000 Mbps), so the **speed** command allows you to set whether the interface negotiates link parameters or not. The **duplex** command is not supported for **sfp**.

## Examples

The following example sets the media type to SFP:

```
hostname(config)# interface gigabitethernet1/1
hostname(config-if)# media-type sfp
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.
<b>show running-config interface</b>	Shows the interface configuration.
<b>speed</b>	Sets the interface speed.

# member

To assign a context to a resource class, use the **member** command in context configuration mode. To remove the context from the class, use the **no** form of this command.

**member** *class\_name*

**no member** *class\_name*

## Syntax Description

*class\_name* Specifies the class name you created with the **class** command.

## Defaults

By default, the context is assigned to the default class.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Context configuration	•	•	—	—	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

By default, all security contexts have unlimited access to the resources of the security appliance, except where maximum limits per context are enforced. However, if you find that one or more contexts use too many resources, and they cause other contexts to be denied connections, for example, then you can configure resource management to limit the use of resources per context. The security appliance manages resources by assigning contexts to resource classes. Each context uses the resource limits set by the class.

## Examples

The following example assigns the context test to the gold class:

```
hostname(config-ctx)# context test
hostname(config-ctx)# allocate-interface gigabitethernet0/0.100 int1
hostname(config-ctx)# allocate-interface gigabitethernet0/0.102 int2
hostname(config-ctx)# allocate-interface gigabitethernet0/0.110-gigabitethernet0/0.115
int3-int8
hostname(config-ctx)# config-url ftp://user1:passw0rd@10.1.1.1/configlets/test.cfg
hostname(config-ctx)# member gold
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>class</b>	Creates a resource class.
<b>context</b>	Configures a security context.
<b>limit-resource</b>	Sets the limit for a resource.
<b>show resource allocation</b>	Shows how you allocated resources across classes.
<b>show resource types</b>	Shows the resource types for which you can set limits.

# memory caller-address

To configure a specific range of program memory for the call tracing, or caller PC, to help isolate memory problems, use the **memory caller-address** command in privileged EXEC mode. The caller PC is the address of the program that called a memory allocation primitive. To remove an address range, use the **no** form of this command.

```
memory caller-address startPC endPC
```

```
no memory caller-address
```

## Syntax Description

<i>endPC</i>	Specifies the end address range of the memory block.
<i>startPC</i>	Specifies the start address range of the memory block.

## Defaults

The actual caller PC is recorded for memory tracing.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	—	•	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Use the **memory caller-address** command to isolate memory problems to a specific block of memory.

In certain cases the actual caller PC of the memory allocation primitive is a known library function that is used at many places in the program. To isolate individual places in the program, configure the start and end program address of the library function, thereby recording the program address of the caller of the library function.



### Note

The security appliance might experience a temporary reduction in performance when caller-address tracing is enabled.

## Examples

The following examples show the address ranges configured with the **memory caller-address** commands, and the resulting display of the **show memory-caller address** command:

```
hostname# memory caller-address 0x00109d5c 0x00109e08
hostname# memory caller-address 0x009b0ef0 0x009b0f14
hostname# memory caller-address 0x00cf211c 0x00cf4464
```

```

hostname# show memory-caller address
Move down stack frame for the addresses:
pc = 0x00109d5c-0x00109e08
pc = 0x009b0ef0-0x009b0f14
pc = 0x00cf211c-0x00cf4464

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>memory profile enable</b>	Enables the monitoring of memory usage (memory profiling).
<b>memory profile text</b>	Configures a text range of memory to profile.
<b>show memory</b>	Displays a summary of the maximum physical memory and current free memory available to the operating system.
<b>show memory binsize</b>	Displays summary information about the chunks allocated for a specific bin size.
<b>show memory profile</b>	Displays information about the memory usage (profiling) of the security appliance.
<b>show memory-caller address</b>	Displays the address ranges configured on the security appliance.



# memory delayed-free-poisoner enable

To enable the delayed free-memory poisoner tool, use the **memory delayed-free-poisoner enable** command in privileged EXEC mode. To disable the delayed free-memory poisoner tool, use the **no** form of this command. The delayed free-memory poisoner tool lets you monitor freed memory for changes after it has been released by an application.

**memory delayed free poisoner enable**

**no memory delayed free poisoner enable**

**Syntax Description** This command has no arguments or keywords.

**Defaults** The **memory delayed-free-poisoner enable** command is disabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Enabling the delayed free-memory poisoner tool has a significant impact on memory usage and system performance. The command should only be used under the supervision of the Cisco TAC. It should not be run in a production environment during heavy system usage.

When you enable this tool, requests to free memory by the applications running on the security appliance are written to a FIFO queue. As each request is written to the queue, each associated byte of memory that is not required by lower-level memory management is “poisoned” by being written with the value 0xcc.

The freed memory requests remain in the queue until more memory is required by an application than is in the free memory pool. When memory is needed, the first freed memory request is pulled from the queue and the poisoned memory is validated.

If the memory is unmodified, it is returned to the lower-level memory pool and the tool reissues the memory request from the application that made the initial request. The process continues until enough memory for the requesting application is freed.

If the poisoned memory has been modified, then the system forces a crash and produces diagnostic output to determine the cause of the crash.

The delayed free-memory poisoner tool periodically performs validation on all of the elements of the queue automatically. Validation can also be started manually using the **memory delayed-free-poisoner validate** command.

The **no** form of the command causes all of the memory referenced by the requests in the queue to be returned to the free memory pool without validation and any statistical counters to be cleared.

## Examples

The following example enables the delayed free-memory poisoner tool:

```
hostname# memory delayed-free-poisoner
```

The following is sample output when the delayed free-memory poisoner tool detects illegal memory reuse:

```
delayed-free-poisoner validate failed because a
    data signature is invalid at delayfree.c:328.

    heap region:    0x025b1cac-0x025b1d63 (184 bytes)
    memory address: 0x025b1cb4
    byte offset:    8
    allocated by:   0x0060b812
    freed by:       0x0060ae15

Dumping 80 bytes of memory from 0x025b1c88 to 0x025b1cd7
025b1c80:                ef cd 1c a1 e1 00 00 00 | .....
025b1c90: 23 01 1c a1 b8 00 00 00 15 ae 60 00 68 ba 5e 02 | #.....`.h.^
025b1ca0: 88 1f 5b 02 12 b8 60 00 00 00 00 00 6c 26 5b 02 | ..[...`.l&[
025b1cb0: 8e a5 ea 10 ff ff ff ff cc cc cc cc cc cc cc | .....
025b1cc0: cc cc cc cc cc cc cc cc cc cc cc cc cc cc cc | .....
025b1cd0: cc cc cc cc cc cc cc cc | .....
```

An internal error occurred. Specifically, a programming assertion was violated. Copy the error message exactly as it appears, and get the output of the `show version` command and the contents of the configuration file. Then call your technical support representative.

```
assertion "0" failed: file "delayfree.c", line 191
```

Table 20-1 describes the significant portion of the output.

**Table 20-1** *Illegal Memory Usage Output Description*

Field	Description
heap region	The address region and size of the region of memory available for use by the requesting application. This is not the same as the requested size, which may be smaller given the manner in which the system may parcel out memory at the time the memory request was made.
memory address	The location in memory where the fault was detected.
byte offset	The byte offset is relative to the beginning of the heap region and can be used to find the field that was modified if the result was used to hold a data structure starting at this address. A value of 0 or that is larger than the heap region byte count may indicate that the problem is an unexpected value in the lower level heap package.

**Table 20-1** *Illegal Memory Usage Output Description*

Field	Description
allocated by/freed by	Instruction addresses where the last malloc/calloc/realloc and free calls were made involving this particular region of memory.
Dumping...	A dump of one or two regions of memory, depending upon how close the detected fault was to the beginning of the region of heap memory. The next eight bytes after any system heap header is the memory used by this tool to hold a hash of various system header values plus the queue linkage. All other bytes in the region until any system heap trailer is encountered should be set to 0xcc.

**Related Commands**

Command	Description
<b>clear memory delayed-free-poisoner</b>	Clears the delayed free-memory poisoner tool queue and statistics.
<b>memory delayed-free-poisoner validate</b>	Forces validation of the elements in the delayed free-memory poisoner tool queue.
<b>show memory delayed-free-poisoner</b>	Displays a summary of the delayed free-memory poisoner tool queue usage.

# memory delayed-free-poisoner validate

To force validation of all elements in the **memory delayed-free-poisoner** queue, use the **memory delayed-free-poisoner validate** command in privileged EXEC mode.

## memory delayed free poisoner enable

### Syntax Description

This command has no arguments or keywords.

### Defaults

No default behaviors or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

You must enable the delayed free-memory poisoner tool using the **memory delayed-free-poisoner enable** command before issuing the **memory delayed-free-poisoner validate** command.

The **memory delayed-free-poisoner validate** command causes each element of the **memory delayed-free-poisoner** queue to be validated. If an element contains unexpected values, then the system forces a crash and produces diagnostic output to determine the cause of the crash. If no unexpected values are encountered, the elements remain in the queue and are processed normally by the tool; the **memory delayed-free-poisoner validate** command does not cause the memory in the queue to be returned to the system memory pool.



#### Note

The delayed free-memory poisoner tool periodically performs validation on all of the elements of the queue automatically.

### Examples

The following example causes all elements in the **memory delayed-free-poisoner** queue to be validated:

```
hostname# memory delayed-free-poisoner validate
```

### Related Commands

<b>Command</b>	<b>Description</b>
<b>clear memory delayed-free-poisoner</b>	Clears the delayed free-memory poisoner tool queue and statistics.
<b>memory delayed-free-poisoner enable</b>	Enables the delayed free-memory poisoner tool.
<b>show memory delayed-free-poisoner</b>	Displays a summary of the delayed free-memory poisoner tool queue usage.

# memory profile enable

To enable the monitoring of memory usage (memory profiling), use the **memory profile enable** command in privileged EXEC mode. To disable memory profiling, use the **no** form of this command.

**memory profile enable peak** *peak\_value*

**no memory profile enable peak** *peak\_value*

## Syntax Description

*peak\_value* Specifies the memory usage threshold at which a snapshot of the memory usage is saved to the peak usage buffer. The contents of this buffer could be analyzed at a later time to determine the peak memory needs of the system.

## Defaults

Memory profiling is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	•	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Before enabling memory profiling, you must first configure a memory text range to profile with the **memory profile text** command.

Some memory is held by the profiling system until you enter the **clear memory profile** command. See the output of the **show memory status** command.



### Note

The security appliance might experience a temporary reduction in performance when memory profiling is enabled.

The following example enables memory profiling:

```
hostname# memory profile enable
```

## Related Commands

Command	Description
<b>memory profile text</b>	Configures a text range of memory to profile.
<b>show memory profile</b>	Displays information about the memory usage (profiling) of the security appliance.

# memory profile text

To configure a program text range of memory to profile, use the **memory profile text** command in privileged EXEC mode. To disable, use the **no** form of this command.

**memory profile text** {*startPC endPC* | **all** *resolution*}

**no memory profile text** {*startPC endPC* | **all** *resolution*}

## Syntax Description

<b>all</b>	Specifies the entire text range of the memory block.
<i>endPC</i>	Specifies the end text range of the memory block.
<i>resolution</i>	Specifies the resolution of tracing for the source text region.
<i>startPC</i>	Specifies the start text range of the memory block.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	•	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

For a small text range, a resolution of “4” normally traces the call to an instruction. For a larger text range, a coarse resolution is probably enough for the first pass and the range could be narrowed down to a set of smaller regions in the next pass.

After entering the text range with the **memory profile text** command, you must then enter the **memory profile enable** command to begin memory profiling. Memory profiling is disabled by default.



### Note

The security appliance might experience a temporary reduction in performance when memory profiling is enabled.

## Examples

The following example shows how to configure a text range of memory to profile, with a resolution of 4:

```
hostname# memory profile text 0x004018b4 0x004169d0 4
```



The following example displays the configuration of the text range and the status of memory profiling (OFF):

```
hostname# show memory profile
InUse profiling: OFF
Peak profiling: OFF
Profile:
0x004018b4-0x004169d0 (00000004)
```

**Note**

To begin memory profiling, you must enter the **memory profile enable** command. Memory profiling is disabled by default.

**Related Commands**

Command	Description
<b>clear memory profile</b>	Clears the buffers held by the memory profiling function.
<b>memory profile enable</b>	Enables the monitoring of memory usage (memory profiling).
<b>show memory profile</b>	Displays information about the memory usage (profiling) of the security appliance.
<b>show memory-caller address</b>	Displays the address ranges configured on the security appliance.

# memory-size

To configure the amount of memory on the security appliance which the various components of WebVPN can access, use the **memory-size** command in webvpn mode. You can configure the amount of memory either as a set amount of memory in KB or as a percentage of total memory. To remove a configured memory size, use the **no** form of this command.



## Note

A reboot is required for the new memory size setting to take effect.

**memory-size** {percent | kb} *size*

**no memory-size** [{percent | kb} *size*]

## Syntax Description

<b>kb</b>	Specifies the amount of memory in Kilobytes.
<b>percent</b>	Specifies the amount of memory as a percentage of total memory on the security appliance.
<i>size</i>	Specifies the amount of memory, either in KB or as a percentage of total memory.

## Defaults

No default behavior or value.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Webvpn mode	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Examples

The following example shows how to configure a WebVPN memory size of 30 per cent:

```
hostname(config)# webvpn
hostname(config-webvpn)# memory-size percent 30
hostname(config-webvpn)#
hostname(config-webvpn)# reload
```

Command	Description
<b>show memory webvpn</b>	Displays WebVPN memory usage statistics.

# message-length

To filter GTP packets that do not meet the configured maximum and minimum length, use the **message-length** command in GTP map configuration mode, which is accessed by using the **gtp-map** command. Use the **no** form to remove the command.

```
message-length min min_bytes max max_bytes
```

```
no message-length min min_bytes max max_bytes
```

## Syntax Description

<b>max</b>	Specifies the maximum number of bytes allowed in the UDP payload.
<i>max_bytes</i>	The maximum number of bytes in the UDP payload. The range is from 1 to 65536
<b>min</b>	Specifies the minimum number of bytes allowed in the UDP payload
<i>min_bytes</i>	The minimum number of bytes in the UDP payload. The range is from 1 to 65536

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
GTP map configuration	•	•	•	•	No

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The length specified by this command is the sum of the GTP header and the rest of the message, which is the payload of the UDP packet.

## Examples

The following example allows messages between 20 bytes and 300 bytes in length:

```
hostname(config)# gtp-map gtp-policy
hostname(config-gtpmap)# permit message-length min 20 max 300
hostname(config-gtpmap)#
```

## Related Commands

<b>Commands</b>	<b>Description</b>
<b>clear service-policy inspect gtp</b>	Clears global GTP statistics.
<b>debug gtp</b>	Displays detailed information about GTP inspection.
<b>gtp-map</b>	Defines a GTP map and enables GTP map configuration mode.
<b>inspect gtp</b>	Applies a specific GTP map to use for application inspection.
<b>show service-policy inspect gtp</b>	Displays the GTP configuration.

# mfib forwarding

To reenabling MFIB forwarding on an interface, use the **mfib forwarding** command in interface configuration mode. To disable MFIB forwarding on an interface, use the **no** form of this command.

**mfib forwarding**

**no mfib forwarding**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The **multicast-routing** command enables MFIB forwarding on all interfaces by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

When you enable multicast routing, MFIB forwarding is enabled on all interfaces by default. Use the **no** form of the command to disable MFIB forwarding on a specific interface. Only the **no** form of the command appears in the running configuration.

When MFIB forwarding is disabled on an interface, the interface does not accept any multicast packets unless specifically configured through other methods. IGMP packets are also prevented when MFIB forwarding is disabled.

## Examples

The following example disables MFIB forwarding on the specified interface:

```
hostname(config)# interface GigabitEthernet 0/0
hostname(config-if)# no mfib forwarding
```

## Related Commands

Command	Description
<b>multicast-routing</b>	Enables multicast routing.
<b>pim</b>	Enables PIM on an interface.

# min-object-size

To set a minimum size for objects that the security appliance can cache for WebVPN sessions, use the `min-object-size` command in cache mode. To change the size, use the command again. To set no minimum object size, enter a value of zero (0).

**min-object-size** *integer range*

**Syntax Description** *integer range* 0 - 10000 KB.

**Defaults** The default size is 0 KB.

**Command Modes** The following table shows the modes in which you enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Cache mode	•	—	•	—	—

**Command History**

Release	Modification
7.1(1)	This command was introduced.

**Usage Guidelines** The minimum object size must be smaller than the maximum object size. The security appliance calculates the size after compressing the object, if cache compression is enabled.

**Examples** The following example shows how to set a maximum object size of 40 KB:

```
hostname(config)# webvpn
hostname(config-webvpn)# cache
hostname(config-webvpn-cache)# min-object-size 40
hostname(config-webvpn-cache)#
```

Command	Description
<code>cache</code>	Enters WebVPN Cache mode.
<code>cache-compressed</code>	Configures WebVPN cache compression.
<code>disable</code>	Disables caching.
<code>expiry-time</code>	Configures the expiration time for caching objects without revalidating them.

Command	Description
<b>lfactor</b>	Sets a revalidation policy for caching objects that have only the last-modified timestamp.
<b>max-object-size</b>	Defines the maximum size of an object to cache.

# mkdir

To create a new directory, use the **mkdir** command in privileged EXEC mode.

```
mkdir [/noconfirm] [disk0: | disk1: | flash:]path
```

Syntax Description	
<b>noconfirm</b>	(Optional) Suppresses the confirmation prompt.
<b>disk0:</b>	(Optional) Specifies the internal Flash memory, followed by a colon.
<b>disk1:</b>	(Optional) Specifies the external Flash memory card, followed by a colon.
<b>flash:</b>	(Optional) Specifies the internal Flash memory, followed by a colon. In the ASA 5500 series, the <b>flash</b> keyword is aliased to <b>disk0</b> .
<i>path</i>	The name and path of the directory to create.

## Defaults

If you do not specify a path, the directory is created in the current working directory.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

If a directory with the same name already exists, then the new directory is not created.

## Examples

This example shows how to make a new directory called “backup”:

```
hostname# mkdir backup
```

## Related Commands

Command	Description
<b>cd</b>	Changes the current working directory to the one specified.
<b>dir</b>	Displays the directory contents.
<b>rmdir</b>	Removes the specified directory.
<b>pwd</b>	Display the current working directory.



# mode

To set the security context mode to single or multiple, use the **mode** command in global configuration mode. You can partition a single security appliance into multiple virtual devices, known as security contexts. Each context behaves like an independent device, with its own security policy, interfaces, and administrators. Multiple contexts are similar to having multiple standalone appliances. In single mode, the security appliance has a single configuration and behaves as a single device. In multiple mode, you can create multiple contexts, each with its own configuration. The number of contexts allowed depends on your license.

```
mode {single | multiple} [noconfirm]
```

## Syntax Description

<b>multiple</b>	Sets multiple context mode.
<b>noconfirm</b>	(Optional) Sets the mode without prompting you for confirmation. This option is useful for automated scripts.
<b>single</b>	Sets the context mode to single.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

In multiple context mode, the security appliance includes a configuration for each context that identifies the security policy, interfaces, and almost all the options you can configure on a stand-alone device (see the **config-url** command to identify the context configuration location). The system administrator adds and manages contexts by configuring them in the system configuration, which, like a single mode configuration, is the startup configuration. The system configuration identifies basic settings for the security appliance. The system configuration does not include any network interfaces or network settings for itself; rather, when the system needs to access network resources (such as downloading the contexts from the server), it uses one of the contexts that is designated as the admin context.

When you change the context mode using the **mode** command, you are prompted to reboot.

The context mode (single or multiple) is not stored in the configuration file, even though it does endure reboots. If you need to copy your configuration to another device, set the mode on the new device to match using the **mode** command.

When you convert from single mode to multiple mode, the security appliance converts the running configuration into two files: a new startup configuration that comprises the system configuration, and `admin.cfg` that comprises the admin context (in the root directory of the internal Flash memory). The original running configuration is saved as `old_running.cfg` (in the root directory of the internal Flash memory). The original startup configuration is not saved. The security appliance automatically adds an entry for the admin context to the system configuration with the name “admin.”

If you convert from multiple mode to single mode, you might want to first copy a full startup configuration (if available) to the security appliance; the system configuration inherited from multiple mode is not a complete functioning configuration for a single mode device.

Not all features are supported in multiple context mode. See the *Cisco Security Appliance Command Line Configuration Guide* for more information.

## Examples

The following example sets the mode to multiple:

```
hostname(config)# mode multiple
WARNING: This command will change the behavior of the device
WARNING: This command will initiate a Reboot
Proceed with change mode? [confirm] y
Convert the system configuration? [confirm] y
Flash Firewall mode: multiple

***
*** --- SHUTDOWN NOW ---
***
*** Message to all terminals:
***
***   change mode

Rebooting...

Booting system, please wait...
```

The following example sets the mode to single:

```
hostname(config)# mode single
WARNING: This command will change the behavior of the device
WARNING: This command will initiate a Reboot
Proceed with change mode? [confirm] y
Flash Firewall mode: single

***
*** --- SHUTDOWN NOW ---
***
*** Message to all terminals:
***
***   change mode

Rebooting...

Booting system, please wait...
```

## Related Commands

Command	Description
<b>context</b>	Configures a context in the system configuration and enters context configuration mode.
<b>show mode</b>	Shows the current context mode, either single or multiple.

# monitor-interface

To enable health monitoring on a specific interface, use the **monitor-interface** command in global configuration mode. To disable interface monitoring, use the **no** form of this command.

**monitor-interface** *if\_name*

**no monitor-interface** *if\_name*

## Syntax Description

*if\_name* Specifies the name of the interface being monitored.

## Defaults

Monitoring of physical interfaces is enabled by default; monitoring of logical interfaces is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The number of interfaces that can be monitored for the security appliance is 250. Hello messages are exchanged during every interface poll frequency time period between the security appliance failover pair. The failover interface poll time is 3 to 15 seconds. For example, if the poll time is set to 5 seconds, testing begins on an interface if 5 consecutive hellos are not heard on that interface (25 seconds).

Monitored failover interfaces can have the following status:

- Unknown—Initial status. This status can also mean the status cannot be determined.
- Normal—The interface is receiving traffic.
- Testing—Hello messages are not heard on the interface for five poll times.
- Link Down—The interface or VLAN is administratively down.
- No Link—The physical link for the interface is down.
- Failed—No traffic is received on the interface, yet traffic is heard on the peer interface.

In Active/Active failover, this command is only valid within a context.

**Examples**

The following example enables monitoring on an interface named “inside”:

```
hostname(config)# monitor-interface inside
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure monitor-interface</b>	Restores the default interface health monitoring for all interfaces.
<b>failover interface-policy</b>	Specifies the number or percentage of monitored interface that must fail for failover to occur.
<b>failover polltime</b>	Specifies the interval between hello messages on an interface (Active/Standby failover).
<b>polltime interface</b>	Specifies the interval between hello messages on an interface (Active/Active failover).
<b>show running-config monitor-interface</b>	Displays the <b>monitor-interface</b> commands in the running configuration.

# more

To display the contents of a file, use the **more** command.

```
more [/ascii | /binary| /ebcdic | disk0: | disk1: | flash: | ftp: | http: | https: | system: |
tftp:}filename
```

## Syntax Description

<b>/ascii</b>	(Optional) Displays a binary file in binary mode and an ASCII file in binary mode.
<b>/binary</b>	(Optional) Displays any file in binary mode.
<b>/ebcdic</b>	(Optional) Displays binary files in EBCDIC.
<b>disk0:</b>	(Optional) Displays a file on the internal Flash memory.
<b>disk1:</b>	(Optional) Displays a file on the external Flash memory card.
<b>flash:</b>	(Optional) Specifies the internal Flash memory, followed by a colon. In the ASA 5500 series, the <b>flash</b> keyword is aliased to <b>disk0</b> .
<b>ftp:</b>	(Optional) Displays a file on an FTP server.
<b>http:</b>	(Optional) Displays a file on a web site.
<b>https:</b>	(Optional) Displays a file on a secure web site.
<b>system:</b>	(Optional) Displays the file system.
<b>tftp:</b>	(Optional) Displays a file on a TFTP server.
<i>filename</i>	Specifies the name of the file to display.

## Defaults

ASCII mode

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **more filesystem:** command prompts you to enter the alias of the local directory or file systems.

## Examples

This example shows how to display the contents of a local file named “test.cfg”:

```
hostname# more test.cfg
: Saved
: Written by enable_15 at 10:04:01 Apr 14 2005
```

```

XXX Version X.X(X)
nameif vlan300 outside security10
enable password 8Ry2YjIyt7RRXU24 encrypted
passwd 2KFQnbNIdI.2KYOU encrypted
hostname test
fixup protocol ftp 21
fixup protocol h323 H225 1720
fixup protocol h323 ras 1718-1719
fixup protocol ils 389
fixup protocol rsh 514
fixup protocol smtp 25
fixup protocol sqlnet 1521
fixup protocol sip 5060
fixup protocol skinny 2000
names
access-list deny-flow-max 4096
access-list alert-interval 300
access-list 100 extended permit icmp any any
access-list 100 extended permit ip any any
pager lines 24
icmp permit any outside
mtu outside 1500
ip address outside 172.29.145.35 255.255.0.0
no asdm history enable
arp timeout 14400
access-group 100 in interface outside
!
interface outside
!
route outside 0.0.0.0 0.0.0.0 172.29.145.1 1
timeout xlate 3:00:00
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 icmp 0:00:02 rpc 0:10:00 h3
23 0:05:00 h225 1:00:00 mgcp 0:05:00 sip 0:30:00 sip_media 0:02:00
timeout uauth 0:05:00 absolute
aaa-server TACACS+ protocol tacacs+
aaa-server RADIUS protocol radius
aaa-server LOCAL protocol local
snmp-server host outside 128.107.128.179
snmp-server location my_context, USA
snmp-server contact admin@my_context.com
snmp-server community public
no snmp-server enable traps
floodguard enable
fragment size 200 outside
no sysopt route dnat
telnet timeout 5
ssh timeout 5
terminal width 511
gdb enable
mgcp command-queue 0
Cryptochecksum:00000000000000000000000000000000
: end

```

**Related Commands**

Command	Description
<b>cd</b>	Changes to the specified directory.
<b>pwd</b>	Displays the current working directory.

# mroute

To configure a static multicast route, use the **mroute** command in global configuration mode. To remove a static multicast route, use the **no** form of this command.

```
mroute src smask {in_if_name | rpf_addr} [dense output_if_name] [distance]
```

```
no mroute src smask in_if_name [dense output_if_name] [distance]
```

## Syntax Description

<b>dense</b> <i>output_if_name</i>	(Optional) The interface name for dense mode output. The <b>dense</b> <i>output_if_name</i> keyword and argument pair is only supported for SMR stub multicast routing (igmp forwarding).
<i>distance</i>	(Optional) The administrative distance of the route. Routes with lower distances have preference. The default is 0.
<i>in_if_name</i>	Specifies the incoming interface name for the mroute.
<i>rpf_addr</i>	Specifies the incoming interface for the mroute. If the RPF address PIM neighbor, PIM join, graft, and prune messages are sent to it. The <i>rpf-addr</i> argument can be a host IP address of a directly connected system or a network/subnet number. When it is a route, a recursive lookup is done from the unicast routing table to find a directly connected system.
<i>smask</i>	Specifies the multicast source network address mask.
<i>src</i>	Specifies the IP address of the multicast source.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

This command lets you statically configure where multicast sources are located. The security appliance expects to receive multicast packets on the same interface as it would use to send unicast packets to a specific source. In some cases, such as bypassing a route that does not support multicast routing, multicast packets may take a different path than the unicast packets.

Static multicast routes are not advertised or redistributed.



Use the **show mroute** command displays the contents of the multicast route table. Use the **show running-config mroute** command to display the mroute commands in the running configuration.

---

**Examples**

The following example shows how configure a static multicast route using the **mroute** command:

```
hostname(config)# mroute 172.16.0.0 255.255.0.0 inside
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure mroute</b>	Removes the <b>mroute</b> commands from the configuration.
<b>show mroute</b>	Displays the IPv4 multicast routing table.
<b>show running-config mroute</b>	Displays the <b>mroute</b> commands in the configuration.

# msie-proxy except-list

To configure Microsoft Internet Explorer browser proxy exception list settings for a local bypass on the client PC, enter the **msie-proxy except-list** command in group-policy configuration mode. To remove the attribute from the configuration, use the **no** form of the command.

```
msie-proxy except-list {value server[:port] | none}
```

```
no msie-proxy except-list
```

## Syntax Description

<b>none</b>	Indicates that there is no IP address/hostname or port and prevents inheriting an exception list.
<b>value server:port</b>	Specifies the IP address or name of an MSIE server and port that is applied for this client PC. The port number is optional.

## Defaults

By default, msie-proxy except-list is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The line containing the proxy server IP address or hostname and the port number must be less than 100 characters long.

## Examples

The following example shows how to set a Microsoft Internet Explorer proxy exception list, consisting of the server at IP address 192.168.20.1, using port 880, for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# msie-proxy except-list value 192.168.20.1:880
hostname(config-group-policy)#
```

## Related Commands

Command	Description
<b>show running-configuration group-policy</b>	Shows the value of the configured group-policy attributes.
<b>clear configure group-policy</b>	Removes all configured group-policy attributes.

# msie-proxy local-bypass

To configure Microsoft Internet Explorer browser proxy local-bypass settings for a client PC, enter the **msie-proxy local-bypass** command in group-policy configuration mode. To remove the attribute from the configuration, use the **no** form of the command.

**msie-proxy local-bypass {enable | disable}**

**no msie-proxy local-bypass {enable | disable}**

## Syntax Description

<b>disable</b>	Disables Microsoft Internet Explorer browser proxy local-bypass settings for a client PC.
<b>enable</b>	Enables Microsoft Internet Explorer browser proxy local-bypass settings for a client PC.

## Defaults

By default, msie-proxy local-bypass is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to enable Microsoft Internet Explorer proxy local-bypass for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# msie-proxy local-bypass enable
hostname(config-group-policy)#
```

## Related Commands

Command	Description
<b>show running-configuration group-policy</b>	Shows the value of the configured group-policy attributes.
<b>clear configure group-policy</b>	Removes all configured group-policy attributes.

# msie-proxy method

To configure the Microsoft Internet Explorer browser proxy actions (“methods”) for a client PC, enter the **msie-proxy method** command in group-policy configuration mode. To remove the attribute from the configuration, use the **no** form of the command.

**msie-proxy method** [**auto-detect** | **no-modify** | **no-proxy** | **use-server**]

**no msie-proxy method** [**auto-detect** | **no-modify** | **no-proxy** | **use-server**]

## Syntax Description

<b>auto-detect</b>	Enables the use of automatic proxy server detection in Internet Explorer for the client PC.
<b>no-modify</b>	Leaves the HTTP browser proxy server setting in Internet Explorer unchanged for this client PC.
<b>no-proxy</b>	Disables the HTTP proxy setting in Internet Explorer for the client PC.
<b>use-server</b>	Sets the HTTP proxy server setting in Internet Explorer to use the value configured in the <b>msie-proxy server</b> command.

## Defaults

The default method is use-server.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The line containing the proxy server IP address or hostname and the port number must be less than 100 characters long.

## Examples

The following example shows how to configure auto-detect as the Microsoft Internet Explorer proxy setting for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# msie-proxy method auto-detect
hostname(config-group-policy)#
```

The following example configures the Microsoft Internet Explorer proxy setting for the group policy named FirstGroup to use the server QAsrvr, port 1001 as the server for the client PC:

## ■ msie-proxy method

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# msie-proxy server QAserver:port 1001
hostname(config-group-policy)# msie-proxy method use-server
hostname(config-group-policy)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>msie-proxy server</b>	Configures a Microsoft Internet Explorer browser proxy server and port for a client PC
<b>show running-configuration group-policy</b>	Shows the value of the configured group-policy attributes.
<b>clear configure group-policy</b>	Removes all configured group-policy attributes.

# msie-proxy server

To configure a Microsoft Internet Explorer browser proxy server and port for a client PC, enter the **msie-proxy server** command in group-policy configuration mode. To remove the attribute from the configuration, use the **no** form of the command.

```
msie-proxy server {value server[:port] | none}
```

```
no msie-proxy server
```

## Syntax Description

<b>none</b>	Indicates that there is no IP address/hostname or port specified for the proxy server and prevents inheriting a server.
<b>value server:port</b>	Specifies the IP address or name of an MSIE server and port that is applied for this client PC. The port number is optional.

## Defaults

By default, no msie-proxy server is specified.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The line containing the proxy server IP address or hostname and the port number must be less than 100 characters long.

## Examples

The following example shows how to configure the IP address 192.168.10.1 as a Microsoft Internet Explorer proxy server, using port 880, for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# msie-proxy server value 192.168.21.1:880
hostname(config-group-policy)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>show running-configuration group-policy</b>	Shows the value of the configured group-policy attributes.
<b>clear configure group-policy</b>	Removes all configured group-policy attributes.



# mtu

To specify the maximum transmission unit for an interface, use the **mtu** command in global configuration mode. To reset the MTU block size to 1500 for Ethernet interfaces, use the **no** form of this command. This command supports IPv4 and IPv6 traffic.

**mtu** *interface\_name* *bytes*

**no mtu** *interface\_name* *bytes*

## Syntax Description

<i>bytes</i>	Number of bytes in the MTU; valid values are from 64 to 65,535 bytes.
<i>interface_name</i>	Internal or external network interface name.

## Defaults

The default *bytes* is 1500 for Ethernet interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	—	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **mtu** command lets you to set the data size that is sent on a connection. Data that is larger than the MTU value is fragmented before being sent.

The security appliance supports IP path MTU discovery (as defined in RFC 1191), which allows a host to dynamically discover and cope with the differences in the maximum allowable MTU size of the various links along the path. Sometimes, the security appliance cannot forward a datagram because the packet is larger than the MTU that you set for the interface, but the “don’t fragment” (DF) bit is set. The network software sends a message to the sending host, alerting it to the problem. The host has to fragment packets for the destination so that they fit the smallest packet size of all the links along the path.

The default MTU is 1500 bytes in a block for Ethernet interfaces (which is also the maximum). This value is sufficient for most applications, but you can pick a lower number if network conditions require it.

When using the Layer 2 Tunneling Protocol (L2TP), we recommend that you set the MTU size to 1380 to account for the L2TP header and IPSec header length.

**Examples**

This example shows how to specify the MTU for an interface:

```
hostname(config)# show running-config mtu
mtu outside 1500
mtu inside 1500
hostname(config)# mtu inside 8192
hostname(config)# show running-config mtu
mtu outside 1500
mtu inside 8192
```

**Related Commands**

Command	Description
clear configure mtu	Clears the configured maximum transmission unit values on all interfaces.
<b>show running-config mtu</b>	Displays the current maximum transmission unit block size.

# multicast boundary

To configure a multicast boundary for administratively-scoped multicast addresses, use the **multicast boundary** command in interface configuration mode. To remove the boundary, use the **no** form of this command. A multicast boundary restricts multicast data packet flows and enables reuse of the same multicast group address in different administrative domains.

**multicast boundary** *acl* [**filter-autorp**]

**no multicast boundary** *acl* [**filter-autorp**]

## Syntax Description

<i>acl</i>	Specifies an access list name or number. The access list defines the range of addresses affected by the boundary. Use only standard ACLs with this command; extended ACLs are not supported.
<b>filter-autorp</b>	Filters Auto-RP messages denied by the boundary ACL. If not specified, all Auto-RP messages are passed.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Use this command to configure an administratively scoped boundary on an interface to filter multicast group addresses in the range defined by the *acl* argument. A standard access list defines the range of addresses affected. When this command is configured, no multicast data packets are allowed to flow across the boundary in either direction. Restricting multicast data packet flow enables reuse of the same multicast group address in different administrative domains.

If you configure the **filter-autorp** keyword, the administratively scoped boundary also examines Auto-RP discovery and announcement messages and removes any Auto-RP group range announcements from the Auto-RP packets that are denied by the boundary ACL. An Auto-RP group range announcement is permitted and passed by the boundary only if all addresses in the Auto-RP group range are permitted by the boundary ACL. If any address is not permitted, the entire group range is filtered and removed from the Auto-RP message before the Auto-RP message is forwarded.

**Examples**

The following example sets up a boundary for all administratively scoped addresses and filters the Auto-RP messages:

```
hostname(config)# access-list boundary_test deny 239.0.0.0 0.255.255.255
hostname(config)# access-list boundary_test permit 224.0.0.0 15.255.255.255
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# multicast boundary boundary_test filter-autorp
```

**Related Commands**

Command	Description
<b>multicast-routing</b>	Enables multicast routing on the security appliance.

# multicast-routing

To enable IP multicast routing on the security appliance, use the **multicast routing** command in global configuration mode. To disable IP multicast routing, use the **no** form of this command.

**multicast-routing**

**no multicast-routing**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The **multicast-routing** command enables PIM and IGMP on all interfaces by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **multicast-routing** command enables PIM and IGMP on all interfaces.



### Note

PIM is not supported with PAT. The PIM protocol does not use ports and PAT only works with protocols that use ports.

If the security appliance is the PIM RP, use the untranslated outside address of the security appliance as the RP address.

The number of entries in the multicast routing tables are limited by the amount of RAM on the system. Table 20-2 lists the maximum number of entries for specific multicast tables based on the amount of RAM on the security appliance. Once these limits are reached, any new entries are discarded.

**Table 20-2** *Entry Limits for Multicast Tables*

Table	16 MB	128 MB	128+ MB
MFIB	1000	3000	5000
IGMP Groups	1000	3000	5000
PIM Routes	3000	7000	12000

---

**Examples**

The following example enables IP multicast routing on the security appliance:

```
hostname(config)# multicast-routing
```

---

**Related Commands**

Command	Description
<b>igmp</b>	Enables IGMP on an interface.
<b>pim</b>	Enables PIM on an interface.









## **nac through override-account-disable Commands**

---

## nac

To enable or disable Network Admission Control, use the **nac** command in group-policy configuration mode. To inherit the NAC setting from the default group policy, access the alternative group policy from which to inherit it, then use the **no** form of this command.

**nac {enable | disable}**

**no nac [enable | disable]**

### Syntax

<b>enable</b>	Enables NAC, which requires posture validation for remote access. If the remote computer passes the validation checks, the ACS server downloads the access policy for the security appliance to enforce
<b>disable</b>	Disables NAC.

### Defaults

The default setting is disabled.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
group-policy configuration	•	—	•	—	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

An Access Control Server must be present on the network.

### Examples

The following example enables NAC for the group policy:

```
hostname(config-group-policy)# nac enable
hostname(config-group-policy)
```

The following example disables NAC for the group policy:

```
hostname(config-group-policy)# nac disable
hostname(config-group-policy)
```

The following example inherits the NAC setting from the default group policy:

```
hostname(config-group-policy)# no nac
hostname(config-group-policy)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa-server</b>	Creates a record of the AAA server or group and sets the host-specific AAA server attributes.
<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
<b>debug nac</b>	Enables logging of NAC events.
<b>nac-authentication-server-group</b>	Identifies the group of authentication servers to be used for Network Admission Control Posture Validation

# nac-authentication-server-group

To identify the group of authentication servers to be used for Network Admission Control posture validation, use the **nac-authentication-server-group** command in tunnel-group general-attributes configuration mode. To inherit the authentication server group from the default remote access group, access the alternative group policy from which to inherit it, then use the **no** form of this command.

**nac-authentication-server-group** *server-group*

**no nac-authentication-server-group**

Syntax	Description
<i>server-group</i>	Name of the posture validation server group, as configured on the security appliance using the <b>aaa-server host</b> command. The name must match the server-tag variable specified in that command.

**Defaults** This command has no arguments or keywords.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
tunnel-group general-attributes configuration	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** Configure at least one Access Control Server to support NAC. Use the **aaa-server** command to name the ACS group. Then use the **nac-authentication-server-group** command, using the same name for the server group.

**Examples** The following example identifies acs-group1 as the authentication server group to be used for NAC posture validation:

```
hostname(config-group-policy)# nac-authentication-server-group acs-group1
hostname(config-group-policy)
```

The following example inherits the authentication server group from the default remote access group.

```
hostname(config-group-policy)# no nac-authentication-server-group
hostname(config-group-policy)
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa-server</b>	Creates a record of the AAA server or group and sets the host-specific AAA server attributes.
<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
<b>debug nac</b>	Enables logging of NAC events.
<b>nac</b>	Enables Network Admission Control on a group policy.

# nac-default-acl

To specify the ACL to be used as the default ACL for Network Admission Control sessions that fail posture validation, use the **nac-default-acl** command in group-policy configuration mode.

**nac-default-acl value** *acl-name*

**nac-default-acl none**

To inherit the ACL from the default group policy, access the alternative group policy from which to inherit it, then use the **no** form of this command.

**no nac-default-acl**

Syntax	Description
<i>acl-name</i>	Names the posture validation server group, as configured on the security appliance using the <b>aaa-server host</b> command. The name must match the server-tag variable specified in that command.
<b>none</b>	Disables inheritance of the ACL from the default group policy and does not apply an ACL to NAC sessions that fail posture validation.

## Defaults

The default setting is **none**.

Because NAC is disabled by default, VPN traffic traversing the security appliance is not subject to the NAC Default ACL until NAC is enabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
group-policy configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example identifies `acl-1` as the ACL to be applied when posture validation fails:

```
hostname(config-group-policy)# nac-default-acl value acl-1
hostname(config-group-policy)
```

The following example inherits the ACL from the default group policy.

```
hostname(config-group-policy)# no nac-default-acl
hostname(config-group-policy)
```

The following example disables inheritance of the ACL from the default group policy and does not apply an ACL to NAC sessions that fail posture validation:

```
hostname(config-group-policy)# nac-default-acl none
hostname(config-group-policy)
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
<b>debug nac</b>	Enables logging of NAC events.
<b>nac</b>	Enables Network Admission Control on a group policy.

# nac-reval-period

To specify the interval between each successful posture validation in a Network Admission Control session, use the **nac-reval-period** command in group-policy configuration mode. To inherit the value of the Revalidation Timer from the default group policy, access the alternative group policy from which to inherit it, then use the **no** form of this command.

**nac-reval-period** *seconds*

**no nac-reval-period** [*seconds*]

Syntax	Description
<i>seconds</i>	Number of seconds between each successful posture validation. The range is 300 to 86400.

**Defaults** The default value is 36000.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
group-policy configuration	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** The security appliance starts the Revalidation Timer after each successful posture validation. The expiration of this timer triggers the next unconditional posture validation. The security appliance maintains posture validation during revalidation. The default group policy becomes effective if the Access Control Server is unavailable during posture validation or revalidation.

**Examples** The following example changes the revalidation timer to 86400 seconds:

```
hostname(config-group-policy)# nac-reval-period 86400
hostname(config-group-policy)
```

The following example inherits the value of the revalidation timer from the default group policy:

```
hostname(config-group-policy)# no nac-reval-period
hostname(config-group-policy)
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
<b>debug nac</b>	Enables logging of NAC events.
<b>nac</b>	Enables Network Admission Control on a group policy.

# nac-sq-period

To specify the interval between each successful posture validation in a Network Admission Control session and the next query for changes in the host posture, use the **nac-sq-period** command in group-policy configuration mode. To inherit the value of the status query timer from the default group policy, access the alternative group policy from which to inherit it, then use the **no** form of this command.

**nac-sq-period** *seconds*

**no nac-sq-period** [*seconds*]

Syntax	Description
<i>seconds</i>	Number of seconds between each successful posture validation. The range is 300 to 1800.

**Defaults** The default value is 300.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
group-policy configuration	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** The security appliance starts the status query timer after each successful posture validation and status query response. The expiration of this timer triggers a query for changes in the host posture, referred to as a *status query*.

**Examples** The following example changes the value of the status query timer to 1800 seconds:

```
hostname(config-group-policy)# nac-sq-period 1800
hostname(config-group-policy)
```

The following example inherits the value of the status query timer from the default group policy:

```
hostname(config-group-policy)# no nac-sq-period
hostname(config-group-policy)
```

## Related Commands

Command	Description
<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
<b>debug nac</b>	Enables logging of NAC events.
<b>nac</b>	Enables Network Admission Control on a group policy.
<b>nac-reval-period</b>	Specifies the interval between each successful posture validation in a Network Admission Control session

## name

To associate a name with an IP address, use the **name** command in global configuration mode. To disable the use of the text names but not remove them from the configuration, use the **no** form of this command.

**name** *ip\_address name* [description *text*]

**no name** *ip\_address [name* [description *text*]]

### Syntax Description

<i>description</i>	(Optional) Specifies a description for the ip address name.
<i>ip_address</i>	Specifies an IP address of the host that is named.
<i>name</i>	Specifies the name assigned to the IP address. Use characters a to z, A to Z, 0 to 9, a dash, and an underscore. The <i>name</i> must be 63 characters or less. Also, the <i>name</i> cannot start with a number.
<i>text</i>	Specifies the text for the description.

### Defaults

No default behaviors or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.
7.0(4)	This command was enhanced to include an optional description.

### Usage Guidelines

To enable the association of a name with an IP address, use the **names** command. You can associate only one name with an IP address.

You must first use the **names** command before you use the **name** command. Use the **name** command immediately after you use the **names** command and before you use the **write memory** command.

The **name** command lets you identify a host by a text name and map text strings to IP addresses. The **no name** command allows you to disable the use of the text names but does not remove them from the configuration. Use the **clear configure name** command to clear the list of names from the configuration.

To disable displaying **name** values, use the **no names** command.

Both the **name** and **names** commands are saved in the configuration.

The **name** command does not support assigning a name to a network mask. For example, this command would be rejected:

**Note**

```
hostname(config)# name 255.255.255.0 class-C-mask
```

---

None of the commands in which a mask is required can process a name as an accepted network mask.

---

**Examples**

This example shows that the **names** command allows you to enable use of the **name** command. The **name** command substitutes **sa\_inside** for references to 192.168.42.3 and **sa\_outside** for 209.165.201.3. You can use these names with the **ip address** commands when assigning IP addresses to the network interfaces. The **no names** command disables the **name** command values from displaying. Subsequent use of the **names** command again restores the **name** command value display.

```
hostname(config)# names
hostname(config)# name 192.168.42.3 sa_inside
hostname(config)# name 209.165.201.3 sa_outside

hostname(config-if)# ip address inside sa_inside 255.255.255.0
hostname(config-if)# ip address outside sa_outside 255.255.255.224

hostname(config)# show ip address
System IP Addresses:
    inside ip address sa_inside mask 255.255.255.0
    outside ip address sa_outside mask 255.255.255.224

hostname(config)# no names
hostname(config)# show ip address
System IP Addresses:
    inside ip address 192.168.42.3 mask 255.255.255.0
    outside ip address 209.165.201.3 mask 255.255.255.224

hostname(config)# names
hostname(config)# show ip address
System IP Addresses:
    inside ip address sa_inside mask 255.255.255.0
    outside ip address sa_outside mask 255.255.255.224
```

**Related Commands**

Command	Description
<b>clear configure name</b>	Clears the list of names from the configuration.
<b>names</b>	Enables the association of a name with an IP address.
<b>show running-config name</b>	Displays the names associated with an IP address.

# nameif

To provide a name for an interface, use the **nameif** command in interface configuration mode. To remove the name, use the **no** form of this command. The interface name is used in all configuration commands on the security appliance instead of the interface type and ID (such as gigabitethernet0/1), and is therefore required before traffic can pass through the interface.

**nameif** *name*

**no nameif**

<b>Syntax Description</b>	<i>name</i>	Sets a name up to 48 characters in length. The name is not case-sensitive.
---------------------------	-------------	--

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was changed from a global configuration command to an interface configuration mode command.

<b>Usage Guidelines</b>	For subinterfaces, you must assign a VLAN with the <b>vlan</b> command before you enter the <b>nameif</b> command.
-------------------------	--

You can change the name by reentering this command with a new value. Do not enter the **no** form, because that command causes all commands that refer to that name to be deleted.

<b>Examples</b>	The following example configures the names for two interfaces to be “inside” and “outside:”
-----------------	---

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown
hostname(config-if)# interface gigabitethernet0/0
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address 10.1.2.1 255.255.255.0
hostname(config-if)# no shutdown
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear xlate</b>	Resets all translations for existing connections, causing the connections to be reset.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>security-level</b>	Sets the security level for the interface.
<b>vlan</b>	Assigns a VLAN ID to a subinterface.

# names

To enable IP address to the name conversions that you can configured with the **name** command, use the **names** command in global configuration mode. To disable address to name conversion, use the **no** form of this command.

**names**

**no names**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **names** command is used to enable the association of a name with an IP address that you configured with the **name** command. The order in which you enter the **name** or **names** commands is irrelevant.

## Examples

The following example shows how to enable the association of a name with an IP address:

```
hostname(config)# names
```

## Related Commands

Command	Description
<b>clear configure name</b>	Clears the list of names from the configuration.
<b>name</b>	Associates a name with an IP address.
<b>show running-config name</b>	Displays a list of names associated with IP addresses.
<b>show running-config names</b>	Displays the IP address-to-name conversions.



# name-separator

To specify a character as a delimiter between the e-mail and VPN username and password, use the **name-separator** command in the applicable e-mail proxy mode. To revert to the default, “:”, use the **no** version of this command.

**name-separator** [*symbol*]

**no name-separator**

## Syntax Description

**symbol** (Optional) The character that separates the e-mail and VPN usernames and passwords. Choices are “@,” (at) “|” (pipe), “:” (colon), “#” (hash), “,” (comma), and “;” (semi-colon).

## Defaults

The default is “:” (colon).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Pop3s	•	—	•	—	—
Imap4s	•	—	•	—	—
Smtps	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The name separator must be different from the server separator.

## Examples

The following example shows how to set a hash (#) as the name separator for POP3S:

```
hostname(config)# pop3s
hostname(config-pop3s)# name-separator #
```

## Related Commands

Command	Description
<b>server-separator</b>	Separates the e-mail and server names.

# nat

To identify addresses on one interface that are translated to mapped addresses on another interface, use the **nat** command in global configuration mode. This command configures dynamic NAT or PAT, where an address is translated to one of a pool of mapped addresses. To remove the **nat** command, use the **no** form of this command.

For regular dynamic NAT:

```
nat (real_ifc) nat_id real_ip [mask [dns] [outside] [[tcp] tcp_max_conns [emb_limit]]
    [udp udp_max_conns] [norandomseq]]
```

```
no nat (real_ifc) nat_id real_ip [mask [dns] [outside] [[tcp] tcp_max_conns [emb_limit]]
    [udp udp_max_conns] [norandomseq]]
```

For policy dynamic NAT and NAT exemption:

```
nat (real_ifc) nat_id access-list access_list_name [dns] [outside]
    [[tcp] tcp_max_conns [emb_limit]] [udp udp_max_conns] [norandomseq]]
```

```
no nat (real_ifc) nat_id access-list access_list_name [dns] [outside]
    [[tcp] tcp_max_conns [emb_limit]] [udp udp_max_conns] [norandomseq]]
```

## Syntax Description

<b>access-list</b> <i>access_list_name</i>	<p>Identifies the local addresses and destination addresses using an extended access list, also known as policy NAT. Create the access list using the <b>access-list</b> command. You can optionally specify the local and destination ports in the access list using the <b>eq</b> operator. If the NAT ID is <b>0</b>, then the access list specifies addresses that are exempt from NAT. NAT exemption is not the same as policy NAT; you cannot specify the port addresses, for example.</p> <p><b>Note</b> Access list hit counts, as shown by the <b>show access-list</b> command, do not increment for NAT exemption access lists.</p>
<b>dns</b>	<p>(Optional) Rewrites the A record, or address record, in DNS replies that match this command. For DNS replies traversing from a mapped interface to a real interface, the A record is rewritten from the mapped value to the real value. Inversely, for DNS replies traversing from a real interface to a mapped interface, the A record is rewritten from the real value to the mapped value.</p> <p>If your NAT statement includes the address of a host that has an entry in a DNS server, and the DNS server is on a different interface from a client, then the client and the DNS server need different addresses for the host; one needs the global address and one needs the local address. The translated host needs to be on the same interface as either the client or the DNS server. Typically, hosts that need to allow access from other interfaces use a static translation, so this option is more likely to be used with the <b>static</b> command.</p>

<i>emb_limit</i>	<p>(Optional) Specifies the maximum number of embryonic connections per host. The default is 0, which means unlimited embryonic connections.</p> <p>Limiting the number of embryonic connections protects you from a DoS attack. The security appliance uses the embryonic limit to trigger TCP Intercept, which protects inside systems from a DoS attack perpetrated by flooding an interface with TCP SYN packets. An embryonic connection is a connection request that has not finished the necessary handshake between source and destination.</p>
<i>real_ifc</i>	Specifies the name of the interface connected to the real IP address network.
<i>real_ip</i>	Specifies the real address that you want to translate. You can use <b>0.0.0.0</b> (or the abbreviation <b>0</b> ) to specify all addresses.
<i>mask</i>	(Optional) Specifies the subnet mask for the real addresses. If you do not enter a mask, then the default mask for the IP address class is used.
<i>nat_id</i>	<p>Specifies an integer for the NAT ID. For regular NAT, this integer is between 1 and 2147483647. For policy NAT (<i>nat id access-list</i>), this integer is between 1 and 65535.</p> <p>Identity NAT (<b>nat 0</b>) and NAT exemption (<b>nat 0 access-list</b>) use the NAT ID of <b>0</b>.</p> <p>This ID is referenced by the <b>global</b> command to associate a global pool with the <i>real_ip</i>.</p>
<b>norandomseq</b>	<p>(Optional) Disables TCP ISN randomization protection. TCP sequence randomization should only be disabled if another in-line firewall is also randomizing sequence numbers and the result is scrambling the data. Each TCP connection has two ISNs: one generated by the client and one generated by the server. The security appliance randomizes the ISN that is generated by the host/server. At least one of the ISNs must be randomly generated so that attackers cannot predict the next ISN and potentially hijack the session.</p> <p>The <b>norandomseq</b> keyword does not apply to outside NAT. The firewall randomizes only the ISN that is generated by the host/server on the higher security interface. If you set <b>norandomseq</b> for outside NAT, the <b>norandomseq</b> keyword is ignored.</p>
<b>outside</b>	(Optional) If this interface is on a lower security level than the interface you identify by the matching <b>global</b> statement, then you must enter <b>outside</b> . This feature is called outside NAT or bidirectional NAT.
<b>tcp tcp_max_conns</b>	Specifies the maximum number of simultaneous TCP connections for the entire subnet. The default is 0, which means unlimited connections. (Idle connections are closed after the idle timeout specified by the <b>timeout conn</b> command.)
<b>udp udp_max_conns</b>	(Optional) Specifies the maximum number of simultaneous UDP connections for the entire subnet. The default is 0, which means unlimited connections. (Idle connections are closed after the idle timeout specified by the <b>timeout conn</b> command.)

**Defaults**

The default value for *tcp\_max\_conns*, *emb\_limit*, and *udp\_max\_conns* is 0 (unlimited), which is the maximum available.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	•	—

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

For dynamic NAT and PAT, you first configure a **nat** command identifying the real addresses on a given interface that you want to translate. Then you configure a separate **global** command to specify the mapped addresses when exiting another interface (in the case of PAT, this is one address). Each **nat** command matches a **global** command by comparing the NAT ID, a number that you assign to each command.

The security appliance translates an address when a NAT rule matches the traffic. If no NAT rule matches, processing for the packet continues. The exception is when you enable NAT control using the **nat-control** command. NAT control requires that packets traversing from a higher security interface (inside) to a lower security interface (outside) match a NAT rule, or else processing for the packet stops. NAT is not required between same security level interfaces even if you enable NAT control. You can optionally configure NAT if desired.

Dynamic NAT translates a group of real addresses to a pool of mapped addresses that are routable on the destination network. The mapped pool can include fewer addresses than the real group. When a host you want to translate accesses the destination network, the security appliance assigns it an IP address from the mapped pool. The translation is added only when the real host initiates the connection. The translation is in place only for the duration of the connection, and a given user does not keep the same IP address after the translation times out (see the **timeout xlate** command). Users on the destination network, therefore, cannot reliably initiate a connection to a host that uses dynamic NAT (or PAT, even if the connection is allowed by an access list), and the security appliance rejects any attempt to connect to a real host address directly. See the **static** command for reliable access to hosts.

Dynamic NAT has these disadvantages:

- If the mapped pool has fewer addresses than the real group, you could run out of addresses if the amount of traffic is more than expected.  
Use PAT if this event occurs often, because PAT provides over 64,000 translations using ports of a single address.
- You have to use a large number of routable addresses in the mapped pool; if the destination network requires registered addresses, such as the Internet, you might encounter a shortage of usable addresses.

The advantage of dynamic NAT is that some protocols cannot use PAT. For example, PAT does not work with IP protocols that do not have a port to overload, such as GRE version 0. PAT also does not work with some applications that have a data stream on one port and the control path on another and are not open standard, such as some multimedia applications.

PAT translates multiple real addresses to a single mapped IP address. Specifically, the security appliance translates the real address and source port (real socket) to the mapped address and a unique port (mapped socket). If the source port is TCP/UDP, the source address is translated using PAT to one in the same

range. Ranges include: 1–511, 512–1023, and 1024–65535. Each connection requires a separate translation, because the source port differs for each connection. For example, 10.1.1.1:1025 requires a separate translation from 10.1.1.1:1026.

After the connection expires, the port translation also expires after 30 seconds of inactivity. The timeout is not configurable.

PAT lets you use a single mapped address, thus conserving routable addresses. You can even use the security appliance interface IP address as the PAT address. PAT does not work with some multimedia applications that have a data stream that is different from the control path.

**Note**

---

For the duration of the translation, a remote host can initiate a connection to the translated host if an access list allows it. Because the address (both real and mapped) is unpredictable, a connection to the host is unlikely. However in this case, you can rely on the security of the access list.

---

If you enable NAT control, then inside hosts must match a NAT rule when accessing outside hosts. If you do not want to perform NAT for some hosts, then you can bypass NAT for those hosts (alternatively, you can disable NAT control). You might want to bypass NAT, for example, if you are using an application that does not support NAT. You can use the **static** command to bypass NAT, or one of the following options:

- Identity NAT (**nat 0** command)—When you configure identity NAT (which is similar to dynamic NAT), you do not limit translation for a host on specific interfaces; you must use identity NAT for connections through all interfaces. Therefore, you cannot choose to perform normal translation on real addresses when you access interface A, but use identity NAT when accessing interface B. Regular dynamic NAT, on the other hand, lets you specify a particular interface on which to translate the addresses. Make sure that the real addresses for which you use identity NAT are routable on all networks that are available according to your access lists.

For identity NAT, even though the mapped address is the same as the real address, you cannot initiate a connection from the outside to the inside (even if the interface access list allows it). Use static identity NAT or NAT exemption for this functionality.

- NAT exemption (**nat 0 access-list** command)—NAT exemption allows both translated and remote hosts to initiate connections. Like identity NAT, you do not limit translation for a host on specific interfaces; you must use NAT exemption for connections through all interfaces. However, NAT exemption does let you specify the real and destination addresses when determining the real addresses to translate (similar to policy NAT), so you have greater control using NAT exemption. However unlike policy NAT, NAT exemption does not consider the ports in the access list.

Policy NAT lets you identify real addresses for address translation by specifying the source and destination addresses in an extended access list. You can also optionally specify the source and destination ports. Regular NAT can only consider the real addresses. For example, you can translate the real address to mapped address A when it accesses server A, but translate the real address to mapped address B when it accesses server B.

When you specify the ports in policy NAT for applications that require application inspection for secondary channels (FTP, VoIP, etc.), the security appliance automatically translates the secondary ports.

**Note**

---

All types of NAT support policy NAT except for NAT exemption. NAT exemption uses an access list to identify the real addresses, but differs from policy NAT in that the ports are not considered. You can accomplish the same result as NAT exemption using **static** identity NAT, which does support policy NAT.

---

You can alternatively set connection limits (but not embryonic connection limits) using the Modular Policy Framework. See the **set connection** commands for more information. You can only set embryonic connection limits using NAT. If you configure these settings for the same traffic using both methods, then the security appliance uses the lower limit. For TCP sequence randomization, if it is disabled using either method, then the security appliance disables TCP sequence randomization.

If you change the NAT configuration, and you do not want to wait for existing translations to time out before the new NAT information is used, you can clear the translation table using **clear xlate** command. However, clearing the translation table disconnects all of the current connections.

## Examples

For example, to translate the 10.1.1.0/24 network on the inside interface, enter the following command:

```
hostname(config)# nat (inside) 1 10.1.1.0 255.255.255.0
hostname(config)# global (outside) 1 209.165.201.1-209.165.201.30
```

To identify a pool of addresses for dynamic NAT as well as a PAT address for when the NAT pool is exhausted, enter the following commands:

```
hostname(config)# nat (inside) 1 10.1.1.0 255.255.255.0
hostname(config)# global (outside) 1 209.165.201.5
hostname(config)# global (outside) 1 209.165.201.10-209.165.201.20
```

To translate the lower security dmz network addresses so they appear to be on the same network as the inside network (10.1.1.0), for example, to simplify routing, enter the following commands:

```
hostname(config)# nat (dmz) 1 10.1.2.0 255.255.255.0 outside dns
hostname(config)# global (inside) 1 10.1.1.45
```

To identify a single real address with two different destination addresses using policy NAT, enter the following commands:

```
hostname(config)# access-list NET1 permit ip 10.1.2.0 255.255.255.0 209.165.201.0
255.255.255.224
hostname(config)# access-list NET2 permit ip 10.1.2.0 255.255.255.0 209.165.200.224
255.255.255.224
hostname(config)# nat (inside) 1 access-list NET1 tcp 0 2000 udp 10000
hostname(config)# global (outside) 1 209.165.202.129
hostname(config)# nat (inside) 2 access-list NET2 tcp 1000 500 udp 2000
hostname(config)# global (outside) 2 209.165.202.130
```

To identify a single real address/destination address pair that use different ports using policy NAT, enter the following commands:

```
hostname(config)# access-list WEB permit tcp 10.1.2.0 255.255.255.0 209.165.201.11
255.255.255.255 eq 80
hostname(config)# access-list TELNET permit tcp 10.1.2.0 255.255.255.0 209.165.201.11
255.255.255.255 eq 23
hostname(config)# nat (inside) 1 access-list WEB
hostname(config)# global (outside) 1 209.165.202.129
hostname(config)# nat (inside) 2 access-list TELNET
hostname(config)# global (outside) 2 209.165.202.130
```

## Related Commands

Command	Description
<b>access-list deny-flow-max</b>	Specifies the maximum number of concurrent deny flows that can be created.
<b>clear configure nat</b>	Removes the NAT configuration.

Command	Description
<b>global</b>	Creates entries from a pool of global addresses.
<b>interface</b>	Creates and configures an interface.
<b>show running-config nat</b>	Displays a pool of global IP addresses that are associated with the network.

## nat (vpn load-balancing)

To set the IP address to which NAT translates the IP address of this device, use the **nat** command in VPN load-balancing mode. To disable this NAT translation, use the **no** form of this command.

**nat** *ip-address*

**no nat** [*ip-address*]

### Syntax Description

*ip-address* The IP address to which you want this NAT to translate the IP address of this device.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
VPN load-balancing	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

You must first use the **vpn load-balancing** command to enter VPN load-balancing mode.

In the **no nat** form of the command, if you specify the optional *ip-address* value, the IP address must match the existing NAT IP address in the running configuration.

### Examples

The following is an example of a VPN load-balancing command sequence that includes a **nat** command that sets the NAT-translated address to 192.168.10.10:

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# nat 192.168.10.10
hostname(config-load-balancing)# priority 9
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# cluster port 9023
```



```
hostname(config-load-balancing) # participate
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>vpn load-balancing</b>	Enter VPN load-balancing mode.

---

# nat-control

To enforce NAT control use the **nat-control** command in global configuration mode. NAT control requires NAT for inside hosts when they access the outside. To disable NAT control, use the **no** form of this command.

**nat-control**

**no nat-control**

## Syntax Description

This command has no arguments or keywords.

## Defaults

NAT control is disabled by default (**no nat-control** command). If you upgraded from an earlier version of software, however, NAT control might be enabled on your system because it was the default in some earlier versions.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

NAT control requires that packets traversing from an inside interface to an outside interface match a NAT rule; for any host on the inside network to access a host on the outside network, you must configure NAT to translate the inside host address.

Interfaces at the same security level are not required to use NAT to communicate. However, if you configure dynamic NAT or PAT on a same security interface with NAT control enabled, then all traffic from the interface to a same security interface or an outside interface must match a NAT rule.

Similarly, if you enable outside dynamic NAT or PAT with NAT control, then all outside traffic must match a NAT rule when it accesses an inside interface.

Static NAT with NAT control does not cause these restrictions.

By default, NAT control is disabled, so you do not need to perform NAT on any networks unless you choose to perform NAT.

If you want the added security of NAT control but do not want to translate inside addresses in some cases, you can apply a NAT exemption (**nat 0 access-list**) or identity NAT (**nat 0** or **static**) rule on those addresses.

**Note**

In multiple context mode, the packet classifier relies on the NAT configuration in some cases to assign packets to contexts. If you do not perform NAT because NAT control is disabled, then the classifier might require changes in your network configuration.

**Examples**

The following example enables NAT control:

```
hostname(config)# nat-control
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>nat</b>	Defines an address on one interface that is translated to a mapped address on another interface.
<b>show running-config nat-control</b>	Shows the NAT configuration requirement.
<b>static</b>	Translates a real address to a mapped address.

# nat-rewrite

To enable NAT rewrite for IP addresses embedded in the A-record of a DNS response, use the **nat-rewrite** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

**nat-rewrite**

**no nat-rewrite**

**Syntax Description** This command has no arguments or keywords.

**Defaults** NAT rewrite is enabled by default. This feature can be enabled when **inspect dns** is configured even if a **policy-map type inspect dns** is not defined. To disable, **no nat-rewrite** must explicitly be stated in the policy map configuration. If **inspect dns** is not configured, NAT rewrite is not performed.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Parameters configuration	•	•	•	•	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** This feature performs NAT translation of A-type Resource Record (RR) in a DNS response.

**Examples** The following example shows how to enable NAT rewrite in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# nat-rewrite
```

Related Commands	Command	Description
	<b>class</b>	Identifies a class map name in the policy map.
	<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.

<b>Command</b>	<b>Description</b>
<code>policy-map</code>	Creates a Layer 3/4 policy map.
<code>show running-config policy-map</code>	Display all current policy map configurations.

## nbns-server (tunnel-group webvpn attributes mode)

To configure an NBNS server, use the **nbns-server** command in tunnel-group webvpn configuration mode. To remove the NBNS server from the configuration, use the **no** form of this command.

The security appliance queries NBNS servers to map NetBIOS names to IP addresses. WebVPN requires NetBIOS to access or share files on remote systems.

```
nbns-server {ipaddr | hostname} [master] [timeout timeout] [retry retries]
```

```
no nbns-server
```

### Syntax Description

<i>hostname</i>	Specifies the hostname for the NBNS server.
<i>ipaddr</i>	Specifies the IP address for the NBNS server.
<b>master</b>	Indicates that this is a master browser, rather than a WINS server.
<b>retry</b>	Indicates that a retry value follows.
<i>retries</i>	Specifies the number of times to retry queries to NBNS servers. The security appliance recycles through the list of servers the number of times you specify here before sending an error message. The default value is 2; the range is 1 through 10.
<b>timeout</b>	Indicates that a timeout value follows.
<i>timeout</i>	Specifies the amount of time the security appliance waits before sending the query again, to the same server if there is only one, or another server if there are multiple NBNS servers. The default timeout is 2 seconds; the range is 1 to 30 seconds.

### Defaults

No NBNS server is configured by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group webvpn configuration	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Moved from webvpn mode to tunnel-group webvpn configuration mode.

### Usage Guidelines

In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group webvpn-attributes mode.

Maximum of 3 server entries. The first server you configure is the primary server, and the others are backups, for redundancy.

Use the **no** option to remove the matching entry from the configuration.

### Examples

The following example shows how to configure the tunnel-group “test” with an NBNS server that is a master browser with an IP address of 10.10.10.19, a timeout value of 10 seconds, and 8 retries. It also shows how to configure an NBNS WINS server with an IP address of 10.10.10.24, a timeout value of 15 seconds, and 8 retries.

```
hostname(config)# tunnel-group test type webvpn
hostname(config)# tunnel-group test webvpn-attributes
hostname(config-tunnel-webvpn)# nbns-server 10.10.10.19 master timeout 10 retry 8
hostname(config-tunnel-webvpn)# nbns-server 10.10.10.24 timeout 15 retry 8
hostname(config-tunnel-webvpn)#
```

### Related Commands

Command	Description
<b>clear configure group-policy</b>	Removes the configuration for a particular group policy or for all group policies.
<b>show running-config group-policy</b>	Displays the running configuration for a particular group policy or for all group policies.
<b>tunnel-group webvpn-attributes</b>	Specifies the WebVPN attributes for the named tunnel-group.

## nbns-server (webvpn mode)

To configure an NBNS server, use the **nbns-server** command in tunnel-group webvpn configuration mode. To remove the NBNS server from the configuration, use the **no** form of this command.

The security appliance queries NBNS servers to map NetBIOS names to IP addresses. WebVPN requires NetBIOS to access or share files on remote systems.

```
nbns-server {ipaddr | hostname} [master] [timeout timeout] [retry retries]
```

```
no nbns-server
```

### Syntax Description

<i>hostname</i>	Specifies the hostname for the NBNS server.
<i>ipaddr</i>	Specifies the IP address for the NBNS server.
<b>master</b>	Indicates that this is a master browser, rather than a WINS server.
<b>retry</b>	Indicates that a retry value follows.
<i>retries</i>	Specifies the number of times to retry queries to NBNS servers. The security appliance recycles through the list of servers the number of times you specify here before sending an error message. The default value is 2; the range is 1 through 10.
<b>timeout</b>	Indicates that a timeout value follows.
<i>timeout</i>	Specifies the amount of time the security appliance waits before sending the query again, to the same server if there is only one, or another server if there are multiple NBNS servers. The default timeout is 2 seconds; the range is 1 to 30 seconds.

### Defaults

No NBNS server is configured by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group webvpn configuration	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Moved from webvpn mode to tunnel-group webvpn configuration mode.



**Usage Guidelines**

This command is deprecated in webvpn configuration mode. The nbns-server command in tunnel-group webvpn-attributes configuration mode replaces it. In Release 7.1(1), if you enter this command in webvpn configuration mode, it is transformed to the same command in tunnel-group webvpn-attributes mode.

Maximum of 3 server entries. The first server you configure is the primary server, and the others are backups, for redundancy.

Use the **no** option to remove the matching entry from the configuration.

**Examples**

The following example shows how to configure an NBNS server that is a master browser with an IP address of 10.10.10.19, a timeout value of 10 seconds, and 8 retries. It also shows how to configure an NBNS WINS server with an IP address of 10.10.10.24, a timeout value of 15 seconds, and 8 retries.

```
hostname(config)# webvpn
hostname(config-webvpn)# nbns-server 10.10.10.19 master timeout 10 retry 8
hostname(config-webvpn)# nbns-server 10.10.10.24 timeout 15 retry 8
```

# neighbor

To define a static neighbor on a point-to-point, non-broadcast network, use the **neighbor** command in router configuration mode. To remove the statically defined neighbor from the configuration, use the **no** form of this command. The **neighbor** command is used to advertise OSPF routes over VPN tunnels.

```
neighbor ip_address [interface name]
```

```
no neighbor ip_address [interface name]
```

## Syntax Description

<b>interface name</b>	(Optional) The interface name, as specified by the <b>nameif</b> command, through which the neighbor can be reached.
<b>ip_address</b>	IP address of the neighbor router.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

One neighbor entry must be included for each known non-broadcast network neighbor. The neighbor address must be on the primary address of the interface.

The **interface** option needs to be specified when the neighbor is not on the same network as any of the directly connected interfaces of the system. Additionally, a static route must be created to reach the neighbor.

## Examples

The following example defines a neighbor router with an address of 192.168.1.1:

```
hostname(config-router)# neighbor 192.168.1.1
```

## Related Commands

Command	Description
<code>router ospf</code>	Enters router configuration mode.
<code>show running-config router</code>	Displays the commands in the global router configuration.

# nem

To enable network extension mode for hardware clients, use the **nem enable** command in group-policy configuration mode. To disable NEM, use the **nem disable** command. To remove the NEM attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a value from another group policy.

**nem {enable | disable}**

**no nem**

## Syntax Description

<b>disable</b>	Disables Network Extension Mode.
<b>enable</b>	Enables Network Extension Mode.

## Defaults

Network extension mode is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—

## Usage Guidelines

Network Extension mode lets hardware clients present a single, routable network to the remote private network over the VPN tunnel. IPSec encapsulates all traffic from the private network behind the hardware client to networks behind the security appliance. PAT does not apply. Therefore, devices behind the security appliance have direct access to devices on the private network behind the hardware client over the tunnel, and only over the tunnel, and vice versa. The hardware client must initiate the tunnel, but after the tunnel is up, either side can initiate data exchange.

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example shows how to set NEM for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# nem enable
```

# network

To specify a list of networks for the RIP routing process, use the **network** command in router configuration mode. To remove a network definition, use the **no** form of this command.

```
network ip_addr
```

```
no network ip_addr
```

## Syntax Description

*ip\_addr* The IP address of a directly connected network. The interface connected to the specified network will participate in the RIP routing process.

## Defaults

No networks are specified.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The network number specified must not contain any subnet information. There is no limit to the number of network commands you can use on the router. RIP routing updates will be sent and received only through interfaces on the specified networks. Also, if the network of an interface is not specified, the interface will not be advertised in any RIP update.

## Examples

The following example defines RIP as the routing protocol to be used on all interfaces connected to networks 10.0.0.0 and 192.168.7.0:

```
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# network 192.168.7.0
```

## Related Commands

Command	Description
<b>router rip</b>	Enters router configuration mode.
<b>show running-config router</b>	Displays the commands in the global router configuration.

# network area

To define the interfaces on which OSPF runs and to define the area ID for those interfaces, use the **network area** command in router configuration mode. To disable OSPF routing for interfaces defined with the address/netmask pair, use the **no** form of this command.

**network** *addr mask area area\_id*

**no network** *addr mask area area\_id*

## Syntax Description

<i>addr</i>	IP address.
<b>area</b> <i>area_id</i>	Specifies the area that is to be associated with the OSPF address range. The <i>area_id</i> can be specified in either IP address format or in decimal format. When specified in decimal format, valid values range from 0 to 4294967295.
<i>mask</i>	The network mask.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

For OSPF to operate on the interface, the address of the interface must be covered by the **network area** command. If the **network area** command does not cover the IP address of the interface, it will not enable OSPF over that interface.

There is no limit to the number of **network area** commands you can use on the security appliance.

## Examples

The following example enables OSPF on the 192.168.1.1 interface and assigns it to area 2:

```
hostname(config-router)# network 192.168.1.1 255.255.255.0 area 2
```

## Related Commands

Command	Description
<code>router ospf</code>	Enters router configuration mode.
<code>show running-config router</code>	Displays the commands in the global router configuration.

# network-object

To add a network object to a network object group, use the **network-object** command in network configuration mode. To remove network objects, use the **no** form of this command.

**network-object host** *host\_addr* | *host\_name*

**no network-object host** *host\_addr* | *host\_name*

**network-object** *net\_addr netmask*

**no network-object** *net\_addr netmask*

## Syntax Description

host_addr	Host IP address (if the host name is not already defined using the <b>name</b> command).
host_name	Host name (if the host name is defined using the <b>name</b> command).
net_addr	Network address; used with <i>netmask</i> to define a subnet object.
netmask	Netmask; used with <i>net_addr</i> to define a subnet object.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Network configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **network-object** command is used with the **object-group** command to define a host or a subnet object in network configuration mode.

## Examples

The following example shows how to use the **network-object** command in network configuration mode to create a new network object group:

```
hostname(config)# object-group network sjj_eng_ftp_servers
hostname(config-network)# network-object host sjj.eng.ftp
hostname(config-network)# network-object host 172.16.56.195
hostname(config-network)# network-object 192.168.1.0 255.255.255.224
hostname(config-network)# group-object sjc_eng_ftp_servers
hostname(config-network)# quit
```



```
hostname (config) #
```

Related Commands	Command	Description
	<b>clear configure object-group</b>	Removes all the <b>object-group</b> commands from the configuration.
	<b>group-object</b>	Adds network object groups.
	<b>object-group</b>	Defines object groups to optimize your configuration.
	<b>port-object</b>	Adds a port object to a service object group.
	<b>show running-config object-group</b>	Displays the current object groups.

# nt-auth-domain-controller

To specify the name of the NT Primary Domain Controller for this server, use the **nt-auth-domain-controller** command in AAA-server host mode. To remove this specification, use the **no** form of this command:

**nt-auth-domain-controller** *string*

**no nt-auth-domain-controller**

<b>Syntax Description</b>	<i>string</i>	Specify the name, up to 16 characters long, of the Primary Domain Controller for this server.
---------------------------	---------------	---

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
AAA-server host	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** This command is valid only for NT Authentication AAA servers. You must have first used the **aaa-server host** command to enter host configuration mode. The name in the *string* variable must match the NT entry on the server itself.

**Examples** The following example configures the name of the NT Primary Domain Controller for this server as “primary1”.

```
hostname(config)# aaa-server svrgrp1 protocol nt
hostname(configaaa-seserver-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# nt-auth-domain-controller primary1
hostname(config-aaa-server-host)#
```

Related Commands	Command	Description
	<b>aaa server host</b>	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.

---

<b>clear configure aaa-server</b>	Remove all AAA command statements from the configuration.
<b>show running-config aaa-server</b>	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol

---

# ntp authenticate

To enable authentication with an NTP server, use the **ntp authenticate** command in global configuration mode. To disable NTP authentication, use the **no** form of this command.

**ntp authenticate**

**no ntp authenticate**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** If you enable authentication, the security appliance only communicates with an NTP server if it uses the correct trusted key in the packets (see the **ntp trusted-key** command). The security appliance also uses an authentication key to synchronize with the NTP server (see the **ntp authentication-key** command).

**Examples** The following example configures the security appliance to synchronize only to systems that provide authentication key 42 in their NTP packets:

```
hostname(config)# ntp authenticate
hostname(config)# ntp authentication-key 42 md5 aNiceKey
hostname(config)# ntp trusted-key 42
```

Related Commands	Command	Description
	<b>ntp authentication-key</b>	Sets an encrypted authentication key to synchronize with an NTP server.
	<b>ntp server</b>	Identifies an NTP server.
	<b>ntp trusted-key</b>	Provides a key ID for the security appliance to use in packets for authentication with an NTP server.

Command	Description
<b>show ntp associations</b>	Shows the NTP servers with which the security appliance is associated.
<b>show ntp status</b>	Shows the status of the NTP association.

# ntp authentication-key

To set a key to authenticate with an NTP server, use the **ntp authentication-key** command in global configuration mode. To remove the key, use the **no** form of this command.

```
ntp authentication-key key_id md5 key
```

```
no ntp authentication-key key_id [md5 key]
```

Syntax Description		
<i>key_id</i>	Identifies a key ID between 1 and 4294967295. You must specify this ID as a trusted key using the <b>ntp trusted-key</b> command.	
<b>md5</b>	Specifies the authentication algorithm as MD5, which is the only algorithm supported.	
<i>key</i>	Sets the key value as a string up to 32 characters in length.	

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** To use NTP authentication, also configure the **ntp authenticate** command.

**Examples** The following example enables authentications, identifies trusted key IDs 1 and 2, and sets authentication keys for each trusted key ID:

```
hostname(config)# ntp authenticate
hostname(config)# ntp trusted-key 1
hostname(config)# ntp trusted-key 2
hostname(config)# ntp authentication-key 1 md5 aNiceKey
hostname(config)# ntp authentication-key 2 md5 aNiceKey2
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>ntp authenticate</b>	Enables NTP authentication.
<b>ntp server</b>	Identifies an NTP server.
<b>ntp trusted-key</b>	Provides a key ID for the security appliance to use in packets for authentication with an NTP server.
<b>show ntp associations</b>	Shows the NTP servers with which the security appliance is associated.
<b>show ntp status</b>	Shows the status of the NTP association.

## ntp server

To identify an NTP server to set the time on the security appliance, use the **ntp server** command in global configuration mode. To remove the server, use the **no** form of this command. You can identify multiple servers; the security appliance uses the most accurate server. In multiple context mode, set the NTP server in the system configuration only.

```
ntp server ip_address [key key_id] [source interface_name] [prefer]
```

```
no ntp server ip_address [key key_id] [source interface_name] [prefer]
```

### Syntax Description

<i>ip_address</i>	Sets the IP address of the NTP server.
<b>key</b> <i>key_id</i>	If you enable authentication using the <b>ntp authenticate</b> command, sets the trusted key ID for this server. See also the <b>ntp trusted-key</b> command.
<b>source</b> <i>interface_name</i>	Identifies the outgoing interface for NTP packets if you do not want to use the default interface in the routing table. Because the system does not include any interfaces in multiple context mode, specify an interface name defined in the admin context.
<b>prefer</b>	Sets this NTP server as the preferred server if multiple servers have similar accuracy. NTP uses an algorithm to determine which server is the most accurate and synchronizes to that one. If servers are of similar accuracy, then the <b>prefer</b> keyword specifies which of those servers to use. However, if a server is significantly more accurate than the preferred one, the security appliance uses the more accurate one. For example, the security appliance uses a server of stratum 2 over a server of stratum 3 that is preferred.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	•

### Command History

Release	Modification
7.0(1)	This command was modified to make the source interface optional.

### Examples

The following example identifies two NTP servers and enables authentication for the key IDs 1 and 2:

```
hostname(config)# ntp server 10.1.1.1 key 1 prefer
hostname(config)# ntp server 10.2.1.1 key 2
hostname(config)# ntp authenticate
hostname(config)# ntp trusted-key 1
```



```
hostname(config)# ntp trusted-key 2
hostname(config)# ntp authentication-key 1 md5 aNiceKey
hostname(config)# ntp authentication-key 2 md5 aNiceKey2
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>ntp authenticate</b>	Enables NTP authentication.
<b>ntp authentication-key</b>	Sets an encrypted authentication key to synchronize with an NTP server.
<b>ntp trusted-key</b>	Provides a key ID for the security appliance to use in packets for authentication with an NTP server.
<b>show ntp associations</b>	Shows the NTP servers with which the security appliance is associated.
<b>show ntp status</b>	Shows the status of the NTP association.

# ntp trusted-key

To specify an authentication key ID to be a trusted key, which is required for authentication with an NTP server, use the **ntp trusted-key** command in global configuration mode. To remove the trusted key, use the **no** form of this command. You can enter multiple trusted keys for use with multiple servers.

**ntp trusted-key** *key\_id*

**no ntp trusted-key** *key\_id*

## Syntax Description

*key\_id* Sets a key ID between 1 and 4294967295.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To use NTP authentication, also configure the **ntp authenticate** command. To synchronize with a server, set the authentication key for the key ID using the **ntp authentication-key** command.

## Examples

The following example enables authentications, identifies trusted key IDs 1 and 2, and sets authentication keys for each trusted key ID:

```
hostname(config)# ntp authenticate
hostname(config)# ntp trusted-key 1
hostname(config)# ntp trusted-key 2
hostname(config)# ntp authentication-key 1 md5 aNiceKey
hostname(config)# ntp authentication-key 2 md5 aNiceKey2
```

## Related Commands

Command	Description
<b>ntp authenticate</b>	Enables NTP authentication.
<b>ntp authentication-key</b>	Sets an encrypted authentication key to synchronize with an NTP server.
<b>ntp server</b>	Identifies an NTP server.

Command	Description
<code>show ntp associations</code>	Shows the NTP servers with which the security appliance is associated.
<code>show ntp status</code>	Shows the status of the NTP association.

# num-packets

To specify the number of request packets sent during an SLA operation, use the **num-packets** command in SLA monitor protocol configuration mode. To restore the default value, use the **no** form of this command.

**num-packets** *number*

**no num-packets** *number*

## Syntax Description

*number* The number of packets sent during an SLA operation. Valid values are from 1 to 100.

## Defaults

The default number of packets sent for echo types is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
SLA monitor protocol configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Increase the default number of packets sent to prevent incorrect reachability information due to packet loss.

## Examples

The following example configures an SLA operation with an ID of 123 that uses an ICMP echo request/response time probe operation. It sets the payload size of the echo request packets to 48 bytes and the number of echo requests sent during an SLA operation to 5.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# num-packets 5
hostname(config-sla-monitor-echo)# request-data-size 48
hostname(config-sla-monitor-echo)# timeout 4000
hostname(config-sla-monitor-echo)# threshold 2500
hostname(config-sla-monitor-echo)# frequency 10
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>request-data-size</b>	Specifies the size of the request packet payload.
<b>sla monitor</b>	Defines an SLA monitoring operation.
<b>type echo</b>	Configures the SLA operation as an echo response time probe operation.

# object-group

To define object groups that you can use to optimize your configuration, use the **object-group** command in global configuration mode. Use the **no** form of this command to remove object groups from the configuration. This command supports IPv4 and IPv6 addresses.

```
object-group {protocol | network | icmp-type} obj_grp_id
```

```
no object-group {protocol | network | icmp-type} obj_grp_id
```

```
object-group service obj_grp_id {tcp | udp | tcp-udp}
```

```
no object-group service obj_grp_id {tcp | udp | tcp-udp}
```

Syntax Description		
<b>icmp-type</b>	Defines a group of ICMP types such as echo and echo-reply. After entering the main <b>object-group icmp-type</b> command, add ICMP objects to the ICMP type group with the <b>icmp-object</b> and the <b>group-object</b> commands.	
<b>network</b>	Defines a group of hosts or subnet IP addresses. After entering the main <b>object-group network</b> command, add network objects to the network group with the <b>network-object</b> and the <b>group-object</b> commands.	
<i>obj_grp_id</i>	Identifies the object group (one to 64 characters) and can be any combination of letters, digits, and the “_”, “-”, “.” characters.	
<b>protocol</b>	Defines a group of protocols such as TCP and UDP. After entering the main <b>object-group protocol</b> command, add protocol objects to the protocol group with the <b>protocol-object</b> and the <b>group-object</b> commands.	
<b>service</b>	Defines a group of TCP/UDP port specifications such as “eq smtp” and “range 2000 2010.” After entering the main <b>object-group service</b> command, add port objects to the service group with the <b>port-object</b> and the <b>group-object</b> commands.	
<b>tcp</b>	Specifies that service group is used for TCP.	
<b>tcp-udp</b>	Specifies that service group can be used for TCP and UDP.	
<b>udp</b>	Specifies that service group is used for UDP.	

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

Objects such as hosts, protocols, or services can be grouped, and then you can issue a single command using the group name to apply to every item in the group.

When you define a group with the **object-group** command and then use any security appliance command, the command applies to every item in that group. This feature can significantly reduce your configuration size.

Once you define an object group, you must use the **object-group** keyword before the group name in all applicable security appliance commands as follows:

```
hostname# show running-config object-group group_name
```

where *group\_name* is the name of the group.

This example shows the use of an object group once it is defined:

```
hostname(config)# access-list access_list_name permit tcp any object-group group_name
```

In addition, you can group **access list** command arguments:

Individual Arguments	Object Group Replacement
<i>protocol</i>	<b>object-group</b> <i>protocol</i>
<i>host and subnet</i>	<b>object-group</b> <i>network</i>
<i>service</i>	<b>object-group</b> <i>service</i>
<i>icmp_type</i>	<b>object-group</b> <i>icmp_type</i>

You can group commands hierarchically; an object group can be a member of another object group.

To use object groups, you must do the following:

- Use the **object-group** keyword before the object group name in all commands as follows:

```
hostname(config)# access-list acl permit tcp object-group remotes object-group locals
object-group eng_svc
```

where *remotes* and *locals* are sample object group names.

- The object group must be nonempty.
- You cannot remove or empty an object group if it is currently being used in a command.

After you enter a main **object-group** command, the command mode changes to its corresponding mode. The object group is defined in the new mode. The active mode is indicated in the command prompt format. For example, the prompt in the configuration terminal mode appears as follows:

```
hostname(config)#
```

where *hostname* is the name of the security appliance.

However, when you enter the **object-group** command, the prompt appears as follows:

```
hostname(config-type)#
```

where *hostname* is the name of the security appliance, and *type* is the object-group type.

Use the **exit**, **quit**, or any valid config-mode commands such as **access-list** to close an **object-group** mode and exit the **object-group** main command.

The **show running-config object-group** command displays all defined object groups by their *grp\_id* when the **show running-config object-group grp\_id** command is entered, and by their group type when you enter the **show running-config object-group grp\_type** command. When you enter the **show running-config object-group** command without an argument, all defined object groups are shown.

Use the **clear configure object-group** command to remove a group of previously defined **object-group** commands. Without an argument, the **clear configure object-group** command lets you to remove all defined object groups that are not being used in a command. The *grp\_type* argument removes all defined object groups that are not being used in a command for that group type only.

You can use all other security appliance commands in an object-group mode, including the **show running-config** and **clear configure** commands.

Commands within the object-group mode appear indented when displayed or saved by the **show running-config object-group**, **write**, or **config** commands.

Commands within the object-group mode have the same command privilege level as the main command.

When you use more than one object group in an **access-list** command, the elements of all object groups that are used in the command are linked together, starting with the elements of the first group with the elements of the second group, then the elements of the first and second groups together with the elements of the third group, and so on.

The starting position of the description text is the character right after the white space (a blank or a tab) following the **description** keyword.

## Examples

The following example shows how to use the **object-group icmp-type** mode to create a new icmp-type object group:

```
hostname(config)# object-group icmp-type icmp-allowed
hostname(config-icmp-type)# icmp-object echo
hostname(config-icmp-type)# icmp-object time-exceeded
hostname(config-icmp-type)# exit
```

The following example shows how to use the **object-group network** command to create a new network object group:

```
hostname(config)# object-group network sjc_eng_ftp_servers
hostname(config-network)# network-object host sjc.eng.ftp.servcers
hostname(config-network)# network-object host 172.23.56.194
hostname(config-network)# network-object 192.1.1.0 255.255.255.224
hostname(config-network)# exit
```

The following example shows how to use the **object-group network** command to create a new network object group and map it to an existing object-group:

```
hostname(config)# object-group network sjc_ftp_servers
hostname(config-network)# network-object host sjc.ftp.servers
hostname(config-network)# network-object host 172.23.56.195
hostname(config-network)# network-object 193.1.1.0 255.255.255.224
hostname(config-network)# group-object sjc_eng_ftp_servers
hostname(config-network)# exit
```

The following example shows how to use the **object-group protocol** mode to create a new protocol object group:

```
hostname(config)# object-group protocol proto_grp_1
hostname(config-protocol)# protocol-object udp
```



```
hostname(config-protocol)# protocol-object ipsec
hostname(config-protocol)# exit
```

```
hostname(config)# object-group protocol proto_grp_2
hostname(config-protocol)# protocol-object tcp
hostname(config-protocol)# group-object proto_grp_1
hostname(config-protocol)# exit
```

The following example shows how to use the **object-group service** mode to create a new port (service) object group:

```
hostname(config)# object-group service eng_service tcp
hostname(config-service)# group-object eng_www_service
hostname(config-service)# port-object eq ftp
hostname(config-service)# port-object range 2000 2005
hostname(config-service)# exit
```

The following example shows how to add and remove a text description to an object group:

```
hostname(config)# object-group protocol protos1
hostname(config-protocol)# description This group of protocols is for our internal network

hostname(config-protocol)# show running-config object-group id protos1
object-group protocol protos1
description: This group of protocols is for our internal network

hostname(config-protocol)# no description
hostname(config-protocol)# show running-config object-group id protos1
object-group protocol protos1
```

The following example shows how to use the **group-object** mode to create a new object group that consists of previously defined objects:

```
hostname(config)# object-group network host_grp_1
hostname(config-network)# network-object host 192.168.1.1
hostname(config-network)# network-object host 192.168.1.2
hostname(config-network)# exit

hostname(config)# object-group network host_grp_2
hostname(config-network)# network-object host 172.23.56.1
hostname(config-network)# network-object host 172.23.56.2
hostname(config-network)# exit

hostname(config)# object-group network all_hosts
hostname(config-network)# group-object host_grp_1
hostname(config-network)# group-object host_grp_2
hostname(config-network)# exit

hostname(config)# access-list grp_1 permit tcp object-group host_grp_1 any eq ftp
hostname(config)#access-list grp_2 permit tcp object-group host_grp_2 any eq smtp
hostname(config)#access-list all permit tcp object-group all_hosts any eq www
```

Without the **group-object** command, you need to define the *all\_hosts* group to include all the IP addresses that have already been defined in *host\_grp\_1* and *host\_grp\_2*. With the **group-object** command, the duplicated definitions of the hosts are eliminated.

The following examples show how to use object groups to simplify the access list configuration:

```
hostname(config)# object-group network remote
hostname(config-network)# network-object host kqk.suu.dri.ixx
hostname(config-network)# network-object host kqk.suu.pyl.gnl

hostname(config)# object-group network locals
hostname(config-network)# network-object host 172.23.56.10
```

```
hostname(config-network)# network-object host 172.23.56.20
hostname(config-network)# network-object host 172.23.56.194
hostname(config-network)# network-object host 172.23.56.195
```

```
hostname(config)# object-group service eng_svc ftp
hostname(config-service)# port-object eq www
hostname(config-service)# port-object eq smtp
hostname(config-service)# port-object range 25000 25100
```

This grouping enables the access list to be configured in 1 line instead of 24 lines, which would be needed if no grouping is used. Instead, with the grouping, the access list configuration is as follows:

```
hostname(config)# access-list acl permit tcp object-group remote object-group locals
object-group eng_svc
```

**Note**

The **show running-config object-group** and **write** commands allow you to display the access list as configured with the object group names. The **show access-list** command displays the access list entries that are expanded out into individual entries without their object groupings.

**Related Commands**

Command	Description
<b>clear configure object-group</b>	Removes all the <b>object group</b> commands from the configuration.
<b>group-object</b>	Adds network object groups.
<b>network-object</b>	Adds a network object to a network object group.
<b>port-object</b>	Adds a port object to a service object group.
<b>show running-config object-group</b>	Displays the current object groups.

# ocsp disable-nonce

By default, OCSP requests include a nonce extension, which cryptographically binds requests with responses to avoid replay attacks. However, some OCSP servers use pre-generated responses that do not contain this matching nonce extension. To use OCSP with these servers, you must disable the nonce extension.

To disable the nonce extension, use the **ocsp disable-nonce** command in crypto ca trustpoint mode. To re-enable the nonce extension, use the **no** version of this command.

**ocsp disable-nonce**

**no ocsp disable-nonce**

**Syntax Description** This command has no keywords or arguments.

**Defaults** By default, OCSP requests include a nonce extension.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
crypto ca trustpoint mode	•	•	•	•	•

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** When you use this command, the OCSP request does not include the OCSP nonce extension, and the security appliance does not check it.

**Examples** The following example shows how to disable the nonce extension for a trustpoint called newtrust.

```
hostname(config)# crypto ca trustpoint newtrust
hostname(config-ca-trustpoint)# ocsp disable-nonce
hostname(config-ca-trustpoint)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>crypto ca trustpoint</b>	Enters crypto ca trustpoint mode. Use this command in global configuration mode.
<b>match certificate</b>	Configures an OCSP override rule,
<b>ocsp url</b>	Specifies the OCSP server to use to check all certificates associated with a trustpoint.
<b>revocation-check</b>	Specifies the method(s) to use for revocation checking, and the order in which to try them.

# ocsp url

To configure an OCSP server for the security appliance to use to check all certificates associated with a trustpoint rather than the server specified in the AIA extension of the client certificate, use the **ocsp url** command in `crypto ca trustpoint` mode. To remove the server from the configuration, use the **no** version of the command.

**ocsp url** *URL*

**no ocsp url**

**Syntax Description** This command has no keywords or arguments.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
crypto ca trustpoint mode	•	•	•	•	•

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** The security appliance supports only HTTP URLs, and you can specify only one URL per trustpoint. The security appliance provides three ways to define an OCSP server URL, and it attempts to use OCSP servers according to how you define them, in the following order:

- An OCSP server you set using **match certificate** command.
- An OCSP server you set using the **ocsp url** command.
- The OCSP server in the AIA field of the client certificate.

If you do not configure an OCSP URL via the **match certificate** command or the **ocsp url** command, the security appliance uses the OCSP server in the AIA extension of the client certificate. If the certificate does not have an AIA extension, revocation status checking fails.

**Examples** The following example shows how to configure an OCSP server with the URL `http://10.1.124.22`.

```
hostname(config)# crypto ca trustpoint newtrust
hostname(config-ca-trustpoint)# ocsp url http://10.1.124.22
hostname(config-ca-trustpoint)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>crypto ca trustpoint</b>	Enters crypto ca trustpoint mode. Use this command in global configuration mode.
<b>match certificate</b>	Configures an OCSP override rule,
<b>ocsp disable-nonce</b>	Disables the nonce extension of the OCSP request.
<b>revocation-check</b>	Specifies the method(s) to use for revocation checking, and the order in which to try them.

# ospf authentication

To enable the use of OSPF authentication, use the **ospf authentication** command in interface configuration mode. To restore the default authentication stance, use the **no** form of this command.

**ospf authentication** [message-digest | null]

**no ospf authentication**

## Syntax Description

<b>message-digest</b>	(Optional) Specifies to use OSPF message digest authentication.
<b>null</b>	(Optional) Specifies to not use OSPF authentication.

## Defaults

By default, OSPF authentication is not enabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Before using the **ospf authentication** command, configure a password for the interface using the **ospf authentication-key** command. If you use the **message-digest** keyword, configure the message-digest key for the interface with the **ospf message-digest-key** command.

For backward compatibility, authentication type for an area is still supported. If the authentication type is not specified for an interface, the authentication type for the area will be used (the area default is null authentication).

When this command is used without any options, simple password authentication is enabled.

## Examples

The following example shows how to enable simple password authentication for OSPF on the selected interface:

```
hostname(config-if)# ospf authentication
hostname(config-if)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>ospf authentication-key</b>	Specifies the password used by neighboring routing devices.
<b>ospf message-digest-key</b>	Enables MD5 authentication and specifies the MD5 key.



# ospf authentication-key

To specify the password used by neighboring routing devices, use the **ospf authentication-key** command in interface configuration mode. To remove the password, use the **no** form of this command.

**ospf authentication-key** *password*

**no ospf authentication-key**

## Syntax Description

*password* Assigns an OSPF authentication password for use by neighboring routing devices. The password must be less than 9 characters. You can include blank space between two characters. Spaces at the beginning or end of the password are ignored.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The password created by this command is used as a key that is inserted directly into the OSPF header when routing protocol packets are originated. A separate password can be assigned to each network on a per-interface basis. All neighboring routers on the same network must have the same password to be able to exchange OSPF information.

## Examples

The following example shows how to specify a password for OSPF authentication:

```
hostname(config-if)# ospf authentication-key ThisMyPW
```

## Related Commands

Command	Description
<b>area authentication</b>	Enables OSPF authentication for the specified area.
<b>ospf authentication</b>	Enables the use of OSPF authentication.

# ospf cost

To specify the cost of sending a packet through the interface, use the **ospf cost** command in interface configuration mode. To reset the interface cost to the default value, use the **no** form of this command.

**ospf cost** *interface\_cost*

**no ospf cost**

## Syntax Description

<i>interface_cost</i>	The cost (a link-state metric) of sending a packet through an interface. This is an unsigned integer value from 0 to 65535. 0 represents a network that is directly connected to the interface, and the higher the interface bandwidth, the lower the associated cost to send packets across that interface. In other words, a large cost value represents a low bandwidth interface and a small cost value represents a high bandwidth interface.
	The OSPF interface default cost on the security appliance is 10. This default differs from Cisco IOS software, where the default cost is 1 for fast Ethernet and Gigabit Ethernet and 10 for 10BaseT. This is important to take into account if you are using ECMP in your network.

## Defaults

The default *interface\_cost* is 10.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **ospf cost** command lets you explicitly specify the cost of sending a packet on an interface. The *interface\_cost* parameter is an unsigned integer value from 0 to 65535.

The **no ospf cost** command allows you to reset the path cost to the default value.

## Examples

The following example show how to specify the cost of sending a packet on the selected interface:

```
hostname(config-if)# ospf cost 4
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show running-config interface</b>	Displays the configuration of the specified interface.

# ospf database-filter

To filter out all outgoing LSAs to an OSPF interface during synchronization and flooding, use the **ospf database-filter** command in interface configuration mode. To restore the LSAs, use the **no** form of this command.

**ospf database-filter all out**

**no ospf database-filter all out**

## Syntax Description

**all out** Filters all outgoing LSAs to an OSPF interface.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **ospf database-filter** command filters outgoing LSAs to an OSPF interface. The **no ospf database-filter all out** command restores the forwarding of LSAs to the interface.

## Examples

The following example shows how to use the **ospf database-filter** command to filter outgoing LSAs:

```
hostname(config-if)# ospf database-filter all out
```

## Related Commands

Command	Description
<b>show interface</b>	Displays interface status information.

# ospf dead-interval

To specify the interval before neighbors declare a router down, use the **ospf dead-interval** command in interface configuration mode. To restore the default value, use the **no** form of this command.

**ospf dead-interval** *seconds*

**no ospf dead-interval**

## Syntax Description

*seconds* The length of time during which no hello packets are seen. The default for *seconds* is four times the interval set by the **ospf hello-interval** command (which ranges from 1 to 65535).

## Defaults

The default value for *seconds* is four times the interval set by the **ospf hello-interval** command.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **ospf dead-interval** command lets you set the dead interval before neighbors to declare the router down (the length of time during which no hello packets are seen). The *seconds* argument specifies the dead interval and must be the same for all nodes on the network. The default for *seconds* is four times the interval set by the **ospf hello-interval** command from 1 to 65535.

The **no ospf dead-interval** command lets restores the default interval value.

## Examples

The following example sets the OSPF dead interval to 1 minute:

```
hostname(config-if)# ospf dead-interval 60
```

## Related Commands

Command	Description
<b>ospf hello-interval</b>	Specifies the interval between hello packets sent on an interface.
<b>show ospf interface</b>	Displays OSPF-related interface information.

# ospf hello-interval

To specify the interval between hello packets sent on an interface, use the **ospf hello-interval** command in interface configuration mode. To return the hello interval to the default value, use the **no** form of this command.

**ospf hello-interval** *seconds*

**no ospf hello-interval**

## Syntax Description

*seconds* Specifies the interval between hello packets that are sent on the interface; valid values are from 1 to 65535 seconds.

## Defaults

The default value for **hello-interval** *seconds* is 10 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

This value is advertised in the hello packets. The smaller the hello interval, the faster topological changes will be detected, but more routing traffic will ensue. This value must be the same for all routers and access servers on a specific network.

## Examples

The following example sets the OSPF hello interval to 5 seconds:

```
hostname(config-if)# ospf hello-interval 5
```

## Related Commands

Command	Description
<b>ospf dead-interval</b>	Specifies the interval before neighbors declare a router down.
<b>show ospf interface</b>	Displays OSPF-related interface information.

# ospf message-digest-key

To enable OSPF MD5 authentication, use the **ospf message-digest-key** command in interface configuration mode. To remove an MD5 key, use the **no** form of this command.

```
ospf message-digest-key key-id md5 key
```

```
no ospf message-digest-key
```

## Syntax Description

<i>key-id</i>	Enables MD5 authentication and specifies the numerical authentication key ID number; valid values are from 1 to 255.
md5 <i>key</i>	Alphanumeric password of up to 16 bytes. You can include spaces between key characters. Spaces at the beginning or end of the key are ignored. MD5 authentication verifies the integrity of the communication, authenticates the origin, and checks for timeliness.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **ospf message-digest-key** command lets you enable MD5 authentication. The **no** form of the command let you remove an old MD5 key. *key\_id* is a numerical identifier from 1 to 255 for the authentication key. *key* is an alphanumeric password of up to 16 bytes. MD5 verifies the integrity of the communication, authenticates the origin, and checks for timeliness.

## Examples

The following example shows how to specify an MD5 key for OSPF authentication:

```
hostname(config-if)# ospf message-digest-key 3 md5 ThisIsMyMd5Key
```

## Related Commands

<b>Command</b>	<b>Description</b>
<code>area authentication</code>	Enables OSPF area authentication.
<code>ospf authentication</code>	Enables the use of OSPF authentication.



# ospf mtu-ignore

To disable OSPF maximum transmission unit (MTU) mismatch detection on receiving database packets, use the **ospf mtu-ignore** command in interface configuration mode. To restore MTU mismatch detection, use the **no** form of this command.

**ospf mtu-ignore**

**no ospf mtu-ignore**

## Syntax Description

This command has no arguments or keywords.

## Defaults

By default, **ospf mtu-ignore** is enabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

OSPF checks whether neighbors are using the same MTU on a common interface. This check is performed when neighbors exchange Database Descriptor (DBD) packets. If the receiving MTU in the DBD packet is higher than the IP MTU configured on the incoming interface, OSPF adjacency will not be established. The **ospf mtu-ignore** command disables OSPF MTU mismatch detection on receiving DBD packets. It is enabled by default.

## Examples

The following example shows how to disable the **ospf mtu-ignore** command:

```
hostname(config-if)# ospf mtu-ignore
```

## Related Commands

Command	Description
<b>show interface</b>	Displays interface status information.

# ospf network point-to-point non-broadcast

To configure the OSPF interface as a point-to-point, non-broadcast network, use the **ospf network point-to-point non-broadcast** command in interface configuration mode. To remove this command from the configuration, use the **no** form of this command. The **ospf network point-to-point non-broadcast** command lets you to transmit OSPF routes over VPN tunnels.

**ospf network point-to-point non-broadcast**

**no ospf network point-to-point non-broadcast**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** When the interface is specified as point-to-point, the OSPF neighbors have to be manually configured; dynamic discovery is not possible. To manually configure OSPF neighbors, use the **neighbor** command in router configuration mode.

When an interface is configured as point-to-point, the following restrictions apply:

- You can define only one neighbor for the interface.
- You need to define a static route pointing to the crypto endpoint.
- The interface cannot form adjacencies unless neighbors are configured explicitly.
- If OSPF over the tunnel is running on the interface, regular OSPF with an upstream router cannot be run on the same interface.
- You should bind the crypto-map to the interface before specifying the OSPF neighbor to ensure that the OSPF updates are passed through the VPN tunnel. If you bind the crypto-map to the interface after specifying the OSPF neighbor, use the **clear local-host all** command to clear OSPF connections so the OSPF adjacencies can be established over the VPN tunnel.

**Examples**

The following example shows how to configure the selected interface as a point-to-point, non-broadcast interface:

```
hostname(config-if)# ospf network point-to-point non-broadcast  
hostname(config-if)#
```

**Related Commands**

Command	Description
<b>neighbor</b>	Specifies manually configured OSPF neighbors.
<b>show interface</b>	Displays interface status information.

# ospf priority

To change the OSPF router priority, use the **ospf priority** command in interface configuration mode. To restore the default priority, use the **no** form of this command.

**ospf priority** *number*

**no ospf priority** [*number*]

<b>Syntax Description</b>	<i>number</i>	Specifies the priority of the router; valid values are from 0 to 255.
---------------------------	---------------	---

<b>Defaults</b>	The default value for <i>number</i> is 1.
-----------------	---

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

<b>Usage Guidelines</b>	When two routers attached to a network both attempt to become the designated router, the one with the higher router priority takes precedence. If there is a tie, the router with the higher router ID takes precedence. A router with a router priority set to zero is ineligible to become the designated router or backup designated router. Router priority is configured only for interfaces to multiaccess networks (in other words, not to point-to-point networks).
-------------------------	---

<b>Examples</b>	The following example shows how to change the OSPF priority on the selected interface:
-----------------	--

```
hostname(config-if)# ospf priority 4
hostname(config-if)#
```

Related Commands	Command	Description
	<b>show ospf interface</b>	Displays OSPF-related interface information.

# ospf retransmit-interval

To specify the time between LSA retransmissions for adjacencies belonging to the interface, use the **ospf retransmit-interval** command in interface configuration mode. To restore the default value, use the **no** form of this command.

**ospf retransmit-interval** *seconds*

**no ospf retransmit-interval** [*seconds*]

## Syntax Description

<i>seconds</i>	Specifies the time between LSA retransmissions for adjacent routers belonging to the interface; valid values are from 1 to 65535 seconds.
----------------	---

## Defaults

The default value of **retransmit-interval** *seconds* is 5 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

When a router sends an LSA to its neighbor, it keeps the LSA until it receives the acknowledgment message. If the router receives no acknowledgment, it will re-send the LSA.

The setting of this parameter should be conservative, or needless retransmission will result. The value should be larger for serial lines and virtual links.

## Examples

The following example shows how to change the retransmit interval for LSAs:

```
hostname(config-if)# ospf retransmit-interval 15
hostname(config-if)#
```

## Related Commands

Command	Description
<b>show ospf interface</b>	Displays OSPF-related interface information.

# ospf transmit-delay

To set the estimated time required to send a link-state update packet on the interface, use the **ospf transmit-delay** command in interface configuration mode. To restore the default value, use the **no** form of this command.

**ospf transmit-delay** *seconds*

**no ospf transmit-delay** [*seconds*]

## Syntax Description

<i>seconds</i>	Sets the estimated time required to send a link-state update packet on the interface. The default value is 1 second with a range from 1 to 65535 seconds.
----------------	---

## Defaults

The default value of *seconds* is 1 second.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

LSAs in the update packet must have their ages incremented by the amount specified in the *seconds* argument before transmission. The value assigned should take into account the transmission and propagation delays for the interface.

If the delay is not added before transmission over a link, the time in which the LSA propagates over the link is not considered. This setting has more significance on very low-speed links.

## Examples

The following example sets the transmit delay to 3 seconds for the selected interface:

```
hostname(config-if)# ospf retransmit-delay 3
hostname(config-if)#
```

## Related Commands

Command	Description
<b>show ospf interface</b>	Displays OSPF-related interface information.

# outstanding

To limit the number of unauthenticated e-mail proxy sessions, use the **outstanding** command in the applicable e-mail proxy mode. To remove the attribute from the configuration, use the **no** version of this command, which permits an unlimited number of unauthenticated sessions. Use this command to limit DOS attacks on the e-mail ports.

E-mail proxy connections have three states:

1. A new e-mail connection enters the “unauthenticated” state.
2. When the connection presents a username, it enters the “authenticating” state.
3. When the security appliance authenticates the connection, it enters the “authenticated” state.

If the number of connections in the unauthenticated state exceeds the configured limit, the security appliance terminates the oldest unauthenticated connection, preventing overload. It does not terminate authenticated connections.

**outstanding** {*number*}

**no outstanding**

## Syntax Description

number	The number of unauthenticated sessions permitted. The range is from 1 to 1000.
--------	--

## Defaults

The default is 20.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Pop3s	•	•	—	—	•
Imap4s	•	•	—	—	•
Smtps	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example shows how to set a limit of 12 unauthenticated sessions for POP3S e-mail proxy.

```
hostname(config)# pop3s
hostname(config-pop3s)# outstanding 12
```

# override-account-disable

To override an account-disabled indication from a AAA server, use the **override-account-disable** command in tunnel-group general-attributes configuration mode. To disable an override, use the **no** form of this command.

**override-account-disable**

**no override-account-disable**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command is disabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group general-attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.1.1	This command was introduced.

## Usage Guidelines

This command is valid for servers, such as RADIUS with NT LDAP, and Kerberos, that return an “account-disabled” indication.

You can configure this attribute for IPsec RA and WebVPN tunnel-groups.

## Examples

The following example allows overriding the “account-disabled” indicator from the AAA server for the WebVPN tunnel group “testgroup”:

```
hostname(config)# tunnel-group testgroup type webvpn
hostname(config)# tunnel-group testgroup general-attributes
hostname(config-tunnel-general)# override-account-disable
hostname(config-tunnel-general)#
```

The following example allows overriding the “account-disabled” indicator from the AAA server for the IPsec remote access tunnel group “QAgroun”:

```
hostname(config)# tunnel-group QAgroun type ipsec-ra
hostname(config)# tunnel-group QAgroun general-attributes
hostname(config-tunnel-general)# override-account-disable
hostname(config-tunnel-general)#
```



Related Commands	Command	Description
	<b>clear configure tunnel-group</b>	Clears the tunnel-group database or the configuration for a particular tunnel group.
	<b>tunnel-group general-attributes</b>	Configures the tunnel-group general-attributes values.





## packet-tracer through pwd Commands

---

# packet-tracer

To enable packet tracing capabilities for packet sniffing and network fault isolation, use the **packet-tracer** command. To disable packet capture capabilities, use the **no** form of this command.

**packet-tracer input** [*src\_int*] *protocol* *src\_addr* *src\_port* *dest\_addr* *dest\_port* [**detailed**] [**xml**]

**no packet-tracer**

## Syntax Description

<b>input</b> <i>src_int</i>	Specifies the source interface for the packet trace.
<i>protocol</i>	Specifies the protocol type for the packet trace. Available protocol type keywords are <i>icmp</i> , <i>rawip</i> , <i>tcp</i> or <i>udp</i> .
<i>src_addr</i>	Specifies the source address for the packet trace.
<i>src_port</i>	Specifies the source port for the packet trace.
<i>dest_addr</i>	Specifies the destination address for the packet trace.
<i>dest_port</i>	Specifies the destination port for the packet trace.
<b>detailed</b>	(Optional) Provides detailed packet trace information.
<b>xml</b>	(Optional) Displays the trace capture in XML format.

## Defaults

This command has no default settings.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged mode	•	—	•	•	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

**Usage Guidelines**

In addition to capturing packets, it is possible to trace the lifespan of a packet through the security appliance to see if it is behaving as expected. The **packet-tracer** command lets you do the following:

- Debug all packet drops in production network.
- Verify the configuration is working as intended.
- Show all rules applicable to a packet along with the CLI lines which caused the rule addition.
- Show a time line of packet changes in a data path.
- Inject tracer packets into the data path.

The **packet-tracer** command provides detailed information about the packets and how they are processed by the security appliance. In the instance that a command from the configuration did not cause the packet to drop, the **packet-tracer** command will provide information about the cause in an easily readable manner. For example if a packet was dropped because of an invalid header validation, a message is displayed that says, “packet dropped due to bad ip header (reason).”

**Examples**

To enable packet tracing from inside host 10.2.25.3 to external host 209.165.202.158 with detailed information, enter the following:

```
hostname# packet-tracer input inside tcp 10.2.25.3 www 209.165.202.158 aol detailed
```

**Related Commands**

Command	Description
<b>capture</b>	Captures packet information, including trace packets.
<b>show capture</b>	Displays the capture configuration when no options are specified.

# page style

To customize the WebVPN page displayed to WebVPN users when they connect to the security appliance, use the **page style** command in webvpn customization mode:

**page style** *value*

**[no] page style** *value*

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

*value* Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default page style is background-color:white;font-family:Arial,Helv,sans-serif

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.



### Note

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

---

**Examples**

The following example customizes the page style to large:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# page style font-size:large
```

---

**Related Commands**

Command	Description
<b>logo</b>	Customizes the logo on the WebVPN page.
<b>title</b>	Customizes the title of the WebVPN page

# pager

To set the default number of lines on a page before the “---more---” prompt appears for Telnet sessions, use the **pager** command in global configuration mode.

**pager** [**lines**] *lines*

## Syntax Description

**[lines]** *lines* Sets the number of lines on a page before the “---more---” prompt appears. The default is 24 lines; 0 means no page limit. The range is 0 through 2147483647 lines. The **lines** keyword is optional and the command is the same with or without it.

## Defaults

The default is 24 lines.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was changed from a privileged EXEC mode command to a global configuration mode command. The <b>terminal pager</b> command was added as the privileged EXEC mode command.

## Usage Guidelines

This command changes the default pager line setting for Telnet sessions. If you want to temporarily change the setting only for the current session, use the **terminal pager** command.

If you Telnet to the admin context, then the pager line setting follows your session when you change to other contexts, even if the **pager** command in a given context has a different setting. To change the current pager setting, enter the **terminal pager** command with a new setting, or you can enter the **pager** command in the current context. In addition to saving a new pager setting to the context configuration, the **pager** command applies the new setting to the current Telnet session.

## Examples

The following example changes the number of lines displayed to 20:

```
hostname(config)# pager 20
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure terminal</b>	Clears the terminal display width setting.
<b>show running-config terminal</b>	Displays the current terminal settings.
<b>terminal</b>	Allows system log messages to display on the Telnet session.
<b>terminal pager</b>	Sets the number of lines to display in a Telnet session before the “---more---” prompt. This command is not saved to the configuration.
<b>terminal width</b>	Sets the terminal display width in global configuration mode.

# parameters

To enter parameters configuration mode to set parameters for an inspection policy map, use the **parameters** command in policy-map configuration mode.

## parameters

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Policy-map configuration	•	•	•	•	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** Modular Policy Framework lets you configure special actions for many application inspections. When you enable an inspection engine using the **inspect** command in the Layer 3/4 policy map (the **policy-map** command), you can also optionally enable actions as defined in an inspection policy map created by the **policy-map type inspect** command. For example, enter the **inspect dns dns\_policy\_map** command where `dns_policy_map` is the name of the inspection policy map.

An inspection policy map may support one or more **parameters** commands. Parameters affect the behavior of the inspection engine. The commands available in parameters configuration mode depend on the application.

**Examples** The following example shows how to set the maximum message length for DNS packets in the default inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# message-length maximum 512
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# participate

To force the device to participate in the virtual load-balancing cluster, use the **participate** command in VPN load-balancing mode. To remove a device from participation in the cluster, use the **no** form of this command.

**participate**

**no participate**

**Syntax Description** This command has no arguments or keywords.

**Defaults** The default behavior is that the device does not participate in the vpn load-balancing cluster.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
VPN load-balancing	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** You must first configure the interface using the **interface** and **nameif** commands, and use the **vpn load-balancing** command to enter VPN load-balancing mode. You must also have previously configured the cluster IP address using the **cluster ip** command and configured the interface to which the virtual cluster IP address refers.

This command forces this device to participate in the virtual load-balancing cluster. You must explicitly issue this command to enable participation for a device.

All devices that participate in a cluster must share the same cluster-specific values: ip address, encryption settings, encryption key, and port.



**Note**

When using encryption, you must have previously configured the command **isakmp enable inside**, where *inside* designates the load-balancing inside interface. If **isakmp** is not enabled on the load-balancing inside interface, you get an error message when you try to configure cluster encryption.

If **isakmp** was enabled when you configured the **cluster encryption** command, but was disabled before you configured the **participate** command, you get an error message when you enter the **participate** command, and the local device will not participate in the cluster.

---

**Examples**

The following is an example of a VPN load-balancing command sequence that includes a **participate** command that enables the current device to participate in the vpn load-balancing cluster:

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# participate
hostname(config-load-balancing)#
```

---

**Related Commands**

Command	Description
<b>vpn load-balancing</b>	Enter VPN load-balancing mode.

# passive-interface

To disable the transmission of RIP routing updates on an interface, use the **passive-interface** command in router configuration mode. To reenable RIP routing updates on an interface, use the **no** form of this command.

```
passive-interface [default | if_name]
```

```
no passive-interface {default | if_name}
```

## Syntax Description

<b>default</b>	(Optional) Set all interfaces to passive mode.
<i>if_name</i>	(Optional) The interface on which RIP is set to passive mode.

## Defaults

All interfaces are enabled for active RIP when RIP is enabled.

If an interface or the **default** keyword is not specified, the commands defaults to **default** and appears in the configuration as `passive-interface default`.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Enables passive RIP on the interface. The interface listens for RIP routing broadcasts and uses that information to populate the routing tables but does not broadcast routing updates.

## Examples

The following example sets the outside interface to passive RIP. The other interfaces on the security appliance send and receive RIP updates.

```
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# passive-interface outside
```

## Related Commands

Command	Description
<b>clear configure rip</b>	Clears all RIP commands from the running configuration.

Command	Description
<code>router rip</code>	Enables the RIP routing process and enters RIP router configuration mode.
<code>show running-config rip</code>	Displays the RIP commands in the running configuration.

# passwd

To set the login password, use the **passwd** command in global configuration mode. To set the password back to the default of “cisco,” use the **no** form of this command. You are prompted for the login password when you access the CLI as the default user using Telnet or SSH. After you enter the login password, you are in user EXEC mode.

```
{passwd | password} password [encrypted]
```

```
no {passwd | password} password
```

## Syntax Description

<b>encrypted</b>	(Optional) Specifies that the password is in encrypted form. The password is saved in the configuration in encrypted form, so you cannot view the original password after you enter it. If for some reason you need to copy the password to another security appliance but do not know the original password, you can enter the <b>passwd</b> command with the encrypted password and this keyword. Normally, you only see this keyword when you enter the <b>show running-config passwd</b> command.
<b>passwd   password</b>	You can enter either command; they are aliased to each other.
<i>password</i>	Sets the password as a case-sensitive string of up to 80 characters. The password must not contain spaces.

## Defaults

The default password is “cisco.”

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

This login password is for the default user. If you configure CLI authentication per user for Telnet or SSH using the **aaa authentication console** command, then this password is not used.

## Examples

The following example sets the password to Pa\$\$w0rd:

```
hostname(config)# passwd Pa$$w0rd
```



The following example sets the password to an encrypted password that you copied from another security appliance:

```
hostname(config)# passwd jMorNbK0514fadBh encrypted
```

**Related Commands**

Command	Description
<b>clear configure passwd</b>	Clears the login password.
<b>enable</b>	Enters privileged EXEC mode.
<b>enable password</b>	Sets the enable password.
<b>show curpriv</b>	Shows the currently logged in username and the user privilege level.
<b>show running-config passwd</b>	Shows the login password in encrypted form.

# password (crypto ca trustpoint)

To specify a challenge phrase that is registered with the CA during enrollment, use the **password** command in crypto ca trustpoint configuration mode. The CA typically uses this phrase to authenticate a subsequent revocation request. To restore the default setting, use the **no** form of the command.

**password** *string*

**no password**

## Syntax Description

*string* Specifies the name of the password as a character string. The first character cannot be a number. The string can contain any alphanumeric characters, including spaces, up to 80 characters. You cannot specify the password in the format number-space-anything. The space after the number causes problems. For example, “hello 21” is a legal password, but “21 hello” is not. The password checking is case sensitive. For example, the password “Secret” is different from the password “secret”.

## Defaults

The default setting is to not include a password.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command lets you specify the revocation password for the certificate before actual certificate enrollment begins. The specified password is encrypted when the updated configuration is written to NVRAM by the security appliance.

If this command is enabled, you will not be prompted for a password during certificate enrollment.

## Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and includes a challenge phrase registered with the CA in the enrollment request for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# password zzzxyy
hostname(ca-trustpoint)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.
<b>default enrollment</b>	Returns enrollment parameters to their defaults.

# password-management

To enable password management, use the **password-management** command in tunnel-group general-attributes configuration mode. To disable password management, use the **no** form of this command. To reset the number of days to the default value, use the **no** form of the command with the **password-expire-in-days** keyword specified.

**password-management** [**password-expire-in-days** *days*]

**no password-management**

**no password-management password-expire-in-days** [*days*]

## Syntax Description

<i>days</i>	Specifies the number of days (0 through 180) before the current password expires. This parameter is required if you specify the <b>password-expire-in-days</b> keyword.
<b>password-expire-in-days</b>	(Optional) Indicates that the immediately following parameter specifies the number of days before the current password expires that the security appliance starts warning the user about the pending expiration. This option is valid only for LDAP servers.

## Defaults

If you do not specify this command, no password management occurs. If you do not specify the **password-expire-in-days** keyword, the default length of time to start warning before the current password expires is 14 days.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group general-attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

You can configure this attribute for IPSec remote access and WebVPN tunnel-groups.

When you configure this command, the security appliance notifies the remote user at login that the user's current password is about to expire or has expired. The security appliance then offers the user the opportunity to change the password. If the current password has not yet expired, the user can still log in using that password. This command is valid for AAA servers that support such notification; that is, RADIUS, RADIUS with an NT server, and LDAP servers. The security appliance ignores this command if RADIUS or LDAP authentication has not been configured.

Note that this does not change the number of days before the password expires, but rather, the number of days ahead of expiration that the security appliance starts warning the user that the password is about to expire.

If you do specify the **password-expire-in-days** keyword, you must also specify the number of days.

Specifying this command with the number of days set to 0 disables this command. The security appliance does not notify the user of the pending expiration, but the user can change the password after it expires.

### Examples

The following example sets the days before password expiration to begin warning the user of the pending expiration to 90 for the WebVPN tunnel group “testgroup”:

```
hostname(config)# tunnel-group testgroup type webvpn
hostname(config)# tunnel-group testgroup general-attributes
hostname(config-tunnel-general)# password-management password-expire-in-days 90
hostname(config-tunnel-general)#
```

The following example uses the default value of 14 days before password expiration to begin warning the user of the pending expiration for the IPsec remote access tunnel group “QAgroup”:

```
hostname(config)# tunnel-group QAgroup type ipsec-ra
hostname(config)# tunnel-group QAgroup general-attributes
hostname(config-tunnel-general)# password-management
hostname(config-tunnel-general)#
```

### Related Commands

Command	Description
<b>clear configure passwd</b>	Clears the login password.
<b>passwd</b>	Sets the login password.
<b>radius-with-expiry</b>	Enables negotiation of password update during RADIUS authentication (Deprecated).
<b>show running-config passwd</b>	Shows the login password in encrypted form.
<b>tunnel-group general-attributes</b>	Configures the tunnel-group general-attributes values.

# password-parameter

To specify the name of the HTTP POST request parameter in which a user password must be submitted for SSO authentication, use the **password-parameter** command in aaa-server- host configuration mode. This is an SSO with HTTP Forms command.

**password-parameter** *string*



## Note

To configure SSO with the HTTP protocol correctly, you must have a thorough working knowledge of authentication and HTTP protocol exchanges.

## Syntax Description

<i>string</i>	The name of the password parameter included in the HTTP POST request. The maximum password length is 128 characters.
---------------	--

## Defaults

There is no default value or behavior.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Aaa-server-host configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The WebVPN server of the security appliance uses an HTTP POST request to submit a single sign-on authentication request to an authenticating web server. The required command **password-parameter** specifies that the POST request must include a user password parameter for SSO authentication.



## Note

At login, the user enters the actual password value which is entered into the POST request and passed on to the authenticating web server.

## Examples

The following example, entered in aaa-server-host configuration mode, specifies a password parameter named user\_password:

```
hostname(config)# aaa-server testgrp1 host example.com
hostname(config-aaa-server-host)# password-parameter user_password
hostname(config-aaa-server-host)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>action-uri</b>	Specifies a web server URI to receive a username and password for single sign-on authentication.
<b>auth-cookie-name</b>	Specifies a name for the authentication cookie.
<b>hidden-parameter</b>	Creates hidden parameters for exchange with the authenticating web server.
<b>start-url</b>	Specifies the URL at which to retrieve a pre-login cookie.
<b>user-parameter</b>	Specifies the name of the HTTP POST request parameter in which a username must be submitted for SSO authentication.

# password-prompt

To customize the password prompt of the WebVPN page login box that is displayed to WebVPN users when they connect to the security appliance, use the **password-prompt** command from webvpn customization mode:

**password-prompt** {text | style} value

[no] **password-prompt** {text | style} value

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>text</b>	Specifies you are changing the text.
<b>style</b>	Specifies you are changing the style.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default text of the password prompt is “PASSWORD:”.

The default style of the password prompt is color:black;font-weight:bold;text-align:right.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.



- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

In the following example, the text is changed to “Corporate Password:”, and the default style is changed with the font weight increased to bolder:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# password-prompt text Corporate Username:
F1-asal(config-webvpn-custom)# password-prompt style font-weight:bolder
```

**Related Commands**

Command	Description
<b>group-prompt</b>	Customizes the group prompt of the WebVPN page
<b>username-prompt</b>	Customizes the username prompt of the WebVPN page

# password-storage

To let users store their login passwords on the client system, use the **password-storage enable** command in group-policy configuration mode or username configuration mode. To disable password storage, use the **password-storage disable** command.

To remove the password-storage attribute from the running configuration, use the **no** form of this command. This enables inheritance of a value for password-storage from another group policy.

**password-storage {enable | disable}**

**no password-storage**

## Syntax Description

<b>disable</b>	Disables password storage.
<b>enable</b>	Enables password storage.

## Defaults

Password storage is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—
Username	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Enable password storage only on systems that you know to be in secure sites.

This command has no bearing on interactive hardware client authentication or individual user authentication for hardware clients.

## Examples

The following example shows how to enable password storage for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# password-storage enable
```

# peer-id-validate

To specify whether to validate the identity of the peer using the peer's certificate, use the **peer-id-validate** command in tunnel-group ipsec-attributes mode. To return to the default value, use the **no** form of this command.

**peer-id-validate** *option*

**no peer-id-validate**

## Syntax Description

<i>option</i>	Specifies one of the following options:
	<ul style="list-style-type: none"> <li>• <b>req</b>: required</li> <li>• <b>cert</b>: if supported by certificate</li> <li>• <b>nocheck</b>: do not check</li> </ul>

## Defaults

The default setting for this command is **req**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group ipsec attributes	•	—	•	—	—

## Command History

Release	Modification
7.0.1	This command was introduced.

## Usage Guidelines

You can apply this attribute to all IPsec tunnel-group types.

## Examples

The following example entered in config-ipsec configuration mode, requires validating the peer using the identity of the peer's certificate for the IPsec LAN-to-LAN tunnel group named 209.165.200.225:

```
hostname(config)# tunnel-group 209.165.200.225 type IPsec_L2L
hostname(config)# tunnel-group 209.165.200.225 ipsec-attributes
hostname(config-tunnel-ipsec)# peer-id-validate req
hostname(config-tunnel-ipsec)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>clear-configure tunnel-group</b>	Clears all configured tunnel groups.
<b>show running-config tunnel-group</b>	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
<b>tunnel-group ipsec-attributes</b>	Configures the tunnel-group ipsec-attributes for this group.

# perfmon

To display performance information, use the **perfmon** command in privileged EXEC mode.

**perfmon** { **verbose** | **interval** *seconds* | **quiet** | **settings** } [*detail*]

Syntax Description	Parameter	Description
	<b>verbose</b>	Displays performance monitor information at the security appliance console.
	<b>interval</b> <i>seconds</i>	Specifies the number of seconds before the performance display is refreshed on the console.
	<b>quiet</b>	Disables the performance monitor displays.
	<b>settings</b>	Displays the interval and whether it is quiet or verbose.
	<i>detail</i>	Displays detailed information about performance.

## Defaults

The *seconds* is 120 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	

## Command History

Release	Modification
7.0(1)	Support for this command was introduced on the security appliance.
7.2(1)	Support for the <b>detail</b> keyword was added.

## Usage Guidelines

The **perfmon** command allows you to monitor the performance of the security appliance. Use the **show perfmon** command to display the information immediately. Use the **perfmon verbose** command to display the information every 2 minutes continuously. Use the **perfmon interval seconds** command with the **perfmon verbose** command to display the information continuously every number of seconds that you specify.

An example of the performance information is displayed as follows:

PERFMON STATS:	Current	Average
Xlates	33/s	20/s
Connections	110/s	10/s
TCP Conns	50/s	42/s
WebSns Req	4/s	2/s
TCP Fixup	20/s	15/s
HTTP Fixup	5/s	5/s

FTP Fixup	7/s	4/s
AAA Authen	10/s	5/s
AAA Author	9/s	5/s
AAA Account	3/s	3/s

This information lists the number of translations, connections, Websense requests, address translations (called “fixups”), and AAA transactions that occur each second.

### Examples

This example shows how to display the performance monitor statistics every 30 seconds on the security appliance console:

```
hostname(config)# perfmon interval 120
hostname(config)# perfmon quiet
hostname(config)# perfmon settings
interval: 120 (seconds)
quiet
```

### Related Commands

Command	Description
<b>show perfmon</b>	Displays performance information.

# periodic

To specify a recurring (weekly) time range for functions that support the time-range feature, use the **periodic** command in time-range configuration mode. To disable, use the **no** form of this command.

**periodic** *days-of-the-week time to [days-of-the-week] time*

**no periodic** *days-of-the-week time to [days-of-the-week] time*

## Syntax Description

**days-of-the-week** (Optional) The first occurrence of this argument is the starting day or day of the week that the associated time range is in effect. The second occurrence is the ending day or day of the week the associated statement is in effect.

This argument is any single day or combinations of days: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday. Other possible values are:

- **daily**—Monday through Sunday
- **weekdays**—Monday through Friday
- **weekend**—Saturday and Sunday

If the ending days of the week are the same as the starting days of the week, you can omit them.

**time** Specifies the time in the format HH:MM. For example, 8:00 is 8:00 a.m. and 20:00 is 8:00 p.m.

**to** Entry of the **to** keyword is required to complete the range “from start-time to end-time.”

## Defaults

If a value is not entered with the **periodic** command, access to the security appliance as defined with the **time-range** command is in effect immediately and always on.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Time-range configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

To implement a time-based ACL, use the **time-range** command to define specific times of the day and week. Then use the with the **access-list extended time-range** command to bind the time range to an ACL.

The **periodic** command is one way to specify when a time range is in effect. Another way is to specify an absolute time period with the **absolute** command. Use either of these commands after the **time-range** global configuration command, which specifies the name of the time range. Multiple **periodic** entries are allowed per **time-range** command.

If the end days-of-the-week value is the same as the start value, you can omit them.

If a **time-range** command has both **absolute** and **periodic** values specified, then the **periodic** commands are evaluated only after the **absolute start** time is reached, and are not further evaluated after the **absolute end** time is reached.

The time-range feature relies on the system clock of the security appliance; however, the feature works best with NTP synchronization.

## Examples

Some examples follow:

If you want:	Enter this:
Monday through Friday, 8:00 a.m. to 6:00 p.m. only	<b>periodic weekdays 8:00 to 18:00</b>
Every day of the week, from 8:00 a.m. to 6:00 p.m. only	<b>periodic daily 8:00 to 18:00</b>
Every minute from Monday 8:00 a.m. to Friday 8:00 p.m.	<b>periodic monday 8:00 to friday 20:00</b>
All weekend, from Saturday morning through Sunday night	<b>periodic weekend 00:00 to 23:59</b>
Saturdays and Sundays, from noon to midnight	<b>periodic weekend 12:00 to 23:59</b>

The following example shows how to allow access to the security appliance on Monday through Friday, 8:00 a.m. to 6:00 p.m. only:

```
hostname(config-time-range)# periodic weekdays 8:00 to 18:00
hostname(config-time-range)#
```

The following example shows how to allow access to the security appliance on specific days (Monday, Tuesday, and Friday), 10:30 a.m. to 12:30 p.m.:

```
hostname(config-time-range)# periodic Monday Tuesday Friday 10:30 to 12:30
hostname(config-time-range)#
```

## Related Commands

Command	Description
<b>absolute</b>	Defines an absolute time when a time range is in effect.
<b>access-list extended</b>	Configures a policy for permitting or denying IP traffic through the security appliance.
<b>default</b>	Restores default settings for the <b>time-range</b> command <b>absolute</b> and <b>periodic</b> keywords.
<b>time-range</b>	Defines access control to the security appliance based on time.



## permit errors

To allow invalid GTP packets or packets that otherwise would fail parsing and be dropped, use the **permit errors** command in GTP map configuration mode, which is accessed by using the **gtp-map** command. Use the **no** form of this command to remove the command.

**permit errors**

**no permit errors**

### Syntax Description

This command has no arguments or keywords.

### Defaults

By default, all invalid packets or packets that failed, during parsing, are dropped.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
GTP map configuration	•	•	•	•	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

Use the **permit errors** command in GTP map configuration mode to allow any packets that are invalid or encountered an error during inspection of the message to be sent through the security appliance instead of being dropped.

### Examples

The following example permits traffic containing invalid packets or packets that failed, during parsing:

```
hostname(config)# gtp-map gtp-policy
hostname(config-gtpmap)# permit errors
hostname(config-gtpmap)#
```

### Related Commands

Commands	Description
<b>clear service-policy</b> <b>inspect gtp</b>	Clears global GTP statistics.
<b>gtp-map</b>	Defines a GTP map and enables GTP map configuration mode.
<b>inspect gtp</b>	Applies a specific GTP map to use for application inspection.

<b>Commands</b>	<b>Description</b>
<b>permit response</b>	Supports load-balancing GSNs.
<b>show service-policy</b> <b>inspect gtp</b>	Displays the GTP configuration.

# permit response

To support load-balancing GSNs, use the **permit response** command in GTP map configuration mode, which is accessed by using the **gtp-map** command. The permit response command supports load-balancing GSNs by allowing GTP responses from a different GSN than the response was sent to. Use the **no** form of this command to remove the command.

**permit response to-object-group** *to\_obj\_group\_id* **from-object-group** *from\_obj\_group\_id*

**no permit response to-object-group** *to\_obj\_group\_id* **from-object-group** *from\_obj\_group\_id*

## Syntax Description

<b>from-object-group</b> <i>from_obj_group_id</i>	Specifies the name of the object-group configured with the <b>object-group</b> command which can send responses to the set of GSNs in the object-group specified by the <i>to_obj_group_id</i> argument. The security appliance supports only object-groups containing network-objects with IPv4 addresses. IPv6 addresses are currently not supported with GTP.
<b>to-object-group</b> <i>to_obj_group_id</i>	Specifies the name of the object-group configured with the <b>object-group</b> command which can receive responses from the set of GSNs in the object-group specified by the <i>from_obj_group_id</i> argument. The security appliance supports only object-groups containing network-objects with IPv4 addresses. IPv6 addresses are currently not supported with GTP.

## Defaults

By default, the security appliance drops GTP responses from GSNs other than the host to which the request was sent.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
GTP map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)(4)	This command was introduced.

## Usage Guidelines

Use the **permit response** command in GTP map configuration mode to support load-balancing GSNs. The **permit response** command configures the GTP map to allow GTP responses from a different GSN than the response was sent to.

You identify the pool of load-balancing GSNs as a network object. Likewise, you identify the SGSN as a network object. If the GSN responding belongs to the same object group as the GSN that the GTP request was sent to and if the SGSN is in a object group that the responding GSN is permitted to send a GTP response to, the security appliance permits the response.

---

**Examples**

The following example permits GTP responses from any host on the 192.168.32.0 network to the host with the IP address 192.168.112.57:

```
hostname(config)# object-group network gsnpool32
hostname(config-network)# network-object 192.168.32.0 255.255.255.0
hostname(config)# object-group network sgsn1
hostname(config-network)# network-object host 192.168.112.57
hostname(config-network)# exit
hostname(config)# gtp-map qtp-policy
hostname(config-gtpmap)# permit response to-object-group sgsn1 from-object-group gsnpool32
```

---

**Related Commands**

Commands	Description
<b>clear service-policy inspect gtp</b>	Clears global GTP statistics.
<b>gtp-map</b>	Defines a GTP map and enables GTP map configuration mode.
<b>inspect gtp</b>	Applies a specific GTP map to use for application inspection.
<b>permit errors</b>	Allow invalid GTP packets.
<b>show service-policy inspect gtp</b>	Displays the GTP configuration.

# pfs

To enable PFS, use the **pfs enable** command in group-policy configuration mode. To disable PFS, use the **pfs disable** command. To remove the PFS attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a value for PFS from another group policy.

In IPSec negotiations, PFS ensures that each new cryptographic key is unrelated to any previous key.

**pfs {enable | disable}**

**no pfs**

## Syntax Description

<b>disable</b>	Disables PFS.
<b>enable</b>	Enables PFS.

## Defaults

PFS is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Group-policy	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The PFS setting on the VPN Client and the security appliance must match.

## Examples

The following example shows how to set PFS for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# pfs enable
```

# pim

To re-enable PIM on an interface, use the **pim** command in interface configuration mode. To disable PIM, use the **no** form of this command.

**pim**

**no pim**

**Syntax Description** This command has no arguments or keywords.

**Defaults** The **multicast-routing** command enables PIM on all interfaces by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **multicast-routing** command enables PIM on all interfaces by default. Only the **no** form of the **pim** command is saved in the configuration.



**Note**

PIM is not supported with PAT. The PIM protocol does not use ports and PAT only works with protocols that use ports.

**Examples** The following example disables PIM on the selected interface:

```
hostname(config-if)# no pim
```

Related Commands	Command	Description
	<b>multicast-routing</b>	Enables multicast routing on the security appliance.

# pim accept-register

To configure the security appliance to filter PIM register messages, use the **pim accept-register** command in global configuration mode. To remove the filtering, use the **no** form of this command.

```
pim accept-register {list acl | route-map map-name}
```

```
no pim accept-register
```

## Syntax Description

<b>list</b> <i>acl</i>	Specifies an access list name or number. Use only standard host ACLs with this command; extended ACLs are not supported.
<b>route-map</b> <i>map-name</i>	Specifies a route-map name. Use standard host ACLs in the referenced route-map; extended ACLs are not supported.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command is used to prevent unauthorized sources from registering with the RP. If an unauthorized source sends a register message to the RP, the security appliance will immediately send back a register-stop message.

## Examples

The following example restricts PIM register messages to those from sources defined in the access list named “no-ssm-range”:

```
hostname(config)# pim accept-register list no-ssm-range
```

## Related Commands

Command	Description
<b>multicast-routing</b>	Enables multicast routing on the security appliance.

# pim bidir-neighbor-filter

To control which bidir-capable neighbors can participate in the DF election, use the **pim bidir-neighbor-filter** command in interface configuration mode. To remove the filtering, use the **no** form of this command.

```
pim bidir-neighbor-filter acl
```

```
no pim bidir-neighbor-filter acl
```

## Syntax Description

<i>acl</i>	Specifies an access list name or number. The access list defines the neighbors that can participate in bidir DF elections. Use only standard ACLs with this command; extended ACLs are not supported.
------------	---

## Defaults

All routers are considered to be bidir capable.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Bidirectional PIM allows multicast routers to keep reduced state information. All of the multicast routers in a segment must be bidirectionally enabled for bidir to elect a DF.

The **pim bidir-neighbor-filter** command enables the transition from a sparse-mode-only network to a bidir network by letting you specify the routers that should participate in DF election while still allowing all routers to participate in the sparse-mode domain. The bidir-enabled routers can elect a DF from among themselves, even when there are non-bidir routers on the segment. Multicast boundaries on the non-bidir routers prevent PIM messages and data from the bidir groups from leaking in or out of the bidir subset cloud.

When the **pim bidir-neighbor-filter** command is enabled, the routers that are permitted by the ACL are considered to be bidir-capable. Therefore:

- If a permitted neighbor does not support bidir, the DF election does not occur.
- If a denied neighbor supports bidir, then DF election does not occur.
- If a denied neighbor does not support bidir, the DF election can occur.



---

**Examples**

The following example allows 10.1.1.1 to become a PIM bidir neighbor:

```
hostname(config)# access-list bidir_test permit 10.1.1.1 255.255.255.55
hostname(config)# access-list bidir_test deny any
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# pim bidir-neighbor-filter bidir_test
```

---

**Related Commands**

Command	Description
<b>multicast boundary</b>	Defines a multicast boundary for administratively-scoped multicast addresses.
<b>multicast-routing</b>	Enables multicast routing on the security appliance.

# pim dr-priority

To configure the neighbor priority on the security appliance used for designated router election, use the **pim dr-priority** command in interface configuration mode. To restore the default priority, use the **no** form of this command.

**pim dr-priority** *number*

**no pim dr-priority**

## Syntax Description

<i>number</i>	A number from 0 to 4294967294. This number is used to determine the priority of the device when determining the designated router. Specifying 0 prevents the security appliance from becoming the designated router.
---------------	--

## Defaults

The default value is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The device with the largest priority value on an interface becomes the PIM designated router. If multiple devices have the same designated router priority, then the device with the highest IP address becomes the DR. If a device does not include the DR-Priority Option in hello messages, it is regarded as the highest-priority device and becomes the designated router. If multiple devices do not include this option in their hello messages, then the device with the highest IP address becomes the designated router.

## Examples

The following example sets the DR priority for the interface to 5:

```
hostname(config-if)# pim dr-priority 5
```

## Related Commands

Command	Description
<b>multicast-routing</b>	Enables multicast routing on the security appliance.

# pim hello-interval

To configure the frequency of the PIM hello messages, use the **pim hello-interval** command in interface configuration mode. To restore the hello-interval to the default value, use the **no** form of this command.

**pim hello-interval** *seconds*

**no pim hello-interval** [*seconds*]

## Syntax Description

<i>seconds</i>	The number of seconds that the security appliance waits before sending a hello message. Valid values range from 1 to 3600 seconds. The default value is 30 seconds.
----------------	---

## Defaults

30 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example sets the PIM hello interval to 1 minute:

```
hostname(config-if)# pim hello-interval 60
```

## Related Commands

Command	Description
<b>multicast-routing</b>	Enables multicast routing on the security appliance.

# pim join-prune-interval

To configure the PIM join/prune interval, use the **pim join-prune-interval** command in interface configuration mode. To restore the interval to the default value, use the **no** form of this command.

**pim join-prune-interval** *seconds*

**no pim join-prune-interval** [*seconds*]

<b>Syntax Description</b>	<i>seconds</i>	The number of seconds that the security appliance waits before sending a join/prune message. Valid values range from 10 to 600 seconds. 60 seconds is the default.
---------------------------	----------------	--

<b>Defaults</b>	60 seconds
-----------------	------------

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example sets the PIM join/prune interval to 2 minutes:

```
hostname(config-if)# pim join-prune-interval 120
```

Related Commands	Command	Description
	<b>multicast-routing</b>	Enables multicast routing on the security appliance.

# pim neighbor-filter

To control which neighbor routers can participate in PIM, use the **pim neighbor-filter** command in interface configuration mode. To remove the filtering, use the **no** form of this command.

**pim neighbor-filter** *acl*

**no pim neighbor-filter** *acl*

## Syntax Description

*acl* Specifies an access list name or number. Use only standard ACLs with this command; extended ACLs are not supported.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command defines which neighbor routers can participate in PIM. If this command is not present in the configuration then there are no restrictions.

Multicast routing and PIM must be enabled for this command to appear in the configuration. If you disable multicast routing, this command is removed from the configuration.

## Examples

The following example prevents the router with the IP address 10.1.1.1 from becoming a PIM neighbor on interface GigabitEthernet0/2:

```
hostname(config)# access-list pim_filter deny 10.1.1.1 255.255.255.255
hostname(config)# interface gigabitEthernet0/2
hostname(config-if)# pim neighbor-filter pim_filter
```

## Related Commands

Command	Description
<b>multicast-routing</b>	Enables multicast routing on the security appliance.

# pim old-register-checksum

To allow backward compatibility on a rendezvous point (RP) that uses old register checksum methodology, use the **pim old-register-checksum** command in global configuration mode. To generate PIM RFC-compliant registers, use the **no** form of this command.

**pim old-register-checksum**

**no pim old-register-checksum**

**Syntax Description** This command has no arguments or keywords.

**Defaults** The security appliance generates PIM RFC-compliant registers.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The security appliance software accepts register messages with checksum on the PIM header and only the next 4 bytes rather than using the Cisco IOS method—accepting register messages with the entire PIM message for all PIM message types. The **pim old-register-checksum** command generates registers compatible with Cisco IOS software.

**Examples** The following example configures the security appliance to use the old checksum calculations:

```
hostname(config)# pim old-register-checksum
```

Related Commands	Command	Description
	<b>multicast-routing</b>	Enables multicast routing on the security appliance.

# pim rp-address

To configure the address of a PIM rendezvous point (RP), use the **pim rp-address** command in global configuration mode. To remove an RP address, use the **no** form of this command.

```
pim rp-address ip_address [acl] [bidir]
```

```
no pim rp-address ip_address
```

## Syntax Description

<i>acl</i>	(Optional) The name or number of a standard access list that defines which multicast groups the RP should be used with. Do not use a host ACL with this command.
<b>bidir</b>	(Optional) Indicates that the specified multicast groups are to operate in bidirectional mode. If the command is configured without this option, the specified groups operate in PIM sparse mode.
<i>ip_address</i>	IP address of a router to be a PIM RP. This is a unicast IP address in four-part dotted-decimal notation.

This command has no arguments or keywords.

## Defaults

No PIM RP addresses are configured.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

All routers within a common PIM sparse mode (PIM-SM) or bidir domain require knowledge of the well-known PIM RP address. The address is statically configured using this command.



### Note

The security appliance does not support Auto-RP; you must use the **pim rp-address** command to specify the RP address.

You can configure a single RP to serve more than one group. The group range specified in the access list determines the PIM RP group mapping. If the an access list is not specified, the RP for the group is applied to the entire IP multicast group range (224.0.0.0/4).

**Note**

The security appliance always advertises the bidir capability in the PIM hello messages regardless of the actual bidir configuration.

**Examples**

The following example sets the PIM RP address to 10.0.0.1 for all multicast groups:

```
hostname(config)# pim rp-address 10.0.0.1
```

**Related Commands**

Command	Description
<b>pim accept-register</b>	Configures candidate RPs to filter PIM register messages.



# pim spt-threshold infinity

To change the behavior of the last hop router to always use the shared tree and never perform a shortest-path tree (SPT) switchover, use the **pim spt-threshold infinity** command in global configuration mode. To restore the default value, use the **no** form of this command.

```
pim spt-threshold infinity [group-list acl]
```

```
no pim spt-threshold
```

## Syntax Description

**group-list acl** (Optional) Indicates the source groups restricted by the access list. The *acl* argument must specify a standard ACL; extended ACLs are not supported.

## Defaults

The last hop PIM router switches to the shortest-path source tree by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If the **group-list** keyword is not used, this command applies to all multicast groups.

## Examples

The following example causes the last hop PIM router to always use the shared tree instead of switching to the shortest-path source tree:

```
hostname(config)# pim spt-threshold infinity
```

## Related Commands

Command	Description
<b>multicast-routing</b>	Enables multicast routing on the security appliance.

# ping

To determine if other IP addresses are visible from the security appliance, use the **ping** command in privileged EXEC mode.

**ping** [*if\_name*] *host* [**data pattern**] [**repeat count**] [**size bytes**] [**timeout seconds**] [**validate**]

## Syntax Description

<b>data pattern</b>	(Optional) Specifies the 16-bit data pattern in hexadecimal.
<i>host</i>	Specifies the IPv4 or IPv6 address or name of the host to ping. The name can be a DNS name or a name assigned with the <b>name</b> command. The maximum number of characters for DNA names is 128, and the maximum number of characters for names created with the <b>name</b> command is 63.
<i>if_name</i>	(Optional) Specifies the interface name, as configured by the <b>nameif</b> command, by which the <i>host</i> is accessible. If not supplied, then the <i>host</i> is resolved to an IP address and then the routing table is consulted to determine the destination interface.
<b>repeat count</b>	(Optional) Specifies the number of times to repeat the ping request.
<b>size bytes</b>	(Optional) Specifies the datagram size in bytes.
<b>timeout seconds</b>	(Optional) Specifies the the number of seconds to wait before timing out the ping request.
<b>validate</b>	(Optional) Specifies to validate reply data.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.
7.2(1)	Support for DNS names added.

## Usage Guidelines

The **ping** command allows you to determine if the security appliance has connectivity or if a host is available on the network. If the security appliance has connectivity, ensure that the **icmp permit any interface** command is configured. This configuration is required to allow the security appliance to respond and accept messages generated from the **ping** command. The **ping** command output shows if the response was received. If a host is not responding, when you enter the **ping** command, a message similar to the following displays:

```
hostname(config)# ping 10.1.1.1
Sending 5, 100-byte ICMP Echos to 10.1.1.1, timeout is 2 seconds:
?????
Success rate is 0 percent (0/5)
```

Use the **show interface** command to ensure that the security appliance is connected to the network and is passing traffic. The address of the specified *if\_name* is used as the source address of the ping.

If you want internal hosts to ping external hosts, you must do one of the following:

- Create an ICMP **access-list** command for an echo reply; for example, to give ping access to all hosts, use the **access-list acl\_grp permit icmp any any** command and bind the **access-list** command to the interface that you want to test using the **access-group** command.
- Configure the ICMP inspection engine using the **inspect icmp** command. For example, adding the **inspect icmp** command to the **class default\_inspection** class for the global service policy allows echo replies through the security appliance for echo requests initiated by internal hosts.

You can also perform an extended ping, which allows you to enter the keywords one line at a time.

If you are pinging through the security appliance between hosts or routers, but the pings are not successful, use the **capture** command to monitor the success of the ping.

The security appliance **ping** command does not require an interface name. If you do not specify an interface name, the security appliance checks the routing table to find the address that you specify. You can specify an interface name to indicate through which interface the ICMP echo requests are sent.

## Examples

The following example shows how to determine if other IP addresses are visible from the security appliance:

```
hostname# ping 171.69.38.1
Sending 5, 100-byte ICMP Echos to 171.69.38.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/10 ms
```

The following example specifies a host using a DNS name:

```
hostname# ping www.example.com
Sending 5, 100-byte ICMP Echos to www.example.com, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/10 ms
```

The following is an example of an extended ping:

```
hostname# ping
Interface: outside
Target IP address: 171.69.38.1
Repeat count: [5]
Datagram size: [100]
Timeout in seconds: [2]
Extended commands [n]:
Sweep range of sizes [n]:
Sending 5, 100-byte ICMP Echos to 171.69.38.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/10 ms
```

## Related Commands

<b>Command</b>	<b>Description</b>
capture	Captures packets at an interface
icmp	Configures access rules for ICMP traffic that terminates at an interface.
<b>show interface</b>	Displays information about the VLAN configuration.

# police

To apply strict scheduling priority for this class, use the **police** command in class mode. To remove the rate-limiting requirement, use the **no** form of this command.

```
police {output | input} conform-rate [burst-size conform-action {drop | transmit} exceed-action {drop | transmit}]
```

```
no police
```

## Syntax Description

<i>burst-size</i>	A value in the range 1000-512000000, specifying the maximum number of instantaneous bytes allowed in a sustained burst before throttling to the conforming rate value.
<b>conform-action</b>	The action (drop or transmit the packet) to take when the rate is less than the <i>burst-size</i> value.
<i>conform-rate</i>	The rate limit for this traffic flow; this is a value in the range 8000-2000000000, specifying the maximum speed (bits per second) allowed.
<b>drop</b>	Drop the packet.
<b>exceed-action</b>	Take this action when the rate is between the conform-rate value and the conform-burst value.
<b>input</b>	Enables policing of traffic flowing in the input direction.
<b>output</b>	Enables policing of traffic flowing in the output direction.
<b>transmit</b>	Transmit the packet.

## Defaults

No default behavior or variables.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	Added the <b>input</b> option. Policing traffic in the inbound direction is now supported. Changed syntax notation to indicate that everything in the command following the <i>conform rate</i> is optional, per the command specifications.

**Usage Guidelines**

You must have configured the **policy-map** command and the **class** command before issuing the **police** command.

**Note**

The **police** command merely enforces the maximum speed and burst rate, forcing them to the conforming rate value. It does not enforce the **conform-action** or the **exceed-action** specification if these are present.

You cannot enable both priority and policing together.

If a service policy is applied or removed from an interface that has existing VPN client/LAN-to-LAN or non-tunneled traffic already established, the QoS policy is not applied or removed from the traffic stream. To apply or remove the QoS policy for such connections, you must clear (that is, drop) the connections and re-establish them.

**Examples**

The following is an example of a **police** command for the output direction that sets the conform rate to 100,000 bits per second, a burst value of 2,000,000 bytes, and specifies that traffic that exceeds the burst rate will be dropped:

```
hostname(config)# policy-map localpolicy1
hostname(config-pmap)# class-map firstclass
hostname(config-cmap)# class localclass
hostname(config-pmap-c)# police output 100000 20000 exceed-action drop
hostname(config-cmap-c)# class class-default
hostname(config-pmap-c)#
```

The following example shows how to do rate-limiting on traffic destined to an internal web server.

```
hostname# access-list http_traffic permit tcp any 10.1.1.0 255.255.255.0 eq 80
hostname# class-map http_traffic
hostname(config-cmap)# match access-list http_traffic
hostname(config-cmap)# policy-map outside_policy
hostname(config-pmap)# class http_traffic
hostname(config-pmap-c)# police input 56000
hostname(config-pmap-c)# service-policy outside_policy interface outside
hostname(config)#
```

**Related Commands**

<b>class</b>	Specifies a class-map to use for traffic classification.
<b>clear configure policy-map</b>	Remove all policy-map configuration, except that if a policy-map is in use in a service-policy command, that policy-map is not removed.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>show running-config policy-map</b>	Display all current policy-map configurations.

# policy

To specify the source for retrieving the CRL, use the **policy** command in ca-crl configuration mode.

**policy {static | cdp | both}**

Syntax Description	both	cdp	static
	Specifies that if obtaining a CRL using the CRL distribution point fails, retry using static CDPs up to a limit of five.	Uses the CDP extension embedded within the certificate being checked. In this case, the security appliance retrieves up to five CRL distributions points from the CDP extension of the certificate being verified and augments their information with the configured default values, if necessary. If the security appliance attempt to retrieve a CRL using the primary CDP fails, it retries using the next available CDP in the list. This continues until either the security appliance retrieves a CRL or exhausts the list.	Uses up to five static CRL distribution points. If you specify this option, specify also the LDAP or HTTP URLs with the <b>protocol</b> command.

## Defaults

The default setting is **cdp**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
CRL configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example enters ca-crl configuration mode, and configures CRL retrieval to occur using the CRL distribution point extension in the certificate being checked or if that fails, to use static CDPs:

```
hostname(configure)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# policy both
hostname(ca-crl)#
```

## Related Commands

Command	Description
<b>crl configure</b>	Enters ca-crl configuration mode.
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.
<b>url</b>	Creates and maintains a list of static URLs for retrieving CRLs.

# policy-map

When using the Modular Policy Framework, assign actions to traffic that you identified with a Layer 3/4 class map (the **class-map** or **class-map type management** command) by using the **policy-map** command (without the **type** keyword) in global configuration mode. To remove a Layer 3/4 policy map, use the **no** form of this command.

**policy-map** *name*

**no policy-map** *name*

## Syntax Description

*name* Specifies the name for this policy map up to 40 characters in length. All types of policy maps use the same name space, so you cannot reuse a name already used by another type of policy map.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Configuring Modular Policy Framework consists of four tasks:

1. Identify the Layer 3 and 4 traffic to which you want to apply actions using the **class-map** or **class-map type management** command.
2. (Application inspection only) Define special actions for application inspection traffic using the **policy-map type inspect** command.
3. Apply actions to the Layer 3 and 4 traffic using the **policy-map** command.
4. Activate the actions on an interface using the **service-policy** command.

The maximum number of policy maps is 64. You can identify multiple Layer 3/4 class maps in a Layer 3/4 policy map (see the **class** command), and you can assign multiple actions from one or more feature types to each class map.

A packet can match only one class map in the policy map for each feature type. When the packet matches a class map for a feature type, the security appliance does not attempt to match it to any subsequent class maps for that feature type. If the packet matches a subsequent class map for a different feature type, however, then the security appliance also applies the actions for the subsequent class map. For example,



if a packet matches a class map for connection limits, and also matches a class map for application inspection, then both class map actions are applied. If a packet matches a class map for application inspection, but also matches another class map for application inspection, then the second class map actions are not applied.

Actions are applied to traffic bidirectionally or unidirectionally depending on the feature. For features that are applied bidirectionally, all traffic that enters or exits the interface to which you apply the policy map is affected if the traffic matches the class map for both directions.

**Note**

When you use a global policy, all features are unidirectional; features that are normally bidirectional when applied to a single interface only apply to the ingress of each interface when applied globally. Because the policy is applied to all interfaces, the policy will be applied in both directions so bidirectionality in this case is redundant.

For features that are applied unidirectionally, for example QoS, only traffic that exits the interface to which you apply the policy map is affected. See Table 22-1 for the directionality of each feature.

**Table 22-1 Feature Directionality**

Feature	Single Interface Direction	Global Direction
TCP normalization, TCP and UDP connection limits and timeouts, and TCP sequence number randomization	Bidirectional	Ingress
CSC	Bidirectional	Ingress
Application inspection	Bidirectional	Ingress
IPS	Bidirectional	Ingress
QoS policing	Egress	Egress
QoS priority queue	Egress	Egress

The order in which different types of actions in a policy map are performed is independent of the order in which the actions appear in the policy map. Actions are performed in the following order:

- TCP normalization, TCP and UDP connection limits and timeouts, and TCP sequence number randomization

**Note**

When a the security appliance performs a proxy service (such as AAA or CSC) or it modifies the TCP payload (such as FTP inspection), the TCP normalizer acts in dual mode, where it is applied before and after the proxy or payload modifying service.

- CSC
- Application inspection
- IPS
- QoS policing
- QoS priority queue

You can only assign one policy map per interface, but you can apply the same policy map to multiple interfaces.

The configuration includes a default Layer 3/4 policy map that the security appliance uses in the default global policy. It is called **global\_policy** and performs inspection on the default inspection traffic. You can only apply one global policy, so if you want to alter the global policy, you need to either edit the default policy or disable it and apply a new one.

The default policy map configuration includes the following commands:

```
policy-map global_policy
  class inspection_default
    inspect dns preset_dns_map
    inspect ftp
    inspect h323 h225
    inspect h323 ras
    inspect rsh
    inspect rtsp
    inspect esmtp
    inspect sqlnet
    inspect skinny
    inspect sunrpc
    inspect xdmcp
    inspect sip
    inspect netbios
    inspect tftp
```

## Examples

The following is an example of a **policy-map** command for connection policy. It limits the number of connections allowed to the web server 10.1.1.1:

```
hostname(config)# access-list http-server permit tcp any host 10.1.1.1
hostname(config)# class-map http-server
hostname(config-cmap)# match access-list http-server

hostname(config)# policy-map global-policy
hostname(config-pmap)# description This policy map defines a policy concerning connection
to http server.
hostname(config-pmap)# class http-server
hostname(config-pmap-c)# set connection conn-max 256
```

The following example shows how multi-match works in a policy map:

```
hostname(config)# class-map inspection_default
hostname(config-cmap)# match default-inspection-traffic
hostname(config)# class-map http_traffic
hostname(config-cmap)# match port tcp eq 80

hostname(config)# policy-map outside_policy
hostname(config-pmap)# class inspection_default
hostname(config-pmap-c)# inspect http http_map
hostname(config-pmap-c)# inspect sip
hostname(config-pmap)# class http_traffic
hostname(config-pmap-c)# set connection timeout tcp 0:10:0
```

The following example shows how traffic matches the first available class map, and will not match any subsequent class maps that specify actions in the same feature domain:

```
hostname(config)# class-map telnet_traffic
hostname(config-cmap)# match port tcp eq 23
hostname(config)# class-map ftp_traffic
hostname(config-cmap)# match port tcp eq 21
hostname(config)# class-map tcp_traffic
hostname(config-cmap)# match port tcp range 1 65535
hostname(config)# class-map udp_traffic
```

```

hostname(config-cmap) # match port udp range 0 65535
hostname(config) # policy-map global_policy
hostname(config-pmap) # class telnet_traffic
hostname(config-pmap-c) # set connection timeout tcp 0:0:0
hostname(config-pmap-c) # set connection conn-max 100
hostname(config-pmap) # class ftp_traffic
hostname(config-pmap-c) # set connection timeout tcp 0:5:0
hostname(config-pmap-c) # set connection conn-max 50
hostname(config-pmap) # class tcp_traffic
hostname(config-pmap-c) # set connection timeout tcp 2:0:0
hostname(config-pmap-c) # set connection conn-max 2000

```

When a Telnet connection is initiated, it matches **class telnet\_traffic**. Similarly, if an FTP connection is initiated, it matches **class ftp\_traffic**. For any TCP connection other than Telnet and FTP, it will match **class tcp\_traffic**. Even though a Telnet or FTP connection can match **class tcp\_traffic**, the security appliance does not make this match because they previously matched other classes.

### Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>clear configure policy-map</b>	Removes all policy map configuration. If a policy map is in use in a <b>service-policy</b> command, that policy map is not removed.
<b>class-map</b>	Defines a traffic class map.
<b>service-policy</b>	Assigns the policy map to an interface or globally to all interfaces.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# policy-map type inspect

When using the Modular Policy Framework, define special actions for inspection application traffic by using the **policy-map type inspect** command in global configuration mode. To remove an inspection policy map, use the **no** form of this command.

**policy-map type inspect** *application* *policy\_map\_name*

**no policy-map** [**type inspect** *application*] *policy\_map\_name*

## Syntax Description

<i>application</i>	Specifies the type of application traffic you want to act upon. Available types include: <ul style="list-style-type: none"> <li>• <b>dcerpc</b></li> <li>• <b>dns</b></li> <li>• <b>esmtplib</b></li> <li>• <b>ftp</b></li> <li>• <b>gtp</b></li> <li>• <b>h323</b></li> <li>• <b>http</b></li> <li>• <b>im</b></li> <li>• <b>mgcp</b></li> <li>• <b>netbios</b></li> <li>• <b>radius-accounting</b></li> <li>• <b>sip</b></li> <li>• <b>skinny</b></li> <li>• <b>snmp</b></li> </ul>
<i>policy_map_name</i>	Specifies the name for this policy map up to 40 characters in length. Names that begin with “_internal” or “_default” are reserved and cannot be used. All types of policy maps use the same name space, so you cannot reuse a name already used by another type of policy map.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Usage Guidelines**

Modular Policy Framework lets you configure special actions for many application inspections. When you enable an inspection engine using the **inspect** command in the Layer 3/4 policy map (the **policy-map** command), you can also optionally enable actions as defined in an inspection policy map created by the **policy-map type inspect** command. For example, enter the **inspect http http\_policy\_map** command where `http_policy_map` is the name of the inspection policy map.

An inspection policy map consists of one or more of the following commands entered in policy-map configuration mode. The exact commands available for an inspection policy map depends on the application.

- **match** command—You can define a **match** command directly in the inspection policy map to match application traffic to criteria specific to the application, such as a URL string. Then you enable actions in match configuration mode such as **drop**, **reset**, **log**, and so on. The **match** commands available depend on the application.
- **class** command—This command identifies an inspection class map in the policy map (see the **class-map type inspect** command to create the inspection class map). An inspection class map includes **match** commands that match application traffic with criteria specific to the application, such as a URL string, for which you then enable actions in the policy map. The difference between creating a class map and using a **match** command directly in the inspection policy map is that you can group multiple matches, and you can reuse class maps.
- **parameters** command—Parameters affect the behavior of the inspection engine. The commands available in parameters configuration mode depend on the application.

You can specify multiple **class** or **match** commands in the policy map.

Some **match** commands can specify regular expressions to match text inside a packet. See the **regex** command and the **class-map type regex** command, which groups multiple regular expressions.

The default inspection policy map configuration includes the following commands, which sets the maximum message length for DNS packets to be 512 bytes:

```
policy-map type inspect dns preset_dns_map
  parameters
    message-length maximum 512
```

If a packet matches multiple different **match** or **class** commands, then the order in which the security appliance applies the actions is determined by internal security appliance rules, and not by the order they are added to the policy map. The internal rules are determined by the application type and the logical progression of parsing a packet, and are not user-configurable. For example for HTTP traffic, parsing a Request Method field precedes parsing the Header Host Length field; an action for the Request Method field occurs before the action for the Header Host Length field. For example, the following match commands can be entered in any order, but the **match request method get** command is matched first.

```
hostname(config-pmap)# match request header host length gt 100
hostname(config-pmap-c)# reset
hostname(config-pmap-c)# match request method get
hostname(config-pmap-c)# log
```

If an action drops a packet, then no further actions are performed. For example, if the first action is to reset the connection, then it will never match any further **match** commands. If the first action is to log the packet, then a second action, such as resetting the connection, can occur. (You can configure both the **reset** (or **drop-connection**, and so on.) and the **log** action for the same **match** command, in which case the packet is logged before it is reset for a given match.)

If a packet matches multiple **match** or **class** commands that are the same, then they are matched in the order they appear in the policy map. For example, for a packet with the header length of 1001, it will match the first command below, and be logged, and then will match the second command and be reset. If you reverse the order of the two **match** commands, then the packet will be dropped and the connection reset before it can match the second **match** command; it will never be logged.

```
hostname(config-pmap)# match request header length gt 100
hostname(config-pmap-c)# log
hostname(config-pmap-c)# match request header length gt 1000
hostname(config-pmap-c)# reset
```

A class map is determined to be the same type as another class map or **match** command based on the lowest priority **match** command in the class map (the priority is based on the internal rules). If a class map has the same type of lowest priority **match** command as another class map, then the class maps are matched according to the order they are added to the policy map. If the lowest priority command for each class map is different, then the class map with the higher priority **match** command is matched first.

## Examples

The following is an example of an HTTP inspection policy map and the related class maps. This policy map is activated by the Layer 3/4 policy map, which is enabled by the service policy.

```
hostname(config)# regex url_example example\.com
hostname(config)# regex url_example2 example2\.com
hostname(config)# class-map type regex match-any URLs
hostname(config-cmap)# match regex example
hostname(config-cmap)# match regex example2

hostname(config-cmap)# class-map type inspect http match-all http-traffic
hostname(config-cmap)# match req-resp content-type mismatch
hostname(config-cmap)# match request body length gt 1000
hostname(config-cmap)# match not request uri regex class URLs

hostname(config-cmap)# policy-map type inspect http http-map1
hostname(config-pmap)# class http-traffic
hostname(config-pmap-c)# drop-connection log
hostname(config-pmap-c)# match req-resp content-type mismatch
hostname(config-pmap-c)# reset log
hostname(config-pmap-c)# parameters
hostname(config-pmap-p)# protocol-violation action log

hostname(config-pmap-p)# policy-map test
hostname(config-pmap)# class test (a Layer 3/4 class map not shown)
hostname(config-pmap-c)# inspect http http-map1

hostname(config-pmap-c)# service-policy inbound_policy interface outside
```

## Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type</b>	Creates an inspection class map to match traffic specific to an application.
<b>inspect</b>	

<b>Command</b>	<b>Description</b>
<b>parameters</b>	Enters parameter configuration mode for an inspection policy map.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# policy-server-secret

To configure a secret key used to encrypt authentication requests to the SSO server, use the **policy-server-secret** command in webvpn-sso-siteminder configuration mode. This is an SSO with CA SiteMinder command.

To remove a secret key, use the **no** form of this command.

**policy-server-secret** *secret-key*

**no policy-server-secret**



## Note

This command is required for SSO authentication.

## Syntax Description

<i>secret-key</i>	The character string used as a secret key to encrypt authentication communications. There is no minimum or maximum number of characters.
-------------------	--

## Defaults

No default behavior or value.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn-sso-siteminder configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without reentering a username and password more than once. You first create the SSO server using the **sso-server** command. The **policy-server-secret** command then secures authentication communications between the security appliance and the SSO server.

The command argument, *secret-key*, is similar to a password: you create it, save it, and configure it. It is configured on both the security appliance using the **policy-server-secret** command and on the SiteMinder Policy Server using the Cisco Java plug-in authentication scheme.

The security appliance currently supports the Computer Associates eTrust SiteMinder SSO server (formerly Netegrity SiteMinder).



**Examples**

The following command, entered in webvpn-sso-siteminder configuration mode and including a random character string as an argument, creates a secret key for SSO server authentication communications:

```
hostname(config-webvpn)# sso-server my-sso-server type siteminder
hostname(config-webvpn-sso-siteminder)# policy-server-secret @#ET&
hostname(config-webvpn-sso-siteminder)#
```

**Related Commands**

Command	Description
<b>max-retry-attempts</b>	Configures the number of times the security appliance retries a failed SSO authentication attempt.
<b>request-timeout</b>	Specifies the number of seconds before a failed SSO authentication attempt times out.
<b>show webvpn sso-server</b>	Displays the operating statistics for an SSO server.
<b>sso-server</b>	Creates a single sign-on server.
<b>test sso-server</b>	Tests an SSO server with a trial authentication request.
<b>web-agent-url</b>	Specifies the SSO server URL to which the security appliance makes SSO authentication requests.

# polltime interface

To specify the data interface poll and hold times in an Active/Active failover configuration, use the **polltime interface** command in failover group configuration mode. To restore the default value, use the **no** form of this command.

```
polltime interface [msec] time [holdtime time]
```

```
no polltime interface [msec] time [holdtime time]
```

## Syntax Description

<b>holdtime</b> <i>time</i>	(Optional) Sets the time during which a data interface must receive a hello message from the peer interface, after which the peer interface is declared failed. Valid values are from 5 to 75 seconds.
<b>interface</b> <i>time</i>	Specifies data interface polling period. Valid values are from 3 to 15 seconds. If the optional <b>msec</b> keyword is used, the valid values are from 500 to 999 milliseconds.
<b>msec</b>	(Optional) Specifies that the given time is in milliseconds.

## Defaults

The poll *time* is 5 seconds.

The **holdtime** *time* is 5 times the poll *time*.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Failover group configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	The command was changed to include the optional <b>holdtime</b> <i>time</i> value and the ability to specify the poll time in milliseconds.

## Usage Guidelines

Use the **polltime interface** command to change the frequency that hello packets are sent out on interfaces associated with the specified failover group. This command is available for Active/Active failover only. Use the **failover polltime interface** command in Active/Standby failover configurations.

You cannot enter a **holdtime** value that is less than 5 times the poll time. With a faster poll time, the security appliance can detect failure and trigger failover faster. However, faster detection can cause unnecessary switchovers when the network is temporarily congested. Interface testing begins when a hello packet is not heard on the interface for over half the hold time.

You can include both **failover polltime unit** and **failover polltime interface** commands in the configuration.

**Note**

When CTIQBE traffic is passed through a security appliance in a failover configuration, you should decrease the failover hold time on the security appliance to below 30 seconds. The CTIQBE keepalive timeout is 30 seconds and may time out before failover occurs in a failover situation. If CTIQBE times out, Cisco IP SoftPhone connections to Cisco CallManager are dropped, and the IP SoftPhone clients need to reregister with the CallManager.

**Examples**

The following partial example shows a possible configuration for a failover group. The interface poll time is set to 500 milliseconds and the hold time to 5 seconds for data interfaces in failover group 1.

```
hostname(config)# failover group 1
hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# polltime interface msec 500 holdtime 5
hostname(config-fover-group)# exit
hostname(config)#
```

**Related Commands**

Command	Description
<b>failover group</b>	Defines a failover group for Active/Active failover.
<b>failover polltime</b>	Specifies the unit failover poll and hold times.
<b>failover polltime interface</b>	Specifies the interface poll and hold times for Active/Standby failover configurations.

# pop3s

To enter POP3S configuration mode, use the **pop3s** command in global configuration mode. To remove any commands entered in POP3S command mode, use the **no** version of this command.

POP3 is a client/server protocol in which your Internet server receives and holds e-mail for you. Periodically, you (or your client e-mail receiver) check your mail-box on the server and download any mail. This standard protocol is built into most popular e-mail products. POP3S lets you receive e-mail over an SSL connection.

**pop3s**

**no pop3**

## Syntax Description

This command has no arguments or keywords.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example shows how to enter POP3S configuration mode:

```
hostname(config)# pop3s
hostname(config-pop3s)#
```

## Related Commands

Command	Description
<b>clear configure pop3s</b>	Removes the POP3S configuration.
<b>show running-config pop3s</b>	Displays the running configuration for POP3S.

# port

To specify the port an e-mail proxy listens to, use the **port** command in the applicable e-mail proxy command mode. To revert to the default value, use the **no port** version of this command.

**port** {*portnum*}

**no port**

## Syntax Description

portnum	The port for the e-mail proxy to use. To avoid conflicts with local TCP services, use port numbers in the range 1024 to 65535.
---------	--

## Defaults

The default ports for e-mail proxies are as follows:

E-mail Proxy	Default Port
IMAP4S	993
POP3S	995
SMTPS	988

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Pop3s	•	—	•	—	—
Imap4s	•	—	•	—	—
Smtps	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

To avoid conflicts with local TCP services, use port numbers in the range 1024 to 65535.

## Examples

The following example shows how to set port 1066 for the IMAP4S e-mail proxy:

```
hostname(config)# imap4s
hostname(config-imap4s)# port 1066
```

# port-forward

To configure the set of applications that WebVPN users can access over forwarded TCP ports, use the **port-forward** command in global configuration mode. To configure access to multiple applications, use this command with the same listname multiple times, once for each application. To remove an entire configured list, use the **no port-forward listname** command. To remove a configured application, use the **no port-forward listname localport** command (you need not include the *remoteserver* and *remoteport* parameters).

**port-forward** {*listname localport remoteserver remoteport description*}

**no port-forward** *listname*

**no port-forward** *listname localport*

## Syntax Description

<i>description</i>	Provides the application name or short description that displays on the end user Port Forwarding Java applet screen. Maximum 64 characters.
<i>listname</i>	Groups the set of applications (forwarded TCP ports) WebVPN users can access. Maximum 64 characters.
<i>localport</i>	Specifies the local port that listens for TCP traffic for an application. You can use a local port number only once for a <i>listname</i> .
<i>remoteport</i>	Specifies the port to connect to for this application on the remote server.
<i>remoteserver</i>	Provides the DNS name or IP address of the remote server for an application. We recommend using DNS names. For more information, see the <i>Cisco Security Appliance Command Line Configuration Guide</i> .

## Defaults

There is no default port forwarding list.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration mode	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

To allow access to particular TCP port forwarding applications for a specific user or group policy, use the *listname* you create here with the **port-forward** command in webvpn mode.

**Examples**

The following example shows how to create a portforwarding list called *SalesGroupPorts* that provides access to IMAP4S e-mail, SMTPS e-mail, DDTS, and Telnet. The following table provides values that the example uses for each application.

Application	Local Port	Server DNS Name	Remote Port	Description
IMAP4S e-mail	143	IMAP4Sserver	20143	Get Mail
SMTPS e-mail	25	SMTPSserver	20025	Send Mail
DDTS over SSH	22	DDTSserver	20022	DDTS over SSH
Telnet	23	Telnetserver	20023	Telnet

```
hostname(config)# port-forward SalesGroupPorts 143 IMAP4Sserver 20143 Get Mail
hostname(config)# port-forward SalesGroupPorts 25 SMTPSserver 20025 Send Mail
hostname(config)# port-forward SalesGroupPorts 22 DDTSserver 20022 DDTS over SSH
hostname(config)# port-forward SalesGroupPorts 23 Telnetserver 20023 Telnet
```

**Related Commands**

Command	Description
<b>clear configuration port-forward [listname]</b>	Removes all port forwarding commands from the configuration. If you include the listname, the security appliance removes only the commands for that list.
<b>port-forward</b>	Use this command in webvpn mode to enable WebVPN application access for a user or group policy.
<b>show running-config port-forward</b>	Displays the current set of configured <b>port-forward</b> commands.
<b>webvpn</b>	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn mode to configure parameters that apply to group policies or usernames.
<b>webvpn</b>	Use in global configuration mode. Lets you configure global settings for WebVPN.

## port-forward (webvpn)

To enable WebVPN application access for this user or group policy, use the **port-forward** command in webvpn mode, which you enter from group-policy or username mode. To remove the port forwarding attribute from the configuration, including a null value created by issuing the **port-forward none** command, use the **no** form of this command. The **no** option allows inheritance of a list from another group policy. To prevent inheriting a port forwarding list, use the **port-forward none** command.

**port-forward** { **value** *listname* | **none** }

**no port-forward**

### Syntax Description

<b>none</b>	Indicates that there is no filtering. Sets a null value, thereby disallowing a filtering. Prevents inheriting filtering values.
<b>value</b> <i>listname</i>	Identifies the list of applications WebVPN users can access. Use the port-forward command in configuration mode to define the list.

### Defaults

Port forwarding is disabled by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn mode	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

Using the command a second time overrides the previous setting.

Before you can use the **port-forward** command in webvpn mode to enable application access, you must define a list of applications that you want users to be able to use in a WebVPN connection. Use the **port-forward** command in global configuration mode to define this list.

### Examples

The following example shows how to set a portforwarding list called *ports1* for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# port-forward value ports1
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configuration port-forward</b> [ <i>listname</i> ]	Removes all port forwarding commands from the configuration. If you include the listname, the security appliance removes only the commands for that list.
<b>port-forward</b>	Use this command in configuration mode to define applications, or forwarded ports, that WebVPN users can access.
<b>show running-config port-forward</b>	Displays the current set of configured <b>port-forward</b> commands.
<b>webvpn</b>	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn mode to configure parameters that apply to group policies or usernames.
<b>webvpn</b>	Use in global configuration mode. Lets you configure global settings for WebVPN.

## port-forward-name

To configure the display name that identifies TCP port forwarding to end users for a particular user or group policy, use the **port-forward-name** command in webvpn mode, which you enter from group-policy or username mode. To delete the display name, including a null value created by using the **port-forward-name none** command, use the no form of the command. The **no** option restores the default name, “Application Access.” To prevent a display name, use the **port-forward none** command.

**port-forward-name** { *value name* | none }

**no port-forward-name**

### Syntax Description

<b>none</b>	Indicates that there is no display name. Sets a null value, thereby disallowing a display name. Prevents inheriting a value.
<b>value name</b>	Describes port forwarding to end users. Maximum of 255 characters.

### Defaults

The default name is “Application Access.”

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Examples

The following example shows how to set the name, “Remote Access TCP Applications,” for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# port-forward-name value Remote Access TCP Applications
```

### Related Commands

Command	Description
<b>webvpn</b>	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn mode to configure parameters that apply to group policies or usernames.
<b>webvpn</b>	Use in global configuration mode. Lets you configure global settings for WebVPN.

# port-misuse

To restrict HTTP traffic by specifying a restricted application category, use the **port-misuse** command in HTTP map configuration mode, which is accessible using the **http-map** command. To disable this feature, use the **no** form of the command.

```
port-misuse {im | p2p | tunneling | default} action {allow | reset | drop} [log]
```

```
no port-misuse {im | p2p | tunneling | default} action {allow | reset | drop} [log]
```

## Syntax Description

<b>action</b>	Specifies the action taken when an application in the configured category is detected.
<b>allow</b>	Allows the message.
<b>default</b>	Specifies the default action taken by the security appliance when the traffic contains a supported request method that is not on a configured list.
<b>im</b>	Restricts traffic in the instant messaging application category. The applications checked for are Yahoo Messenger, AIM, and MSN IM.
<b>log</b>	(Optional) Generates a syslog.
<b>p2p</b>	Restricts traffic in the peer-to-peer application category. The Kazaa application is checked.
<b>reset</b>	Sends a TCP reset message to client and server.
<b>tunneling</b>	Restricts traffic in the tunneling application category. The applications checked for are: HTTPPort/HTTHost, GNU Httptunnel, GotoMyPC, Firethru, and Http-tunnel.com Client.

## Defaults

This command is disabled by default. When the command is enabled and a supported application category is not specified, the default action is to allow the connection without logging. To change the default action, use the **default** keyword and specify a different default action.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
HTTP map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

When you enable the **port-misuse** command, the security appliance applies the specified action to HTTP connections for each supported and configured application category.

The security appliance applies the **default** action to all traffic that does *not* match the application categories on the configured list. The preconfigured **default** action is to **allow** connections without logging.

For example, given the preconfigured default action, if you specify one or more application categories with the action of **drop** and **log**, the security appliance drops connections containing the configured application categories, logs each connection, and allows all connections for the other supported application types.

If you want to configure a more restrictive policy, change the default action to **drop** (or **reset**) and **log** (if you want to log the event). Then configure each permitted application type with the **allow** action.

Enter the **port-misuse** command once for each setting you wish to apply. You use one instance of the **port-misuse** command to change the default action and one instance to add each application category to the list of configured application types.



#### Caution

These inspections require searches in the entity body of the HTTP message and may affect the performance of the security appliance.

When you use the **no** form of the command to remove an application category from the list of configured application types, any characters in the command line after the application category keyword are ignored.

#### Examples

The following example provides a permissive policy, using the preconfigured default, which allows all supported application types that are not specifically prohibited.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# port-misuse p2p drop log
hostname(config-http-map)# exit
```

In this case, only connections in the peer-to-peer category are dropped and the events is logged.

The following example provides a restrictive policy, with the default action changed to reset the connection and to log the event for any application type that is not specifically allowed.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# port-misuse default action reset log
hostname(config-http-map)# port-misuse im allow
hostname(config-http-map)# exit
```

In this case, only the Instant Messenger application is allowed. When HTTP traffic for the other supported applications is received, the security appliance resets the connection and creates a syslog entry.

#### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug appfw</b>	Displays detailed information about traffic associated with enhanced HTTP inspection.
<b>http-map</b>	Defines an HTTP map for configuring enhanced HTTP inspection.
<b>inspect http</b>	Applies a specific HTTP map to use for application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.

# port-object

To add a port object to a service object group, use the **port-object** command in service configuration mode. To remove port objects, use the **no** form of this command.

**port-object eq** *service*

**no port-object eq** *service*

**port-object range** *begin\_service end\_service*

**no port-object range** *begin\_service end\_service*

## Syntax Description

<i>begin_service</i>	Specifies the decimal number or name of a TCP or UDP port that is the beginning value for a range of services. This value must be between 0 and 65535.
<i>end_service</i>	Specifies the decimal number or name of a TCP or UDP port that is the ending value for a range of services. This value must be between 0 and 65535.
<b>eq</b> <i>service</i>	Specifies the decimal number or name of a TCP or UDP port for a service object.
<b>range</b>	Specifies a range of ports (inclusive).

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Service configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **port-object** command is used with the **object-group** command to define an object that is either a specific service (port) or a range of services (ports) in service configuration mode.

If a name is specified for a TCP or UDP service, it must be one of the supported TCP or/and UDP names, and must be consistent with the protocol type of the object group. For instance, for a protocol types of tcp, udp, and tcp-udp, the names must be a valid TCP service name, a valid UDP service name, or a valid TCP and UDP service name, respectively.

If a number is specified, translation to its corresponding name (if one exists) based on the protocol type will be made when showing the object.

The following service names are supported:

**Table 22-1**

TCP	UDP	TCP and UDP
bgp	biff	discard
chargen	bootpc	domain
cmd	bootps	echo
daytime	dnsix	pim-auto-rp
exec	nameserver	sunrpc
finger	mobile-ip	syslog
ftp	netbios-ns	tacacs
ftp-data	netbios-dgm	talk
gopher	ntp	
ident	rip	
irc	snmp	
h323	snmptrap	
hostname	tftp	
http	time	
klogin	who	
kshell	xdmcp	
login	isakmp	
lpd		
nntp		
pop2		
pop3		
smtp		
sqlnet		
telnet		
uucp		
whois		
www		

### Examples

This example shows how to use the **port-object** command in service configuration mode to create a new port (service) object group:

```
hostname(config)# object-group service eng_service tcp
hostname(config-service)# port-object eq smtp
hostname(config-service)# port-object eq telnet
hostname(config)# object-group service eng_service udp
```

```
hostname(config-service)# port-object eq snmp
hostname(config)# object-group service eng_service tcp-udp
hostname(config-service)# port-object eq domain
hostname(config-service)# port-object range 2000 2005
hostname(config-service)# quit
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure object-group</b>	Removes all the <b>object-group</b> commands from the configuration.
<b>group-object</b>	Adds network object groups.
<b>network-object</b>	Adds a network object to a network object group.
<b>object-group</b>	Defines object groups to optimize your configuration.
<b>show running-config object-group</b>	Displays the current object groups.

# pppoe client route distance

To configure an administrative distance for routes learned through PPPoE, use the **pppoe client route distance** command in interface configuration mode. To restore the default setting, use the **no** form of this command.

**pppoe client route distance** *distance*

**no pppoe client route distance** *distance*

## Syntax Description

*distance* The administrative distance to apply to routes learned through PPPoE. Valid values are from 1 to 255.

## Defaults

Routes learned through PPPoE are given an administrative distance of 1 by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **pppoe client route distance** command is checked only when a route is learned from PPPoE. If the **pppoe client route distance** command is entered after a route is learned from PPPoE, the administrative distance specified does not affect the existing learned route. Only routes learned after the command was entered have the specified administrative distance.

You must specify the **setroute** option on the **ip address pppoe** command to obtain routes through PPPoE.

If PPPoE is configured on multiple interfaces, you must use the **pppoe client route distance** command on each of the interfaces to indicate the priority of the installed routes. Enabling PPPoE clients on multiple interfaces is only supported with object tracking.

You cannot configure failover if you obtain IP addresses using PPPoE.

## Examples

The following example obtains the default route through PPPoE on GigabitEthernet0/2. The route is tracked by tracking entry object 1. The SLA operation monitors the availability of the 10.1.1.1 gateway off of the outside interface. If the SLA operation fails, then the secondary route obtained on GigabitEthernet0/3 through PPPoE is used.



```

hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
hostname(config)# interface GigabitEthernet0/2
hostname(config-if)# pppoe client route track 1
hostname(config-if)# ip address pppoe setroute
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# pppoe client secondary track 1
hostname(config-if)# pppoe client route distance 254
hostname(config-if)# ip address pppoe setroute

```

**Related Commands**

Command	Description
<b>ip address pppoe</b>	Configures the specified interface with an IP address obtained through PPPoE.
<b>pppoe client secondary</b>	Configures tracking for secondary PPPoE client interface.
<b>pppoe client route track</b>	Associates routes learned through PPPoE with a tracking entry object.
<b>sla monitor</b>	Defines an SLA monitoring operation.
<b>track rtr</b>	Creates a tracking entry to poll the SLA.

# pppoe client route track

To configure the PPPoE client to associate added routes with a specified tracked object number, use the **pppoe client route track** command in interface configuration mode. To remove the PPPoE route tracking, use the **no** form of this command.

**pppoe client route track** *number*

**no pppoe client route track**

## Syntax Description

*number* The tracking entry object ID. Valid values are from 1 to 500.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **pppoe client route track** command is checked only when a route is learned from PPPoE. If the **pppoe client route track** command is entered after a route is learned from PPPoE, the existing learned routes are not associated with a tracking object. Only routes learned after the command was entered are associated with the specified tracking object.

You must specify the **setroute** option on the **ip address pppoe** command to obtain routes through PPPoE.

If PPPoE is configured on multiple interfaces, you must use the **pppoe client route distance** command on each of the interfaces to indicate the priority of the installed routes. Enabling PPPoE clients on multiple interfaces is only supported with object tracking.

You cannot configure failover if you obtain IP addresses using PPPoE.

## Examples

The following example obtains the default route through PPPoE on GigabitEthernet0/2. The route is tracked by tracking entry object 1. The SLA operation monitors the availability of the 10.1.1.1 gateway off of the outside interface. If the SLA operation fails, then the secondary route obtained on GigabitEthernet0/3 through PPPoE is used.

```
hostname(config)# sla monitor 123
```

```

hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
hostname(config)# interface GigabitEthernet0/2
hostname(config-if)# pppoe client route track 1
hostname(config-if)# ip address pppoe setroute
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# pppoe client secondary track 1
hostname(config-if)# pppoe client route distance 254
hostname(config-if)# ip address pppoe setroute

```

**Related Commands**

Command	Description
<b>ip address pppoe</b>	Configures the specified interface with an IP address obtained through PPPoE.
<b>pppoe client secondary</b>	Configures tracking for secondary PPPoE client interface.
<b>pppoe client route distance</b>	Assigns an administrative distance to routes learned through PPPoE.
<b>sla monitor</b>	Defines an SLA monitoring operation.
<b>track rtr</b>	Creates a tracking entry to poll the SLA.

# pppoe client secondary

To configure the PPPoE client to register as a client of a tracked object and to be brought up or down based on the tracking state, use the **pppoe client secondary** command in interface configuration mode. To remove the client registration, use the **no** form of this command.

**pppoe client secondary track** *number*

**no pppoe client secondary track**

## Syntax Description

*number* The tracking entry object ID. Valid values are from 1 to 500.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **pppoe client secondary** command is checked only when PPPoE session starts. If the **pppoe client route track** command is entered after a route is learned from PPPoE, the existing learned routes are not associated with a tracking object. Only routes learned after the command was entered are associated with the specified tracking object.

You must specify the **setroute** option on the **ip address pppoe** command to obtain routes through PPPoE.

If PPPoE is configured on multiple interfaces, you must use the **pppoe client route distance** command on each of the interfaces to indicate the priority of the installed routes. Enabling PPPoE clients on multiple interfaces is only supported with object tracking.

You cannot configure failover if you obtain IP addresses using PPPoE.

## Examples

The following example obtains the default route through PPPoE on GigabitEthernet0/2. The route is tracked by tracking entry object 1. The SLA operation monitors the availability of the 10.1.1.1 gateway off of the outside interface. If the SLA operation fails, then the secondary route obtained on GigabitEthernet0/3 through PPPoE is used.

```
hostname(config)# sla monitor 123
```

```

hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
hostname(config)# interface GigabitEthernet0/2
hostname(config-if)# pppoe client route track 1
hostname(config-if)# ip address pppoe setroute
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# pppoe client secondary track 1
hostname(config-if)# pppoe client route distance 254
hostname(config-if)# ip address pppoe setroute

```

**Related Commands**

Command	Description
<b>ip address pppoe</b>	Configures the specified interface with an IP address obtained through PPPoE.
<b>pppoe client secondary</b>	Configures tracking for secondary PPPoE client interface.
<b>pppoe client route distance</b>	Assigns an administrative distance to routes learned through PPPoE.
<b>pppoe client route track</b>	Associates routes learned through PPPoE with a tracking entry object.
<b>sla monitor</b>	Defines an SLA monitoring operation.

# preempt

To cause the unit to become active on boot if it has the higher priority, use the **preempt** command in failover group configuration mode. To remove the preemption, use the **no** form of this command.

**preempt** [*delay*]

**no preempt** [*delay*]

## Syntax Description

*seconds* The wait time, in seconds, before the peer is preempted. Valid values are from 1 to 1200 seconds.

## Defaults

By default, there is no delay.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Failover group configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Assigning a primary or secondary priority to a failover group specifies which unit the failover group becomes active on when both units boot simultaneously (within a unit polltime). However, if one unit boots before the other, then both failover groups become active on that unit. When the other unit comes online, any failover groups that have the second unit as a priority do not become active on the second unit unless the failover group is configured with the **preempt** command or is manually forced to the other unit with the **no failover active** command. If the failover group is configured with the **preempt** command, the failover group automatically becomes active on the designated unit.



### Note

If Stateful Failover is enabled, the preemption is delayed until the connections are replicated from the unit on which the failover group is currently active.

## Examples

The following example configures failover group 1 with the primary unit as the higher priority and failover group 2 with the secondary unit as the higher priority. Both failover groups are configured with the **preempt** command with a wait time of 100 seconds, so the groups will automatically become active on their preferred unit 100 seconds after the units become available.

```
hostname(config)# failover group 1
```

```

hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# exit
hostname(config)# failover group 2
hostname(config-fover-group)# secondary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# mac-address e1 0000.a000.a011 0000.a000.a012
hostname(config-fover-group)# exit
hostname(config)#

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>failover group</b>	Defines a failover group for Active/Active failover.
<b>primary</b>	Gives the primary unit in a failover pair priority for the failover group being configured.
<b>secondary</b>	Gives the secondary unit in a failover pair priority for the failover group being configured.

# prefix-list

To create an entry in a prefix list for ABR type 3 LSA filtering, use the **prefix-list** command in global configuration mode. To remove a prefix list entry, use the **no** form of this command.

```
prefix-list prefix-list-name [seq seq_num] {permit | deny} network/len [ge min_value] [le max_value]
```

```
no prefix-list prefix-list-name [seq seq_num] {permit | deny} network/len [ge min_value] [le max_value]
```

## Syntax Description

<i>/</i>	A required separator between the <i>network</i> and <i>len</i> values.
<b>deny</b>	Denies access for a matching condition.
<b>ge</b> <i>min_value</i>	(Optional) Specifies the minimum prefix length to be matched. The value of the <i>min_value</i> argument must be greater than the value of the <i>len</i> argument and less than or equal to the <i>max_value</i> argument, if present.
<b>le</b> <i>max_value</i>	(Optional) Specifies the maximum prefix length to be matched. The value of the <i>max_value</i> argument must be greater than or equal to the value of the <i>min_value</i> argument, if present, or greater than the value of the <i>len</i> argument if the <i>min_value</i> argument is not present.
<i>len</i>	The length of the network mask. Valid values are from 0 to 32.
<i>network</i>	The network address.
<b>permit</b>	Permits access for a matching condition.
<i>prefix-list-name</i>	The name of the prefix list. The prefix-list name cannot contain spaces.
<b>seq</b> <i>seq_num</i>	(Optional) Applies the specified sequence number to the prefix list being created.

## Defaults

If you do not specify a sequence number, the first entry in a prefix list is assigned a sequence number of 5, and the sequence number for each subsequent entry is increased by 5.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.



**Usage Guidelines**

The **prefix-list** commands are ABR type 3 LSA filtering commands. ABR type 3 LSA filtering extends the capability of an ABR that is running OSPF to filter type 3 LSAs between different OSPF areas. Once a prefix list is configured, only the specified prefixes are sent from one area to another area. All other prefixes are restricted to their OSPF area. You can apply this type of area filtering to traffic going into or coming out of an OSPF area, or to both the incoming and outgoing traffic for that area.

When multiple entries of a prefix list match a given prefix, the entry with the lowest sequence number is used. The security appliance begins the search at the top of the prefix list, with the entry with the lowest sequence number. Once a match is made, the security appliance does not go through the rest of the list. For efficiency, you may want to put the most common matches or denials near the top of the list by manually assigning them a lower sequence number.

By default, the sequence numbers are automatically generated. They can be suppressed with the **no prefix-list sequence-number** command. Sequence numbers are generated in increments of 5. The first sequence number generated in a prefix list would be 5. The next entry in that list would have a sequence number of 10, and so on. If you specify a value for an entry, and then do not specify values for subsequent entries, the generated sequence numbers are increased from the specified value in increments of 5. For example, if you specify that the first entry in the prefix list has a sequence number of 3, and then add two more entries without specifying a sequence number for the additional entries, the automatically generated sequence numbers for those two entries would be 8 and 13.

You can use the **ge** and **le** keywords to specify the range of the prefix length to be matched for prefixes that are more specific than the *network/len* argument. Exact match is assumed when neither the **ge** or **le** keywords are specified. The range is from *min\_value* to 32 if only the **ge** keyword is specified. The range is from *len* to *max\_value* if only the **le** keyword is specified.

The value of the *min\_value* and *max\_value* arguments must satisfy the following condition:

$$len < min\_value \leq max\_value \leq 32$$

Use the **no** form of the command to remove specific entries from the prefix list. Use the **clear configure prefix-list** command to remove a prefix list. The **clear configure prefix-list** command also removes the associated **prefix-list description** command, if any, from the configuration.

**Examples**

The following example denies the default route 0.0.0.0/0:

```
hostname(config)# prefix-list abc deny 0.0.0.0/0
```

The following example permits the prefix 10.0.0.0/8:

```
hostname(config)# prefix-list abc permit 10.0.0.0/8
```

The following example shows how to accept a mask length of up to 24 bits in routes with the prefix 192/8:

```
hostname(config)# prefix-list abc permit 192.168.0.0/8 le 24
```

The following example shows how to deny mask lengths greater than 25 bits in routes with a prefix of 192/8:

```
hostname(config)# prefix-list abc deny 192.168.0.0/8 ge 25
```

The following example shows how to permit mask lengths from 8 to 24 bits in all address space:

```
hostname(config)# prefix-list abc permit 0.0.0.0/0 ge 8 le 24
```

The following example shows how to deny mask lengths greater than 25 bits in all address space:

```
hostname(config)# prefix-list abc deny 0.0.0.0/0 ge 25
```

The following example shows how to deny all routes with a prefix of 10/8:

```
hostname(config)# prefix-list abc deny 10.0.0.0/8 le 32
```

The following example shows how to deny all masks with a length greater than 25 bits for routes with a prefix of 192.168.1/24:

```
hostname(config)# prefix-list abc deny 192.168.1.0/24 ge 25
```

The following example shows how to permit all routes with a prefix of 0/0:

```
hostname(config)# prefix-list abc permit 0.0.0.0/0 le 32
```

#### Related Commands

Command	Description
<b>clear configure prefix-list</b>	Removes the <b>prefix-list</b> commands from the running configuration.
<b>prefix-list description</b>	Lets you to enter a description for a prefix list.
<b>prefix-list sequence-number</b>	Enables prefix list sequence numbering.
<b>show running-config prefix-list</b>	Displays the <b>prefix-list</b> commands in the running configuration.

# prefix-list description

To add a description to a prefix list, use the **prefix-list description** command in global configuration mode. To remove a prefix list description, use the **no** form of this command.

**prefix-list** *prefix-list-name* **description** *text*

**no prefix-list** *prefix-list-name* **description** [*text*]

## Syntax Description

<i>prefix-list-name</i>	The name of a prefix list.
<i>text</i>	The text of the prefix list description. You can enter a maximum of 80 characters.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

You can enter **prefix-list** and **prefix-list description** commands in any order for a particular prefix list name; you do not need to create the prefix list before entering a prefix list description. The **prefix-list description** command will always appear on the line before the associated prefix list in the configuration, no matter what order you enter the commands.

If you enter a **prefix-list description** command for a prefix list entry that already has a description, the new description replaces the original description.

You do not need to enter the text description when using the **no** form of this command.

## Examples

The following example adds a description for a prefix list named MyPrefixList. The **show running-config prefix-list** command shows that although the prefix list description has been added to the running configuration, the prefix-list itself has not been configured.

```
hostname(config)# prefix-list MyPrefixList description A sample prefix list description
hostname(config)# show running-config prefix-list
```

```
!
prefix-list MyPrefixList description A sample prefix list description
```

!

Related Commands	Command	Description
	clear configure prefix-list	Removes the <b>prefix-list</b> commands from the running configuration.
	prefix-list	Defines a prefix list for ABR type 3 LSA filtering.
	show running-config prefix-list	Displays the <b>prefix-list</b> commands in the running configuration.

# prefix-list sequence-number

To enable prefix list sequence numbering, use the **prefix-list sequence-number** command in global configuration mode. To disable prefix list sequence numbering, use the **no** form of this command.

## prefix-list sequence-number

### Syntax Description

This command has no arguments or keywords.

### Defaults

Prefix list sequence numbering is enabled by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

Only the **no** form of this command appears in the configuration. When the **no** form of this command is in the configuration, the sequence numbers, including the manually configured ones, are removed from the **prefix-list** commands in the configuration and new prefix lists entries are not assigned a sequence number.

When prefix list sequence numbering is enabled, all prefix list entries are assigned sequence numbers using the default numbering method (starting with 5 and incrementing each number by 5). If a sequence number was manually assigned to a prefix list entry before numbering was disabled, the manually assigned number is restored. Sequence numbers that are manually assigned while automatic numbering is disabled are also restored, even though they are not displayed while numbering is disabled.

### Examples

The following example disables prefix list sequence numbering:

```
hostname(config)# no prefix-list sequence-number
```

### Related Commands

Command	Description
<b>prefix-list</b>	Defines a prefix list for ABR type 3 LSA filtering.
<b>show running-config prefix-list</b>	Displays the <b>prefix-list</b> commands in the running configuration.

# pre-shared-key

To specify a preshared key to support IKE connections based on preshared keys, use the **pre-shared-key** command in tunnel-group ipsec-attributes configuration mode. To return to the default value, use the **no** form of this command.

**pre-shared-key** *key*

**no pre-shared-key**

<b>Syntax Description</b>	<i>key</i>	Specifies an alphanumeric key between 1 and 128 characters.
---------------------------	------------	---

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.0(1)	This command was introduced.

<b>Usage Guidelines</b>	You can apply this attribute to all IPsec tunnel-group types.
-------------------------	---

<b>Examples</b>	The following command entered in config-ipsec configuration mode, specifies the preshared key XYZX to support IKE connections for the IPsec LAN-to-LAN tunnel group named 209.165.200.225:
-----------------	--

```
hostname(config)# tunnel-group 209.165.200.225 type IPsec_L2L
hostname(config)# tunnel-group 209.165.200.225 ipsec-attributes
hostname(config-tunnel-ipsec)# pre-shared-key xyzx
hostname(config-tunnel-ipsec)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>clear-configure tunnel-group</b>	Clears all configured tunnel groups.
	<b>show running-config tunnel-group</b>	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
	<b>tunnel-group ipsec-attributes</b>	Configures the tunnel-group ipsec-attributes for this group.

# primary

To give the primary unit higher priority for a failover group, use the **primary** command in failover group configuration mode. To restore the default value, use the **no** form of this command.

**primary**

**no primary**

## Syntax Description

This command has no arguments or keywords.

## Defaults

If **primary** or **secondary** is not specified for a failover group, the failover group defaults to **primary**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Failover group configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Assigning a primary or secondary priority to a failover group specifies which unit the failover group becomes active on when both units boot simultaneously (within a unit polltime). If one unit boots before the other, then both failover groups become active on that unit. When the other unit comes online, any failover groups that have the second unit as a priority do not become active on the second unit unless the failover group is configured with the **preempt** command or is manually forced to the other unit with the **no failover active** command.

## Examples

The following example configures failover group 1 with the primary unit as the higher priority and failover group 2 with the secondary unit as the higher priority. Both failover groups are configured with the **preempt** command, so the groups will automatically become active on their preferred unit as the units become available.

```
hostname(config)# failover group 1
hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# exit
hostname(config)# failover group 2
hostname(config-fover-group)# secondary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# mac-address e1 0000.a000.a011 0000.a000.a012
hostname(config-fover-group)# exit
```

```
hostname(config)#
```

Related Commands	Command	Description
	<b>failover group</b>	Defines a failover group for Active/Active failover.
	<b>preempt</b>	Forces the failover group to become active on its preferred unit when the unit becomes available.
	<b>secondary</b>	Gives the secondary unit a higher priority than the primary unit.



# priority

To apply strict scheduling priority for this class, use the **priority** command in class mode. To remove the priority requirement, use the **no priority** form of this command.

**priority**

**no priority**

## Syntax Description

This command has no parameters or variables.

## Defaults

No default behavior or variables.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You must have configured the **policy-map** command and the **class** command before issuing the **priority** command.

## Examples

The following is an example of the **priority** command in policy-map mode:

```
hostname(config)# policy-map localpolicy1
hostname(config-pmap)# class firstclass
hostname(config-pmap-c)# priority
hostname(config-pmap-c)# class class-default
hostname(config-pmap-c)#
```

## Related Commands

<b>class</b>	Specifies a class-map to use for traffic classification.
<b>clear configure policy-map</b>	Remove all policy-map configuration, except that if a policy-map is in use in a service-policy command, that policy-map is not removed.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>show running-config policy-map</b>	Display all current policy-map configurations.

## priority (vpn load balancing)

To set the priority of the local device participating in the virtual load-balancing cluster, use the **priority** command in VPN load-balancing mode. To revert to the default priority specification, use the **no** form of this command.

**priority** *priority*

**no priority**

### Syntax Description

*priority* The priority, in the range of 1 to 10, that you want to assign to this device.

### Defaults

The default priority depends on the model number of the device:

Model Number	Default Priority
5520	5
5540	7

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
VPN load-balancing	—	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

You must first use the **vpn load-balancing** command to enter VPN load-balancing mode.

This command sets the priority of the local device participating in the virtual load-balancing cluster.

The priority must be an integer in the range of 1 (lowest) to 10 (highest).

The priority is used in the master-election process as one way to determine which of the devices in a VPN load-balancing cluster becomes the master or primary device for the cluster. See *Cisco Security Appliance Command Line Configuration Guide* for details about the master-election process.

The **no** form of the command reverts the priority specification to the default value.

### Examples

The following is an example of a VPN load-balancing command sequence that includes a **priority** command that sets the priority of the current device to 9:

```
hostname(config)# interface GigabitEthernet 0/1
```

```
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# priority 9
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# participate
```

---

**Related Commands**

Command	Description
<b>vpn load-balancing</b>	Enter VPN load-balancing mode.

---

# priority-queue

To configure priority queuing on an interface, use the `priority-queue` command in global configuration mode. To remove this specification, use the `no` form of this command.

**priority-queue** *interface-name*

**no priority queue** *interface-name*

## Syntax Description

<i>interface-name</i>	Specifies the name of the physical interface on which you want to enable priority queuing.
-----------------------	--

## Defaults

By default, priority queuing is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The security appliance allows two classes of traffic: low-latency queuing (LLQ) for higher priority, latency sensitive traffic (such as voice and video) and best-effort, the default, for all other traffic. The security appliance recognizes priority traffic and enforces appropriate Quality of Service (QoS) policies. You can configure the size and depth of the priority queue to fine-tune the traffic flow.

For priority queuing to occur, you must create a priority queue for a named, physical interface. To create the priority queue, use the **priority-queue** command in global configuration mode. You can apply one **priority-queue** command to each physical interface defined by the **nameif** command. You cannot apply a **priority-queue** command to a VLAN interface.

The **priority-queue** command enters priority-queue mode, as shown by the prompt. In priority-queue mode, you can configure the maximum number of packets allowed in the transmit queue at any given time (**tx-ring-limit** command) and the number of packets of either type (priority or best-effort) allowed to be buffered before dropping packets (**queue-limit** command).

The **tx-ring-limit** and the **queue-limit** values that you specify affect both the higher priority low-latency queue and the best-effort queue. The **tx-ring-limit** is the number of either type of packets allowed into the driver before the driver pushes back to the queues sitting in front of the interface to let them buffer packets until the congestion clears. In general, you can adjust these two parameters to optimize the flow of low-latency traffic.

Because queues are not of infinite size, they can fill and overflow. When a queue is full, any additional packets cannot get into the queue and are dropped. This is *tail drop*. To avoid having the queue fill up, you can use the **queue-limit** command to increase the queue buffer size.

**Note**

The upper limit of the range of values for the **queue-limit** and **tx-ring-limit** commands is determined dynamically at run time. To view this limit, enter **help** or **?** on the command line. The key determinant is the memory needed to support the queues and the memory available on the device. The queues must not exceed the available memory. The theoretical maximum number of packets is 2147483647 (that is, up to line speed at full duplex).

If a service policy is applied or removed from an interface that has existing VPN client/LAN-to-LAN or non-tunneled traffic already established, the QoS policy is not applied or removed from the traffic stream. To apply or remove the QoS policy for such connections, you must clear (that is, drop) the connections and re-establish them.

You cannot enable both priority and policing together.

**Examples**

The following example configures a priority queue for the interface named test, specifying a queue limit of 30,000 packets and a transmit queue limit of 256 packets.

```
hostname(config)# priority-queue test
hostname(priority-queue)# queue-limit 30000
hostname(priority-queue)# tx-ring-limit 256
hostname(priority-queue)#
```

**Related Commands**

Command	Description
<b>queue-limit</b>	Specifies the maximum number of packets that can be enqueued to a priority queue before it drops data.
<b>tx-ring-limit</b>	Sets the maximum number of packets that can be queued at any given time in the Ethernet transmit driver.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>clear configure priority-queue</b>	Removes the current priority queue configuration.
<b>show running-config [all] priority-queue</b>	Shows the current priority queue configuration. If you specify the <b>all</b> keyword, this command displays all the current priority queue, queue-limit, and tx-ring-limit configuration values.

# privilege

To configure the command privilege levels, use the **privilege** command in global configuration mode. To disallow the configuration, use the **no** form of this command.

**privilege** [ **show** | **clear** | **configure** ] **level** *level* [ **mode** { **enable** | **configure** } ] **command** *command*

**no privilege** [ **show** | **clear** | **configure** ] **level** *level* [ **mode** { **enable** | **configure** } ] **command** *command*

## Syntax Description

<b>clear</b>	(Optional) Sets the privilege level for the <b>clear</b> command corresponding to the command specified.
<b>command</b> <i>command</i>	Specifies the command on which to set the privilege level.
<b>configure</b>	(Optional) Sets the privilege level for the command specified.
<b>level</b> <i>level</i>	Specifies the privilege level; valid values are from 0 to 15.
<b>mode enable</b>	(Optional) Indicates that the level is for the enable mode of the command.
<b>mode configure</b>	(Optional) Indicates that the level is for the configure mode of the command.
<b>show</b>	(Optional) Sets the privilege level for the <b>show</b> command corresponding to the command specified.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	—	—	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **privilege** command lets you set user-defined privilege levels for the security appliance commands. In particular, this command is useful for setting different privilege levels for related configuration, show, and clear commands. Make sure that you verify privilege level changes in your commands with your security policies before using the new privilege levels.

When commands and users have privilege levels set, the two are compared to determine if a given user can execute a given command. If the user's privilege level is lower than the privilege level of the command, the user is prevented from executing the command.

To change between privilege levels, use the **login** command to access another privilege level and the appropriate **logout**, **exit**, or **quit** command to exit that level.

The **mode enable** and **mode configure** keywords are for commands with both enable and configure modes.

Lower privilege level numbers are lower privilege levels.

**Note**

The **aaa authentication** and **aaa authorization** commands need to include any new privilege levels that you define before you can use them in your AAA server configuration.

**Examples**

This example shows how to set the privilege level “5” for an individual user as follows:

```
username intern1 password pass1 privilege 5
```

This example shows how to define a set of **show** commands with the privilege level “5” as follows:

```
hostname(config)# privilege show level 5 command alias
hostname(config)# privilege show level 5 command apply
hostname(config)# privilege show level 5 command arp
hostname(config)# privilege show level 5 command auth-prompt
hostname(config)# privilege show level 5 command blocks
hostname(config)#
```

This example shows how to apply privilege level 11 to a complete AAA authorization configuration:

```
hostname(config)# privilege configure level 11 command aaa
hostname(config)# privilege configure level 11 command aaa-server
hostname(config)# privilege configure level 11 command access-group
hostname(config)# privilege configure level 11 command access-list
hostname(config)# privilege configure level 11 command activation-key
hostname(config)# privilege configure level 11 command age
hostname(config)# privilege configure level 11 command alias
hostname(config)# privilege configure level 11 command apply
hostname(config)#
```

**Related Commands**

Command	Description
<b>clear configure privilege</b>	Remove privilege command statements from the configuration.
<b>show curpriv</b>	Display current privilege level.
<b>show running-config privilege</b>	Display privilege levels for commands.

# protocol-enforcement

To enable the domain name, label length, and format check, including compression and looped pointer check, use the **protocol-enforcement** command in parameters configuration mode. To disable protocol enforcement, use the **no** form of this command.

**protocol-enforcement**

**no protocol-enforcement**

## Syntax Description

This command has no arguments or keywords.

## Defaults

Protocol enforcement is enabled by default. This feature can be enabled when **inspect dns** is configured even if a **policy-map type inspect dns** is not defined. To disable, **no protocol-enforcement** must explicitly be stated in the policy map configuration. If **inspect dns** is not configured, NAT rewrite is not performed.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Under certain conditions, protocol enforcement is performed even if the command is disabled. This occurs when parsing a DNS resource record is required for other purposes, such as DNS resource record classification, NAT or TSIG check.

## Examples

The following example shows how to enable protocol enforcement in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# protocol-enforcement
```

## Related Commands



<b>Command</b>	<b>Description</b>
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# protocol http

To specify HTTP as a permitted distribution point protocol for retrieving a CRL, use the **protocol http** command in **ca-crl** configuration mode. Subject to permission, the content of the CRL distribution point determines the retrieval method (HTTP, LDAP, and/or SCEP).

To remove HTTP as the permitted method of CRL retrieval, use the **no** form of this command.

**protocol http**

**no protocol http**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default setting is to permit HTTP.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
CRL configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If you use this command, be sure to assign HTTP rules to the public interface filter.

## Examples

The following example enters **ca-crl** configuration mode, and permits HTTP as a distribution point protocol for retrieving a CRL for trustpoint central:

```
hostname(configure)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# protocol http
hostname(ca-crl)#
```

## Related Commands

Command	Description
<b>crl configure</b>	Enters <b>ca-crl</b> configuration mode.
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.
<b>protocol ldap</b>	Specifies LDAP as a retrieval method for CRLs.
<b>protocol scep</b>	Specifies SCEP as a retrieval method for CRLs.

# protocol ldap

To specify LDAP as a distribution point protocol for retrieving a CRL, use the **protocol ldap** command in ca-crl configuration mode. Subject to permission, the content of the CRL distribution point determines the retrieval method (HTTP, LDAP, and/or SCEP).

To remove the LDAP protocol as the permitted method of CRL retrieval, use the **no** form of this command.

**protocol ldap**

**no protocol ldap**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default setting is to permit LDAP.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
CRL configuration	•	•	•	•	•

## Command History

Release	Modification
7.0	This command was introduced.

## Examples

The following example enters ca-crl configuration mode, and permits LDAP as a distribution point protocol for retrieving a CRL for trustpoint central:

```
hostname(configure)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# protocol ldap
hostname(ca-crl)#
```

## Related Commands

Command	Description
<b>crl configure</b>	Enters ca-crl configuration mode.
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.
<b>protocol http</b>	Specifies HTTP as a retrieval method for CRLs
<b>protocol scep</b>	Specifies SCEP as a retrieval method for CRLs

# protocol scep

To specify SCEP as a distribution point protocol for retrieving a CRL, use the **protocol scep** command in `crl configure` mode. Subject to permission, the content of the CRL distribution point determines the retrieval method (HTTP, LDAP, and/or SCEP).

To remove the SCEP protocol as the permitted method of CRL retrieval, use the **no** form of this command.

**protocol scep**

**no protocol scep**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default setting is to permit SCEP.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
CRL configuration	•	•	•	•	•

## Command History

Release	Modification
7.0	This command was introduced.

## Examples

The following example enters `ca-crl` configuration mode, and permits SCEP as a distribution point protocol for retrieving a CRL for trustpoint central:

```
hostname(configure)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# protocol scep
hostname(ca-crl)#
```

## Related Commands

Command	Description
<b>crl configure</b>	Enters <code>ca-crl</code> configuration mode.
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.
<b>protocol http</b>	Specifies HTTP as a retrieval method for CRLs
<b>protocol ldap</b>	Specifies LDAP as a retrieval method for CRLs

# protocol-object

To add a protocol object to a protocol object group, use the **protocol-object** command in protocol configuration mode. To remove port objects, use the **no** form of this command.

**protocol-object** *protocol*

**no protocol-object** *protocol*

## Syntax Description

protocol Protocol name or number.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Protocol configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **protocol-object** command is used with the **object-group** command to define a protocol object in protocol configuration mode.

You can specify an IP protocol name or number using the *protocol* argument. The udp protocol number is 17, the tcp protocol number is 6, and the egp protocol number is 47.

## Examples

The following example shows how to define protocol objects:

```
hostname(config)# object-group protocol proto_grp_1
hostname(config-protocol)# protocol-object udp
hostname(config-protocol)# protocol-object tcp
hostname(config-protocol)# exit
hostname(config)# object-group protocol proto_grp
hostname(config-protocol)# protocol-object tcp
hostname(config-protocol)# group-object proto_grp_1
hostname(config-protocol)# exit
hostname(config)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
clear configure object-group	Removes all the <b>object group</b> commands from the configuration.
group-object	Adds network object groups.
network-object	Adds a network object to a network object group.
<b>object-group</b>	Defines object groups to optimize your configuration.
show running-config object-group	Displays the current object groups.

# protocol-violation

To define actions on protocol violation for NetBIOS, use the **protocol-violation** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

**protocol-violation action [drop | log]**

**no protocol-violation action [drop | log]**

## Syntax Description

This command has no arguments or keywords.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to set up an action for protocol violation in a NetBIOS policy map:

```
hostname(config-pmap-p)# protocol-violation action drop
```

## Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

## proxy-bypass

To configure the security appliance to perform minimal content rewriting, and to specify the types of content to rewrite—external links and/or XML—use the **proxy-bypass** command in webvpn mode. To disable proxy bypass, use the **no** form of the command.

```
proxy-bypass interface interface name {port port number | path-mask path mask } target url
[rewrite {link | xml | none}]
```

```
no proxy-bypass interface interface name {port port number | path-mask path mask } target url
[rewrite {link | xml | none}]
```

### Syntax Description

<b>host</b>	Identifies the host to forward traffic to. Use either the host IP address or a hostname.
<b>interface</b>	Identifies the ASA interface for proxy bypass.
<i>interface name</i>	Specifies an ASA interface by name.
<b>link</b>	Specifies rewriting of absolute external links.
<b>none</b>	Specifies no rewriting.
<b>path-mask</b>	Specifies the pattern to match.
<i>path-mask</i>	Specifies a pattern to match that can contain a regular expression. You can use the following wildcards: <ul style="list-style-type: none"> <li>* — Matches everything. You cannot use this wildcard by itself. It must accompany an alphanumeric string.</li> <li>? — Matches any single character.</li> <li>[!seq] — Matches any character not in sequence.</li> <li>[seq] — Matches any character in sequence.</li> </ul> Maximum 128 bytes.
<b>port</b>	Identifies the port reserved for proxy bypass.
<i>port number</i>	Specifies a high numbered port reserved for proxy bypass. The port range is 20000-21000. You can use a port for one proxy bypass rule only.
<b>rewrite</b>	(Optional) Specifies the additional rules for rewriting: none or a combination of XML and links.
<b>target</b>	Identifies the remote server to forward the traffic to.
<i>url</i>	Enter the URL in the format <b>http(s)://fully_qualified_domain_name[:port]</b> . Maximum 128 bytes. The port for HTTP is 80 and for HTTPS it is 443, unless you specify another port.
<b>xml</b>	Specifies rewriting XML content.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:



Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn mode	•	—	•	—	—

**Command History**

Release	Modification
7.1(1)	This command was introduced.

**Usage Guidelines**

Use proxy bypass for applications and web resources that work better with minimum content rewriting. The proxy-bypass command determines how to treat specific web applications that travel through the security appliance.

You can use this command multiple times. The order in which you configure entries is unimportant. The interface and path mask or interface and port uniquely identify a proxy bypass rule.

If you configure proxy bypass using ports rather than path masks, depending on your network configuration, you might need to change your firewall configuration to allow these ports access to the security appliance. Use path masks to avoid this restriction. Be aware, however, that path masks can change, so you might need to use multiple pathmask statements to exhaust the possibilities.

A path is everything in a URL after the .com or .org or other types of domain name. For example, in the URL `www.mycompany.com/hrbenefits`, `hrbenefits` is the path. Similarly, for the URL `www.mycompany.com/hrinsurance`, `hrinsurance` is the path. If you want to use proxy bypass for all hr sites, you can avoid using the command multiple times by using the \* wildcard as follows: `/hr*`.

**Examples**

The following example shows how to configure the security appliance to use port 20001 for proxy bypass over the webvpn interface, using HTTP and its default port 80, to forward traffic to `mycompany.site.com` and to rewrite XML content.

```
hostname(config)# webvpn
hostname(config-webvpn)# proxy-bypass interface webvpn port 20001 target
http://mycompany.site.com rewrite xml
hostname(config-webvpn)#
```

The next example shows how to configure the security appliance to use the path mask `mypath/*` for proxy bypass on the outside interface, using HTTP and its default port 443 to forward traffic to `mycompany.site.com`, and to rewrite XML and link content.

```
hostname(config)# webvpn
hostname(config-webvpn)# proxy-bypass interface outside path-mask /mypath/* target
https://mycompany.site.com rewrite xml,link
hostname(config-webvpn)#
```

**Related Commands-**

Command	Description
<code>apcf</code>	Specifies nonstandard rules to use for a particular application
<code>rewrite</code>	Determines whether traffic travels through the security appliance.

# pwd

To display the current working directory, use the **pwd** command in privileged EXEC mode.

**pwd**

**Syntax Description** This command has no arguments or keywords.

**Defaults** The root directory (*/*) is the default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** This command is similar in functionality to the **dir** command.

**Examples** The following example shows how to display the current working directory:

```
hostname# pwd
flash:
```

Related Commands	Command	Description
	<b>cd</b>	Changes the current working directory to the one specified.
	<b>dir</b>	Displays the directory contents.
	<b>more</b>	Displays the contents of a file.







## **queue-limit through rtp-conformance Commands**

---

## queue-limit (priority-queue)

To specify the depth of the priority queues, use the **queue-limit** command in priority-queue mode. To remove this specification, use the **no** form of this command.

**queue-limit** *number-of-packets*

**no queue-limit** *number-of-packets*

### Syntax Description

*number-of-packets* Specifies the maximum number of low-latency or normal priority packets that can be queued (that is, buffered) before the interface begins dropping packets. See the Usage Notes section for the range of possible values.

### Defaults

The default queue limit is 1024 packets.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Priority-queue	•	•	•	•	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

The security appliance allows two classes of traffic: low-latency queuing (LLQ) for higher priority, latency sensitive traffic (such as voice and video) and best-effort, the default, for all other traffic. The security appliance recognizes priority traffic and enforces appropriate Quality of Service (QoS) policies. You can configure the size and depth of the priority queue to fine-tune the traffic flow.

You must use the **priority-queue** command to create the priority queue for an interface before priority queuing takes effect. You can apply one **priority-queue** command to any interface that can be defined by the **nameif** command.

The **priority-queue** command enters priority-queue mode, as shown by the prompt. In priority-queue mode, you can configure the maximum number of packets allowed in the transmit queue at any given time (**tx-ring-limit** command) and the number of packets of either type (priority or best-effort) allowed to be buffered before dropping packets (**queue-limit** command).



#### Note

You *must* configure the **priority-queue** command in order to enable priority queuing for the interface.

The tx-ring-limit and the queue-limit that you specify affect both the higher priority low-latency queue and the best-effort queue. The tx-ring-limit is the number of either type of packets allowed into the driver before the driver pushes back to the queues sitting in front of the interface to let them buffer packets until the congestion clears. In general, you can adjust these two parameters to optimize the flow of low-latency traffic.

Because queues are not of infinite size, they can fill and overflow. When a queue is full, any additional packets cannot get into the queue and are dropped. This is *tail drop*. To avoid having the queue fill up, you can use the **queue-limit** command to increase the queue buffer size.

**Note**

The upper limit of the range of values for the **queue-limit** and **tx-ring-limit** commands is determined dynamically at run time. To view this limit, enter **help** or **?** on the command line. The key determinant is the memory needed to support the queues and the memory available on the device. The queues must not exceed the available memory. The theoretical maximum number of packets is 2147483647.

**Examples**

The following example configures a priority queue for the interface named test, specifying a queue limit of 30,000 packets and a transmit queue limit of 256 packets.

```
hostname(config)# priority-queue test
hostname(priority-queue)# queue-limit 30000
hostname(priority-queue)# tx-ring-limit 256
hostname(priority-queue)#
```

**Related Commands**

Command	Description
<b>clear configure priority-queue</b>	Removes the current priority queue configuration on the named interface.
<b>priority-queue</b>	Configures priority queuing on an interface.
<b>show priority-queue statistics</b>	Shows the priority-queue statistics for the named interface.
<b>show running-config [all] priority-queue</b>	Shows the current priority queue configuration. If you specify the <b>all</b> keyword, this command displays all the current priority queue, queue-limit, and tx-ring-limit configuration values.
<b>tx-ring-limit</b>	Sets the maximum number of packets that can be queued at any given time in the Ethernet transmit driver.

## queue-limit (tcp-map)

To configure the maximum number of out-of-order packets that can be queued on a TCP stream, use the **queue-limit** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

**queue-limit** *pkt\_num*

**no queue-limit** *pkt\_num*

### Syntax Description

<i>pkt_num</i>	Specifies the maximum number of out-of-order packets that can be queued for a TCP connection before they are dropped. Range is 0 to 250 and the default is 0.
----------------	---

### Defaults

The default maximum number of packets is 0.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Tcp-map configuration	•	•	•	•	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new tcp map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **queue-limit** command in tcp-map configuration mode to enable TCP packet ordering on any TCP connection or change the queue limit for connections that are ordered by default.

Packets will be ordered on TCP connections if any of the following features have been enabled: inspect, IDS feature, or TCP check-retransmission. The default packet queue limit for connections that are ordered is two per flow. For all other TCP connections, packets are forwarded as received, including out-of-order packets. To enable TCP packet ordering on any TCP connection or change the queue limit for connections that are ordered, use the **queue-limit** command. Enabling this feature results in out-of-order packets being queued until they can be forwarded or a fixed amount of time. Hence, memory usage is increased due to packet buffering.



**Examples**

The following example shows how to enable TCP packet ordering on all telnet connections:

```
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# queue-limit 8
hostname(config)# class-map cmap
hostname(config-cmap)# match port tcp eq telnet
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
hostname(config)#
```

**Related Commands**

Command	Description
<b>class-map</b>	Specifies a class map to use for traffic classification.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>set connection</b>	Configures connection values.
<b>tcp-map</b>	Creates a TCP map and allows access to tcp-map configuration mode.

# quit

To exit the current configuration mode, or to logout from privileged or user EXEC modes, use the **quit** command.

## quit

### Syntax Description

This command has no arguments or keywords.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC	•	•	•	•	•

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

You can also use the key sequence **Ctrl Z** to exit global configuration (and higher) modes. This key sequence does not work with privileged or user EXEC modes.

When you enter the **quit** command in privileged or user EXEC modes, you log out from the security appliance. Use the **disable** command to return to user EXEC mode from privileged EXEC mode.

### Examples

The following example shows how to use the **quit** command to exit global configuration mode, and then logout from the session:

```
hostname(config)# quit
hostname# quit

Logoff
```

The following example shows how to use the **quit** command to exit global configuration mode, and then use the **disable** command to exit privileged EXEC mode:

```
hostname(config)# quit
hostname# disable
hostname>
```

### Related Commands

Command	Description
exit	Exits a configuration mode or logs out from privileged or user EXEC modes.

# radius-common-pw

To specify a common password to be used for all users who are accessing this RADIUS authorization server through this security appliance, use the **radius-common-pw** command in AAA-server host mode. To remove this specification, use the **no** form of this command:

**radius-common-pw** *string*

**no radius-common-pw**

## Syntax Description

<i>string</i>	A case-sensitive, alphanumeric keyword of up to 127 characters to be used as a common password for all authorization transactions with this RADIUS server.
---------------	--

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
AAA-server host	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	Introduced in this release.

## Usage Guidelines

This command is valid only for RADIUS authorization servers.

The RADIUS authorization server requires a password and username for each connecting user. The security appliance provides the username automatically. You enter the password here. The RADIUS server administrator must configure the RADIUS server to associate this password with each user authorizing to the server via this security appliance. Be sure to provide this information to your RADIUS server administrator.

If you do not specify a common user password, each user's password is his or her own username. For example, a user with the username "jsmith" would enter "jsmith". If you are using usernames for the common user passwords, as a security precaution do not use this RADIUS server for authorization anywhere else on your network.



### Note

This field is essentially a space-filler. The RADIUS server expects and requires it, but does not use it. Users do not need to know it.

**Examples**

The following example configures a RADIUS AAA server group named “svrgrp1” on host “1.2.3.4”, sets the timeout interval to 9 seconds, sets the retry interval to 7 seconds, and configures the RADIUS common password as “allauthpw”.

```
hostname(config)# aaa-server svrgrp1 protocol radius
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry 7
hostname(config-aaa-server-host)# radius-common-pw allauthpw
hostname(config-aaa-server-host)# exit
hostname(config)#
```

**Related Commands**

Command	Description
<b>aaa-server host</b>	Enter AAA server host configuration mode so you can configure AAA server parameters that are host-specific.
<b>clear configure aaa-server</b>	Remove all AAA command statements from the configuration.
<b>show running-config aaa-server</b>	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol

# radius-with-expiry

To have the security appliance use MS-CHAPv2 to negotiate a password update with the user during authentication, use the **radius-with-expiry** command in tunnel-group ipsec-attributes configuration mode. The security appliance ignores this command if RADIUS authentication has not been configured.

To return to the default value, use the **no** form of this command.

**radius-with-expiry**

**no radius-with-expiry**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default setting for this command is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group ipsec attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was deprecated. The <b>password-management</b> command replaces it. The <b>no</b> form of the <b>radius-with-expiry</b> command is no longer supported.

## Usage Guidelines

You can apply this attribute only to IPsec remote-access tunnel-group type.

## Examples

The following example entered in config-ipsec configuration mode, configures Radius with Expiry for the remote-access tunnel group named remotegrp:

```
hostname(config)# tunnel-group remotegrp type ipsec_ra
hostname(config)# tunnel-group remotegrp ipsec-attributes
hostname(config-tunnel-ipsec)# radius-with-expiry
hostname(config-tunnel-ipsec)#
```

## Related Commands

Command	Description
<b>clear configure tunnel-group</b>	Clears all configured tunnel groups.
<b>password-management</b>	Enables password management. This command, in the tunnel-group general-attributes configuration mode, replaces the <b>radius-with-expiry</b> command.
<b>show running-config tunnel-group</b>	Shows the indicated certificate map entry.
<b>tunnel-group ipsec-attributes</b>	Configures the tunnel-group ipsec-attributes for this group.

# rate-limit

When using the Modular Policy Framework, limit the rate of messages for packets that match a **match** command or class map by using the **rate-limit** command in match or class configuration mode. This rate limit action is available in an inspection policy map (the **policy-map type inspect** command) for application traffic; however, not all applications allow this action. To disable this action, use the **no** form of this command.

```
rate-limit messages_per_second
```

```
no rate-limit messages_per_second
```

## Syntax Description

*messages\_per\_second* Limits the messages per second.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Match and class configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

An inspection policy map consists of one or more **match** and **class** commands. The exact commands available for an inspection policy map depends on the application. After you enter the **match** or **class** command to identify application traffic (the **class** command refers to an existing **class-map type inspect** command that in turn includes **match** commands), you can enter the **rate-limit** command to limit the rate of messages.

When you enable application inspection using the **inspect** command in a Layer 3/4 policy map (the **policy-map** command), you can enable the inspection policy map that contains this action, for example, enter the **inspect dns dns\_policy\_map** command where *dns\_policy\_map* is the name of the inspection policy map.

## Examples

The following example limits the invite requests to 100 messages per second:

```
hostname(config-cmap)# policy-map type inspect sip sip-map1
hostname(config-pmap-c)# match request-method invite
hostname(config-pmap-c)# rate-limit 100
```



**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>policy-map type inspect</b>	Defines special actions for application inspection.
<b>show running-config policy-map</b>	Display all current policy map configurations.

## reactivation-mode

To specify the method by which failed servers in a group are reactivated, use the **reactivation-mode** command in aaa-server protocol mode. To remove this specification, use the **no** form of this command:

```
reactivation-mode { depletion [deadtime minutes] | timed }
```

```
no reactivation-mode [depletion [deadtime minutes] | timed]
```

### Syntax Description

<b>deadtime</b> <i>minutes</i>	(Optional) Specifies the amount of time in minutes, between 0 and 1440, that elapses between the disabling of the last server in the group and the subsequent re-enabling of all servers. The default is 10 minutes.
<b>depletion</b>	Reactivates failed servers only after all of the servers in the group are inactive.
<b>timed</b>	Reactivates failed servers after 30 seconds of down time.

### Defaults

The default reactivation mode is depletion, and the default deadtime value is 10.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Aaa-server protocol configuration	•	•	•	•	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

Each server group has an attribute that specifies the reactivation policy for its servers.

In **depletion** mode, when a server is deactivated, it remains inactive until all other servers in the group are inactive. When and if this occurs, all servers in the group are reactivated. This approach minimizes the occurrence of connection delays due to failed servers. When **depletion** mode is in use, you can also specify the **deadtime** parameter. The **deadtime** parameter specifies the amount of time (in minutes) that will elapse between the disabling of the last server in the group and the subsequent re-enabling of all servers. This parameter is meaningful only when the server group is being used in conjunction with the local fallback feature.

In **timed** mode, failed servers are reactivated after 30 seconds of down time. This is useful when customers use the first server in a server list as the primary server and prefer that it is online whenever possible. This policy breaks down in the case of UDP servers. Since a connection to a UDP server will

not fail, even if the server is not present, UDP servers are put back on line blindly. This could lead to slowed connection times or connection failures if a server list contains multiple servers that are not reachable.

Accounting server groups that have simultaneous accounting enabled are forced to use the **timed** mode. This implies that all servers in a given list are equivalent.

### Examples

The following example configures a TACACS+ AAA server named “svrgrp1” to use the depletion reactivation mode, with a deadtime of 15 minutes:

```
hostname(config)# aaa-server svrgrp1 protocol tacacs+
hostname(config-aaa-servers-group)# reactivation-mode depletion deadtime 15
hostname(config-aaa-server)# exit
hostname(config)#
```

The following example configures a TACACS+ AAA server named “svrgrp1” to use timed reactivation mode:

```
hostname(config)# aaa-server svrgrp2 protocol tacacs+
hostname(config-aaa-server)# reactivation-mode timed
hostname(config-aaa-server)#
```

### Related Commands

<b>accounting-mode</b>	Indicates whether accounting messages are sent to a single server or sent to all servers in the group.
<b>aaa-server protocol</b>	Enters AAA server group configuration mode so you can configure AAA server parameters that are group-specific and common to all hosts in the group.
<b>max-failed-attempts</b>	Specifies the number of failures that will be tolerated for any given server in the server group before that server is deactivated.
<b>clear configure aaa-server</b>	Removes all AAA server configuration.
<b>show running-config aaa-server</b>	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol

## redistribute (OSPF)

To redistribute routes from one routing domain into an OSPF routing process, use the **redistribute** command in router configuration mode. To remove the redistribution, use the **no** form of this command.

```
redistribute {{ ospf pid [match { internal | external [1 | 2] | nssa-external [1 | 2] }} | rip | static | connected } [metric metric_value] [metric-type metric_type] [route-map map_name] [tag tag_value] [subnets]
```

```
no redistribute { { ospf pid [match { internal | external [1 | 2] | nssa-external [1 | 2] }} | rip | static | connected } [metric metric_value] [metric-type metric_type] [route-map map_name] [tag tag_value] [subnets]
```

Syntax Description		
<b>connected</b>		Specifies redistributing a network connected to an interface into an OSPF routing process.
<b>external</b> <i>type</i>		Specifies the OSPF metric routes that are external to a specified autonomous system; valid values are <b>1</b> or <b>2</b> .
<b>internal</b> <i>type</i>		Specifies OSPF metric routes that are internal to a specified autonomous system.
<b>match</b>		(Optional) Specifies the conditions for redistributing routes from one routing protocol into another.
<b>metric</b> <i>metric_value</i>		(Optional) Specifies the OSPF default metric value from 0 to 16777214.
<b>metric-type</b> <i>metric_type</i>		(Optional) The external link type associated with the default route advertised into the OSPF routing domain. It can be either of the following two values: <b>1</b> (Type 1 external route) or <b>2</b> (Type 2 external route).
<b>nssa-external</b> <i>type</i>		Specifies the OSPF metric type for routes that are external to an NSSA; valid values are <b>1</b> or <b>2</b> .
<b>ospf</b> <i>pid</i>		Used to redistribute an OSPF routing process into the current OSPF routing process. The <i>pid</i> specifies the internally used identification parameter for an OSPF routing process; valid values are from 1 to 65535.
<b>rip</b>		Specifies redistributing a network from the RIP routing process into the current OSPF routing process.
<b>route-map</b> <i>map_name</i>		(Optional) Name of the route map used to filter the imported routes from the source routing protocol to the current OSPF routing process. If not specified, all routes are redistributed.
<b>static</b>		Used to redistribute a static route into an OSPF process.
<b>subnets</b>		(Optional) For redistributing routes into OSPF, scopes the redistribution for the specified protocol. If not used, only classful routes are redistributed.
<b>tag</b> <i>tag_value</i>		(Optional) A 32-bit decimal value attached to each external route. This value is not used by OSPF itself. It may be used to communicate information between ASBRs. If none is specified, then the remote autonomous system number is used for routes from BGP and EGP; for other protocols, zero (0) is used. Valid values range from 0 to 4294967295.

### Defaults

The following are the command defaults:

- **metric** *metric-value*: 0

- **metric-type** *type-value*: 2
- **match**: Internal, external 1, external 2
- **tag** *tag-value*: 0

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

### Command History

Release	Modification
Preexisting	This command was preexisting.
7.2(1)	This command was modified to include the <b>rip</b> keyword.

### Examples

This example shows how to redistribute static routes into the current OSPF process:

```
hostname(config)# router ospf 1
hostname(config-router)# redistribute static
```

### Related Commands

Command	Description
<b>redistribute (RIP)</b>	Redistributes routes into the RIP routing process.
<b>router ospf</b>	Enters router configuration mode.
<b>show running-config router</b>	Displays the commands in the global router configuration.

## redistribute (RIP)

To redistribute routes from another routing domain into the RIP routing process, use the **redistribute** command in router configuration mode. To remove the redistribution, use the **no** form of this command.

```
redistribute {{ ospf pid [match {internal | external [1 | 2] | nssa-external [1 | 2]}} | static | connected } [metric {metric_value | transparent}] [route-map map_name]
```

```
no redistribute {{ ospf pid [match {internal | external [1 | 2] | nssa-external [1 | 2]}} | static | connected } [metric {metric_value | transparent}] [route-map map_name]
```

### Syntax Description

<b>connected</b>	Specifies redistributing a network connected to an interface into the RIP routing process.
<b>external</b> <i>type</i>	Specifies the OSPF metric routes that are external to a specified autonomous system; valid values are <b>1</b> or <b>2</b> .
<b>internal</b> <i>type</i>	Specifies OSPF metric routes that are internal to a specified autonomous system.
<b>match</b>	(Optional) Specifies the conditions for redistributing routes from OSPF to RIP.
<b>metric</b> { <i>metric_value</i>   <b>transparent</b> }	(Optional) Specifies the RIP metric value for the route being redistributed. Valid values for <i>metric_value</i> are from 0 to 16. Setting the metric to <b>transparent</b> causes the current route metric to be used.
<b>nssa-external</b> <i>type</i>	Specifies the OSPF metric type for routes that are external to a not-so-stubby area (NSSA); valid values are <b>1</b> or <b>2</b> .
<b>ospf</b> <i>pid</i>	Used to redistribute an OSPF routing process into the RIP routing process. The <i>pid</i> specifies the internally used identification parameter for an OSPF routing process; valid values are from 1 to 65535.
<b>route-map</b> <i>map_name</i>	(Optional) Name of the route map used to filter the imported routes from the source routing protocol to the RIP routing process. If not specified, all routes are redistributed.
<b>static</b>	Used to redistribute a static route into an OSPF process.

### Defaults

The following are the command defaults:

- **metric** *metric-value*: 0
- **match**: **Internal**, **external 1**, **external 2**

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Examples**

This example shows how to redistribute static routes into the current RIP process:

```
hostname(config)# router rip  
hostname(config-router)# network 10.0.0.0  
hostname(config-router)# redistribute static metric 2
```

**Related Commands**

Command	Description
<b>redistribute (OSPF)</b>	Redistributes routes from other routing domains into OSPF.
<b>router rip</b>	Enables the RIP routing process and enters router configuration mode for that process.
<b>show running-config router</b>	Displays the commands in the global router configuration.

# regex

To create a regular expression to match text, use the **regex** command in global configuration mode. To delete a regular expression, use the **no** form of this command.

**regex** *name regular\_expression*

**no regex** *name [regular\_expression]*

## Syntax Description

<i>name</i>	Specifies the regular expression name, up to 40 characters in length.
<i>regular_expression</i>	Specifies the regular expression up to 100 characters in length. See “Usage Guidelines” for a list of metacharacters you can use in the regular expression.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **regex** command can be used for various features that require text matching. For example, you can configure special actions for application inspection using Modular Policy Framework using an *inspection policy map* (see the **policy map type inspect** command). In the inspection policy map, you can identify the traffic you want to act upon by creating an inspection class map containing one or more **match** commands or you can use **match** commands directly in the inspection policy map. Some **match** commands let you identify text in a packet using a regular expression; for example, you can match URL strings inside HTTP packets. You can group regular expressions in a regular expression class map (see the **class-map type regex** command).

A regular expression matches text strings either literally as an exact string, or by using *metacharacters* so you can match multiple variants of a text string. You can use a regular expression to match the content of certain application traffic; for example, you can match body text inside an HTTP packet.

Table 23-1 lists the metacharacters that have special meanings.



Table 23-1 regex Metacharacters

Character	Description	Notes
.	Dot	Matches any single character. For example, <b>d.g</b> matches dog, dag, dtg, and any word that contains those characters, such as doggonnit.
( <i>exp</i> )	Subexpression	A subexpression segregates characters from surrounding characters, so that you can use other metacharacters on the subexpression. For example, <b>d(ola)g</b> matches dog and dag, but <b>dolag</b> matches do and ag. A subexpression can also be used with repeat quantifiers to differentiate the characters meant for repetition. For example, <b>ab(xy){3}z</b> matches abxyxyxyz.
	Alternation	Matches either expression it separates. For example, <b>dog cat</b> matches dog or cat.
?	Question mark	A quantifier that indicates that there are 0 or 1 of the previous expression. For example, <b>lo?se</b> matches lse or lose. <b>Note</b> You must enter <b>Ctrl+V</b> and then the question mark or else the help function is invoked.
*	Asterisk	A quantifier that indicates that there are 0, 1 or any number of the previous expression. For example, <b>lo*se</b> matches lse, lose, loose, and so on.
+	Plus	A quantifier that indicates that there is at least 1 of the previous expression. For example, <b>lo+se</b> matches lose and loose, but not lse.
{ <i>x</i> }	Repeat quantifier	Repeat exactly <i>x</i> times. For example, <b>ab(xy){3}z</b> matches abxyxyxyz.
{ <i>x</i> ,}	Minimum repeat quantifier	Repeat at least <i>x</i> times. For example, <b>ab(xy){2,}z</b> matches abxyxyz, abxyxyxyz, and so on.
[ <i>abc</i> ]	Character class	Matches any character in the brackets. For example, <b>[abc]</b> matches a, b, or c.
[^ <i>abc</i> ]	Negated character class	Matches a single character that is not contained within the brackets. For example, <b>[^abc]</b> matches any character other than a, b, or c. <b>[^A-Z]</b> matches any single character that is not an uppercase letter.
[ <i>a-c</i> ]	Character range class	Matches any character in the range. <b>[a-z]</b> matches any lowercase letter. You can mix characters and ranges: <b>[abcq-z]</b> matches a, b, c, q, r, s, t, u, v, w, x, y, z, and so does <b>[a-cq-z]</b> . The dash (-) character is literal only if it is the last or the first character within the brackets: <b>[abc-]</b> or <b>[-abc]</b> .
""	Quotation marks	Preserves trailing or leading spaces in the string. For example, " test" preserves the leading space when it looks for a match.
^	Caret	Specifies the beginning of a line.

**Table 23-1** *regex Metacharacters (continued)*

Character	Description	Notes
\	Escape character	When used with a metacharacter, matches a literal character. For example, \[ matches the left square bracket.
<i>char</i>	Character	When character is not a metacharacter, matches the literal character.
\r	Carriage return	Matches a carriage return 0x0d.
\n	Newline	Matches a new line 0x0a.
\t	Tab	Matches a tab 0x09.
\f	Formfeed	Matches a form feed 0x0c.
\xNN	Escaped hexadecimal number	Matches an ASCII character using hexadecimal (exactly two digits).
\NNN	Escaped octal number	Matches an ASCII character as octal (exactly three digits). For example, the character 040 represents a space.

To test a regular expression to make sure it matches what you think it will match, enter the **test regex** command.

The regular expression performance impact is determined by two main factors:

- The length of text that needs to be searched for a regular expression match.  
The regular expression engine has only a small impact to the security appliance performance when the search length is small.
- The number of regular expression chained tables that need to be searched for a regular expression match.

#### How the Search Length Impacts Performance

When you configure a regular expression search, every byte of the searched text is usually examined against a regular expression database to find a match. The longer the searched text is, the longer the search time will be. Below is a performance test case which illustrates this phenomenon.

- An HTTP transaction includes one 300-byte long GET request and one 3250-byte long response.
- 445 regular expressions for URI search and 34 regular expressions for request body search.
- 55 regular expressions for response body search.

When a policy is configured to search the URI and the body in the HTTP GET request only, the throughput is:

- 420 mbps when the corresponding regular expression database is not searched.
- 413 mbps when the corresponding regular expression database is searched (this demonstrates a relatively small overhead of using regular expression).

But when a policy is configured to also search the whole HTTP response body, the throughput drops down to 145 mbps because of the long response body (3250 bytes) search.

Following is a list of factors that will increase the length of text for a regular expression search:

- A regular expression search is configured on multiple, different protocol fields. For example, in HTTP inspection, if only URI is configured for a regular expression match, then only the URI field is searched for a regular expression match, and the search length is then limited to the URI length. But if additional protocol fields are also configured for a regular expression match, such as Headers, Body, and so on, then the search length will increase to include the header length and body length.
- The field to be searched is long. For example, if the URI is configured for a regular expression search, then a long URI in a GET request will have a long search length. Also, currently the HTTP body search length is limited by default to 200 bytes. If, however, a policy is configured to search the body, and the body search length is changed to 5000 bytes, then there will be severe impact on the performance because of the long body search.

### How the Number of Chained Regular Expression Tables Impact Performance

Currently, all regular expressions that are configured for the same protocol field, such as all regular expressions for URI, are built into a database consisting of one or more regular expression chained tables. The number of tables is determined by the total memory required and the availability of memory at the time the tables are built. A regular expression database will be split into multiple tables under any of the following conditions:

- When the total memory required is greater than 32 MB since the maximum table size is limited to 32 MB.
- When the size of the largest contiguous memory is not sufficient to build a complete regular expression database, then smaller but multiple tables will be built to accommodate all the regular expressions. Note that the degree of memory fragmentation varies depending on many factors that are interrelated and are almost impossible to predict the level of fragmentation.

With multiple chained tables, each table must be searched for regular expression matches and hence the search time increases in proportion to the number of tables that are searched.

Certain types of regular expressions tend to increase the table size significantly. It is prudent to design regular expressions in a way to avoid wildcard and repeating factors if possible. See Table 23-1 for a description of the following metacharacters:

- Regular expressions with wildcard type of specifications:
  - Dot (.)
- Various character classes that match any character in a class:
  - [^a-z]
  - [a-z]
  - [abc]
- Regular expressions with repeating type of specifications:
  - \*
  - +
  - {n,}
- Combination of the wild-card and repeating types of regular expressions can increase the table size dramatically, for examples:
  - 123.\*xyz
  - 123.+xyz
  - [^a-z]+
  - [^a-z]\*

- .\*123.\* (This should not be done because this is equivalent to matching "123").

The following examples illustrate how memory consumptions are different for regular expressions with and without wildcards and repetition.

- Database size for the following 4 regular expressions is 958,464 bytes.

```
regex r1 "q3rfict9(af.*12)*ercvdf"
regex r2 "qtaefce.*qeraf.*adasdfev"
regex r3 "asdfdfdfds.*wererewr0e.*aaaxxxx.*xxx"
regex r4 "asdfdfdfds.*wererewr0e.*afdsvcvr.*aefdd"
```

- Database size for the following 4 regular expressions is only 10240 bytes.

```
regex s1 "abcde"
regex s2 "12345"
regex s3 "123xyz"
regex s4 "xyz123"
```

A large number of regular expressions will increase the total memory that is needed for the regular expression database and hence increases the probabilities of more tables if memory is fragmented. Following are examples of memory consumptions for different numbers of regular expressions:

- 100 sample URIs: 3,079,168 bytes
- 200 sample URIs: 7,156,224 bytes
- 500 sample URIs: 11,198,971 bytes



#### Note

The maximum number of regular expressions per context is 2048.

The **debug menu regex 40 10** command can be used to display how many chained tables there are in each regex database.

#### Examples

The following example creates two regular expressions for use in an inspection policy map:

```
hostname(config)# regex url_example example\.com
hostname(config)# regex url_example2 example2\.com
```

#### Related Commands


Command	Description
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a policy map by associating the traffic class with one or more actions.
<b>policy-map type inspect</b>	Defines special actions for application inspection.
<b>class-map type regex</b>	Creates a regular expression class map.
<b>test regex</b>	Tests a regular expression.

# reload

To reboot and reload the configuration, use the **reload** command in privileged EXEC mode.

```
reload [at hh:mm [month day | day month]] [cancel] [in [hh:mm]] [max-hold-time [hh:mm]]
[noconfirm] [quick] [reason text] [save-config]
```

## Syntax Description

<b>at</b> <i>hh:mm</i>	(Optional) Schedules a reload of the software to take place at the specified time (using a 24-hour clock). If you do not specify the month and day, the reload occurs at the specified time on the current day (if the specified time is later than the current time), or on the next day (if the specified time is earlier than the current time). Specifying 00:00 schedules the reload for midnight. The reload must take place within 24 hours.
<b>cancel</b>	(Optional) Cancels a scheduled reload.
<i>day</i>	(Optional) Number of the day in the range from 1 to 31.
<b>in</b> [ <i>hh:mm</i> ]	(Optional) Schedules a reload of the software to take effect in the specified minutes or hours and minutes. The reload must occur within 24 hours.
<b>max-hold-time</b> [ <i>hh:mm</i> ]	(Optional) Specifies the maximum hold time the security appliance waits to notify other subsystems before a shutdown or reboot. After this time elapses, a quick (forced) shutdown/reboot occurs.
<i>month</i>	(Optional) Specifies the name of the month. Enter enough characters to create a unique string for the name of the month. For example, “Ju” is not unique because it could represent June or July, but “Jul” is unique because no other month beginning with those exact three letters.
<b>noconfirm</b>	(Optional) Permits the security appliance to reload without user confirmation.
<b>quick</b>	(Optional) Forces a quick reload, without notifying or properly shutting down all the subsystems.
<b>reason</b> <i>text</i>	(Optional) Specifies the reason for the reload, 1 to 255 characters. The reason text is sent to all open IPsec VPN client, terminal, console, telnet, SSH, and ASDM connections/sessions.
	 <p><b>Note</b> Some applications, like isakmp, require additional configuration to send the reason text to IPsec VPN Clients. Refer to the appropriate section in the software configuration documentation for more information.</p>
<b>save-config</b>	(Optional) Saves the running configuration to memory before shutting down. If you do not enter the <b>save-config</b> keyword, any configuration changes that have not been saved will be lost after the reload.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

**Command History**

Release	Modification
7.0(1)	This command was modified to add the following new arguments and keywords: <i>day</i> , <i>hh</i> , <i>mm</i> , <i>month</i> , <b>quick</b> , <b>save-config</b> , and <i>text</i> .

**Usage Guidelines**

The `reload` command lets you reboot the security appliance and reload the configuration from Flash.

By default, the **reload** command is interactive. The security appliance first checks whether the configuration has been modified but not saved. If so, the security appliance prompts you to save the configuration. In multiple context mode, the security appliance prompts for each context with an unsaved configuration. If you specify the **save-config** parameter, the configuration is saved without prompting you. The security appliance then prompts you to confirm that you really want to reload the system. Only a response of **y** or pressing the **Enter** key causes a reload. Upon confirmation, the security appliance starts or schedules the reload process, depending upon whether you have specified a delay parameter (**in** or **at**).

By default, the reload process operates in “graceful” (also known as “nice”) mode. All registered subsystems are notified when a reboot is about to occur, allowing these subsystems to shut down properly before the reboot. To avoid waiting until for such a shutdown to occur, specify the **max-hold-time** parameter to specify a maximum time to wait. Alternatively, you can use the **quick** parameter to force the reload process to begin abruptly, without notifying the affected subsystems or waiting for a graceful shutdown.

You can force the **reload** command to operate noninteractively by specifying the **noconfirm** parameter. In this case, the security appliance does not check for an unsaved configuration unless you have specified the **save-config** parameter. The security appliance does not prompt the user for confirmation before rebooting the system. It starts or schedules the reload process immediately, unless you have specified a delay parameter, although you can specify the **max-hold-time** or **quick** parameters to control the behavior or the reload process.

Use **reload cancel** to cancel a scheduled reload. You cannot cancel a reload that is already in progress.

**Note**

Configuration changes that are not written to the Flash partition are lost after a reload. Before rebooting, enter the **write memory** command to store the current configuration in the Flash partition.

**Examples**

This example shows how to reboot and reload the configuration:

```
hostname# reload
Proceed with ? [confirm] y

Rebooting...

XXX Bios VX.X
...
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show reload</b>	Displays the reload status of the security appliance.

# remote-access threshold session-threshold-exceeded

To set threshold values, use the **remote-access threshold** command in global configuration mode. To remove threshold values, use the **no** version of this command. This command specifies the number of active remote access sessions, at which point the security appliance sends traps.

**remote-access threshold session-threshold-exceeded** {*threshold-value*}

**no remote-access threshold session-threshold-exceeded**

## Syntax Description

*threshold-value* Specifies an integer less than or equal to the session limit the security appliance supports.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1) (1)	This command was introduced.

## Usage Guidelines

## Examples

The following example shows how to set a threshold value of 1500:

```
hostname# remote-access threshold session-threshold-exceeded 1500
```

## Related Commands

Command	Description
<b>snmp-server enable trap remote-access</b>	Enables threshold trapping.



# rename

To rename a file or a directory from the source filename to the destination filename, use the **rename** command in privileged EXEC mode.

**rename** [/noconfirm] [flash:] *source-path* [flash:] *destination-path*

## Syntax Description

<i>/noconfirm</i>	(Optional) Suppresses the confirmation prompt.
<i>destination-path</i>	Specifies the path of the destination file.
<b>flash:</b>	(Optional) Specifies the internal Flash memory, followed by a colon.
<i>source-path</i>	Specifies the path of the source file.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **rename flash: flash:** command prompts you to enter a source and destination filename.

You cannot rename a file or directory across file systems.

For example:

```
hostname# rename flash: disk1:
Source filename []? new-config
Destination filename []? old-config
%Cannot rename between filesystems
```

## Examples

The following example shows how to rename a file named “test” to “test1”:

```
hostname# rename flash: flash:
Source filename [running-config]? test
Destination filename [n]? test1
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>mkdir</b>	Creates a new directory.
<b>rmdir</b>	Removes a directory.
<b>show file</b>	Displays information about the file system.

# rename (class-map)

To rename a class map, enter the **rename** command in class-map configuration mode.

```
rename new_name
```

## Syntax Description

<i>new_name</i>	Specifies the new name of the class map, up to 40 characters in length. The name “class-default” is reserved.
-----------------	---

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Examples

The following example shows how to rename a class map from test to test2:

```
hostname(config)# class-map test
hostname(config-cmap)# rename test2
```

## Related Commands

Command	Description
<b>class-map</b>	Creates a class map.

# replication http

To enable HTTP connection replication for the failover group, use the **replication http** command in failover group configuration mode. To disable HTTP connection replication, use the **no** form of this command.

**replication http**

**no replication http**

**Syntax Description** This command has no arguments or keywords.

**Defaults** Disabled.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Failover group configuration	•	•	—	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** By default, the security appliance does not replicate HTTP session information when Stateful Failover is enabled. Because HTTP sessions are typically short-lived, and because HTTP clients typically retry failed connection attempts, not replicating HTTP sessions increases system performance without causing serious data or connection loss. The **replication http** command enables the stateful replication of HTTP sessions in a Stateful Failover environment, but could have a negative effect on system performance.

This command is available for Active/Active failover only. It provides the same functionality as the **failover replication http** command for Active/Standby failover, except for failover groups in Active/Active failover configurations.

**Examples** The following example shows a possible configuration for a failover group:

```
hostname(config)# failover group 1
hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# replication http
hostname(config-fover-group)# exit
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>failover group</b>	Defines a failover group for Active/Active failover.
<b>failover replication http</b>	Configures stateful failover to replicate HTTP connections.

# request-command deny

To disallow specific commands within FTP requests, use the **request-command deny** command in FTP map configuration mode, which is accessible by using the **ftp-map** command. To remove the configuration, use the **no** form of this command.

```
request-command deny { appe | cdup | dele | get | help | mkd | put | rmd | rnfr | rnto | site | stou }
```

```
no request-command deny { appe | cdup | help | retr | rnfr | rnto | site | stor | stou }
```

## Syntax Description

<b>appe</b>	Disallows the command that appends to a file.
<b>cdup</b>	Disallows the command that changes to the parent directory of the current working directory.
<b>dele</b>	Disallows the command that deletes a file on the server.
<b>get</b>	Disallows the client command for retrieving a file from the server.
<b>help</b>	Disallows the command that provides help information.
<b>mkd</b>	Disallows the command that makes a directory on the server.
<b>put</b>	Disallows the client command for sending a file to the server.
<b>rmd</b>	Disallows the command that deletes a directory on the server.
<b>rnfr</b>	Disallows the command that specifies rename-from filename.
<b>rnto</b>	Disallows the command that specifies rename-to filename.
<b>site</b>	Disallows the command that are specific to the server system. Usually used for remote administration.
<b>stou</b>	Disallows the command that stores a file using a unique file name.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
FTP map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command is used for controlling the commands allowed within FTP requests traversing the security appliance when using strict FTP inspection.

**Examples**

The following example causes the security appliance to drop FTP requests containing **stor**, **stou**, or **appe** commands:

```
hostname(config)# ftp-map inbound_ftp
hostname(config-ftp-map)# request-command deny put stou appe
hostname(config-ftp-map)#
```

**Related Commands**

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>ftp-map</b>	Defines an FTP map and enables FTP map configuration mode.
<b>inspect ftp</b>	Applies a specific FTP map to use for application inspection.
<b>mask-syst-reply</b>	Hides the FTP server response from clients.
<b>policy-map</b>	Associates a class map with specific security actions.

## request-data-size

To set the size of the payload in the SLA operation request packets, use the **request-data-size** command in SLA monitor protocol configuration mode. To restore the default value, use the **no** form of this command.

**request-data-size** *bytes*

**no request-data-size**

### Syntax Description

*bytes* The size, in bytes, of the request packet payload. Valid values are from 0 to 16384. The minimum value depends upon the protocol used. For echo types, the minimum value is 28 bytes. Do not set this value higher than the maximum allowed by the protocol or the PMTU.

**Note** The security appliance adds an 8 byte timestamp to the payload, so the actual payload is *bytes* + 8.

### Defaults

The default *bytes* is 28.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
SLA monitor protocol configuration	•	—	•	—	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

For reachability, it may be necessary to increase the default data size to detect PMTU changes between the source and the target. Low PMTU will likely affect session performance and, if detected, may indicate that the secondary path be used.

### Examples

The following example configures an SLA operation with an ID of 123 that uses an ICMP echo request/response time probe operation. It sets the payload size of the echo request packets to 48 bytes and the number of echo requests sent during an SLA operation to 5.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# num-packets 5
hostname(config-sla-monitor-echo)# request-data-size 48
hostname(config-sla-monitor-echo)# timeout 4000
```



```
hostname(config-sla-monitor-echo)# threshold 2500  
hostname(config-sla-monitor-echo)# frequency 10  
hostname(config)# sla monitor schedule 123 life forever start-time now  
hostname(config)# track 1 rtr 123 reachability
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>num-packets</b>	Specifies the number of request packets to send during an SLA operation.
<b>sla monitor</b>	Defines an SLA monitoring operation.
<b>type echo</b>	Configures the SLA operation as an echo response time probe operation.

# request-method

To restrict HTTP traffic based on the HTTP request method, use the **request-method** command in HTTP map configuration mode, which is accessible using the **http-map** command. To disable this feature, use the **no** form of the command.

```
request-method { { ext ext_methods | default } | { rfc rfc_methods | default } } action { allow | reset | drop } [log]
```

```
no request-method { ext ext_methods | rfc rfc_methods } action { allow | reset | drop } [log]
```

## Syntax Description

<b>action</b>	Identifies the action taken when a message fails this command inspection.
<b>allow</b>	Allows the message.
<b>default</b>	Specifies the default action taken by the security appliance when the traffic contains a supported request method that is not on a configured list.
<b>drop</b>	Closes the connection.
<b>ext</b>	Specifies extension methods.
<i>ext_methods</i>	Identifies one of the extended methods you want to allow to pass through the security appliance.
<b>log</b>	(Optional) Generates a syslog.
<b>reset</b>	Sends a TCP reset message to client and server.
<b>rfc</b>	Specifies RFC 2616 supported methods.
<i>rfc_methods</i>	Identifies one of the RFC methods you want to allow to pass through the security appliance (see Table 23-2).

## Defaults

This command is disabled by default. When the command is enabled and a supported request method is not specified, the default action is to allow the connection without logging. To change the default action, use the **default** keyword and specify a different default action.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
HTTP map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

When you enable the **request-method** command, the security appliance applies the specified action to HTTP connections for each supported and configured request method.

The security appliance applies the **default** action to all traffic that does *not* match the request methods on the configured list. The **default** action is to **allow** connections without logging. Given this preconfigured default action, if you specify one or more request methods with the action of **drop** and **log**, the security appliance drops connections containing the configured request methods, logs each connection, and allows all connections containing other supported request methods.

If you want to configure a more restrictive policy, change the default action to **drop** (or **reset**) and **log** (if you want to log the event). Then configure each permitted method with the **allow** action.

Enter the **request-method** command once for each setting you wish to apply. You use one instance of the **request-method** command to change the default action or to add a single request method to the list of configured methods.

When you use the **no** form of the command to remove a request method from the list of configured methods, any characters in the command line after the request method keyword are ignored.

Table 23-2 lists the methods defined in RFC 2616 that you can add to the list of configured methods:

**Table 23-2 RFC 2616 Methods**

Method	Description
connect	Used with a proxy that can dynamically switch to being a tunnel (for example SSL tunneling).
delete	Requests that the origin server delete the resource identified by the Request-URI.
get	Retrieves whatever information or object is identified by the Request-URI.
head	Identical to GET except that the server does not return a message-body in the response.
options	Represents a request for information about the communication options available on server identified by the Request-URI.
post	Request that the origin server accept the object enclosed in the request as a new subordinate of the resource identified by the Request-URI in the Request-Line.
put	Requests that the enclosed object be stored under the supplied Request-URI.
trace	Invokes a remote, application-layer loop-back of the request message.

**Examples**

The following example provides a permissive policy, using the preconfigured default, which allows all supported request methods that are not specifically prohibited.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# request-method rfc options drop log
hostname(config-http-map)# request-method rfc post drop log
hostname(config-http-map)
```

In this example, only the **options** and **post** request methods are dropped and the events are logged.

The following example provides a restrictive policy, with the default action changed to **reset** the connection and **log** the event for any request method that is not specifically allowed.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# request-method rfc default action reset log
hostname(config-http-map)# request-method rfc get allow
```

```
hostname(config-http-map)# request-method rfc put allow
hostname(config-http-map)#
```

In this case, the **get** and **put** request methods are allowed. When traffic is detected that uses any other methods, the security appliance resets the connection and creates a syslog entry.

#### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug appfw</b>	Displays detailed information about traffic associated with enhanced HTTP inspection.
<b>http-map</b>	Defines an HTTP map for configuring enhanced HTTP inspection.
<b>inspect http</b>	Applies a specific HTTP map to use for application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.

# request-queue

To specify the maximum number of GTP requests that will be queued waiting for a response, use the **request-queue** command in GTP map configuration mode, which is accessed by using the **gtp-map** command. Use the **no** form of this command to return this number to the default of 200.

**request-queue** *max\_requests*

**no request-queue** *max\_requests*

## Syntax Description

<i>max_requests</i>	The maximum number of GTP requests that will be queued waiting for a response. The range values is 1 to 4294967295.
---------------------	---

## Defaults

The *max\_requests* default is 200.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
GTP map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **gtp request-queue** command specifies the maximum number of GTP requests that are queued waiting for a response. When the limit has been reached and a new request arrives, the request that has been in the queue for the longest time is removed. The Error Indication, the Version Not Supported and the SGSN Context Acknowledge messages are not considered as requests and do not enter the request queue to wait for a response.

## Examples

The following example specifies a maximum request queue size of 300 bytes:

```
hostname(config)# gtp-map gtp-policy
hostname(config-gtpmap)# request-queue-size 300
hostname(config-gtpmap)#
```

## Related Commands

Commands	Description
<b>clear service-policy inspect gtp</b>	Clears global GTP statistics.
<b>debug gtp</b>	Displays detailed information about GTP inspection.
<b>gtp-map</b>	Defines a GTP map and enables GTP map configuration mode.
<b>inspect gtp</b>	Applies a specific GTP map to use for application inspection.
<b>show service-policy inspect gtp</b>	Displays the GTP configuration.

# request-timeout

To configure the number of seconds before a failed SSO authentication attempt times out, use the **request-timeout** command in webvpn-sso-siteminder configuration mode. This is an SSO with CA SiteMinder command.

To return to the default value, use the **no** form of this command.

**request-timeout** *seconds*

**no request-timeout**

## Syntax Description

<i>seconds</i>	The number of seconds before a failed SSO authentication attempt times out. The range is 1 to 30 seconds. Fractions are not supported.
----------------	--

## Defaults

The default value for this command is 5 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn-sso-siteminder configuration	•	—	•	—	—

## Command History

Release	Modification
7.1.1	This command was introduced.

## Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without reentering a username and password more than once. The security appliance currently supports the Computer Associates eTrust SiteMinder SSO server (formerly Netegrity SiteMinder).

Once you have configured the security appliance to support SSO authentication, you can then optionally adjust two timeout parameters:

- The number of seconds before a failed SSO authentication attempt times out using the **request-timeout** command.
- The number of times the security appliance retries a failed SSO authentication attempt (see the **max-retry-attempts** command).

## Examples

The following example, entered in webvpn-sso-siteminder configuration mode, configures an authentication timeout at ten seconds for the SiteMinder SSO server “example”:

```
hostname(config-webvpn)# sso-server example type siteminder
```

```
hostname(config-webvpn-sso-siteminder)# request-timeout 10
hostname(config-webvpn-sso-siteminder)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>max-retry-attempts</b>	Configures the number of times the security appliance retries a failed SSO authentication attempt.
<b>policy-server-secret</b>	Creates a secret key used to encrypt authentication requests to an SSO server.
<b>show webvpn sso-server</b>	Displays the operating statistics for an SSO server.
<b>sso-server</b>	Creates a single sign-on server.
<b>test sso-server</b>	Tests an SSO server with a trial authentication request.
<b>web-agent-url</b>	Specifies the SSO server URL to which the security appliance makes SSO authentication requests.



# reserved-bits

To clear reserved bits in the TCP header, or drop packets with reserved bits set, use the **reserved-bits** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

```
reserved-bits {allow | clear | drop}
```

```
no reserved-bits {allow | clear | drop}
```

## Syntax Description

<b>allow</b>	Allows packet with the reserved bits in the TCP header.
<b>clear</b>	Clears the reserved bits in the TCP header and allows the packet.
<b>drop</b>	Drops the packet with the reserved bits in the TCP header.

## Defaults

The reserved bits are allowed by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tcp-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **reserved-bits** command in tcp-map configuration mode to remove ambiguity as to how packets with reserved bits are handled by the end host, which may lead to desynchronizing the security appliance. You can choose to clear the reserved bits in the TCP header or even drop packets with the reserved bits set.

## Examples

The following example shows how to clear packets on all TCP flows with the reserved bit set:

```
hostname(config)# access-list TCP extended permit tcp any any
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# reserved-bits clear
hostname(config)# class-map cmap
hostname(config-cmap)# match access-list TCP
```

```

hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
hostname(config)#

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class</b>	Specifies a class map to use for traffic classification.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>set connection</b>	Configures connection values.
<b>tcp-map</b>	Creates a TCP map and allows access to tcp-map configuration mode.

# reset

When using the Modular Policy Framework, drop packets, close the connection, and send a TCP reset for traffic that matches a **match** command or class map by using the **reset** command in match or class configuration mode. This reset action is available in an inspection policy map (the **policy-map type inspect** command) for application traffic; however, not all applications allow this action. To disable this action, use the **no** form of this command.

**reset** [**log**]

**no reset** [**log**]

## Syntax Description

<b>log</b>	Logs the match. The system log message number depends on the application.
------------	---

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Match and class configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

An inspection policy map consists of one or more **match** and **class** commands. The exact commands available for an inspection policy map depends on the application. After you enter the **match** or **class** command to identify application traffic (the **class** command refers to an existing **class-map type inspect** command that in turn includes **match** commands), you can enter the **reset** command to drop packets and close the connection for traffic that matches the **match** command or **class** command.

If you reset a connection, then no further actions are performed in the inspection policy map. For example, if the first action is to reset the connection, then it will never match any further **match** or **class** commands. If the first action is to log the packet, then a second action, such as resetting the connection, can occur. You can configure both the **reset** and the **log** action for the same **match** or **class** command, in which case the packet is logged before it is reset for a given match.

When you enable application inspection using the **inspect** command in a Layer 3/4 policy map (the **policy-map** command), you can enable the inspection policy map that contains this action, for example, enter the **inspect http http\_policy\_map** command where **http\_policy\_map** is the name of the inspection policy map.

**Examples**

The following example resets the connection and sends a log when they match the http-traffic class map. If the same packet also matches the second **match** command, it will not be processed because it was already dropped.

```
hostname(config-cmap)# policy-map type inspect http http-map1
hostname(config-pmap)# class http-traffic
hostname(config-pmap-c)# reset log
hostname(config-pmap-c)# match req-resp content-type mismatch
hostname(config-pmap-c)# reset log
```

**Related Commands**

Commands	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>policy-map type inspect</b>	Defines special actions for application inspection.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# retries

To specify the number of times to retry the list of DNS servers when the security appliance does not receive a response, use the **dns retries** command in global configuration mode. To restore the default setting, use the **no** form of this command.

**retries** *number*

**no retries** [*number*]

## Syntax Description

*number* Specifies the number of retries, from 0 through 10. The default is 2.

## Defaults

The default number of retries is 2.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

Add DNS servers using the **name-server** command.

This command replaces the **dns name-server** command.

## Examples

The following example sets the number of retries to 0. The security appliance tries each server only once.

```
hostname(config)# dns server-group dnsgroup1
hostname(config-dns-server-group)# dns retries 0
hostname(config-dns-server-group)#
```

## Related Commands

Command	Description
<b>clear configure dns</b>	Removes all DNS commands.
<b>dns server-group</b>	Enters the dns server-group mode.
<b>show running-config dns server-group</b>	Shows one or all the existing dns-server-group configurations.

# retry-interval

To configure the amount of time between retry attempts for a particular AAA server designated in a prior `aaa-server host` command, use the **retry-interval** command in AAA-server host mode. To reset the retry interval to the default value, use the **no** form of this command.

**retry-interval** *seconds*

**no** **retry-interval**

## Syntax Description

<i>seconds</i>	Specify the retry interval (1-10 seconds) for the request. This is the time the security appliance waits before retrying a connection request.
----------------	--

## Defaults

The default retry interval is 10 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
AAA-server host	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was modified to conform to CLI guidelines.

## Usage Guidelines

Use the **retry-interval** command to specify or reset the number of seconds the security appliance waits between connection attempts. Use the **timeout** command to specify the length of time during which the security appliance attempts to make a connection to a AAA server.

## Examples

The following examples show the **retry-interval** command in context.

```
hostname(config)# aaa-server svrgrp1 protocol radius
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 7
hostname(config-aaa-server-host)# retry-interval 9
hostname(config-aaa-server-host)#
```

## Related Commands

Command	Description
<b>aaa-server host</b>	Enters AAA server host configuration mode so you can configure AAA server parameters that are host-specific.

---

<b>clear configure aaa-server</b>	Removes all AAA command statements from the configuration.
<b>show running-config aaa-server</b>	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol
<b>timeout</b>	Specifies the length of time during which the security appliance attempts to make a connection to a AAA server.

---

# revocation-check

To set one or more methods for revocation checking, use the **revocation-check** command in crypto ca trustpoint mode. The security appliance tries the methods in the order that you configure them, trying the second and third methods only if the previous method returns an error (for example, server down), as opposed to finding the status as revoked.

You can set a revocation checking method in the client certificate validating trustpoint and also configure no revocation checking (**revocation-check none**) in the responder certificate validating trustpoint. The **match certificate** command documentation includes step-by-step configuration example.

To restore the default revocation checking method, which is *none*, use the **no** version of this command.

```
revocation-check {[crl] [none] [ocsp]}
```

```
no revocation-check
```

## Syntax Description

<b>crl</b>	Specifies that the security appliance should use CRL as the revocation checking method.
<b>none</b>	Specifies that the security appliance should interpret the certificate status as valid, even if all methods return an error.
<b>ocsp</b>	Specifies that the security appliance should use OCSP as the revocation checking method.

## Defaults

The default value is *none*.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
crypto ca trustpoint mode	•	•	•	•	•

## Command History

Release	Modification
7.2(1)	This command was introduced. The following permutations replace previous commands: <ul style="list-style-type: none"> <li>• <b>revocation-check crl none</b> replaces <b>crl optional</b></li> <li>• <b>revocation-check crl</b> replaces <b>crl required</b></li> <li>• <b>revocation-check none</b> replaces <b>crl nocheck</b></li> </ul>

## Usage Guidelines

The signer of the OCSP response is usually the OCSP server (responder) certificate. After receiving the response, devices try to verify the responder certificate.



Normally a CA sets the lifetime of its OCSP responder certificate to a relatively short period to minimize the chance of compromising its security. The CA includes an `ocsp-no-check` extension in the responder certificate that indicates it does not need revocation status checking. But if this extension is not present, the device tries to check the certificate's revocation status using the revocation methods you configure for the trustpoint with this **revocation-check** command. The OCSP responder certificate must be verifiable if it does not have an `ocsp-no-check` extension since the OCSP revocation check fails unless you also set the *none* option to ignore the status check.

### Examples

The following example shows how to set revocation methods of OCSP and CRL, in that order, for the trustpoint called `newtrust`.

```
hostname(config)# crypto ca trustpoint newtrust
hostname(config-ca-trustpoint)# revocation-check ocsp crl
hostname(config-ca-trustpoint)#
```

### Related Commands

Command	Description
<b>crypto ca trustpoint</b>	Enters crypto ca trustpoint mode. Use this command in global configuration mode.
<b>match certificate</b>	Configures an OCSP override rule,
<b>ocsp disable-nonce</b>	Disables the nonce extension of the OCSP request.
<b>ocsp url</b>	Specifies the OCSP server to use to check all certificates associated with a trustpoint.

# rewrite

To disable content rewriting a particular application or type of traffic over a WebVPN connection, use the **rewrite** command in webvpn mode. To eliminate a rewrite rule, use the **no** form of this command with the rule number, which uniquely identifies the rule. To eliminate all rewriting rules, use the **no** form of the command without the rule number.

By default, the security appliance rewrites, or transforms, all WebVPN traffic.

**rewrite order** *integer* {**enable** | **disable**} **resource-mask** *string* [**name** *resource name*]

**no rewrite order** *integer* {**enable** | **disable**} **resource-mask** *string* [**name** *resource name*]

## Syntax Description

<b>disable</b>	Defines this rewrite rule as a rule that disables content rewriting for the specified traffic. When you disable content rewriting, traffic does not go through the security appliance.
<b>enable</b>	Defines this rewrite rule as a rule that enables content rewriting for the specified traffic.
<i>integer</i>	Sets the order of the rule among all of the configured rules. The range is 1-65534.
<b>name</b>	(Optional) Identifies the name of the application or resource to which the rule applies.
<b>order</b>	Defines the order in which the security appliance applies the rule.
<b>resource-mask</b>	Identifies the application or resource for the rule.
<i>resource name</i>	(Optional) Specifies the application or resource to which the rule applies. Maximum 128 bytes.
<i>string</i>	Specifies the name of the application or resource to match that can contain a regular expression. You can use the following wildcards:  Specifies a pattern to match that can contain a regular expression. You can use the following wildcards:  * — Matches everything. You cannot use this wildcard by itself. It must accompany an alphanumeric string. ? —Matches any single character. [!seq] — Matches any character not in sequence. [seq] — Matches any character in sequence. Maximum 300 bytes.

## Defaults

The default is to rewrite everything.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn mode	•	—	•	—	—

**Command History**

Release	Modification
7.1(1)	This command was introduced.

**Usage Guidelines**

The security appliance performs content rewriting for applications to insure that they render correctly over WebVPN connections. Some applications do not require this processing, such as external public websites. For these applications, you might choose to turn off content rewriting.

You can turn off content rewriting selectively by using the rewrite command with the disable option to let users browse specific sites directly without going through the security appliance. This is similar to split-tunneling in IPsec VPN connections.

You can use this command multiple times. The order in which you configure entries is important because the security appliance searches rewrite rules by order number and applies the first rule that matches.

**Examples**

The following example shows how to configure a rewrite rule, order number of 1, that turns off content rewriting for URLs from cisco.com domains:

```
hostname(config-webvpn)# rewrite order 2 disable resource-mask *cisco.com/*
hostname(config-webvpn)#
```

**Related Commands**

Command	Description
<b>apcf</b>	Specifies nonstandard rules to use for a particular application.
<b>proxy-bypass</b>	Configures minimal content rewriting for a particular application.

# re-xauth

To require that users reauthenticate on IKE rekey, issue the **re-xauth enable** command in group-policy configuration mode. To disable user reauthentication on IKE rekey, use the **re-xauth disable** command.

To remove the re-xauth attribute from the running configuration, use the **no** form of this command. This enables inheritance of a value for reauthentication on IKE rekey from another group policy.

**re-xauth {enable | disable}**

**no re-xauth**

## Syntax Description

<b>disable</b>	Disables reauthentication on IKE rekey
<b>enable</b>	Enables reauthentication on IKE rekey

## Defaults

Reauthentication on IKE rekey is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group policy	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If you enable reauthentication on IKE rekey, the security appliance prompts the user to enter a username and password during initial Phase 1 IKE negotiation and also prompts for user authentication whenever an IKE rekey occurs. Reauthentication provides additional security.

If the configured rekey interval is very short, users might find the repeated authorization requests inconvenient. In this case, disable reauthentication. To check the configured rekey interval, in monitoring mode, issue the **show crypto ipsec sa** command to view the security association lifetime in seconds and lifetime in kilobytes of data.



### Note

The reauthentication fails if there is no user at the other end of the connection.

## Examples

The following example shows how to enable reauthentication on rekey for the group policy named FirstGroup:

```
hostname(config) #group-policy FirstGroup attributes
```

```
hostname(config-group-policy)# re-xauth enable
```

# rip authentication key

To enable authentication of RIP Version 2 packets and specify the authentication key, use the **rip authentication key** command in interface configuration mode. To disable RIP Version 2 authentication, use the **no** form of this command.

```
rip authentication key key key_id key_id
```

```
no rip authentication key
```

## Syntax Description

<i>key</i>	Key to authenticate RIP updates. The key can contain up to 16 characters.
<i>key_id</i>	Key identification value; valid values range from 1 to 255.

## Defaults

RIP authentication is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

If you specify RIP version 2, you can enable neighbor authentication and use MD5-based encryption to authenticate the RIP updates. When you enable neighbor authentication, you must ensure that the *key* and *key\_id* arguments are the same as those used by neighbor devices that provide RIP version 2 updates. The *key* is a text string of up to 16 characters.

Use the **show interface** command to view the **rip authentication** commands on an interface.

## Examples

The following examples shows RIP authentication configured on interface GigabitEthernet0/3:

```
hostname(config)# interface Gigabit0/3
hostname(config-if)# rip authentication mode md5
hostname(config-if)# rip authentication key thisismykey key_id 5
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>rip authentication mode</b>	Specifies the type of authentication used in RIP Version 2 packets.
<b>rip receive version</b>	Specifies the RIP version to accept when receiving updates on a specific interface.
<b>rip send version</b>	Specifies the RIP version to use when sending update out of a specific interface.
<b>show running-config interface</b>	Displays the configuration commands for the specified interface.
<b>version</b>	Specifies the version of RIP used globally by the security appliance.

# rip authentication mode

To specify the type of authentication used in RIP Version 2 packets, use the **rip authentication mode** command in interface configuration mode. To restore the default authentication method, use the **no** form of this command.

**rip authentication mode {text | md5}**

**no rip authentication mode**

## Syntax Description

<b>md5</b>	Uses MD5 for RIP message authentication.
<b>text</b>	Uses clear text for RIP message authentication (not recommended).

## Defaults

Clear text authentication is used by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

If you specify RIP version 2, you can enable neighbor authentication and use MD5-based encryption to authenticate the RIP updates.

Use the **show interface** command to view the **rip authentication** commands on an interface.

## Examples

The following examples shows RIP authentication configured on interface GigabitEthernet0/3:

```
hostname(config)# interface Gigabit0/3
hostname(config-if)# rip authentication mode md5
hostname(config-if)# rip authentication key thisismykey key_id 5
```

## Related Commands

Command	Description
<b>rip authentication key</b>	Enables RIP Version 2 authentication and specifies the authentication key.
<b>rip receive version</b>	Specifies the RIP version to accept when receiving updates on a specific interface.



<b>Command</b>	<b>Description</b>
<b>rip send version</b>	Specifies the RIP version to use when sending update out of a specific interface.
<b>show running-config interface</b>	Displays the configuration commands for the specified interface.
<b>version</b>	Specifies the version of RIP used globally by the security appliance.

# rip receive version

To specify the version of RIP accepted on an interface, use the **rip receive version** command in interface configuration mode. To restore the defaults, use the **no** form of this command.

**version** {[1] [2]}

**no version**

## Syntax Description

<b>1</b>	Specifies RIP Version 1.
<b>2</b>	Specifies RIP Version 2.

## Defaults

The security appliance accepts Version 1 and Version 2 packets.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

You can override the global setting on a per-interface basis by entering the **rip receive version** command on an interface.

If you specify RIP version 2, you can enable neighbor authentication and use MD5-based encryption to authenticate the RIP updates.

## Examples

The following example configures the security appliance to receive RIP Version 1 and 2 packets the specified interface:

```
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# rip send version 1 2
hostname(config-if)# rip receive version 1 2
```

## Related Commands

Command	Description
<b>rip send version</b>	Specifies the RIP version to use when sending update out of a specific interface.
<b>router rip</b>	Enables the RIP routing process and enter router configuration mode for that process.
<b>version</b>	Specifies the version of RIP used globally by the security appliance.

# rip send version

To specify the RIP version used to send RIP updates on an interface, use the **rip send version** command in interface configuration mode. To restore the defaults, use the **no** form of this command.

**rip send version** {[1] [2]}

**no rip send version**

## Syntax Description

<b>1</b>	Specifies RIP Version 1.
<b>2</b>	Specifies RIP Version 2.

## Defaults

The security appliance sends RIP Version 1 packets.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

You can override the global RIP send version setting on a per-interface basis by entering the **rip send version** command on an interface.

If you specify RIP version 2, you can enable neighbor authentication and use MD5-based encryption to authenticate the RIP updates.

## Examples

The following example configures the security appliance to send and receive RIP Version 1 and 2 packets on the specified interface:

```
hostname(config)# interface GigabitEthernet0/3
hostname(config-if)# rip send version 1 2
hostname(config-if)# rip receive version 1 2
```

## Related Commands

Command	Description
<b>rip receive version</b>	Specifies the RIP version to accept when receiving updates on a specific interface.
<b>router rip</b>	Enables the RIP routing process and enter router configuration mode for that process.
<b>version</b>	Specifies the version of RIP used globally by the security appliance.

# rmdir

To remove the existing directory, use the **rmdir** command in privileged EXEC mode.

```
rmdir [/noconfirm] [flash:]path
```

## Syntax Description

<b>noconfirm</b>	(Optional) Suppresses the confirmation prompt.
<b>flash:</b>	(Optional) Specifies the nonremovable internal Flash, followed by a colon.
<b><i>path</i></b>	(Optional) The absolute or relative path of the directory to remove.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If the directory is not empty, the **rmdir** command fails.

## Examples

This example shows how to remove an existing directory named “test”:

```
hostname# rmdir test
```

## Related Commands

Command	Description
<b>dir</b>	Displays the directory contents.
<b>mkdir</b>	Creates a new directory.
<b>pwd</b>	Displays the current working directory.
<b>show file</b>	Displays information about the file system.

# route

To enter a static or default route for the specified interface, use the **route** command in global configuration mode. Use the **no** form of this command to remove routes from the specified interface.

```
route interface_name ip_address netmask gateway_ip [[metric] [track number] | tunneled]
```

```
no route interface_name ip_address netmask gateway_ip [[metric] [track number] | tunneled]
```

## Syntax Description

<i>gateway_ip</i>	Specifies the IP address of the gateway router (the next-hop address for this route).  <b>Note</b> The <i>gateway_ip</i> argument is optional in transparent mode.
<i>interface_name</i>	Internal or external network interface name.
<i>ip_address</i>	Internal or external network IP address.
<i>metric</i>	(Optional) The administrative distance for this route. Valid values range from 1 to 255. The default value is 1.
<i>netmask</i>	Specifies a network mask to apply to <i>ip_address</i> .
<b>track number</b>	(Optional) Associates a tracking entry with this route. Valid values are from 1 to 500.  <b>Note</b> The <b>track</b> option is only available in single, routed mode.
<b>tunneled</b>	Specifies route as the default tunnel gateway for VPN traffic.

## Defaults

The *metric* default is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.
7.2(1)	The <b>track number</b> value was added.

## Usage Guidelines

Use the **route** command to enter a default or static route for an interface. To enter a default route, set *ip\_address* and *netmask* to **0.0.0.0**, or use the shortened form of **0**. All routes that are entered using the **route** command are stored in the configuration when it is saved.

You can define a separate default route for tunneled traffic along with the standard default route. When you create a default route with the **tunneled** option, all encrypted traffic that arrives on the security appliance and cannot be routed using learned or static routes is sent to this route. Otherwise, if the traffic is not encrypted, the standard default route entry is used. You cannot define more than one default route with the **tunneled** option; ECMP for tunneled traffic is not supported.

Create static routes to access networks that are connected outside a router on any interface. For example, the security appliance sends all packets that are destined to the 192.168.42.0 network through the 192.168.1.5 router with this static **route** command.

```
hostname(config)# route dmz 192.168.42.0 255.255.255.0 192.168.1.5 1
```

Once you enter the IP address for each interface, the security appliance creates a CONNECT route in the route table. This entry is not deleted when you use the **clear route** or **clear configure route** commands.

If the **route** command uses the IP address from one of the interfaces on the security appliance as the gateway IP address, the security appliance will ARP for the destination IP address in the packet instead of ARPing for the gateway IP address.

### Examples

The following example shows how to specify one default **route** command for an outside interface:

```
hostname(config)# route outside 0 0 209.165.201.1 1
```

The following example shows how to add these static **route** commands to provide access to the networks:

```
hostname(config)# route dmz1 10.1.2.0 255.0.0.0 10.1.1.4 1
hostname(config)# route dmz1 10.1.3.0 255.0.0.0 10.1.1.4 1
```

The following example uses an SLA operation to install a default route to the 10.1.1.1 gateway on the outside interface. The SLA operation monitors the availability of that gateway. If the SLA operation fails, then the backup route on the dmz interface is used.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
hostname(config)# route outside 0.0.0.0 0.0.0.0 10.1.1.1 track 1
hostname(config)# route dmz 0.0.0.0 0.0.0.0 10.2.1.1 254
```

### Related Commands

Command	Description
<b>clear configure route</b>	Removes statically configured <b>route</b> commands.
<b>clear route</b>	Removes routes learned through dynamic routing protocols such as RIP.
<b>show route</b>	Displays route information.
<b>show running-config route</b>	Displays configured routes.



# route-map

To define the conditions for redistributing routes from one routing protocol into another, use the **route-map** command in global configuration mode. To delete a map, use the **no** form of this command.

```
route-map map_tag [permit | deny] [seq_num]
```

```
no route-map map_tag [permit | deny] [seq_num]
```

## Syntax Description

<b>deny</b>	(Optional) Specifies that if the match criteria are met for the route map, the route is not redistributed.
<i>map_tag</i>	Text for the route map tag; the text can be up to 57 characters in length.
<b>permit</b>	(Optional) Specifies that if the match criteria is met for this route map, the route is redistributed as controlled by the set actions.
<i>seq_num</i>	(Optional) Route map sequence number; valid values are from 0 to 65535. Indicates the position that a new route map will have in the list of route maps already configured with the same name.

## Defaults

The defaults are as follows:

- **permit.**
- If you do not specify a *seq\_num*, a *seq\_num* of 10 is assigned to the first route map.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **route-map** command lets you redistribute routes.

The **route-map** global configuration command and the **match** and **set** configuration commands define the conditions for redistributing routes from one routing protocol into another. Each **route-map** command has **match** and **set** commands that are associated with it. The **match** commands specify the match criteria that are the conditions under which redistribution is allowed for the current **route-map** command. The **set** commands specify the set actions, which are the redistribution actions to perform if the criteria enforced by the **match** commands are met. The **no route-map** command deletes the route map.

The **match route-map** configuration command has multiple formats. You can enter the **match** commands in any order, and all **match** commands must pass to cause the route to be redistributed according to the set actions given with the **set** commands. The **no** form of the **match** commands removes the specified match criteria.

Use route maps when you want detailed control over how routes are redistributed between routing processes. You specify the destination routing protocol with the **router ospf** global configuration command. You specify the source routing protocol with the **redistribute** router configuration command.

When you pass routes through a route map, a route map can have several parts. Any route that does not match at least one match clause relating to a **route-map** command is ignored; the route is not advertised for outbound route maps and is not accepted for inbound route maps. To modify only some data, you must configure a second route map section with an explicit match specified.

The *seq\_number* argument is as follows:

1. If you do not define an entry with the supplied tag, an entry is created with the *seq\_number* argument set to 10.
2. If you define only one entry with the supplied tag, that entry becomes the default entry for the following **route-map** command. The *seq\_number* argument of this entry is unchanged.
3. If you define more than one entry with the supplied tag, an error message is printed to indicate that the *seq\_number* argument is required.

If the **no route-map map-tag** command is specified (with no *seq-num* argument), the whole route map is deleted (all **route-map** entries with the same *map-tag* text).

If the match criteria are not met, and you specify the **permit** keyword, the next route map with the same *map\_tag* is tested. If a route passes none of the match criteria for the set of route maps sharing the same name, it is not redistributed by that set.

## Examples

The following example shows how to configure a route map in OSPF routing:

```
hostname(config)# route-map maptag1 permit 8
hostname(config-route-map)# set metric 5
hostname(config-route-map)# match metric 5
hostname(config-route-map)# show running-config route-map
route-map maptag1 permit 8
    set metric 5
    match metric 5
hostname(config-route-map)# exit
hostname(config)#
```

## Related Commands

Command	Description
<b>clear configure route-map</b>	Removes the conditions for redistributing the routes from one routing protocol into another routing protocol.
<b>match interface</b>	Distributes distribute any routes that have their next hop out one of the interfaces specified,
<b>router ospf</b>	Starts and configures an ospf routing process.
<b>set metric</b>	Specifies the metric value in the destination routing protocol for a route map.
<b>show running-config route-map</b>	Displays the information about the route map configuration.

# router-id

To use a fixed router ID, use the **router-id** command in router configuration mode. To reset OSPF to use the previous router ID behavior, use the **no** form of this command.

**router-id** *addr*

**no router-id** [*addr*]

## Syntax Description

*addr* Router ID in IP address format.

## Defaults

If not specified, the highest-level IP address on the security appliance is used as the router ID.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

If the highest-level IP address on the security appliance is a private address, then this address is sent in hello packets and database definitions. To prevent this situation, use the **router-id** command to specify a global address for the router ID.

## Examples

The following example sets the router ID to 192.168.1.1:

```
hostname(config-router) # router-id 192.168.1.1
hostname(config-router) #
```

## Related Commands

Command	Description
<b>router ospf</b>	Enters router configuration mode.
<b>show ospf</b>	Displays general information about the OSPF routing processes.

# router ospf

To start an OSPF routing process and configure parameters for that process, use the **router ospf** command in global configuration mode. To disable OSPF routing, use the **no** form of this command.

**router ospf** *pid*

**no router ospf** *pid*

## Syntax Description

*pid* Internally used identification parameter for an OSPF routing process; valid values are from 1 to 65535. The *pid* does not need to match the ID of OSPF processes on other routers.

## Defaults

OSPF routing is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **router ospf** command is the global configuration command for OSPF routing processes running on the security appliance. Once you enter the **router ospf** command, the command prompt appears as (config-router)#, indicating that you are in router configuration mode.

When using the **no router ospf** command, you do not need to specify optional arguments unless they provide necessary information. The **no router ospf** command terminates the OSPF routing process specified by its *pid*. You assign the *pid* locally on the security appliance. You must assign a unique value for each OSPF routing process.

The **router ospf** command is used with the following OSPF-specific commands to configure OSPF routing processes:

- **area**—Configures a regular OSPF area.
- **compatible rfc1583**—Restores the method used to calculate summary route costs per RFC 1583.
- **default-information originate**—Generates a default external route into an OSPF routing domain.
- **distance**—Defines the OSPF route administrative distances based on the route type.
- **ignore**—Suppresses the sending of syslog messages when the router receives a link-state advertisement (LSA) for type 6 Multicast OSPF (MOSPF) packets.

- **log-adj-changes**—Configures the router to send a syslog message when an OSPF neighbor goes up or down.
- **neighbor**—Specifies a neighbor router. Used to allow adjacency to be established over VPN tunnels.
- **network**—Defines the interfaces on which OSPF runs and the area ID for those interfaces.
- **redistribute**—Configures the redistribution of routes from one routing domain to another according to the parameters specified.
- **router-id**—Creates a fixed router ID.
- **summary-address**—Creates the aggregate addresses for OSPF.
- **timers lsa-group-pacing**—OSPF LSA group pacing timer (interval between group of LSA being refreshed or max-aged).
- **timers spf**—Delay between receiving a change to the SPF calculation.

You cannot configure OSPF when RIP is configured on the security appliance.

### Examples

The following example shows how to enter the configuration mode for the OSPF routing process numbered 5:

```
hostname(config)# router ospf 5
hostname(config-router)#
```

### Related Commands

Command	Description
<b>clear configure router</b>	Clears the OSPF router commands from the running configuration.
<b>show running-config router ospf</b>	Displays the OSPF router commands in the running configuration.

# router rip

To start a RIP routing process and configure parameters for that process, use the **router rip** command in global configuration mode. To disable the RIP routing process, use the **no** form of this command.

**router rip**

**no router rip**

**Syntax Description** This command has no arguments or keywords.

**Defaults** RIP routing is disabled.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** The **router rip** command is the global configuration command for configuring the RIP routing processes on the security appliance. You can only configure one RIP process on the security appliance. The **no router rip** command terminates the RIP routing process and removes all router configuration for that process.

When you enter the **router rip** command the command prompt changes to `hostname(config-router)#`, indicating that you are in router configuration mode.

The **router rip** command is used with the following router configuration commands to configure RIP routing processes:

- **auto-summary**—Enable/disable automatic summarization of routes.
- **default-information originate**—Distribute a default route.
- **distribute-list in**—Filter networks in incoming routing updates.
- **distribute-list out**—Filter networks in outgoing routing updates.
- **network**—Add/remove interfaces from the routing process.
- **passive-interface**—Set specific interfaces to passive mode.
- **redistribute**—Redistribute routes from other routing processes into the RIP routing process.
- **version**—Set the RIP protocol version used by the security appliance.

Additionally, you can use the following commands in interface configuration mode to configure RIP properties on a per-interface basis:

- **rip authentication key**—Set an authentication key.
- **rip authentication mode**—Set the type of authentication used by RIP Version 2.
- **rip send version**—Set the version of RIP used to send updates out of the interface. This overrides the version set in global router configuration mode, if any.
- **rip receive version**—Set the version of RIP accepted by the interface. This overrides the version set in global router configuration mode, if any.

RIP is not supported under transparent mode. By default, the security appliance denies all RIP broadcast and multicast packets. To permit these RIP messages to pass through a security appliance operating in transparent mode you must define access list entries to permit this traffic. For example, to permit RIP version 2 traffic through the security appliance, create an access list entry such as `access-list myriplist extended permit ip any host 224.0.0.9`. To permit RIP version 1 broadcasts, create an access list entry such as `access-list myriplist extended permit udp any any eq rip`. Apply these access list entries to the appropriate interface using the **access-group** command.

You can enable both RIP and OSPF routing on the security appliance at the same time.

### Examples

The following example shows how to enter the configuration mode for the OSPF routing process numbered 5:

```
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# version 2
```

### Related Commands

Command	Description
<b>clear configure router rip</b>	Clears the RIP router commands from the running configuration.
<b>show running-config router rip</b>	Displays the RIP router commands in the running configuration.

# rtp-conformance

To check RTP packets flowing on the pinholes for protocol conformance in H.323, use the **rtp-conformance** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

**rtp-conformance [enforce-payloadtype]**

**no rtp-conformance [enforce-payloadtype]**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Parameters configuration	•	•	•	•	—

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Examples** The following example...

**Related Commands**

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.









## **same-security-traffic through show asdm sessions Commands**

---

# same-security-traffic

To permit communication between interfaces with equal security levels, or to allow traffic to enter and exit the same interface, use the **same-security-traffic** command in global configuration mode. To disable the same-security traffic, use the **no** form of this command.

**same-security-traffic permit {inter-interface | intra-interface}**

**no same-security-traffic permit {inter-interface | intra-interface}**

## Syntax Description

<b>inter-interface</b>	Permits communication between different interfaces that have the same security level.
<b>intra-interface</b>	Permits communication in and out of the same interface.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.
7.2(1)	The <b>intra-interface</b> keyword now allows all traffic to enter and exit the same interface, and not just IPSec traffic.

## Usage Guidelines

Allowing communication between same security interfaces (enabled by the **same-security-traffic inter-interface** command) provides the following benefits:

- You can configure more than 101 communicating interfaces. If you use different levels for each interface, you can configure only one interface per level (0 to 100).
- You can allow traffic to flow freely between all same security interfaces without access lists.

The **same-security-traffic intra-interface** command lets traffic enter and exit the same interface, which is normally not allowed. This feature might be useful for VPN traffic that enters an interface, but is then routed out the same interface. The VPN traffic might be unencrypted in this case, or it might be reencrypted for another VPN connection. For example, if you have a hub and spoke VPN network, where the security appliance is the hub, and remote VPN networks are spokes, for one spoke to communicate with another spoke, traffic must go into the security appliance and then out again to the other spoke.

---

**Examples**

The following example shows how to enable the same-security interface communication:

```
hostname(config)# same-security-traffic permit inter-interface
```

The following example shows how to enable traffic to enter and exit the same interface:

```
hostname(config)# same-security-traffic permit intra-interface
```

---

**Related Commands**

Command	Description
<code>show running-config</code>	Displays the <code>same-security-traffic</code> configuration.
<code>same-security-traffic</code>	

---

# sasl-mechanism

To specify a SASL (Simple Authentication and Security Layer) mechanism for authenticating an LDAP client to an LDAP server, use the **sasl-mechanism** command in aaa-server host configuration mode. The SASL authentication mechanism options are **digest-md5** and **kerberos**.

To disable an authentication mechanism, use the **no** form of this command.

```
sasl-mechanism { digest-md5 | kerberos server-group-name }
```

```
no sasl-mechanism { digest-md5 | kerberos server-group-name }
```



## Note

Because the security appliance serves as a client proxy to the LDAP server for VPN users, the LDAP client referred to here is the security appliance.

## Syntax Description

<b>digest-md5</b>	The security appliance responds with an MD5 value computed from the username and password.
<b>kerberos</b>	The security appliance responds by sending the username and realm using the GSSAPI (Generic Security Services Application Programming Interface) Kerberos mechanism.
<i>server-group-name</i>	Specifies the Kerberos aaa-server group, up to 64 characters.

## Defaults

No default behavior or values. The security appliance passes the authentication parameters to the LDAP server in plain text.



## Note

We recommend that you secure LDAP communications with SSL using the **ldap-over-ssl** command if you have not configured SASL.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
aaa-server host configuration	•	•	•	•	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

Use this command to specify security appliance authentication to an LDAP server using SASL mechanisms.

Both the security appliance and the LDAP server can support multiple SASL authentication mechanisms. When negotiating SASL authentication, the security appliance retrieves the list of SASL mechanisms configured on the server and sets the authentication mechanism to the strongest mechanism configured on both the security appliance and the server. The Kerberos mechanism is stronger than the Digest-MD5 mechanism. To illustrate, if both the LDAP server and the security appliance support both mechanisms, the security appliance selects Kerberos, the stronger of the mechanisms.

When disabling the SASL mechanisms, you must enter a separate **no** command for each mechanism you want to disable because they are configured independently. Mechanisms that you do not specifically disable remain in effect. For example, you must enter both of the following commands to disable both SASL mechanisms:

```
no sasl-mechanism digest-md5
```

```
no sasl-mechanism kerberos <server-group-name>
```

### Examples

The following examples, entered in aaa-server host configuration mode, enable the SASL mechanisms for authentication to an LDAP server named ldapsvr1 with an IP address of 10.10.0.1. This example enables the SASL digest-md5 authentication mechanism:

```
hostname(config)# aaa-server ldapsvr1 protocol ldap
hostname(config-aaa-server-group)# aaa-server ldapsvr1 host 10.10.0.1
hostname(config-aaa-server-host)# sasl-mechanism digest-md5
hostname(config-aaa-server-host)#
```

The following example enables the SASL Kerberos authentication mechanism and specifies kerb-svr1 as the Kerberos AAA server:

```
hostname(config)# aaa-server ldapsvr1 protocol ldap
hostname(config-aaa-server-group)# aaa-server ldapsvr1 host 10.10.0.1
hostname(config-aaa-server-host)# sasl-mechanism kerberos kerbsvr1
hostname(config-aaa-server-host)#
```

### Related Commands

Command	Description
<b>ldap-over-ssl</b>	Specifies that SSL secures the LDAP client-server connection.
<b>server-type</b>	Specifies the LDAP server vendor as either Microsoft or Sun.
<b>ldap attribute-map (global configuration mode)</b>	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.

# secondary

To give the secondary unit higher priority in a failover group, use the **secondary** command in failover group configuration mode. To restore the default, use the **no** form of this command.

**secondary**

**no secondary**

**Syntax Description** This command has no arguments or keywords.

**Defaults** If **primary** or **secondary** is not specified for a failover group, the failover group defaults to **primary**.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Failover group configuration	•	•	—	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Assigning a primary or secondary priority to a failover group specifies which unit the failover group becomes active on when both units boot simultaneously (within a unit polltime). If one unit boots before the other, then both failover groups become active on that unit. When the other unit comes online, any failover groups that have the second unit as a priority do not become active on the second unit unless the failover group is configured with the **preempt** command or is manually forced to the other unit with the **no failover active** command.

**Examples** The following example configures failover group 1 with the primary unit as the higher priority and failover group 2 with the secondary unit as the higher priority. Both failover groups are configured with the **preempt** command, so the groups will automatically become active on their preferred unit as the units become available.

```
hostname(config)# failover group 1
hostname(config-fover-group)# primary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# exit
hostname(config)# failover group 2
hostname(config-fover-group)# secondary
hostname(config-fover-group)# preempt 100
hostname(config-fover-group)# mac-address e1 0000.a000.a011 0000.a000.a012
hostname(config-fover-group)# exit
```



```
hostname (config) #
```

Related Commands	Command	Description
	<b>failover group</b>	Defines a failover group for Active/Active failover.
	<b>preempt</b>	Forces the failover group to become active on its preferred unit when the unit becomes available.
	<b>primary</b>	Gives the primary unit a higher priority than the secondary unit.

# secondary-color

To set a secondary color for the WebVPN login, home page, and file access page, use the **secondary-color** command in webvpn mode. To remove a color from the configuration and reset the default, use the **no** form of this command.

**secondary-color** *color*

**no secondary-color**

## Syntax Description

color	(Optional) Specifies the color. You can use a comma separated RGB value, an HTML color value, or the name of the color if recognized in HTML. <ul style="list-style-type: none"> <li>• RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.</li> <li>• HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.</li> <li>• Name length maximum is 32 characters</li> </ul>
-------	--

## Defaults

The default secondary color is HTML #CCCCFF, a lavender shade.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The number of RGB values recommended for use is 216, many fewer than the mathematical possibilities. Many displays can handle only 256 colors, and 40 of those look differently on MACs and PCs. For best results, check published RGB tables. To find RGB tables online, enter RGB in a search engine.

## Examples

The following example shows how to set an HTML color value of #5F9EAO, which is a teal shade:

```
hostname(config)# webvpn
hostname(config-webvpn)# secondary-color #5F9EAO
```

Related Commands	Command	Description
	<b>title-color</b>	Sets a color for the WebVPN title bar on the login, home page, and file access page

# secondary-text-color

To set the secondary text color for the WebVPN login, home page and file access page, use the **secondary-text-color** command in webvpn mode. To remove the color from the configuration and reset the default, use the **no** form of this command.

**secondary-text-color** [*black* | *white*]

**no secondary-text-color**

## Syntax Description

auto	Chooses black or white based on the settings for the text-color command. That is, if the primary color is black, this value is white.
black	The default secondary text color is black.
white	You can change the text color to white.

## Defaults

The default secondary text color is black.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example shows how to set the secondary text color to white:

```
hostname(config)# webvpn
hostname(config-webvpn)# secondary-text-color white
```

## Related Commands

Command	Description
<b>text-color</b>	Sets a color for text in the WebVPN title bar on the login, home page and file access page

# secure-unit-authentication

To enable secure unit authentication, use the **secure-unit-authentication enable** command in group-policy configuration mode. To disable secure unit authentication, use the **secure-unit-authentication disable** command. To remove the secure unit authentication attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a value for secure unit authentication from another group policy.

Secure unit authentication provides additional security by requiring VPN hardware clients to authenticate with a username and password each time the client initiates a tunnel. With this feature enabled, the hardware client does not have a saved username and password.



## Note

With this feature enabled, to bring up a VPN tunnel, a user must be present to enter the username and password.

**secure-unit-authentication {enable | disable}**

**no secure-unit-authentication**

## Syntax Description

<b>disable</b>	Disables secure unit authentication.
<b>enable</b>	Enables secure unit authentication.

## Defaults

Secure unit authentication is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Group policy	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Secure unit authentication requires that you have an authentication server group configured for the tunnel group the hardware client(s) use.

If you require secure unit authentication on the primary security appliance, be sure to configure it on any backup servers as well.

**Examples**

The following example shows how to enable secure unit authentication for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# secure-unit-authentication enable
```

**Related Commands**

Command	Description
<b>ip-phone-bypass</b>	Lets IP phones connect without undergoing user authentication. Secure unit authentication remains in effect.
<b>leap-bypass</b>	Lets LEAP packets from wireless devices behind a VPN hardware client travel across a VPN tunnel prior to user authentication, when enabled. This lets workstations using Cisco wireless access point devices establish LEAP authentication. Then they authenticate again per user authentication.
<b>user-authentication</b>	Requires users behind a hardware client to identify themselves to the security appliance before connecting.

# security-level

To set the security level of an interface, use the **security-level** command in interface configuration mode. To set the security level to the default, use the **no** form of this command. The security level protects higher security networks from lower security networks by imposing additional protection between the two.

**security-level** *number*

**no security-level**

## Syntax Description

*number* An integer between 0 (lowest) and 100 (highest).

## Defaults

By default, the security level is 0.

If you name an interface “inside” and you do not set the security level explicitly, then the security appliance sets the security level to 100 (see the **nameif** command). You can change this level if desired.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was moved from a keyword of the <b>nameif</b> command to an interface configuration mode command.

## Usage Guidelines

The level controls the following behavior:

- Network access—By default, there is an implicit permit from a higher security interface to a lower security interface (outbound). Hosts on the higher security interface can access any host on a lower security interface. You can limit access by applying an access list to the interface.

For some security interfaces, there is an implicit permit for interfaces to access other interfaces on the same security level or lower.

- Inspection engines—Some inspection engines are dependent on the security level. For some security interfaces, inspection engines apply to traffic in either direction.
  - NetBIOS inspection engine—Applied only for outbound connections.
  - OraServ inspection engine—If a control connection for the OraServ port exists between a pair of hosts, then only an inbound data connection is permitted through the security appliance.

- Filtering—HTTP(S) and FTP filtering applies only for outbound connections (from a higher level to a lower level).

For some security interfaces, you can filter traffic in either direction.

- NAT control—When you enable NAT control, you must configure NAT for hosts on a higher security interface (inside) when they access hosts on a lower security interface (outside).

Without NAT control, or for some security interfaces, you can choose to use NAT between any interface, or you can choose not to use NAT. Keep in mind that configuring NAT for an outside interface might require a special keyword.

- **established** command—This command allows return connections from a lower security host to a higher security host if there is already an established connection from the higher level host to the lower level host.

For some security interfaces, you can configure **established** commands for both directions.

Normally, interfaces on the same security level cannot communicate. If you want interfaces on the same security level to communicate, see the **same-security-traffic** command. You might want to assign two interfaces to the same level and allow them to communicate if you want to create more than 101 communicating interfaces, or you want protection features to be applied equally for traffic between two interfaces; for example, you have two departments that are equally secure.

If you change the security level of an interface, and you do not want to wait for existing connections to time out before the new security information is used, you can clear the connections using the **clear local-host** command.

## Examples

The following example configures the security levels for two interfaces to be 100 and 0:

```
hostname(config)# interface gigabitethernet0/0
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown
hostname(config-if)# interface gigabitethernet0/1
hostname(config-if)# nameif outside
hostname(config-if)# security-level 0
hostname(config-if)# ip address 10.1.2.1 255.255.255.0
hostname(config-if)# no shutdown
```

## Related Commands

Command	Description
<b>clear local-host</b>	Resets all connections.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>nameif</b>	Sets the interface name.
<b>vlan</b>	Assigns a VLAN ID to a subinterface.



# send response

To send a RADIUS Accounting-Response Start and Accounting-Response Stop message to the sender of the RADIUS Accounting-Request Start and Stop messages, use the **send response** command in radius-accounting parameter configuration mode, which is accessed by using the **inspect radius-accounting** command.

This option is disabled by default.

**send response**

**no send response**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
radius-accounting parameter configuration	•	•	•	•	—

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Examples** The following example shows how to send a response with RADIUS accounting:

```
hostname(config)# policy-map type inspect radius-accounting ra
hostname(config-pmap)# send response
hostname(config-pmap-p)# send response
```

**Related Commands**

Commands	Description
<b>inspect radius-accounting</b>	Sets inspection for RADIUS accounting.
<b>parameters</b>	Sets parameters for an inspection policy map.

# serial-number

To include the security appliance serial number in the certificate during enrollment, use the **serial-number** command in crypto ca trustpoint configuration mode. To restore the default setting, use the **no** form of the command.

**serial-number**

**no serial-number**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default setting is to not include the serial number.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and includes the security appliance serial number in the enrollment request for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# serial-number
hostname(ca-trustpoint)#
```

## Related Commands

Command	Description
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.

## server

To specify a default e-mail proxy server, use the **server** command in the applicable e-mail proxy mode. To remove the attribute from the configuration, use the **no** version of this command. The security appliance sends requests to the default e-mail server when the user connects to the e-mail proxy without specifying a server. If you do not configure a default server, and a user does not specify a server, the security appliance returns an error.

```
server {ipaddr or hostname}
```

```
no server
```

### Syntax Description

hostname	The DNS name of the default e-mail proxy server.
ipaddr	The IP address of the default e-mail proxy server.

### Defaults

There is no default e-mail proxy server by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Pop3s	•	•	—	—	•
Imap4s	•	•	—	—	•
Smtps	•	•	—	—	•

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Examples

The following example shows how to set a default POP3S e-mail server with an IP address. of 10.1.1.7:

```
hostname(config)# pop3s
hostname(config-pop3s)# server 10.1.1.7
```

# server-port

To configure a AAA server port for a host, use the **server-port** command in AAA-server host mode. To remove the designated server port, use the **no** form of this command:

```
server-port port-number
```

```
no server-port
```

## Syntax Description

*port-number* A port number in the range 0 through 65535.

## Defaults

The default server ports are as follows:

- SDI—5500
- LDAP—389
- Kerberos—88
- NT—139
- TACACS+—49

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
AAA-server group	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example configures an SDI AAA server named “srvgrp1” to use server port number 8888:

```
hostname(config)# aaa-server srvgrp1 protocol sdi
hostname(config-aaa-server-group)# aaa-server srvgrp1 host 192.168.10.10
hostname(config-aaa-server-host)# server-port 8888
hostname(config-aaa-server-host)#
```

## Related Commands

Command	Description
aaa-server host	Configures host-specific AAA server parameters.

---

<b>clear configure aaa-server</b>	Removes all AAA-server configuration.
<b>show running-config aaa-server</b>	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol

---

## server-separator

To specify a character as a delimiter between the e-mail and VPN server names, use **server-separator** command in the applicable e-mail proxy mode. To revert to the default, “:”, use the no form of this command.

**server-separator** {*symbol*}

**no server-separator**

### Syntax Description

symbol	The character that separates the e-mail and VPN server names. Choices are “@,” (at) “ ” (pipe), “:” (colon), “#” (hash), “,” (comma), and “;” (semi-colon).
--------	---

### Defaults

The default is “@” (at).

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Pop3s	•	—	•	—	—
Imap4s	•	—	•	—	—
Smtps	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

The server separator must be different from the name separator.

### Examples

The following example shows how to set a pipe (|) as the server separator for IMAP4S:

```
hostname(config)# imap4s
hostname(config-imap4s)# server-separator |
```

### Related Commands

Command	Description
<b>name-separator</b>	Separates the e-mail and VPN usernames and passwords.

## server-type

To manually configure the LDAP server model, use the **server-type** command in aaa-server host configuration mode. The security appliance supports the following server models:

- Microsoft Active Directory
- Sun Microsystems JAVA System Directory Server, formerly named the Sun ONE Directory Server.

To disable this command, use the **no** form of this command.

```
server-type {auto-detect| microsoft | sun}
```

```
no server-type {auto-detect| microsoft | sun}
```

### Syntax Description

<b>auto-detect</b>	Specifies that the security appliance determines the LDAP server type through auto-detection.
<b>microsoft</b>	Specifies that the LDAP server is a Microsoft Active Directory.
<b>sun</b>	Specifies that the LDAP server is a Sun Microsystems JAVA System Directory Server.

### Defaults

By default, auto-detection attempts to determine the server type.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
aaa-server host configuration	•	•	•	•	—

### Command History

Release	Modification
7.1(1)	This command was introduced.

### Usage Guidelines

The security appliance supports LDAP version 3 and is compatible only with the Sun Microsystems JAVA System Directory Server and the Microsoft Active Directory.



#### Note

- Sun—The DN configured on the security appliance to access a Sun directory server must be able to access the default password policy on that server. We recommend using the directory administrator, or a user with directory administrator privileges, as the DN. Alternatively, you can place an ACI on the default password policy.
- Microsoft—You must configure LDAP over SSL to enable password management with Microsoft Active Directory.

By default, the security appliance auto-detects whether it is connected to a Microsoft or a Sun LDAP directory server. However, if auto-detection fails to determine the LDAP server type and if you know the server is either a Microsoft or Sun server, you can use the **server-type** command to manually configure the server as either a Microsoft or a Sun Microsystems LDAP server.

### Examples

The following example, entered in aaa-server host configuration mode, configures the server type for the LDAP server ldapsvr1 at IP address 10.10.0.1. The first example configures a Sun Microsystems LDAP server.

```
hostname(config)# aaa-server ldapsvr1 protocol ldap
hostname(config-aaa-server-group)# aaa-server ldapsvr1 host 10.10.0.1
hostname(config-aaa-server-host)# server-type sun
hostname(config-aaa-server-host)#
```

The following example specifies that the security appliance use auto-detection to determine the server type:

```
hostname(config)# aaa-server ldapsvr1 protocol LDAP
hostname(config-aaa-server-group)# aaa-server ldapsvr1 host 10.10.0.1
hostname(config-aaa-server-host)# server-type auto-detect
hostname(config-aaa-server-host)#
```

### Related Commands

Command	Description
<b>ldap-over-ssl</b>	Specifies that SSL secures the LDAP client-server connection.
<b>sasl-mechanism</b>	Configures SASL authentication between the LDAP client and server.
<b>ldap attribute-map (global configuration mode)</b>	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.



# service

To enable resets for denied TCP connections, use the **service** command in global configuration mode. To disable resets, use the **no** form of this command.

```
service { resetinbound [interface interface_name] | resetoutbound [interface interface_name] |
resetoutside }
```

```
no service { resetinbound [interface interface_name] | resetoutbound [interface interface_name]
| resetoutside }
```

## Syntax Description

<b>interface</b> <i>interface_name</i>	Enables or disables resets for the specified interface.
<b>resetinbound</b>	Sends TCP resets for all inbound TCP sessions that attempt to transit the security appliance and are denied by the security appliance based on access lists or AAA settings. Traffic between same security level interfaces is also affected. When this option is not enabled, the security appliance silently discards denied packets. If you do not specify an interface, then this setting applies to all interfaces.
<b>resetoutbound</b>	Sends TCP resets for all outbound TCP sessions that attempt to transit the security appliance and are denied by the security appliance based on access lists or AAA settings. Traffic between same security level interfaces is also affected. When this option is not enabled, the security appliance silently discards denied packets. This option is enabled by default. You might want to disable outbound resets to reduce the CPU load during traffic storms, for example.
<b>resetoutside</b>	Enables resets for TCP packets that terminate at the least secure interface and are denied by the security appliance based on access lists or AAA settings. When this option is not enabled, the security appliance silently discards the packets of denied packets. We recommend that you use the <b>resetoutside</b> keyword with interface PAT. This keyword allows the security appliance to terminate the IDENT from an external SMTP or FTP server. Actively resetting these connections avoids the 30-second timeout delay.

## Defaults

By default, **service resetoutbound** is enabled for all interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.1(1)	The <b>interface</b> keyword and the <b>resetoutbound</b> command were added.

**Usage Guidelines**

You might want to explicitly send resets for inbound traffic if you need to reset identity request (IDENT) connections. When you send a TCP RST (reset flag in the TCP header) to the denied host, the RST stops the incoming IDENT process so that you do not have to wait for IDENT to time out. Waiting for IDENT to time out can cause traffic to slow because outside hosts keep retransmitting the SYN until the IDENT times out, so the **service resetinbound** command might improve performance.

**Examples**

The following example disables outbound resets for all interfaces except for the inside interface:

```
hostname(config)# no service resetoutbound
hostname(config)# service resetoutbound interface inside
```

The following example enables inbound resets for all interfaces except for the DMZ interface:

```
hostname(config)# service resetinbound
hostname(config)# no service resetinbound interface dmz
```

The following example enables resets for connections that terminate on the outside interface:

```
hostname(config)# service resetoutside
```

**Related Commands**

Command	Description
<b>show running-config</b>	Displays the service configuration.
<b>service</b>	

# service password-recovery

To enable password recovery, use the **service password-recovery** command in global configuration mode. To disable password recovery, use the **no** form of this command. Password recovery is enabled by default, but you might want to disable it to ensure that unauthorized users cannot use the password recovery mechanism to compromise the security appliance.

**service password-recovery**

**no service password-recovery**

**Syntax Description** This command has no arguments or keywords.

**Defaults** Password recovery is enabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** On the ASA 5500 series adaptive security appliance, if you forget the passwords, you can boot the security appliance into ROMMON by pressing the **Escape** key on the terminal keyboard when prompted during startup. Then set the security appliance to ignore the startup configuration by changing the configuration register (see the **config-register** command). For example if your configuration register is the default 0x1, then change the value to 0x41 by entering the **confreg 0x41** command. After reloading the security appliance, it loads a default configuration, and you can enter privileged EXEC mode using the default passwords. Then load the startup configuration by copying it to the running configuration and reset the passwords. Finally, set the security appliance to boot as before by setting the configuration register to the original setting. For example, enter the **config-register 0x1** command in global configuration mode.

On the PIX 500 series security appliance, boot the security appliance into monitor mode by pressing the **Escape** key on the terminal keyboard when prompted during startup. Then download the PIX password tool to the security appliance, which erases all passwords and **aaa authentication** commands.

On the ASA 5500 series adaptive security appliance, the **no service password-recovery** command prevents a user from entering ROMMON with the configuration intact. When a user enters ROMMON, the security appliance prompts the user to erase all Flash file systems. The user cannot enter ROMMON without first performing this erasure. If a user chooses not to erase the Flash file system, the security appliance reloads. Because password recovery depends on using ROMMON and maintaining the

existing configuration, this erasure prevents you from recovering a password. However, disabling password recovery prevents unauthorized users from viewing the configuration or inserting different passwords. In this case, to recover the system to an operating state, load a new image and a backup configuration file, if available. The **service password-recovery** command appears in the configuration file for informational purposes only; when you enter the command at the CLI prompt, the setting is saved in NVRAM. The only way to change the setting is to enter the command at the CLI prompt. Loading a new configuration with a different version of the command does not change the setting. If you disable password recovery when the security appliance is configured to ignore the startup configuration at startup (in preparation for password recovery), then the security appliance changes the setting to boot the startup configuration as usual. If you use failover, and the standby unit is configured to ignore the startup configuration, then the same change is made to the configuration register when the **no service password recovery** command replicates to the standby unit.

On the PIX 500 series security appliance, the **no service password-recovery** command forces the PIX password tool to prompt the user to erase all Flash file systems. The user cannot use the PIX password tool without first performing this erasure. If a user chooses not to erase the Flash file system, the security appliance reloads. Because password recovery depends on maintaining the existing configuration, this erasure prevents you from recovering a password. However, disabling password recovery prevents unauthorized users from viewing the configuration or inserting different passwords. In this case, to recover the system to an operating state, load a new image and a backup configuration file, if available.

## Examples

The following example disables password recovery for the ASA 5500 series adaptive security appliance:

```
hostname(config)# no service password-recovery
WARNING: Executing "no service password-recovery" has disabled the password recovery
mechanism and disabled access to ROMMON. The only means of recovering from lost or
forgotten passwords will be for ROMMON to erase all file systems including configuration
files and images. You should make a backup of your configuration and have a mechanism to
restore images from the ROMMON command line.
```

The following example disables password recovery for the PIX 500 series security appliance:

```
hostname(config)# no service password-recovery
WARNING: Saving "no service password-recovery" in the startup-config will disable password
recovery via the npdisk application. The only means of recovering from lost or forgotten
passwords will be for npdisk to erase all file systems including configuration files and
images. You should make a backup of your configuration and have a mechanism to restore
images from the Monitor Mode command line.
```

The following example for the ASA 5500 series adaptive security appliance shows when to enter ROMMON at startup and how to complete a password recovery operation.

```
Use BREAK or ESC to interrupt boot.
Use SPACE to begin boot immediately.
Boot interrupted.
```

```
Use ? for help.
rommon #0> confreg
```

```
Current Configuration Register: 0x00000001
Configuration Summary:
  boot default image from Flash
```

```
Do you wish to change this configuration? y/n [n]: n
```

```
rommon #1> confreg 0x41
```

```
Update Config Register (0x41) in NVRAM...
```

```

rommon #2> boot
Launching BootLoader...
Boot configuration file contains 1 entry.

Loading disk0:/ASA_7.0.bin... Booting...
#####
...
Ignoring startup configuration as instructed by configuration register.
Type help or '?' for a list of available commands.
hostname> enable
Password:
hostname# configure terminal
hostname(config)# copy startup-config running-config

Destination filename [running-config]?
Cryptochecksum(unchanged): 7708b94c e0e3f0d5 c94dde05 594fbee9

892 bytes copied in 6.300 secs (148 bytes/sec)
hostname(config)# enable password NewPassword
hostname(config)# config-register 0x1

```

**Related Commands**

Command	Description
<b>config-register</b>	Sets the security appliance to ignore the startup configuration when it reloads.
<b>enable password</b>	Sets the enable password.
<b>password</b>	Sets the login password.

# service-policy

To activate a policy map globally on all interfaces or on a targeted interface, use the **service-policy** command in global configuration mode. To disable the service policy, use the **no** form of this command. Use the **service-policy** command to enable a set of policies on an interface.

```
service-policy policymap_name [ global | interface intf ]
```

```
no service-policy policymap_name [ global | interface intf ]
```

## Syntax Description

<i>policymap_name</i>	Specifies the policy map name that you configured in the <b>policy-map</b> command. You can only specify a Layer 3/4 policy map, and not an inspection policy map ( <b>policy-map type inspect</b> ).
<b>global</b>	Applies the policy map to all interfaces.
<b>interface</b> <i>intf</i>	Applies the policy map to a specific interface.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Interface service policies take precedence over the global service policy.

By default, the configuration includes a global policy that matches all default application inspection traffic and applies inspection to the traffic globally. You can only apply one global policy, so if you want to alter the global policy, you need to either edit the default policy or disable it and apply a new one.

The default service policy includes the following command:

```
service-policy global_policy global
```

## Examples

The following example shows how to enable the `inbound_policy` policy map on the `outside` interface:

```
hostname(config)# service-policy inbound_policy interface outside
```

The following commands disable the default global policy, and enables a new one called `new_global_policy` on all other security appliance interfaces:

```
hostname(config)# no service-policy global_policy global
hostname(config)# service-policy new_global_policy global
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show service-policy</b>	Displays the service policy.
<b>show running-config service-policy</b>	Displays the service policies configured in the running configuration.
<b>clear service-policy</b>	Clears service policy statistics.
<b>clear configure service-policy</b>	Clears service policy configurations.

---

# session

To establish a Telnet session to an intelligent SSM, such as an AIP SSM or a CSC SSM, use the **session** command in privileged EXEC mode.

```
session slot [do | ip]
```

## Syntax Description

<b>do</b>	Executes a command on the SSM specified by the <i>slot</i> argument. Do not use the <b>do</b> keyword unless you are advised to do so by Cisco TAC.
<b>ip</b>	Configures logging IP addresses for the SSM specified by the <i>slot</i> argument. Do not use the <b>ip</b> keyword unless you are advised to do so by Cisco TAC.
<i>slot</i>	Specifies the SSM slot number, which is always 1.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	The <b>do</b> and <b>ip</b> keywords were added. These keywords are for use only when advised to do so by Cisco TAC.

## Usage Guidelines

This command is only available when the SSM is in the Up state. See the **show module** command for state information.

To end a session, enter **exit** or **Ctrl-Shift-6** then the **X** key.

## Examples

The following example sessions to an SSM in slot 1:

```
hostname# session 1
Opening command session with slot 1.
Connected to slot 1. Escape character sequence is 'CTRL-^X'.
```

## Related Commands



Command	Description
<code>debug session-command</code>	Shows debug messages for sessions.

## set connection

To specify connection values within a policy-map for a traffic class, use the **set connection** command in class mode. Use this command to specify the maximum number of simultaneous connections and to specify whether TCP sequence number randomization is enabled. To remove these specifications, thereby allowing unlimited connections, use the **no** form of this command.

```
set connection {conn-max n | embryonic-conn-max n | per-client-embryonic-max n |
per-client-max n | random-sequence-number {enable | disable}}. . .
```

```
no set connection {conn-max n | embryonic-conn-max n | per-client-embryonic-max n |
per-client-max n | random-sequence-number {enable | disable}}. . .
```

Syntax Description		
<b>conn-max</b> <i>n</i>	(Optional) The maximum number of simultaneous TCP and/or UDP connections that are allowed.	
<b>disable</b>	Turns off TCP sequence number randomization.	
<b>enable</b>	Turns on TCP sequence number randomization.	
<b>embryonic-conn-max</b> <i>n</i>	(Optional) The maximum number of simultaneous embryonic connections allowed.	
<b>per-client-embryonic-max</b> <i>n</i>	(Optional) The maximum number of simultaneous embryonic connections allowed.	
<b>per-client-max</b> <i>n</i>	(Optional) The maximum number of simultaneous connections allowed per client.	
<b>random-sequence-number</b>	(Optional) Enable or disable TCP sequence number randomization.	

### Defaults

For the **conn-max**, **embryonic-conn-max**, **per-client-embryonic-max**, and **per-client-max** parameters, the default value of *n* is 0, which allows unlimited connections.

Sequence number randomization is enabled by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class	•	•	—	—	•

### Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	The <b>per-client-embryonic-max</b> and <b>per-client-max</b> keywords were added.

**Usage Guidelines**

While the **conn-max**, **embryonic-conn-max**, **per-client-embryonic-max**, **per-client-max**, **random-sequence-number** keywords are all optional, you must specify at least one of them.

You can enter this command with multiple parameters or you can enter each parameter as a separate command. The security appliance combines the commands into one line in the running configuration. For example, if you entered the following two commands in Class configuration mode:

```
hostname(config-pmap-c)# set connection conn-max 600
hostname(config-pmap-c)# set connection embryonic-conn-max 50
```

the output of the **show running-config policy-map** command would display the result of the two commands in a single, combined command:

```
set connection conn-max 600 embryonic-conn-max 50
```

The **set connection** command parameters (**conn-max**, **embryonic-conn-max**, **per-client-embryonic-max**, **per-client-max**, **random-sequence-number**) can co-exist with any **nat** or **static** command; that is, you can configure connection parameters either through the **nat/static** commands using **max-conn**, **emb\_limit**, or **norandomseq** parameters, or through the MPC **set connection** command using **conn-max**, **embryonic-conn-max**, **per-client-embryonic-max**, **per-client-max** or **random-sequence-number** parameters. A mixed configuration is not recommended, but if one exists, it behaves in the following ways:

- When a traffic class is subject to a connection limit or embryonic connection limit from both the MPC **set connection** command and the **nat/static** command, then whichever limit is reached, that limit is applied.
- When a TCP traffic class is configured to have sequence number randomization disabled by either the MPC **set connection** command or the **nat/static** command, then sequence number randomization is disabled.

The **per-client-embryonic-max** and **per-client-max** parameters limit the maximum number of connections that a client can open. If particular clients use more network resources simultaneously than is desired, you can use these parameters to limit the number of connections that the security appliance will allow specific clients. DoS attacks seek to disrupt networks by overwhelming the capacity of key hosts with connections or requests for connections. You can use the **per-client-embryonic-max** and **per-client-max** parameters to thwart DoS attacks. After you configure a per-client maximum that can be supported by hosts likely to be attacked, malicious clients will be unable to overwhelm hosts on protected networks.

**Examples**

The following is an example of the use of the **set connection** command configure the maximum number of simultaneous connections as 256 and to disable TCP sequence number randomization:

```
hostname(config)# policy-map localpolicy1
hostname(config-pmap)# class local_server
hostname(config-pmap-c)# set connection conn-max 256 random-sequence-number disable
hostname(config-pmap-c)#
```

The following is an example of the use of the **set connection** command in a service policy that diverts traffic to a Cisco Content Security and Control (CSC) SSM. The **set connection** command restricts each client whose traffic the CSC SSM scans to a maximum of five connections.

```
hostname(config)# policy-map csc_policy
hostname(config-pmap)# class local_server
hostname(config-pmap-c)# set connection per-client-max 5
hostname(config-pmap-c)# csc fail-close
hostname(config-pmap-c)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class</b>	Specifies a class-map to use for traffic classification.
<b>clear configure policy-map</b>	Removes all policy-map configuration, except that if a policy-map is in use in a service-policy command, that policy-map is not removed.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>show running-config policy-map</b>	Displays all current policy-map configurations.
<b>show service-policy</b>	Displays service policy configuration. Use the <b>set connection</b> keyword to view policies that include the <b>set connection</b> command.

## set connection advanced-options

To specify advanced TCP connection options within a policy-map for a traffic class, use the **set connection advanced-options** command in class mode. To remove advanced TCP connection options for a traffic class within a policy map, use the **no** form of this command.

**set connection advanced-options** *tcp-mapname*

**no set connection advanced-options** *tcp-mapname*

### Syntax Description

<i>tcp-mapname</i>	Name of a TCP map in which advanced TCP connection options are configured.
--------------------	--

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Class	•	•	—	—	•

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

You must have configured the **policy-map** command and the **class** command, as well as the TCP map name, before issuing this command. See the description of the **tcp-map** command for detailed information.

### Examples

The following example shows the use of the **set connection advanced-options** command to specify the use of a TCP map named localmap:

```
hostname(config)# access-list http-server permit tcp any host 10.1.1.1
hostname(config)# class-map http-server
hostname(config-cmap)# match access-list http-server
hostname(config-cmap)# exit
hostname(config)# tcp-map localmap
hostname(config)# policy-map global_policy global
hostname(config-pmap)# description This policy map defines a policy concerning connection
to http server.
hostname(config-pmap)# class http-server
hostname(config-pmap-c)# set connection advanced-options localmap
hostname(config-pmap-c)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class</b>	Specifies a class-map to use for traffic classification.
<b>class-map</b>	Configures a traffic class by issuing at most one (with the exception of tunnel-group and default-inspection-traffic) match command, specifying match criteria, in the class-map mode.
<b>clear configure policy-map</b>	Remove all policy-map configuration, except that if a policy-map is in use in a service-policy command, that policy-map is not removed.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>show running-config policy-map</b>	Display all current policy-map configurations.

## set connection timeout

To configure the timeout period, after which an idle TCP connection is disconnected, use the **set connection timeout** command in class mode. To remove the timeout, use the **no** form of this command.

```
set connection timeout {tcp <value> [reset]] [half-close <value>] [embryonic <value>] [dcd
[<retry-interval> [max-retries]]]}
```

```
no set connection timeout {tcp <value> [reset]] [half-close <value>] [embryonic <value>] [dcd
[<retry-interval> [max-retries]]]}
```

### Syntax Description

<b>embryonic</b>	Configures absolute time after which an embryonic TCP connection will be closed. Embryonic is a time between 1 and 255, in seconds. You can also set this value to 0, which means the connection never times out.
<b>half-closed</b>	Configures idle time after which a TCP half-closed connection will be freed. Half-closed minutes can be set between 1 and 255, in minutes. You can set the value to 0, which means the connection never times out.
<b>max-retries</b>	Number of consecutive failed retries before declaring the connection as dead. The minimum value is 1 and the maximum value is 255.
<b>reset</b>	Sends a TCP RST packet to both end systems after TCP idle connections are removed.
<b>retry-interval</b>	Time duration in <hh:mm:ss> format to wait between each unresponsive DCD probe. The minimal value is 1 second, and the maximum value is 24 hours.
<b>tcp</b>	The idle time after which an established connection closes.
<i>value</i>	Time between 0:0:5 and 1192:59:59, in <i>hh:mm:ss</i> format. You can also set this value to 0, which means the connection never times out.

### Defaults

The default **embryonic** value is 30 seconds.

The default **half-closed** value is 10 minutes.

The default **max-retries** value is 5.

The default **retry-interval** value is 15 seconds.

The default **tcp** value is 1 hour.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Class	•	•	—	—	•

**Command History**

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	Support for dead-connection-detection was added.

**Usage Guidelines**

You must have configured the **policy-map** command and the **class** command before issuing this command.

A TCP connection for which a three-way handshake is not complete is an *embryonic* connection. For the **embryonic** connection timeout value, use **0:0:0** to specify that the connection never times out. Otherwise, the timeout duration must be at least 5 seconds.

When the TCP connection is in the closing state, use the half-closed parameter to configure the length of time until the connection is freed. Use **0:0:0** to specify that the connection never times out. The minimum timeout duration is 5 minutes.

The **tcp** inactive connection timeout configures the period after which an idle TCP connection in the established state is disconnected. Use **0:0:0** to specify that the connection never times out. The minimum timeout duration is 5 minutes.

The **reset** keyword is used to send a TCP RST packet to both end systems once an idle TCP connection has timed out. Some applications require a TCP RST after a timeout to perform properly.

**Examples**

The following is an example of a **set connection timeout** command that specifies an embryonic connection **timeout** of two minutes:

```
ASA Version 7.2(0)80
!
hostname ciscoasa
domain-name default.domain.invalid
enable password 8Ry2YjIyt7RRXU24 encrypted
names
!
interface Vlan1
 nameif inside
 security-level 100
 ip address 192.168.0.1 255.255.0.0 standby 192.168.0.2
!
interface Vlan2
 backup interface Vlan4
 nameif outside
 security-level 0
 ip address 17.12.9.1 255.255.0.0 standby 17.12.9.2
!
interface Vlan4
 nameif backifx
 security-level 0
 ip address 172.23.62.137 255.255.255.0 standby 172.23.62.136
!
interface Vlan150
 description LAN Failover Interface
!
interface Vlan160
 nameif dmz
 security-level 50
 ip address 172.16.0.1 255.255.0.0 standby 172.16.0.2
!
interface Ethernet0/0
```



```
switchport access vlan 2
no nameif
no security-level
no ip address
!
interface Ethernet0/1
no nameif
no security-level
no ip address
!
interface Ethernet0/2
switchport access vlan 160
no nameif
no security-level
no ip address
!
interface Ethernet0/3
no nameif
no security-level
no ip address
!
interface Ethernet0/4
no nameif
no security-level
no ip address
!
interface Ethernet0/5
switchport access vlan 150
no nameif
no security-level
no ip address
!
interface Ethernet0/6
switchport access vlan 4
no nameif
no security-level
no ip address
!
interface Ethernet0/7
switchport access vlan 4
no nameif
no security-level
no ip address
!
passwd 2KFQnbNIdI.2KYOU encrypted
boot system disk0:/cdisk.7.2.0.80
ftp mode passive
dns server-group DefaultDNS
domain-name default.domain.invalid
access-list outside-acl extended permit ip any any
access-list inside_nat0_outbound extended permit ip any 192.168.0.128 255.255.25
5.192
access-list outside_cryptomap extended permit ip any 192.168.0.128 255.255.255.1
92
pager lines 24
logging enable
logging buffered debugging
logging asdm informational
mtu inside 1500
mtu outside 1500
mtu backifx 1500
mtu dmz 1500
ip local pool vpnpool 192.168.0.150-192.168.0.160 mask 255.255.0.0
no failover
```

```

failover lan unit primary
failover lan interface fover Vlan150
failover interface ip fover 150.1.1.1 255.255.255.0 standby 150.1.1.2
asdm image disk0:/asdm-5211.bin
no asdm history enable
arp timeout 14400
nat-control
global (outside) 1 interface
nat (inside) 1 0.0.0.0 0.0.0.0
static (inside,outside) 17.12.9.51 192.168.0.3 netmask 255.255.255.255
static (inside,outside) 17.12.9.52 192.168.0.10 netmask 255.255.255.255
static (inside,outside) 17.12.9.54 192.168.0.4 netmask 255.255.255.255
static (inside,dmz) 172.16.0.13 192.168.0.3 netmask 255.255.255.255
static (inside,dmz) 172.16.0.14 192.168.0.100 netmask 255.255.255.255
static (dmz,outside) 17.12.9.53 172.16.0.20 netmask 255.255.255.255
access-group outside-acl in interface outside
access-group outside-acl in interface dmz
route outside 0.0.0.0 0.0.0.0 17.12.0.1 1 track 1
timeout xlate 3:00:00
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 icmp 0:00:02 ----->
ramain same
timeout sunrpc 0:10:00 h323 0:05:00 h225 1:00:00 mgcp 0:05:00 mgcp-pat 0:05:00
timeout sip 0:30:00 sip_media 0:02:00 sip-invite 0:03:00 sip-disconnect 0:02:00
timeout uauth 0:05:00 absolute
group-policy vpngroup internal
group-policy vpngroup attributes
  wins-server value 171.69.2.87
  dns-server value 171.70.168.183
  vpn-tunnel-protocol IPSec
  default-domain value cisco.com
username snoopy password wQ07//ZyQYDXv5q. encrypted privilege 15
aaa authentication telnet console LOCAL
http server enable
http 0.0.0.0 0.0.0.0 outside
http 0.0.0.0 0.0.0.0 inside
http 192.168.0.0 255.255.0.0 inside
no snmp-server location
no snmp-server contact
snmp-server enable traps snmp authentication linkup linkdown coldstart
sla monitor 10
  type echo protocol ipIcmpEcho 17.12.0.1 interface outside
  frequency 5
sla monitor schedule 10 life forever start-time now
crypto ipsec transform-set ESP-3DES-SHA esp-3des esp-sha-hmac
crypto dynamic-map outside0 20 set transform-set ESP-3DES-SHA
crypto map outside 20 ipsec-isakmp dynamic outside0
crypto map outside interface outside
crypto isakmp enable outside
crypto isakmp policy 10
  authentication pre-share
  encryption 3des
  hash sha
  group 2
  lifetime 86400
!
track 1 rtr 10 reachability
tunnel-group vpngroup type ipsec-ra
tunnel-group vpngroup general-attributes
  address-pool vpnpool
  default-group-policy vpngroup
tunnel-group vpngroup ipsec-attributes
  pre-shared-key *
telnet 0.0.0.0 0.0.0.0 inside
telnet 0.0.0.0 0.0.0.0 outside

```

```

telnet timeout 5
ssh timeout 5
console timeout 0

!
class-map dcd
  match access-list outside-acl
class-map inspection_default
  match default-inspection-traffic
!
!
policy-map type inspect dns preset_dns_map
  parameters
    message-length maximum 512
policy-map global_policy
  class inspection_default
    inspect dns preset_dns_map
    inspect ftp
    inspect h323 h225
    inspect h323 ras
    inspect rsh
    inspect rtsp
    inspect esmtp
    inspect sqlnet
    inspect skinny
    inspect sunrpc
    inspect xdmcp
    inspect sip
    inspect netbios
    inspect tftp
    inspect icmp
  class dcd
    set connection timeout dcd
!
service-policy global_policy global
tftp-server outside 17.12.9.152 test1.cfg
prompt hostname context
Cryptochecksum:dc412a5fe2003621d7d723420da6e8d5
: end
ciscoasa(config)#

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class</b>	Specifies a class-map to use for traffic classification.
<b>clear configure policy-map</b>	Remove all policy-map configuration, except that if a policy-map is in use in a service-policy command, that policy-map is not removed.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>set connection</b>	Configure connection values.
<b>show running-config policy-map</b>	Display all current policy-map configurations.

# set metric

To set the metric value for a routing protocol, use the **set metric** command in route-map configuration mode. To return to the default metric value, use the **no** form of this command.

**set metric** *value*

**no set metric** *value*

## Syntax Description

*value* Metric value.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Route-map configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **no set metric value** command allows you to return to the default metric value. In this context, the *value* is an integer from 0 to 4294967295.

## Examples

The following example shows how to configure a route map for OSPF routing:

```
hostname(config)# route-map maptag1 permit 8
hostname(config-route-map)# set metric 5
hostname(config-route-map)# match metric 5
hostname(config-route-map)# show route-map
route-map maptag1 permit 8
set metric 5
match metric 5
hostname(config-route-map)# exit
hostname(config)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>match interface</b>	Distributes any routes that have their next hop out one of the interfaces specified,
<b>match ip next-hop</b>	Distributes any routes that have a next-hop router address that is passed by one of the access lists specified.
<b>route-map</b>	Defines the conditions for redistributing routes from one routing protocol into another.

# set metric-type

To specify the type of OSPF metric routes, use the **set metric-type** command in route-map configuration mode. To return to the default setting, use the **no set metric-type** command.

```
set metric-type {type-1 | type-2}
```

```
no set metric-type
```

## Syntax Description

<b>type-1</b>	Specifies the type of OSPF metric routes that are external to a specified autonomous system.
<b>type-2</b>	Specifies the type of OSPF metric routes that are external to a specified autonomous system.

## Defaults

The default is **type-2**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
			Context	System	
Route-map configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example shows how to configure a route map for OSPF routing:

```
hostname(config)# route-map maptag1 permit 8
hostname(config-route-map)# set metric 5
hostname(config-route-map)# match metric 5
hostname(config-route-map)# set metric-type type-2
hostname(config-route-map)# show route-map
route-map maptag1 permit 8
  set metric 5
  set metric-type type-2
  match metric 5
hostname(config-route-map)# exit
hostname(config)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>match interface</b>	Distributes any routes that have their next hop out one of the interfaces specified,
<b>route-map</b>	Defines the conditions for redistributing routes from one routing protocol into another.
<b>set metric</b>	Specifies the metric value in the destination routing protocol for a route map.

# setup

To configure a minimal configuration for the security appliance using interactive prompts, enter the **setup** command in global configuration mode. This configuration provides connectivity to use ASDM. See also the **configure factory-default** command to restore the default configuration.

## setup

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines** The setup dialog automatically appears at boot time if there is no startup configuration in Flash memory. Before you can use the **setup** command, you must have an inside interface already configured. The PIX 500 series default configuration includes an inside interface (Ethernet 1), but the ASA 550 series default configuration does not. Before using the **setup** command, enter the **interface** command for the interface you want to make inside, and then the **nameif inside** command.

In multiple context mode, you can use the **setup** command in the system execution space and for each context.

When you enter the **setup** command, you are asked for the information in Table 24-1. The system **setup** command includes a subset of these prompts. If there is already a configuration for the prompted parameter, it appears in brackets so you can either accept it as the default or override it by entering something new.

**Table 24-1 Setup Prompts**

Prompt	Description
Pre-configure Firewall now through interactive prompts [yes]?	Enter <b>yes</b> or <b>no</b> . If you enter <b>yes</b> , the setup dialog continues. If <b>no</b> , the setup dialog stops and the global configuration prompt (hostname(config)#) appears.



**Table 24-1 Setup Prompts (continued)**

Firewall Mode [Routed]:	Enter <b>routed</b> or <b>transparent</b> .
Enable password:	Enter an enable password. (The password must have at least three characters.)
Allow password recovery [yes]?	Enter <b>yes</b> or <b>no</b> .
Clock (UTC):	You cannot enter anything in this field. UTC time is used by default.
Year:	Enter the year using four digits, for example, 2005. The year range is 1993 to 2035.
Month:	Enter the month using the first three characters of the month; for example, <b>Sep</b> for September.
Day:	Enter the day of the month, from 1 to 31.
Time:	Enter the hour, minutes, and seconds in 24-hour time format. For example, enter <b>20:54:44</b> for 8:54 p.m and 44 seconds.
Inside IP address:	Enter the IP address for the inside interface.
Inside network mask:	Enter the network mask that applies to the inside IP address. You must specify a valid network mask, such as 255.0.0.0 or 255.255.0.0.
Host name:	Enter the hostname that you want to display in the command line prompt.
Domain name:	Enter the domain name of the network on which the security appliance runs.
IP address of host running Device Manager:	Enter the IP address of the host that needs to access ASDM.
Use this configuration and write to flash?	Enter <b>yes</b> or <b>no</b> . If you enter <b>yes</b> , the inside interface is enabled and the requested configuration is written to the Flash partition.  If you enter <b>no</b> , the setup dialog repeats, beginning with the first question:  Pre-configure Firewall now through interactive prompts [yes]?  Enter <b>no</b> to exit the setup dialog or <b>yes</b> to repeat it.

**Examples**

This example shows how to complete the **setup** command prompts:

```
hostname(config)# setup
Pre-configure Firewall now through interactive prompts [yes]? yes
Firewall Mode [Routed]: routed
Enable password [<use current password>]: writer
Allow password recovery [yes]? yes
Clock (UTC):
  Year: 2005
  Month: Nov
  Day: 15
  Time: 10:0:0
Inside IP address: 192.168.1.1
Inside network mask: 255.255.255.0
Host name: tech_pubs
Domain name: your_company.com
IP address of host running Device Manager: 10.1.1.1
```

The following configuration will be used:  
Enable password: writer

```
Allow password recovery: yes
Clock (UTC): 20:54:44 Sep 17 2005
Firewall Mode: Routed
Inside IP address: 192.168.1.1
Inside network mask: 255.255.255.0
Host name: tech_pubs
Domain name: your_company.com
IP address of host running Device Manager: 10.1.1.1
```

Use this configuration and write to flash? **yes**

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>configure</b>	Restores the default configuration.
<b>factory-default</b>	

---

# show aaa local user

To show the list of usernames that are currently locked, or to show details about the username, use the `show aaa local user` command in global configuration mode.

`show aaa local user [locked]`

## Syntax Description

**locked** (Optional) Shows the list of usernames that are currently locked.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If you omit the optional keyword **locked**, the security appliance displays the failed-attempts and lockout status details for all AAA local users.

You can specify a single user by using the **username** option or all users with the **all** option.

This command affects only the status of users that are locked out.

The administrator cannot be locked out of the device.

## Examples

The following example shows use of the `show aaa local user` command to display the lockout status of all usernames:

This example shows the use of the `show aaa local user` command to display the number of failed authentication attempts and lockout status details for all AAA local users, after the limit has been set to 5:

```
hostname(config)# aaa local authentication attempts max-fail 5
hostname(config)# show aaa local user
Lock-time  Failed-attempts  Locked  User
-          6                Y      test
-          2                N      mona
-          1                N      cisco
-          4                N      newuser
hostname(config)#
```

This example shows the use of the **show aaa local user** command with the **lockout** keyword to display the number of failed authentication attempts and lockout status details only for any locked-out AAA local users, after the limit has been set to 5:

```
hostname(config)# aaa local authentication attempts max-fail 5
hostname(config)# show aaa local user
Lock-time  Failed-attempts  Locked  User
-          6                Y       test
hostname(config)#
```

#### Related Commands

Command	Description
<b>aaa local authentication attempts max-fail</b>	Configures the maximum number of times a user can enter a wrong password before being locked out.
<b>clear aaa local user fail-attempts</b>	Resets the number of failed attempts to 0 without modifying the lockout status.
<b>clear aaa local user lockout</b>	Clears the lockout status of the specified user or all users and sets their failed attempts counters to 0.

# show aaa-server

To display AAA server statistics for AAA servers, use the **show aaa-server** command in privileged EXEC mode:

```
show aaa-server [LOCAL | groupname [host hostname] | protocol protocol]
```

Syntax Description	LOCAL	(Optional) Shows statistics for the LOCAL user database.
	<i>groupname</i>	(Optional) Shows statistics for servers in a group.
	host <i>hostname</i>	(Optional) Shows statistics for a particular server in the group.
	protocol <i>protocol</i>	(Optional) Shows statistics for servers of the specified protocol: <ul style="list-style-type: none"> <li>• http form</li> <li>• kerberos</li> <li>• ldap</li> <li>• nt</li> <li>• radius</li> <li>• sdi</li> <li>• tacacs+</li> </ul>

## Defaults

By default, all AAA server statistics display.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	—	—	•

## Command History

Release	Modification
Preexisting	This command was preexisting.
7.1(1)	The http form protocol was added.

## Examples

This example shows the use of the **show aaa-server** command to display statistics for a particular host in server group group1:

```
hostname(config)# show aaa-server group1 host 192.68.125.60
Server Group:          group1
Server Protocol:       RADIUS
Server Address:        192.68.125.60
Server port:           1645
Server status:         ACTIVE/FAILED. Last transaction (success) at 11:10:08 UTC  Fri Aug 22
```

```

Number of pending requests 20
Average round trip time4ms
Number of authentication requests20
Number of authorization requests 0
Number of accounting requests 0
Number of retransmissions1
Number of accepts 16
Number of rejects 4
Number of challenges 5
Number of malformed responses0
Number of bad authenticators0
Number of pending requests0
Number of timeouts 0
Number of unrecognized responses0
hostname(config)#

```

This example shows the use of the **show aaa-server** command to show the statistics for all servers in a small, inactive system:

```

hostname(config)# show aaa-server
Server Group: LOCAL
Server Protocol: Local database
Server Address: None
Server port: None
Server status: ACTIVE, Last transaction at unknown
Number of pending requests 0
Average round trip time 0ms
Number of authentication requests 0
Number of authorization requests 0
Number of accounting requests 0
Number of retransmissions 0
Number of accepts 0
Number of rejects 0
Number of challenges 0
Number of malformed responses 0
Number of bad authenticators 0
Number of timeouts 0
Number of unrecognized responses 0
hostname(config)#

```

#### Related Commands

<b>show running-config aaa-server</b>	Display statistics for all servers in the indicated server group or for a particular server.
<b>clear aaa-server statistics</b>	Clear the AAA server statistics.

# show access-list

To display the counters for an access list, use the **show access-list** command in privileged EXEC mode.

```
show access-list id
```

<b>Syntax Description</b>	<i>id</i>	Identifies the access list.
---------------------------	-----------	-----------------------------

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** The following is sample output from the **show access-list** command:

```
hostname# show access-list
access-list cached ACL log flows: total 0, denied 0 (deny-flow-max 4096)
      alert-interval 300
access-list 101; 10 elements
access-list 101 line 1 extended permit tcp any eq www any (hitcnt=0) 0xa14fc533
access-list 101 line 2 extended permit tcp any eq www any eq www (hitcnt=0) 0xaa73834e
access-list 101 line 3 extended permit tcp any eq www any range telnet www (hitcnt=0)
0x49ac02e6
access-list 101 line 4 extended permit tcp any range telnet www any range telnet www
(hitcnt=0) 0xa0021a9f
access-list 101 line 5 extended permit udp any range biff www any (hitcnt=0) 0xf89a7328
access-list 101 line 6 extended permit udp any lt ntp any (hitcnt=0) 0x8983c43
access-list 101 line 7 extended permit udp any any lt ntp (hitcnt=0) 0xf361ffb6
access-list 101 line 8 extended permit udp any any range ntp biff (hitcnt=0) 0x219581
access-list 101 line 9 extended permit icmp any any (hitcnt=0) 0xe8fa08e1
access-list 101 line 10 extended permit icmp any any echo (hitcnt=0) 0x2eb8deea
access-list 102; 1 elements
access-list 102 line 1 extended permit icmp any any echo
(hitcnt=0) 0x59e2fea8
```

The output contains a unique hexadecimal identifier for each access control entry at the end of each line.

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>access-list ethertype</b>	Configures an access list that controls traffic based on its EtherType.
<b>access-list extended</b>	Adds an access list to the configuration and configures policy for IP traffic through the firewall.
<b>clear access-list</b>	Clears an access list counter.
<b>clear configure access-list</b>	Clears an access list from the running configuration.
<b>show running-config access-list</b>	Displays the current running access-list configuration.



# show activation-key

To display the commands in the configuration for features that are enabled by your activation key, including the number of contexts allowed, use the **show activation-key** command in privileged EXEC mode.

## show activation-key

### Syntax Description

This command has no arguments or keywords.

### Defaults

This command has no default settings.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

### Command History

Release	Modification
PIX Version 7.0	Support for this command was introduced on the security appliance.

### Usage Guidelines

The **show activation-key** command output indicates the status of the activation key as follows:

- If the activation key in the security appliance Flash file system is the same as the activation key running on the security appliance, then the **show activation-key** output reads as follows:  

```
The flash activation key is the SAME as the running key.
```
- If the activation key in the security appliance Flash file system is different from the activation key running on the security appliance, then the **show activation-key** output reads as follows:  

```
The flash activation key is DIFFERENT from the running key.
The flash activation key takes effect after the next reload.
```
- If you downgrade your activation key, the display shows that the running key (the old key) differs from the key that is stored in the Flash (the new key). When you restart, the security appliance uses the new key.
- If you upgrade your key to enable extra features, the new key starts running immediately without a restart.

- For the PIX Firewall platform, if there is any change in the failover feature (R/UR/FO) between the new key and the oldkey, it prompts for confirmation. If the user enters **n**, it aborts the change; otherwise it updates the key in the Flash file system. When you restart the security appliance uses the new key.

### Examples

This example shows how to display the commands in the configuration for features that are enabled by your activation key:

```
hostname(config)# show activation-key
```

```
Serial Number: P3000000134 Running Activation Key: Oxyadayada Oxyadayada Oxyadayada
Oxyadayada Oxyadayada
```

```
License Features for this Platform:
Maximum Physical Interfaces : Unlimited
Maximum VLANs              : 50
Inside Hosts                : Unlimited
Failover                    : Enabled
VPN-DES                     : Enabled
VPN-3DES-AES                : Disabled
Cut-through Proxy           : Enabled
Guards                      : Enabled
URL-filtering               : Enabled
Security Contexts           : 20
GTP/GPRS                    : Disabled
VPN Peers                   : 5000
```

The flash activation key is the SAME as the running key.

```
hostname(config)#
```

### Related Commands

Command	Description
activation-key	Changes the activation key.

# show admin-context

To display the context name currently assigned as the admin context, use the **show admin-context** command in privileged EXEC mode.

## show admin-context

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	—	—	•

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Examples

The following is sample output from the **show admin-context** command. The following example shows the admin context called “admin” and stored in the root directory of flash:

```
hostname# show admin-context
Admin: admin flash:/admin.cfg
```

### Related Commands

Command	Description
<b>admin-context</b>	Sets the admin context.
<b>changeto</b>	Changes between contexts or the system execution space.
<b>clear configure context</b>	Removes all contexts.
<b>mode</b>	Sets the context mode to single or multiple.
<b>show context</b>	Shows a list of contexts (system execution space) or information about the current context.

# show arp

To view the ARP table, use the **show arp** command in privileged EXEC mode. This command shows dynamic and manual ARP entries, but does not identify the origin of each entry.

**show arp**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Examples** The following is sample output from the **show arp** command:

```
hostname# show arp
inside 10.86.195.205 0008.023b.9892
inside 10.86.194.170 0001.023a.952d
inside 10.86.194.172 0001.03cf.9e79
inside 10.86.194.1 00b0.64ea.91a2
inside 10.86.194.146 000b.fcf8.c4ad
inside 10.86.194.168 000c.ce6f.9b7e
```

**Related Commands**

Command	Description
<b>arp</b>	Adds a static ARP entry.
<b>arp-inspection</b>	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
<b>clear arp statistics</b>	Clears ARP statistics.
<b>show arp statistics</b>	Shows ARP statistics.
<b>show running-config arp</b>	Shows the current configuration of the ARP timeout.

# show arp-inspection

To view the ARP inspection setting for each interface, use the **show arp-inspection** command in privileged EXEC mode.

## show arp-inspection

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	—	•	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show arp-inspection** command:

```
hostname# show arp-inspection
interface      arp-inspection      miss
-----
inside1       enabled             flood
outside       disabled            -
```

The **miss** column shows the default action to take for non-matching packets when ARP inspection is enabled, either “flood” or “no-flood.”

**Related Commands**

Command	Description
<b>arp</b>	Adds a static ARP entry.
<b>arp-inspection</b>	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
<b>clear arp statistics</b>	Clears ARP statistics.
<b>show arp statistics</b>	Shows ARP statistics.
<b>show running-config arp</b>	Shows the current configuration of the ARP timeout.

# show arp statistics

To view ARP statistics, use the show arp statistics command in privileged EXEC mode.

```
show arp statistics
```

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** The following is sample output from the show arp statistics command:

```
hostname# show arp statistics
Number of ARP entries:
ASA : 6
Dropped blocks in ARP: 6
Maximum Queued blocks: 3
Queued blocks: 1
Interface collision ARPs Received: 5
ARP-defense Gratuitous ARPs sent: 4
Total ARP retries: 15
Unresolved hosts: 1
Maximum Unresolved hosts: 2
```

Table 2 shows each field description.

**Table 24-2** show arp statistics Fields

Field	Description
Number of ARP entries	The total number of ARP table entries.
Dropped blocks in ARP	The number of blocks that were dropped while IP addresses were being resolved to their corresponding hardware addresses.
Maximum queued blocks	The maximum number of blocks that were ever queued in the ARP module, while waiting for the IP address to be resolved.

**Table 24-2** *show arp statistics Fields (continued)*

Field	Description
Queued blocks	The number of blocks currently queued in the ARP module.
Interface collision ARPs received	The number of ARP packets received at all security appliance interfaces that were from the same IP address as that of a security appliance interface.
ARP-defense gratuitous ARPs sent	The number of gratuitous ARPs sent by the security appliance as part of the ARP-Defense mechanism.
Total ARP retries	The total number of ARP requests sent by the ARP module when the address was not resolved in response to first ARP request.
Unresolved hosts	The number of unresolved hosts for which ARP requests are still being sent out by the ARP module.
Maximum unresolved hosts	The maximum number of unresolved hosts that ever were in the ARP module since it was last cleared or the security appliance booted up.

**Related Commands**

Command	Description
<b>arp-inspection</b>	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
<b>clear arp statistics</b>	Clears ARP statistics and resets the values to zero.
<b>show arp</b>	Shows the ARP table.
<b>show running-config arp</b>	Shows the current configuration of the ARP timeout.

# show asdm history

To display the contents of the ASDM history buffer, use the **show asdm history** command in privileged EXEC mode.

```
show asdm history [view timeframe] [snapshot] [feature feature] [asdmclient]
```

Syntax	Description
<b>asdmclient</b>	(Optional) Displays the ASDM history data formatted for the ASDM client.
<b>feature</b> <i>feature</i>	(Optional) Limits the history display to the specified feature. The following are valid values for the <i>feature</i> argument: <ul style="list-style-type: none"> <li>• <b>all</b>—Displays the history for all features (default).</li> <li>• <b>blocks</b>—Displays the history for the system buffers.</li> <li>• <b>cpu</b>—Displays the history for CPU usage.</li> <li>• <b>failover</b>—Displays the history for failover.</li> <li>• <b>ids</b>—Displays the history for IDS.</li> <li>• <b>interface</b> <i>if_name</i>—Displays the history for the specified interface. The <i>if_name</i> argument is the name of the interface as specified by the <b>nameif</b> command.</li> <li>• <b>memory</b>—Displays memory usage history.</li> <li>• <b>perfmon</b>—Displays performance history.</li> <li>• <b>sas</b>—Displays the history for Security Associations.</li> <li>• <b>tunnels</b>—Displays the history for tunnels.</li> <li>• <b>xlates</b>—Displays translation slot history.</li> </ul>
<b>snapshot</b>	(Optional) Displays only the last ASDM history data point.
<b>view</b> <i>timeframe</i>	(Optional) Limits the history display to the specified time period. Valid values for the <i>timeframe</i> argument are: <ul style="list-style-type: none"> <li>• <b>all</b>—all contents in the history buffer (default).</li> <li>• <b>12h</b>—12 hours</li> <li>• <b>5d</b>—5 days</li> <li>• <b>60m</b>—60 minutes</li> <li>• <b>10m</b>—10 minutes</li> </ul>

## Defaults

If no arguments or keywords are specified, all history information for all features is displayed.



**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

**Command History**

Release	Modification
7.0(1)	This command was changed from the <b>show pdm history</b> command to the <b>show asdm history</b> command.

**Usage Guidelines**

The **show asdm history** command displays the contents of the ASDM history buffer. Before you can view ASDM history information, you must enable ASDM history tracking using the **asdm history enable** command.

**Examples**

The following is sample output from the **show asdm history** command. It limits the output to data for the outside interface collected during the last 10 minutes.

```
hostname# show asdm history view 10m feature interface outside

Input KByte Count:
  [ 10s:12:46:41 Mar 1 2005 ] 62640 62636 62633 62628 62622 62616 62609
Output KByte Count:
  [ 10s:12:46:41 Mar 1 2005 ] 25178 25169 25165 25161 25157 25151 25147
Input KPacket Count:
  [ 10s:12:46:41 Mar 1 2005 ]   752   752   751   751   751   751   751
Output KPacket Count:
  [ 10s:12:46:41 Mar 1 2005 ]    55    55    55    55    55    55    55
Input Bit Rate:
  [ 10s:12:46:41 Mar 1 2005 ] 3397 2843 3764 4515 4932 5728 4186
Output Bit Rate:
  [ 10s:12:46:41 Mar 1 2005 ] 7316 3292 3349 3298 5212 3349 3301
Input Packet Rate:
  [ 10s:12:46:41 Mar 1 2005 ]    5    4    6    7    6    8    6
Output Packet Rate:
  [ 10s:12:46:41 Mar 1 2005 ]    1    0    0    0    0    0    0
Input Error Packet Count:
  [ 10s:12:46:41 Mar 1 2005 ]    0    0    0    0    0    0    0
No Buffer:
  [ 10s:12:46:41 Mar 1 2005 ]    0    0    0    0    0    0    0
Received Broadcasts:
  [ 10s:12:46:41 Mar 1 2005 ] 375974 375954 375935 375902 375863 375833 375794
Runts:
  [ 10s:12:46:41 Mar 1 2005 ]    0    0    0    0    0    0    0
Giants:
  [ 10s:12:46:41 Mar 1 2005 ]    0    0    0    0    0    0    0
CRC:
  [ 10s:12:46:41 Mar 1 2005 ]    0    0    0    0    0    0    0
Frames:
  [ 10s:12:46:41 Mar 1 2005 ]    0    0    0    0    0    0    0
Overruns:
  [ 10s:12:46:41 Mar 1 2005 ]    0    0    0    0    0    0    0
Underruns:
```

## show asdm history

```

        [ 10s:12:46:41 Mar 1 2005 ] 0 0 0 0 0 0 0 0
Output Error Packet Count:
        [ 10s:12:46:41 Mar 1 2005 ] 0 0 0 0 0 0 0 0
Collisions:
        [ 10s:12:46:41 Mar 1 2005 ] 0 0 0 0 0 0 0 0
LCOLL:
        [ 10s:12:46:41 Mar 1 2005 ] 0 0 0 0 0 0 0 0
Reset:
        [ 10s:12:46:41 Mar 1 2005 ] 0 0 0 0 0 0 0 0
Deferred:
        [ 10s:12:46:41 Mar 1 2005 ] 0 0 0 0 0 0 0 0
Lost Carrier:
        [ 10s:12:46:41 Mar 1 2005 ] 0 0 0 0 0 0 0 0
Hardware Input Queue:
        [ 10s:12:46:41 Mar 1 2005 ] 128 128 128 128 128 128 128
Software Input Queue:
        [ 10s:12:46:41 Mar 1 2005 ] 0 0 0 0 0 0 0 0
Hardware Output Queue:
        [ 10s:12:46:41 Mar 1 2005 ] 0 0 0 0 0 0 0 0
Software Output Queue:
        [ 10s:12:46:41 Mar 1 2005 ] 0 0 0 0 0 0 0 0
Drop KPacket Count:
        [ 10s:12:46:41 Mar 1 2005 ] 0 0 0 0 0 0 0 0
hostname#

```

The following is sample output from the **show asdm history** command. Like the previous example, it limits the output to data for the outside interface collected during the last 10 minutes. However, in this example the output is formatted for the ASDM client.

```

hostname# show asdm history view 10m feature interface outside asdmclient
MH|IBC|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|62439|62445|62453|62457|62464|6
2469|62474|62486|62489|62496|62501|62506|62511|62518|62522|62530|62534|62539|62542|62547|6
2553|62556|62562|62568|62574|62581|62585|62593|62598|62604|62609|62616|62622|62628|62633|6
2636|62640|62653|62657|62665|62672|62678|62681|62686|62691|62695|62700|62704|62711|62718|6
2723|62728|62733|62738|62742|62747|62751|62761|62770|62775|
MH|OBC|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|25023|25023|25025|25025|25025|2
5026|25032|25038|25044|25052|25056|25060|25064|25070|25076|25083|25087|25091|25096|2
5102|25106|25110|25114|25118|25122|25128|25133|25137|25143|25147|25151|25157|25161|25165|2
5169|25178|25321|25327|25332|25336|25341|25345|25349|25355|25359|25363|25367|25371|25375|2
5381|25386|25390|25395|25399|25403|25410|25414|25418|25422|
MH|IPC|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|749|749|749|749|749|750|750|750
|750|750|750|750|750|750|750|750|750|750|750|751|751|751|751|751|751|751|751|751|751|7
51|751|751|751|752|752|752|752|752|752|752|752|752|752|752|752|752|752|752|752|753|753|753|753|
753|753|753|753|753|753|
MH|OPC|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|55|55|55|55|55|55|55|55|55|55|55|5
5|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|55|5
5|55|55|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|56|
MH|IBR|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|7127|5155|6202|3545|5408|3979|4
381|9492|3033|4962|4571|4226|3760|5923|3265|6494|3441|3542|3162|4076|4744|2726|4847|4292|5
401|5166|3735|6659|3837|5260|4186|5728|4932|4515|3764|2843|3397|10768|3080|6309|5969|4472|
2780|4492|3540|3664|3800|3002|6258|5567|4044|4059|4548|3713|3265|4159|3630|8235|6934|4298|
MH|OBR|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|82791|57|1410|588|57|639|0|4698
|5068|4992|6495|3292|3292|3352|5061|4808|5205|3931|3298|3349|5064|3439|3356|3292|3343|3349
|5067|3883|3356|4500|3301|3349|5212|3298|3349|3292|7316|116896|5072|3881|3356|3931|3298|33
49|5064|3292|3349|3292|3292|3349|5061|3883|3356|3931|3452|3356|5064|3292|3349|3292|
MH|IPR|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|12|8|6|5|7|5|6|14|5|7|7|5|6|9|5
|8|6|5|5|7|6|5|6|5|6|7|6|8|6|6|6|8|6|7|6|4|5|19|5|8|7|6|4|7|5|6|6|5|7|8|6|6|7|5|5|7|6|9|7|
6|
MH|OPR|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|12|0|1|0|0|0|0|4|0|2|2|0|0|0|0|
1|1|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|1|0|0|0|0|0|0|0|1|28|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
MH|IERR|10|CURFACT|0|CURVAL|0|TIME|1109703031|MAX|60|NUM|60|0|0|0|0|0|0|0|0|0|0|0|0|0|0|
0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|0|

```



```

Used 8192 byte Blocks: [ 10s] : 0
Available 16384 byte Blocks: [ 10s] : 100
Used 16384 byte Blocks: [ 10s] : 0
Available 65536 byte Blocks: [ 10s] : 10
Used 65536 byte Blocks: [ 10s] : 0
CPU Utilization: [ 10s] : 31
Input KByte Count: [ 10s] : 62930
Output KByte Count: [ 10s] : 26620
Input KPacket Count: [ 10s] : 755
Output KPacket Count: [ 10s] : 58
Input Bit Rate: [ 10s] : 24561
Output Bit Rate: [ 10s] : 518897
Input Packet Rate: [ 10s] : 48
Output Packet Rate: [ 10s] : 114
Input Error Packet Count: [ 10s] : 0
No Buffer: [ 10s] : 0
Received Broadcasts: [ 10s] : 377331
Runts: [ 10s] : 0
Giants: [ 10s] : 0
CRC: [ 10s] : 0
Frames: [ 10s] : 0
Overruns: [ 10s] : 0
Underruns: [ 10s] : 0
Output Error Packet Count: [ 10s] : 0
Collisions: [ 10s] : 0
L呢COLL: [ 10s] : 0
Reset: [ 10s] : 0
Deferred: [ 10s] : 0
Lost Carrier: [ 10s] : 0
Hardware Input Queue: [ 10s] : 128
Software Input Queue: [ 10s] : 0
Hardware Output Queue: [ 10s] : 0
Software Output Queue: [ 10s] : 0
Drop KPacket Count: [ 10s] : 0
Input KByte Count: [ 10s] : 3672
Output KByte Count: [ 10s] : 4051
Input KPacket Count: [ 10s] : 19
Output KPacket Count: [ 10s] : 20
Input Bit Rate: [ 10s] : 0
Output Bit Rate: [ 10s] : 0
Input Packet Rate: [ 10s] : 0
Output Packet Rate: [ 10s] : 0
Input Error Packet Count: [ 10s] : 0
No Buffer: [ 10s] : 0
Received Broadcasts: [ 10s] : 1458
Runts: [ 10s] : 1
Giants: [ 10s] : 0
CRC: [ 10s] : 0
Frames: [ 10s] : 0
Overruns: [ 10s] : 0
Underruns: [ 10s] : 0
Output Error Packet Count: [ 10s] : 0
Collisions: [ 10s] : 63
L呢COLL: [ 10s] : 0
Reset: [ 10s] : 0
Deferred: [ 10s] : 15
Lost Carrier: [ 10s] : 0
Hardware Input Queue: [ 10s] : 128
Software Input Queue: [ 10s] : 0
Hardware Output Queue: [ 10s] : 0
Software Output Queue: [ 10s] : 0
Drop KPacket Count: [ 10s] : 0
Input KByte Count: [ 10s] : 0
Output KByte Count: [ 10s] : 0

```

```
Input KPacket Count: [ 10s] : 0
Output KPacket Count: [ 10s] : 0
Input Bit Rate: [ 10s] : 0
Output Bit Rate: [ 10s] : 0
Input Packet Rate: [ 10s] : 0
Output Packet Rate: [ 10s] : 0
Input Error Packet Count: [ 10s] : 0
No Buffer: [ 10s] : 0
Received Broadcasts: [ 10s] : 0
Runts: [ 10s] : 0
Giants: [ 10s] : 0
CRC: [ 10s] : 0
Frames: [ 10s] : 0
Overruns: [ 10s] : 0
Underruns: [ 10s] : 0
Output Error Packet Count: [ 10s] : 0
Collisions: [ 10s] : 0
LCOLL: [ 10s] : 0
Reset: [ 10s] : 0
Deferred: [ 10s] : 0
Lost Carrier: [ 10s] : 0
Hardware Input Queue: [ 10s] : 128
Software Input Queue: [ 10s] : 0
Hardware Output Queue: [ 10s] : 0
Software Output Queue: [ 10s] : 0
Drop KPacket Count: [ 10s] : 0
Input KByte Count: [ 10s] : 0
Output KByte Count: [ 10s] : 0
Input KPacket Count: [ 10s] : 0
Output KPacket Count: [ 10s] : 0
Input Bit Rate: [ 10s] : 0
Output Bit Rate: [ 10s] : 0
Input Packet Rate: [ 10s] : 0
Output Packet Rate: [ 10s] : 0
Input Error Packet Count: [ 10s] : 0
No Buffer: [ 10s] : 0
Received Broadcasts: [ 10s] : 0
Runts: [ 10s] : 0
Giants: [ 10s] : 0
CRC: [ 10s] : 0
Frames: [ 10s] : 0
Overruns: [ 10s] : 0
Underruns: [ 10s] : 0
Output Error Packet Count: [ 10s] : 0
Collisions: [ 10s] : 0
LCOLL: [ 10s] : 0
Reset: [ 10s] : 0
Deferred: [ 10s] : 0
Lost Carrier: [ 10s] : 0
Hardware Input Queue: [ 10s] : 128
Software Input Queue: [ 10s] : 0
Hardware Output Queue: [ 10s] : 0
Software Output Queue: [ 10s] : 0
Drop KPacket Count: [ 10s] : 0
Available Memory: [ 10s] : 205149944
Used Memory: [ 10s] : 63285512
Xlate Count: [ 10s] : 0
Connection Count: [ 10s] : 0
TCP Connection Count: [ 10s] : 0
UDP Connection Count: [ 10s] : 0
URL Filtering Count: [ 10s] : 0
URL Server Filtering Count: [ 10s] : 0
TCP Fixup Count: [ 10s] : 0
TCP Intercept Count: [ 10s] : 0
```

## show asdm history

```

HTTP Fixup Count: [ 10s] : 0
FTP Fixup Count: [ 10s] : 0
AAA Authentication Count: [ 10s] : 0
AAA Authorzation Count: [ 10s] : 0
AAA Accounting Count: [ 10s] : 0
Current Xlates: [ 10s] : 0
Max Xlates: [ 10s] : 0
ISAKMP SAs: [ 10s] : 0
IPSec SAs: [ 10s] : 0
L2TP Sessions: [ 10s] : 0
L2TP Tunnels: [ 10s] : 0
hostname#

```

### Related Commands

Command	Description
<b>asdm history enable</b>	Enables ASDM history tracking.

# show asdm image

To the current ASDM software image file, use the show **asdm image** command in privileged EXEC mode.

**show asdm image**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was changed from the <b>show pdm image</b> command to the <b>show asdm image</b> command.

**Examples** The following is sample output from the **show asdm image** command:

```
hostname# show asdm image
Device Manager image file, flash:/ASDM
```

Related Commands	Command	Description
	<b>asdm image</b>	Specifies the current ASDM image file.

# show asdm log\_sessions

To display a list of active ASDM logging sessions and their associated session IDs, use the **show asdm log\_sessions** command in privileged EXEC mode.

```
show asdm log_sessions
```

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines** Each active ASDM session has one or more associated ASDM logging sessions. ASDM uses the logging session to retrieve syslog messages from the security appliance. Each ASDM logging session is assigned a unique session ID. You can use this session ID with the **asdm disconnect log\_session** command to terminate the specified session.



**Note**

Because each ASDM session has at least one ASDM logging session, the output for the **show asdm sessions** and **show asdm log\_sessions** may appear to be the same.

**Examples** The following is sample output from the **show asdm log\_sessions** command:

```
hostname# show asdm log_sessions
0 192.168.1.1
1 192.168.1.2
```

Related Commands	Command	Description
	<b>asdm disconnect log_session</b>	Terminates an active ASDM logging session.



# show asdm sessions

To display a list of active ASDM sessions and their associated session IDs, use the **show asdm sessions** command in privileged EXEC mode.

**show asdm sessions**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was changed from the <b>show pdm sessions</b> command to the <b>show asdm sessions</b> command.

**Usage Guidelines** Each active ASDM session is assigned a unique session ID. You can use this session ID with the **asdm disconnect** command to terminate the specified session.

**Examples** The following is sample output from the **show asdm sessions** command:

```
hostname# show asdm sessions

0 192.168.1.1
1 192.168.1.2
```

Related Commands	Command	Description
	<b>asdm disconnect</b>	Terminates an active ASDM session.





## **show asp drop through show curpriv Commands**

---

# show asp drop

To debug the accelerated security path dropped packets or connections, use the **show asp drop** command in privileged EXEC mode.

```
show asp drop [flow [flow_drop_reason] | frame [frame_drop_reason]]
```

## Syntax Description

<b>flow</b> [flow_drop_reason]	(Optional) Shows the dropped flows (connections). You can specify a particular reason by using the <i>flow_drop_reason</i> argument. Valid values for the <i>flow_drop_reason</i> argument are listed in the “Usage Guidelines” section, below.
<b>frame</b> [frame_drop_reason]	(Optional) Shows the dropped packets. You can specify a particular reason by using the <i>frame_drop_reason</i> argument. Valid values for the <i>frame_drop_reason</i> argument are listed in the “Usage Guidelines” section, below.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Additional drop reasons were added.

## Usage Guidelines

The **show asp drop** command shows the packets or connections dropped by the accelerated security path, which might help you troubleshoot a problem. See the *Cisco Security Appliance Command Line Configuration Guide* for more information about the accelerated security path. This information is used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

Table 25-2 lists valid values for the *flow\_drop\_reason* argument for dropped flows. Table 25-1 lists valid values for the *frame\_drop\_reason* argument for dropped frames.

**Table 25-1** Frame Drop Reasons

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>acl-drop</b>	Flow is denied by access rule	<p>This counter is incremented when a packet is denied by the security appliance. The deny rule could be a default rule created when the security appliance comes up, when various features are turned on or off, when an access list is applied to an interface, or any other feature. Apart from default rule drops, a flow could be denied because of:</p> <ul style="list-style-type: none"> <li>• An access list configured on an interface</li> <li>• An access list configured for AAA, and AAA denied the user</li> <li>• Through traffic arriving at a management-only interface</li> <li>• Unencrypted traffic arriving on a IPSec-enabled interface</li> </ul> <p><b>Recommendation:</b> Check the access lists referenced by the following system log messages.</p> <p><b>System log messages:</b> 106023, 106100, 106004</p>
<b>bad-crypto</b>	Bad crypto return in packet	<p>This counter will increment when the security appliance attempts to perform a crypto operation on a packet, and the crypto operation fails. This is not a normal condition and could indicate possible software or hardware problems with the security appliance.</p> <p><b>Recommendation:</b> If you are receiving many bad crypto indications, your security appliance may need servicing. You should enable system message 402123 to determine whether the crypto errors are hardware or software errors. You can also check the error counter in the global IPSec statistics with the <b>show ipsec stats</b> command. If the IPSec SA that is triggering these errors is known, the SA statistics from the <b>show ipsec sa detail</b> command will also be useful in diagnosing the problem.</p> <p><b>System log messages:</b> 402123</p>
<b>bad-ipsec-natt</b>	Bad IPSEC NATT packet	<p>This counter will increment when the security appliance receives a packet on an IPSec connection that has negotiated NAT-T, but the packet is not addressed to the NAT-T UDP destination port of 4500 or had an invalid payload length.</p> <p><b>Recommendation:</b> Analyze your network traffic to determine the source of the NAT-T traffic.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
bad-ipsec-prot	IPSEC not AH or ESP	<p>This counter will increment when the security appliance receives a packet on an IPsec connection that is not an AH or ESP protocol packet. This is not a normal condition.</p> <p><b>Recommendation:</b> If you are receiving many IPsec not AH or ESP indications on your security appliance, analyze your network traffic to determine the source of the traffic.</p> <p><b>System log messages:</b> 402115</p>
bad-ipsec-udp	Bad IPSEC UDP packet	<p>This counter will increment when the security appliance receives a packet on an IPsec connection that has negotiated IPsec over UDP, but the packet has an invalid payload length.</p> <p><b>Recommendation:</b> Analyze your network traffic to determine the source of the NAT-T traffic.</p> <p><b>System log messages:</b> None.</p>
bad-tcp-cksum	Bad TCP checksum	<p>This counter is incremented and the packet is dropped when the security appliance receives a TCP packet whose computed TCP checksum does not match the recorded checksum in TCP header.</p> <p><b>Recommendation:</b> The packet corruption may be caused by a bad cable or noise on the line. It may also be that a TCP endpoint is sending corrupted packets, and an attack is in progress. Please use the packet capture feature to learn more about the origin of the packet. To allow packets with an incorrect TCP checksum, disable the <b>checksum-verification</b> feature.</p> <p><b>System log messages:</b> None</p>
bad-tcp-flags	Bad TCP flags	<p>This counter is incremented and the packet is dropped when the security appliance receives a TCP packet with invalid TCP flags in the TCP header. For example, a packet with both SYN and FIN TCP flags set will be dropped.</p> <p><b>Recommendation:</b> The packet corruption may be caused by a bad cable or noise on the line. It may also be that a TCP endpoint is sending corrupted packets and an attack is in progress. Please use the packet capture feature to learn more about the origin of the packet.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>conn-limit</b>	Connection limit reached	<p>This reason is given for dropping a packet when the connection limit or host connection limit has been exceeded. If this is a TCP packet which is dropped during TCP connection establishment phase due to connection limit, the drop reason “TCP connection limit reached” is also reported.</p> <p><b>Recommendation:</b> If this is incrementing rapidly, check the System log messages to determine which host’s connection limit is reached. The connection limit may need to be increased if the traffic is normal, or the host may be under attack.</p> <p><b>System log messages:</b> 201011</p>
<b>ctm-error</b>	CTM returned error	<p>This counter will increment when the security appliance attempts to perform a crypto operation on a packet and the crypto operation fails. This is not a normal condition and could indicate possible software or hardware problems with the security appliance.</p> <p><b>Recommendation:</b> If you are receiving many bad crypto indications, your security appliance may need servicing. You should enable system message 402123 to determine whether the crypto errors are hardware or software errors. You can also check the error counter in the global IPSec statistics with the <b>show ipsec stats</b> command. If the IPSec SA that is triggering these errors is known, the SA statistics from the <b>show ipsec sa detail</b> command will also be useful in diagnosing the problem.</p> <p><b>System log messages:</b> 402123</p>
<b>dns-guard-id-not-matched</b>	DNS Guard id not matched	<p>This counter will increment when the identification of the DNS response message does not match any DNS queries that passed across the appliance earlier on the same connection. This counter will increment by the DNS Guard function.</p> <p><b>Recommendation:</b> No action required if it is an intermittent event. If the cause is an attack, you can deny the host using the access lists.</p> <p><b>System log messages:</b> None.</p>
<b>dns-guard-out-of-app-id</b>	DNS Guard out of app id	<p>This counter will increment when the DNS Guard function fails to allocate a data structure to store the identification of the DNS message.</p> <p><b>Recommendation:</b> Check the system memory usage. This event normally happens when the system runs short of memory.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>dst-l2_lookup-fail</b>	Dst MAC L2 Lookup Failed	<p>This counter will increment when the security appliance is configured for transparent mode, and the security appliance does a Layer 2 destination MAC address lookup that fails. Upon the lookup failure, the security appliance will begin the destination MAC discovery process and attempt to find the location of the host via ARP and/or ICMP messages.</p> <p><b>Recommendation:</b> This is a normal condition when the security appliance is configured for transparent mode. You can also execute the <b>show mac-address-table</b> command to list the L2 MAC address locations currently discovered by the security appliance.</p> <p><b>System log messages:</b> None.</p>
<b>flow-expired</b>	Expired flow	<p>This counter is incremented when the security appliance tries to inject a new or cached packet belonging to a flow that has already expired. It is also incremented when the security appliance attempts to send an RST on a TCP flow that has already expired, or when a packet returns from the AIP SSM but the flow had already expired. The packet is dropped.</p> <p><b>Recommendation:</b> If valid applications are getting preempted, investigate if a longer timeout is needed.</p> <p><b>System log messages:</b> None.</p>
<b>fo-standby</b>	Dropped by standby unit	<p>If a through-the-box packet arrives at security appliance or context in a standby state, and a flow is created, then the packet is dropped and the flow removed. This counter will increment each time a packet is dropped in this manner.</p> <p><b>Recommendation:</b> This counter should never be incrementing on the active security appliance or context. However, it is normal to see it increment on the standby appliance or security appliance.</p> <p><b>System log messages:</b> 302014, 302016, 302018</p>
<b>fragment-reassembly-failed</b>	Fragment reassembly failed	<p>This counter is incremented when the security appliance fails to reassemble a chain of fragmented packets into a single packet. All the fragment packets in the chain are dropped. This is probably because of a failure while allocating memory for the reassembled packet.</p> <p><b>Recommendation:</b> Use the <b>show blocks</b> command to monitor the current block memory.</p> <p><b>System log messages:</b> None.</p>



Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>host-move-pkt</b>	FP host move packet	<p>This counter will increment when the security appliance or context is configured for transparent mode, and the source interface of a known Layer 2 MAC address is detected on a different interface.</p> <p><b>Recommendation:</b> This indicates that a host has been moved from one interface (i.e. LAN segment) to another. This condition is normal while in transparent mode if the host has in fact been moved. However, if the host move toggles back and forth between interfaces, a network loop may be present.</p> <p><b>System log messages:</b> 412001, 412002, 322001</p>
<b>ifc-classify</b>	Virtual firewall classification failed	<p>A packet arrived on a shared interface, but failed to classify to any specific context interface.</p> <p><b>Recommendation:</b> Use the <b>global</b> or <b>static</b> command to specify the IPv4 addresses that belong to each context interface.</p> <p><b>System log messages:</b> None.</p>
<b>inspect-dns-id-not-matched</b>	DNS Inspect id not matched	<p>This counter will increment when the identification of the DNS response message does not match any DNS queries that passed across the security appliance earlier on the same connection.</p> <p><b>Recommendation:</b> No action required if it is an intermittent event. If the cause is an attack, you can deny the host using the access lists.</p> <p><b>System log messages:</b> None.</p>
<b>inspect-dns-invalid-domain-label</b>	DNS Inspect invalid domain label	<p>This counter will increment when the security appliance detects an invalid DNS domain name or label. DNS domain name and label is checked per RFC 1035.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
<b>inspect-dns-invalid-pak</b>	DNS Inspect invalid packet	<p>This counter will increment when the security appliance detects an invalid DNS packet. For example, a DNS packet with no DNS header, the number of DNS resource records not matching the counter in the header, etc.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
<b>inspect-dns-out-of-app-id</b>	DNS Inspect out of app id	<p>This counter will increment when the DNS inspection engine fails to allocate a data structure to store the identification of the DNS message.</p> <p><b>Recommendation:</b> Check the system memory usage. This event normally happens when the system runs short of memory.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>inspect-dns-pak-too-long</b>	DNS Inspect packet too long	<p>This counter is incremented when the length of the DNS message exceeds the configured maximum allowed value.</p> <p><b>Recommendation:</b> No action required. If DNS message length checking is not desired, enable DNS inspection without the <b>inspect dns maximum-length</b> option.</p> <p><b>System log messages:</b> 410001</p>
<b>inspect-icmp-error-different-embedded-conn</b>	ICMP Error Inspect different embedded conn	<p>This counter will increment when the frame embedded in the ICMP error message does not match the established connection that has been identified when the ICMP connection is created.</p> <p><b>Recommendation:</b> No action required if it is an intermittent event. If the cause is an attack, you can deny the host using the access lists.</p> <p><b>System log messages:</b> 313005</p>
<b>inspect-icmp-error-no-existing-conn</b>	ICMP Error Inspect no existing conn	<p>This counter will increment when the security appliance is not able to find any established connection related to the frame embedded in the ICMP error message.</p> <p><b>Recommendation:</b> No action required if it is an intermittent event. If the cause is an attack, you can deny the host using the access lists.</p> <p><b>System log messages:</b> 313005</p>
<b>inspect-icmp-out-of-app-id</b>	ICMP Inspect out of app id	<p>This counter will increment when the ICMP inspection engine fails to allocate an App ID data structure. The structure is used to store the sequence number of the ICMP packet.</p> <p><b>Recommendation:</b> Check the system memory usage. This event normally happens when the system runs short of memory.</p> <p><b>System log messages:</b> None.</p>
<b>inspect-icmp-seq-num-not-matched</b>	ICMP Inspect seq num not matched	<p>This counter will increment when the sequence number in the ICMP echo reply message does not match any ICMP echo message that passed across the security appliance earlier on the same connection.</p> <p><b>Recommendation:</b> No action required if it is an intermittent event. If the cause is an attack, you can deny the host using the access lists.</p> <p><b>System log messages:</b> 313004</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>inspect-icmpv6-error-invalid-pak</b>	ICMPv6 Error Inspect invalid packet	This counter will increment when the security appliance detects an invalid frame embedded in the ICMPv6 packet. This check is the same as that on IPv6 packets. For example, an incomplete IPv6 header, a malformed IPv6 Next Header, etc. <b>Recommendation:</b> None. <b>System log messages:</b> None.
<b>inspect-icmpv6-error-no-existing-conn</b>	ICMPv6 Error Inspect no existing conn	This counter will increment when the security appliance is not able to find any established connection related to the frame embedded in the ICMPv6 error message. <b>Recommendation:</b> No action required if it is an intermittent event. If the cause is an attack, you can deny the host using the access lists. <b>System log messages:</b> 313005
<b>inspect-rtcp-invalid-length</b>	Invalid RTCP Packet length	This counter will increment when the UDP packet length is less than the size of the RTCP header. <b>Recommendation:</b> No action required. A capture can be used to figure out which RTP source is sending the incorrect packets and you can deny the host using the access lists. <b>System log messages:</b> None.
<b>inspect-rtcp-invalid-payload-type</b>	Invalid RTCP Payload type field	This counter will increment when the RTCP payload type field does not contain the values 200 to 204. <b>Recommendation:</b> The RTP source should be validated to see why it is sending payload types outside of the range recommended by the RFC 1889. <b>System log messages:</b> 431002
<b>inspect-rtcp-invalid-version</b>	Invalid RTCP Version field	This counter will increment when the RTCP version field contains a version other than 2. <b>Recommendation:</b> The RTP source in your network does not seem to be sending RTCP packets conformant with the RFC 1889. The reason for this has to be identified and you can deny the host using access lists if required. <b>System log messages:</b> 431002.
<b>inspect-rtp-invalid-length</b>	Invalid RTP Packet length	This counter will increment when the UDP packet length is less than the size of the RTP header. <b>Recommendation:</b> No action required. A capture can be used to figure out which RTP source is sending the incorrect packets and you can deny the host using the access lists. <b>System log messages:</b> None.

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>inspect-rtp-invalid-payload-type</b>	Invalid RTP Payload type field	<p>This counter will increment when the RTP payload type field does not contain an audio payload type when the signalling channel negotiated an audio media type for this RTP secondary connection. The counter increments similarly for the video payload type.</p> <p><b>Recommendation:</b> The RTP source in your network is using the audio RTP secondary connection to send video or vice versa. If you wish to prevent this you can deny the host using access lists.</p> <p><b>System log messages:</b> 431001</p>
<b>inspect-rtp-invalid-version</b>	Invalid RTP Version field	<p>This counter will increment when the RTP version field contains a version other than 2.</p> <p><b>Recommendation:</b> The RTP source in your network does not seem to be sending RTP packets conformant with the RFC 1889. The reason for this has to be identified and you can deny the host using access lists if required.</p> <p><b>System log messages:</b> 431001</p>
<b>inspect-rtp-max-outofseq-paks-probation</b>	RTP out of sequence packets in probation period	<p>This counter will increment when the out of sequence packets when the RTP source is being validated exceeds 20. During the probation period, the inspect looks for 5 in-sequence packets to consider the source validated.</p> <p><b>Recommendation:</b> Check the RTP source to see why the first few packets do not come in sequence and correct it.</p> <p><b>System log messages:</b> 431001</p>
<b>inspect-rtp-sequence-num-outofrange</b>	RTP Sequence number out of range	<p>This counter will increment when the RTP sequence number in the packet is not in the range expected by the inspect.</p> <p><b>Recommendation:</b> No action is required because the inspect tries to recover and start tracking from a new sequence number after a lapse in the sequence numbers from the RTP source.</p> <p><b>System log messages:</b> 431001</p>
<b>inspect-rtp-ssrc-mismatch</b>	Invalid RTP Synchronization Source field	<p>This counter will increment when the RTP SSRC field in the packet does not match the SSRC which the inspect has been seeing from this RTP source in all the RTP packets.</p> <p><b>Recommendation:</b> This could be because the RTP source in your network is rebooting and hence changing the SSRC or it could be because of another host on your network trying to use the opened secondary RTP connections on the firewall to send RTP packets. This should be investigated further to confirm if there is a problem.</p> <p><b>System log messages:</b> 431001</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>intercept-unexpected</b>	Intercept unexpected packet	<p>The security appliance either received data from a client while waiting for a SYNACK from a server, or it received a packet that cannot be handled in a particular state of TCP intercept.</p> <p><b>Recommendation:</b> If this drop is causing the connection to fail, please have a sniffer trace of the client- and server-side of the connection while reporting the issue. The security appliance could be under attack, and the sniffer traces or capture would help narrow down the culprit.</p> <p><b>System log messages:</b> None.</p>
<b>interface-down</b>	Interface is down	<p>This counter will increment for each packet received on an interface that is shutdown using the <b>shutdown</b> command. For ingress traffic, the packet is dropped after security context classification and if the interface associated with the context is shut down. For egress traffic, the packet is dropped when the egress interface is shut down.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
<b>invalid-app-length</b>	Invalid app length	<p>This counter will increment when the security appliance detects an invalid length of the Layer 7 payload in the packet. Currently, it counts the drops by the DNS Guard function only. For example, an incomplete DNS header.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
<b>invalid-encap</b>	Invalid encapsulation	<p>This counter is incremented when the security appliance receives a frame belonging to an unsupported link-level protocol or if the L3 type specified in the frame is not supported by the security appliance. The packet is dropped.</p> <p><b>Recommendation:</b> Verify that directly-connected hosts have proper link-level protocol settings.</p> <p><b>System log messages:</b> None.</p>
<b>invalid-ethertype</b>	Invalid ethertype	<p>This counter is incremented when the fragmentation module on the security appliance receives or tries to send a fragmented packet that does not belong to IP version 4 or version 6. The packet is dropped.</p> <p><b>Recommendation:</b> Verify the MTU of the security appliance and other devices on the connected network to determine why the security appliance is processing such fragments.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
invalid-ip-header	Invalid IP header	<p>This counter is incremented and the packet is dropped when the security appliance receives an IP packet whose computed checksum of the IP header does not match the recorded checksum in the header.</p> <p><b>Recommendation:</b> The packet corruption may be caused by a bad cable or noise on the line. It may also be that a peer is sending corrupted packets and an attack is in progress. Please use the packet capture feature to learn more about the origin of the packet.</p> <p><b>System log messages:</b> None</p>
invalid-ip-length	Invalid IP length	<p>This counter is incremented when the security appliance receives an IPv4 or IPv6 packet in which the header length or total length fields in the IP header are not valid or do not conform to the received packet length.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
invalid-ip-option	IP option configured drop	<p>This counter is incremented when any unicast packet with IP options or a multicast packet with IP options that have not been configured to be accepted, is received by the security appliance. The packet is dropped.</p> <p><b>Recommendation:</b> Investigate why a packet with IP options is being sent by the sender.</p> <p><b>System log messages:</b> None.</p>
invalid-tcp-hdr-length	Invalid tcp length	<p>This counter is incremented when the security appliance receives a TCP packet whose size is smaller than the minimum-allowed header length or does not conform to the received packet length.</p> <p><b>Recommendation:</b> The invalid packet could be a bogus packet being sent by an attacker. Investigate the traffic from the source in the following system message.</p> <p><b>System log messages:</b> 500003.</p>
invalid-udp-length	Invalid udp length	<p>This counter is incremented when the security appliance receives a UDP packet whose size as calculated from the fields in the header is different from the measured size of the packet as received from the network.</p> <p><b>Recommendation:</b> The invalid packet could be a bogus packet being sent by an attacker.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
ipsec-clearpkt-notun	IPSEC Clear Pkt w/no tunnel	<p>This counter will increment when the security appliance receives a packet that should have been encrypted but was not. The packet matched the inner header security policy check of a configured and established IPsec connection on the security appliance but was received unencrypted. This is a security issue.</p> <p><b>Recommendation:</b> Analyze your network traffic to determine the source of the spoofed IPsec traffic.</p> <p><b>System log messages:</b> 402117</p>
ipsec-ipv6	IPSEC via IPV6	<p>This counter will increment when the security appliance receives an IPsec ESP packet, IPsec NAT-T ESP packet, or an IPsec over UDP ESP packet encapsulated in an IPv6 header. The security appliance does not currently support any IPsec sessions encapsulated in IPv6.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
ipsec-need-sa	IPSEC SA Not negotiated yet	<p>This counter will increment when the security appliance receives a packet that requires encryption but has no established IPsec security association. This is generally a normal condition for LAN-to-LAN IPsec configurations. This indication will cause the security appliance to begin ISAKMP negotiations with the destination peer.</p> <p><b>Recommendation:</b> If you have configured IPsec LAN-to-LAN on your security appliance, this indication is normal and does not indicate a problem. However, if this counter increments rapidly it may indicate a <b>crypto</b> configuration error or network error preventing the ISAKMP negotiation from completing. Verify that you can communicate with the destination peer and verify your <b>crypto</b> configuration using the <b>show running-config</b> command.</p> <p><b>System log messages:</b> None.</p>
ipsec-spoof	IPSEC Spoof detected	<p>This counter will increment when the security appliance receives a packet which should have been encrypted but was not. The packet matched the inner header security policy check of a configured and established IPsec connection on the security appliance but was received unencrypted. This is a security issue.</p> <p><b>Recommendation:</b> Analyze your network traffic to determine the source of the spoofed IPsec traffic.</p> <p><b>System log messages:</b> 402117</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>ipsec-tun-down</b>	IPSEC tunnel is down	<p>This counter will increment when the security appliance receives a packet associated with an IPsec connection which is in the process of being deleted.</p> <p><b>Recommendation:</b> This is a normal condition when the IPsec tunnel is torn down for any reason.</p> <p><b>System log messages:</b> None.</p>
<b>ipsecudp-keepalive</b>	IPSEC/UDP keepalive message	<p>This counter will increment when the security appliance receives an IPsec over UDP keepalive message. IPsec over UDP keepalive messages are sent from the IPsec peer to the security appliance to keep NAT/PAT flow information current in network devices between the IPsec over UDP peer and the security appliance.</p> <p><b>Note</b> These are not industry-standard NAT-T keepalive messages that are also carried over UDP and addressed to UDP port 4500.</p> <p><b>Recommendation:</b> If you have configured IPsec over UDP on your security appliance, this indication is normal and does not indicate a problem. If IPsec over UDP is not configured on your security appliance, analyze your network traffic to determine the source of the IPsec over UDP traffic.</p> <p><b>System log messages:</b> None.</p>
<b>ips-fail-close</b>	IPS card is down	<p>This counter is incremented and the packet is dropped when the AIP SSM is down and the <b>fail-close</b> option was used in IPS inspection.</p> <p><b>Recommendation:</b> Check and bring up the AIP SSM.</p> <p><b>System log messages:</b> 420001</p>
<b>ips-request</b>	IPS Module requested drop	<p>This counter is incremented and the packet is dropped as requested by the AIP SSM when the packet matches a signature on the IPS engine.</p> <p><b>Recommendation:</b> Check System log messages and alerts on the AIP SSM.</p> <p><b>System log messages:</b> 420002</p>



Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
ipv6_sp-security-failed	IPv6 slowpath security checks failed	<p>This counter is incremented and the packet is dropped for one of the following reasons:</p> <ul style="list-style-type: none"> <li>• An IPv6 through-the-box packet has the identical source and destination address.</li> <li>• An IPv6 through-the-box packet has a linklocal source or destination address.</li> <li>• An IPv6 through-the-box packet has a multicast destination address.</li> </ul> <p><b>Recommendation:</b> These packets could indicate malicious activity, or could be the result of a misconfigured IPv6 host. Use the packet capture feature to capture type asp packets, and use the source MAC address to identify the source.</p> <p><b>System log messages:</b> For identical source and destination address, system message 106016.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
l2_acl	FP L2 rule drop	<p>This counter will increment when the security appliance denies a packet due to an EtherType access list. By default, in routed mode the security appliance will permit:</p> <ul style="list-style-type: none"> <li>• IPv4 packets</li> <li>• IPv6 packets</li> <li>• ARP packets</li> <li>• Layer 2 destination MAC of FFFF:FFFF:FFFF (broadcast)</li> <li>• IPv4 MCAST packet with a Layer 2 destination of 0100:5E00:0000-0100:5EFE:FFFF</li> <li>• IPv6 MCAST packet with a Layer 2 destination of 3333:0000:0000-3333:FFFF:FFFF</li> </ul> <p>By default, in transparent mode the security appliance permits the routed mode access list and permits:</p> <ul style="list-style-type: none"> <li>• BPDU packets with a Layer 2 destination of 0100:0CCC:CCCD</li> <li>• Appletalk packets with a Layer 2 destination of 0900:0700:0000-0900:07FF:FFFF</li> </ul> <p>The user can also configure EtherType access lists and apply them to an interface to permit other types of Layer 2 traffic.</p> <p><b>Note</b> Packets permitted by EtherType access lists may still be dropped by Layer 3 or Layer 4 access lists.</p> <p><b>Recommendation:</b> If you are running the security appliance or context in transparent mode, and your non-IP packets are dropped by the security appliance, you can configure an EtherType access list and apply the access list to an access group.</p> <p><b>Note</b> The security appliance EtherType access list only supports EtherTypes and not Layer 2 destination MAC addresses.</p> <p><b>System log messages:</b> 106026, 106027</p>
l2_same-lan-port	L2 Src/Dst same LAN port	<p>This counter will increment when the security appliance or context is configured for transparent mode, and the security appliance determines that the destination interface's L2 MAC address is the same as its ingress interface.</p> <p><b>Recommendation:</b> This is a normal condition when the security appliance or context is configured for transparent mode. Since the security appliance interface is operating in promiscuous mode, the security appliance or context receives all packets on the local LAN segment.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
loopback-buffer-full	Loopback buffer full	<p>This counter is incremented and the packet is dropped when packets are sent from one context of the security appliance to another context through a shared interface, and there is no buffer space in the loopback queue.</p> <p><b>Recommendation:</b> Check the system CPU to make sure it is not overloaded.</p> <p><b>System log messages:</b> None.</p>
lu-invalid-pkt	Invalid LU packet	<p>The standby unit received a corrupted Logical Update packet.</p> <p><b>Recommendation:</b> The packet corruption could be caused by a bad cable, interface card, line noise, or software defect. If the interface appears to be functioning properly, then report the problem to Cisco TAC.</p> <p><b>System log messages:</b> None.</p>
mp-pf-queue-full	Port Forwarding Queue Is Full	<p>This counter is incremented when the Port Forwarding application's internal queue is full and it receives another packet for transmission.</p> <p><b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC.</p> <p><b>System log messages:</b> None.</p>
mp-svc-addr-renew-response	SVC Module received address renew response data frame	<p>This counter will increment when the security appliance receives an Address Renew Response message from an SVC. The SVC should not be sending this message.</p> <p><b>Recommendation:</b> This indicates that an SVC software error should be reported to the Cisco TAC.</p> <p><b>System log messages:</b> None.</p>
mp-svc-bad-framing	SVC Module received badly framed data	<p>This counter will increment when the security appliance receives a packet from an SVC or the control software that it is unable to decode.</p> <p><b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC. The SVC or security appliance could be at fault.</p> <p><b>System log messages:</b> 722037 (Only for SVC received data).</p>
mp-svc-bad-length	SVC Module received bad data length	<p>This counter will increment when the security appliance receives a packet from an SVC or the control software where the calculated and specified lengths do not match.</p> <p><b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC. The SVC or security appliance could be at fault.</p> <p><b>System log messages:</b> 722037 (Only for SVC received data).</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>mp-svc-compress-error</b>	SVC Module compression error	This counter will increment when the security appliance encounters an error during compression of data to an SVC.  <b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC. The SVC or security appliance could be at fault.  <b>System log messages:</b> 722037
<b>mp-svc-decompres-error</b>	SVC Module decompression error	This counter will increment when the security appliance encounters an error during decompression of data from an SVC.  <b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC. The SVC or security appliance could be at fault.  <b>System log messages:</b> 722037
<b>mp-svc-delete-in-progress</b>	SVC Module received data while connection was being deleted	This counter will increment when the security appliance receives a packet associated with an SVC connection that is in the process of being deleted.  <b>Recommendation:</b> This is a normal condition when the SVC connection is torn down for any reason. If this error occurs repeatedly or in large numbers, it could indicate that clients are having network connectivity issues.  <b>System log messages:</b> None.
<b>mp-svc-flow-control</b>	SVC Session is in flow control	This counter will increment when the security appliance needs to drop data because an SVC is temporarily not accepting any more data.  <b>Recommendation:</b> This indicates that the client is unable to accept more data. The client should reduce the amount of traffic it is attempting to receive.  <b>System log messages:</b> None.
<b>mp-svc-invalid-mac</b>	SVC Module found invalid L2 data in the frame	This counter will increment when the security appliance is finds an invalid L2 MAC header attached to data received from an SVC.  <b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC.  <b>System log messages:</b> None.
<b>mp-svc-invalid-mac-len</b>	SVC Module found invalid L2 data length in the frame	This counter will increment when the security appliance is finds an invalid L2 MAC length attached to data received from an SVC.  <b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC.  <b>System log messages:</b> None.

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>mp-svc-no-channel</b>	SVC Module does not have a channel for reinjection	<p>This counter will increment when the interface that the encrypted data was received upon cannot be found in order to inject the decrypted data.</p> <p><b>Recommendation:</b> If an interface is shut down during a connection, this could happen; re-enable/check the interface. Otherwise, this indicates that a software error should be reported to the Cisco TAC.</p> <p><b>System log messages:</b> None.</p>
<b>mp-svc-no-mac</b>	SVC Module unable to find L2 data for frame	<p>This counter will increment when the security appliance is unable to find an L2 MAC header for data received from an SVC.</p> <p><b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC.</p> <p><b>System log messages:</b> None.</p>
<b>mp-svc-no-prepend</b>	SVC Module does not have enough space to insert header	<p>This counter will increment when there is not enough space before the packet data to prepend a MAC header in order to put the packet onto the network.</p> <p><b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC.</p> <p><b>System log messages:</b> None.</p>
<b>mp-svc-no-session</b>	SVC Module does not have a session	<p>This counter will increment when the security appliance cannot determine the SVC session that this data should be transmitted over.</p> <p><b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC.</p> <p><b>System log messages:</b> None.</p>
<b>mp-svc-unknown-type</b>	SVC Module received unknown data frame	<p>This counter will increment when the security appliance receives a packet from an SVC where the data type is unknown.</p> <p><b>Recommendation:</b> Validate that the SVC being used by the client is compatible with the version of security appliance software.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
natt-keepalive	NAT-T keepalive message	<p>This counter will increment when the security appliance receives an IPsec NAT-T keepalive message. NAT-T keepalive messages are sent from the IPsec peer to the security appliance to keep NAT/PAT flow information current in network devices between the NAT-T IPsec peer and the security appliance.</p> <p><b>Recommendation:</b> If you have configured IPsec NAT-T on your security appliance, this indication is normal and does not indicate a problem. If NAT-T is not configured on your security appliance, analyze your network traffic to determine the source of the NAT-T traffic.</p> <p><b>System log messages:</b> None</p>
no-adjacency	No valid adjacency	<p>This counter is incremented when the security appliance has tried to obtain an adjacency and could not obtain the MAC address for the next hop. The packet is dropped.</p> <p><b>Recommendation:</b> Configure a capture for this drop reason and check if a host with the specified destination address exists on the connected network or is routable from the security appliance.</p> <p><b>System log messages:</b> None.</p>
no-mcast-entry	FP no mcast entry	<p>This counter increments because of one of the following reasons:</p> <ul style="list-style-type: none"> <li>A packet has arrived that matches a multicast flow, but the multicast service is no longer enabled, or was re-enabled after the flow was built.</li> </ul> <p><b>Recommendation:</b> Reenable multicast if it is disabled.</p> <p><b>System log messages:</b> None.</p> <ul style="list-style-type: none"> <li>A multicast entry change has been detected after a packet was punted to the CP, and the NP can no longer forward the packet since no entry is present.</li> </ul> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
no-mcast-intrf	FP no mcast output intrf	<p>This counter increments because of one of the following reasons:</p> <ul style="list-style-type: none"> <li>All output interfaces have been removed from the multicast entry.</li> </ul> <p><b>Recommendation:</b> Verify that there are no longer any receivers for this group.</p> <p><b>System log messages:</b> None.</p> <ul style="list-style-type: none"> <li>The multicast packet could not be forwarded.</li> </ul> <p><b>Recommendation:</b> Verify that a flow exists for this packet.</p> <p><b>System log messages:</b> None.</p>
non-ip-pkt-in-routed-mode	Non-IP packet received in routed mode	<p>This counter will increment when the security appliance receives a packet that is not an IPv4, IPv6, or ARP packet, and the security appliance or context is configured for routed mode. In normal operation such packets should be dropped.</p> <p><b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC.</p> <p><b>System log messages:</b> 106026, 106027</p>
no-route	No route to host	<p>This counter is incremented when the security appliance tries to send a packet out of an interface and does not find a route for it in the routing table.</p> <p><b>Recommendation:</b> Verify that a route exists for the destination address obtained from the generated system message.</p> <p><b>System log messages:</b> 110001</p>
np-socket-closed	Dropped pending packets in a closed socket	<p>If a socket is abruptly closed, by the user or software, then any pending packets in the pipeline for that socket are also dropped. This counter is incremented for each packet in the pipeline that is dropped.</p> <p><b>Recommendation:</b> It is common to see this counter increment as part of normal operation. However, if the counter is rapidly incrementing and there is a major malfunction of socket-based applications, then this may be caused by a software defect. Contact the Cisco TAC to investigate the issue further.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>np-sp-invalid-spi</b>	Invalid SPI	<p>This counter increments when the security appliance receives an IPSec ESP packet addressed to the security appliance that specifies an SPI (security parameter index) not currently known by the security appliance.</p> <p><b>Recommendation:</b> Occasional invalid SPI indications are common, especially during rekey processing. Many invalid SPI indications may suggest a problem or DoS attack. If you are experiencing a high rate of invalid SPI indications, analyze your network traffic to determine the source of the ESP traffic.</p> <p><b>System log messages:</b> 402114</p>
<b>punt-rate-limit</b>	Punt rate limit exceeded	<p>This counter will increment when the security appliance attempts to forward a Layer 2 packet to a rate-limited control point service routine, and the rate limit (per/second) is now being exceeded. Currently, the only Layer 2 packets destined for a control point service routine that are rate limited are ARP packets. The ARP packet rate limit is 500 ARPs per second per interface.</p> <p><b>Recommendation:</b> Analyze your network traffic to determine the reason behind the high rate of ARP packets.</p> <p><b>System log messages:</b> 322002, 322003</p>
<b>queue-removed</b>	Queued packet dropped	<p>When the QoS configuration is changed or removed, the existing packets in the output queues awaiting transmission are dropped and this counter is incremented.</p> <p><b>Recommendation:</b> Under normal conditions, this may be seen when the QoS configuration has been changed by the user. If this occurs when no changes to the QoS configuration were performed, please contact Cisco TAC.</p> <p><b>System log messages:</b> None.</p>
<b>rate-exceeded</b>	QoS rate exceeded	<p>This counter is incremented when rate-limiting (policing) is configured on an egress/ingress interface, and the egress/ingress traffic rate exceeds the burst rate configured. The counter is incremented for each packet dropped.</p> <p><b>Recommendation:</b> Investigate and determine why the rate of traffic leaving the interface is higher than the configured rate. This may be normal, or could be an indication of virus or attempted attack.</p> <p><b>System log messages:</b> None.</p>



Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>rm-conn-limit</b>	RM connection limit reached	<p>This counter is incremented when the maximum number of connections for a context or the system has been reached, and a new connection is attempted.</p> <p><b>Recommendation:</b> The device administrator can use the commands <b>show resource usage</b> and <b>show resource usage system</b> to view context and system resource limits and “Denied” counts and adjust resource limits if desired.</p> <p><b>System log messages:</b> 321001</p>
<b>rm-conn-rate-limit</b>	RM connection rate limit reached	<p>This counter is incremented when the maximum connection rate for a context or the system has been reached and a new connection is attempted.</p> <p><b>Recommendation:</b> The device administrator can use the commands <b>show resource usage</b> and <b>show resource usage system</b> to view context and system resource limits and “Denied” counts and adjust resource limits if desired.</p> <p><b>System log messages:</b> 321002</p>
<b>rpf-violated</b>	Reverse-path verify failed	<p>This counter is incremented when <b>ip verify reverse-path</b> is configured on an interface and the security appliance receives a packet for which the route lookup of the source IP did not yield the same interface as the one on which the packet was received.</p> <p><b>Recommendation:</b> Trace the source of traffic based on the source IP printed in the system message below, and investigate why it is sending spoofed traffic.</p> <p><b>System log messages:</b> 106021</p>
<b>security-failed</b>	Early security checks failed	<p>This counter is incremented and the packet is dropped when the security appliance:</p> <ul style="list-style-type: none"> <li>• Receives an IPv4 multicast packet when the packet multicast MAC address does not match the packet multicast destination IP address</li> <li>• Receives an IPv6 or IPv4 teardrop fragment containing either small offset or fragment overlapping</li> <li>• Receives an IPv4 packet that matches an IP audit signature</li> </ul> <p><b>Recommendation:</b> Contact the remote peer administrator or escalate this issue according to your security policy. For detailed description and System log messages for IP audit attack checks please refer the <b>ip audit signature</b> command.</p> <p><b>System log messages:</b> 106020, 400xx in case of IP audit checks</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
send-ctm-error	Send to CTM returned error	<p>This counter is obsolete in the security appliance and should never increment.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
sp-security-failed	Slowpath security checks failed	<p>This counter is incremented and the packet is dropped when the security appliance:</p> <ul style="list-style-type: none"> <li>• Is in routed mode and receives a through-the-box: <ul style="list-style-type: none"> <li>– L2 broadcast packet</li> <li>– IPv4 packet with destination IP address equal to 0.0.0.0</li> <li>– IPv4 packet with source IP address equal to 0.0.0.0</li> </ul> <p><b>Recommendation:</b> Determine if an external user is trying to compromise the protected network. Check for misconfigured clients.</p> <p><b>System log messages:</b> 106016</p> </li> <li>• Is in routed or transparent mode and receives a through-the-box IPv4 packet with: <ul style="list-style-type: none"> <li>– The first octet of the source IP address is equal to zero</li> <li>– The source IP address is equal to the loopback IP address</li> <li>– Network part of the source IP address is equal to all 0s</li> <li>– The network part of the source IP address is equal to all 1s</li> <li>– The source IP address host part is equal to all 0s or all 1s</li> </ul> <p><b>Recommendation:</b> Determine if an external user is trying to compromise the protected network. Check for misconfigured clients.</p> <p><b>System log messages:</b> 106016</p> </li> <li>• In routed or transparent mode and receives an IPv4 or IPv6 packet with the same source and destination IP addresses <p><b>Recommendation:</b> If this message counter is incrementing rapidly, an attack may be in progress. Use the packet capture feature to capture type asp packets, and check the source MAC address in the packet to see where they are coming from.</p> <p><b>System log messages:</b> 106017</p> </li> </ul>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
ssm-app-fail	Service module is down	<p>This counter only applies to the ASA 5500 series adaptive security appliance. It is incremented when a packet to be inspected by the SSM is dropped because the SSM has become unavailable. Some examples of this are: software or hardware failure, software or signature upgrade, or the module being shut down.</p> <p><b>Recommendation:</b> The SSM manager process running in the security appliance control plane would have issued system messages and CLI warning to inform you of the failure. Please consult the documentation that comes with the SSM to troubleshoot the SSM failure. Contact Cisco TAC if needed.</p> <p><b>System log messages:</b> None.</p>
ssm-app-request	Service module requested drop	<p>This counter only applies to the ASA 5500 series adaptive security appliance. It is incremented when the application running on the SSM requests the security appliance to drop a packet.</p> <p><b>Recommendation:</b> More information could be obtained by querying the incident report or system messages generated by the SSM itself. Please consult the documentation that comes with your SSM for instructions.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
ssm-asdp-invalid	Invalid ASDP packet received from SSM card	<p>This counter only applies to the ASA 5500 series adaptive security appliance. It is incremented when the security appliance receives an ASA SSM Dataplane Protocol (ASDP) packet from the internal data plane interface, but the driver encountered a problem when parsing the packet. ASDP is a protocol used by the security appliance to communicate with certain types of SSMs, like the CSC SSM. This could happen for various reasons, for example: the ASDP protocol version is not compatible between the security appliance and the SSM, in which case the SSM manager process in the control plane issues system messages and CLI warnings to inform you of the proper version of images that needs to be installed; the ASDP packet belongs to a connection that has already been terminated on the security appliance; the security appliance has switched to the standby state (if failover is enabled) in which case it can no longer pass traffic; or any unexpected value when parsing the ASDP header and payload.</p> <p><b>Recommendation:</b> The counter is usually 0 or a very small number. But you should not be concerned if the counter slowly increases over time, especially when there has been a failover, or you have manually cleared connections on the security appliance via the CLI. If the counter increases drastically during normal operation, please contact Cisco TAC.</p> <p>System log messages: 421003, 421004</p>
ssm-dpp-invalid	Invalid packet received from SSM card	<p>This counter only applies to the ASA 5500 series adaptive security appliance. It is incremented when the security appliance receives a packet from the internal data plane interface but could not find the proper driver to parse it.</p> <p><b>Recommendation:</b> The data plane driver is dynamically registered depending on the type of SSM installed in the system. So this could happen if data plane packets arrive before the security appliance is fully initialized. This counter is usually 0. You should not be concerned if there are a few drops. However, if this counter keeps rising when system is up and running, it may indicate a problem. Please contact Cisco TAC if you suspect it affects the normal operation of your the security appliance.</p> <p><b>System log messages:</b> None.</p>
tcp_xmit_partial	TCP retransmission partial	<p>This counter is incremented and the packet is dropped when the <b>check-retransmission</b> feature is enabled, and a partial TCP retransmission was received.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>tcp-3whs-failed</b>	TCP failed 3 way handshake	<p>This counter is incremented and the packet is dropped when security appliance receives an invalid TCP packet during the three-way handshake. For example, the SYN-ACK from a client will be dropped for this reason.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
<b>tcp-acked</b>	TCP DUP and has been ACKed	<p>This counter is incremented and the packet is dropped when the security appliance receives a retransmitted data packet and the data has been acknowledged by the peer TCP endpoint.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
<b>tcp-ack-syn-diff</b>	TCP ACK in SYNACK invalid	<p>This counter is incremented and the packet is dropped when the security appliance receives a SYN-ACK packet during the three-way handshake with an incorrect TCP acknowledgement number.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
<b>tcp-bad-option-len</b>	Bad option length in TCP	<p>This counter is incremented and the packet is dropped when the security appliance receives a TCP packet with a TCP option set, but the option length does not match the length defined for that option in the TCP RFC.</p> <p><b>Recommendation:</b> The packet corruption may be caused by a bad cable or noise on the line. It may also be that a TCP endpoint is sending corrupted packets and an attack is in progress. Please use the packet capture feature to learn more about the origin of the packet.</p> <p><b>System log messages:</b> None.</p>
<b>tcp-bad-option-list</b>	TCP option list invalid	<p>This counter is incremented and the packet is dropped when the security appliance receives a TCP packet with a non-standard TCP header option.</p> <p><b>Recommendation:</b> To allow such TCP packets or clear non-standard TCP header options and then allow the packet, use the <b>tcp-options</b> command.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
tcp-bad-sack-allow	Bad TCP SACK ALLOW option	<p>This counter is incremented and the packet is dropped when the appliance receives a TCP packet with the selective acknowledgement option, but the SYN flag is not set.</p> <p><b>Recommendation:</b> The packet corruption may be caused by a bad cable or noise on the line. It may also be that a TCP endpoint is sending corrupted packets and an attack is in progress. Please use the packet capture feature to learn more about the origin of the packet.</p> <p><b>System log messages:</b> None.</p>
tcp-bad-winscale	Bad TCP window scale value	<p>This counter is incremented and the packet is dropped when the security appliance receives a TCP packet with the window-scale option greater than 14.</p> <p><b>Recommendation:</b> The packet corruption may be caused by a bad cable or noise on the line. It may also be that a TCP endpoint is sending corrupted packets and an attack is in progress. Please use the packet capture feature to learn more about the origin of the packet.</p> <p><b>System log messages:</b> None.</p>
tcp-buffer-full	TCP packet buffer full	<p>This counter is incremented and the packet is dropped when the security appliance receives an out-of-order TCP packet on a connection, and there is no buffer space to store this packet. Typically TCP packets are put into order on connections that are inspected by the security appliance or when packets are sent to an SSM for inspection. There is a default queue size, and when packets in excess of this default queue size are received they will be dropped.</p> <p><b>Recommendation:</b> On ASA platforms the queue size could be increased using the <b>queue-limit</b> command.</p> <p><b>System log messages:</b> None.</p>
tcp-conn-limit	TCP Connection limit reached	<p>This reason is given for dropping a TCP packet during the TCP connection establishment phase when the connection limit has been exceeded. The connection limit is configured using the <b>set connection conn-max</b> command.</p> <p><b>Recommendation:</b> If this is incrementing rapidly, check the System log messages to determine which host's connection limit is reached. The connection limit may need to be increased if the traffic is normal, or the host may be under attack.</p> <p><b>System log messages:</b> 201011</p>
tcp-data-past-fin	TCP data send after FIN	<p>This counter is incremented and the packet is dropped when the security appliance receives new a TCP data packet from an endpoint which had sent a FIN to close the connection.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>tcp-discarded-ooo</b>	TCP ACK in 3 way handshake invalid	This counter is incremented and the packet is dropped when the security appliance receives a TCP ACK packet from a client during the three-way-handshake and the sequence number is not the next expected sequence number. <b>Recommendation:</b> None. <b>System log messages:</b> None.
<b>tcp-dual-open</b>	TCP Dual open denied	This counter is incremented and the packet is dropped when the security appliance receives a TCP SYN packet from the server and an embryonic TCP connection is already open. <b>Recommendation:</b> None. <b>System log messages:</b> None.
<b>tcp-fo-drop</b>	TCP replicated flow pak drop	This counter is incremented and the packet is dropped when the security appliance receives a TCP packet with a control flag like SYN, FIN, or RST on an established connection just after the security appliance has taken over as active unit. <b>Recommendation:</b> None. <b>System log messages:</b> None.
<b>tcp-invalid-ack</b>	TCP invalid ACK	This counter is incremented and the packet is dropped when the security appliance receives a TCP packet with an acknowledgement number greater than the data sent by the peer TCP endpoint. <b>Recommendation:</b> None. <b>System log messages:</b> None.
<b>tcp-mss-exceeded</b>	TCP data exceeded MSS	This counter is incremented and the packet is dropped when the security appliance receives a TCP packet with a data length greater than the MSS advertised by the peer TCP endpoint. <b>Recommendation:</b> To allow such TCP packets, use the <b>exceed-mss</b> command. <b>System log messages:</b> 4419001
<b>tcpnorm-rexmit-bad</b>	TCP bad retransmission	This counter is incremented and the packet is dropped when the <b>check-retransmission</b> feature is enabled, and a TCP retransmission with different data from the original packet was received. <b>Recommendation:</b> None. <b>System log messages:</b> None.

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>tcpnorm-win-variation</b>	TCP unexpected window size variation	<p>This counter is incremented and the packet is dropped when the window size advertised by the TCP endpoint is drastically changed without accepting that much data.</p> <p><b>Recommendation:</b> To allow such packet, use the <b>window-variation</b> command.</p> <p><b>System log messages:</b> None.</p>
<b>tcp-not-syn</b>	First TCP packet not SYN	<p>The security appliance received a non-SYN packet as the first packet of a non-intercepted and non-nailed connection.</p> <p><b>Recommendation:</b> Under normal conditions, this may be seen when the security appliance has already closed a connection, and the client or server still believe the connection is open, and continue to transmit data. Some examples where this may occur is just after a <b>clear local-host</b> or <b>clear xlate</b> command is issued. Also, if connections have not been recently removed, and the counter is incrementing rapidly, the security appliance may be under attack. Capture a sniffer trace to help isolate the cause.</p> <p><b>System log messages:</b> 6106015</p>
<b>tcp-paws-fail</b>	TCP packet failed PAWS test	<p>This counter is incremented and the packet is dropped when a TCP packet with a timestamp header option fails the PAWS (Protect Against Wrapped Sequences) test.</p> <p><b>Recommendation:</b> To allow such connections to proceed, use the <b>tcp-options</b> command to clear the timestamp option.</p> <p><b>System log messages:</b> None.</p>
<b>tcp-reserved-set</b>	TCP reserved flags set	<p>This counter is incremented and the packet is dropped when the security appliance receives a TCP packet with reserved flags set in TCP header.</p> <p><b>Recommendation:</b> The packet corruption may be caused by a bad cable or noise on the line. It may also be that a TCP endpoint is sending corrupted packets and an attack is in progress. Please use the packet capture feature to learn more about the origin of the packet. To allow such TCP packets or clear reserved flags and then pass the packet, use the <b>reserved-bits</b> command.</p> <p><b>System log messages:</b> None</p>
<b>tcp-rstfin-ooo</b>	TCP RST/FIN out of order	<p>This counter is incremented and the packet is dropped when the security appliance receives a RST or a FIN packet with the incorrect TCP sequence number.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>



Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
tcp-rst-syn-in-win	TCP RST/SYN in window	This counter is incremented and the packet is dropped when the security appliance receives a TCP SYN or TCP RST packet on an established connection with a sequence number within the window, but not as the next expected sequence number. <b>Recommendation:</b> None. <b>System log messages:</b> None.
tcp-seq-past-win	TCP packet SEQ past window	This counter is incremented and the packet is dropped when the security appliance receives a TCP data packet with a sequence number beyond the window allowed by the peer TCP endpoint. <b>Recommendation:</b> None. <b>System log messages:</b> None.
tcp-seq-syn-diff	TCP SEQ in SYN/SYNACK invalid	This counter is incremented and the packet is dropped when the security appliance receives a SYN or SYN-ACK packet during the three-way handshake with an incorrect TCP sequence number. <b>Recommendation:</b> None. <b>System log messages:</b> None.
tcp-synack-data	TCP SYNACK with data	This counter is incremented and the packet is dropped when the security appliance receives a TCP SYN-ACK packet with data. <b>Recommendation:</b> The packet corruption may be caused by a bad cable or noise on the line. It may also be that a TCP endpoint is sending corrupted packets and an attack is in progress. Please use the packet capture feature to learn more about the origin of the packet. <b>System log messages:</b> None.
tcp-synack-ooo	TCP SYNACK on established conn	This counter is incremented and the packet is dropped when the security appliance receives a TCP SYN-ACK packet on an established TCP connection. <b>Recommendation:</b> None. <b>System log messages:</b> None.
tcp-syn-data	TCP SYN with data	This counter is incremented and the packet is dropped when the security appliance receives a TCP SYN packet with data. <b>Recommendation:</b> To allow such TCP packets use the <b>syn-data</b> command. <b>System log messages:</b> None.

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
tcp-syn-ooo	TCP SYN on established conn	<p>This counter is incremented and the packet is dropped when the security appliance receives a TCP SYN packet on an established TCP connection.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
tcp-winscale-no-syn	TCP Window scale on non-SYN	<p>This counter is incremented and the packet is dropped when the security appliance receives a TCP packet with the window-scale TCP option without SYN flag set.</p> <p><b>Recommendation:</b> The packet corruption may be caused by a bad cable or noise on the line. It may also be that a TCP endpoint is sending corrupted packets and an attack is in progress. Please use the packet capture feature to learn more about the origin of the packet.</p> <p><b>System log messages:</b> None.</p>
tfw-no-mgmt-ip-config	No management IP address configured for TFW	<p>This counter is incremented when the security appliance receives an IP packet in transparent mode and has no management IP address defined. The packet is dropped.</p> <p><b>Recommendation:</b> Configure the security appliance with a management IP address and mask values.</p> <p><b>System log messages:</b> 322004</p>
unable-to-add-flow	Flow hash full	<p>This counter is incremented when a newly created flow is inserted into the flow hash table, and the insertion failed because the hash table was full. The flow and the packet are dropped. This is different from the counter that increments when the maximum connection limit is reached.</p> <p><b>Recommendation:</b> This message signifies a lack of resources on the security appliance to support an operation that should have been successful. Please check if the connections in the <b>show conn</b> output have exceeded their configured idle timeout values. If so, contact Cisco TAC.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>unable-to-create-flow</b>	Flow denied due to resource limitation	<p>This counter is incremented and the packet is dropped when flow creation fails due to a system resource limitation. The resource limit may be either:</p> <ul style="list-style-type: none"> <li>• System memory</li> <li>• Packet block extension memory</li> <li>• System connection limit</li> </ul> <p>The first two causes occur simultaneously with flow drop reason “No memory to complete flow.”</p> <p><b>Recommendation:</b></p> <ul style="list-style-type: none"> <li>• Observe if free system memory is low.</li> <li>• Observe if flow drop reason “No memory to complete flow” occurs.</li> <li>• Observe if the connection count reaches the system connection limit using the <b>show resource usage</b> command.</li> </ul> <p><b>System log messages:</b> None.</p>
<b>unexpected-packet</b>	Unexpected packet	<p>This counter is incremented when the security appliance in transparent mode receives a non-IP packet destined to its MAC address, but there is no corresponding service running on the security appliance to process the packet.</p> <p><b>Recommendation:</b> Verify if the security appliance is under attack. If there are no suspicious packets, or the security appliance is not in transparent mode, this counter is most likely being incremented due to a software error. Attempt to capture the traffic that is causing the counter to increment and contact the Cisco TAC.</p> <p><b>System log messages:</b> None.</p>
<b>unsupported-ip-version</b>	Unsupported IP version	<p>This counter is incremented when the security appliance receives an IP packet that has an unsupported version in the version field of the IP header. Specifically, if the packet does not belong to version 4 or version 6, the packet is dropped.</p> <p><b>Recommendation:</b> Verify that other devices on the connected network are configured to send IP packets belonging to versions 4 or 6 only.</p> <p><b>System log messages:</b> None.</p>

Table 25-1 Frame Drop Reasons (continued)

Frame Drop Reason Keyword	Frame Drop Reason Display	Description
<b>unsupported-ipv6-hdr</b>	Unsupported IPV6 header	<p>This counter is incremented and the packet is dropped if an IPv6 packet is received with an unsupported IPv6 extension header. The supported IPv6 extension headers are: TCP, UDP, ICMPv6, ESP, AH, Hop Options, Destination Options, and Fragment. The IPv6 routing extension header is not supported, and any extension header not listed above is not supported. IPv6 ESP and AH headers are supported only if the packet is through-the-box. To-the-box IPv6 ESP and AH packets are not supported and will be dropped.</p> <p><b>Recommendation:</b> This error may be due to a misconfigured host. If this error occurs repeatedly or in large numbers, it could also indicate spurious or malicious activity such as an attempted DoS attack.</p> <p><b>System log messages:</b> None.</p>
<b>vpn-context-expired</b>	Expired VPN context	<p>This counter will increment when the security appliance receives a packet that requires encryption or decryption, and the ASP VPN context required to perform the operation is no longer valid.</p> <p><b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC.</p> <p><b>System log messages:</b> None</p>
<b>wccp-redirect-no-route</b>	No route to Cache Engine	<p>This counter is incremented when the security appliance tries to redirect a packet and does not find a route to the Cache Engine.</p> <p><b>Recommendation:</b> Verify that a route exists for Cache Engine.</p> <p><b>System log messages:</b> None</p>
<b>wccp-return-no-route</b>	No route to host for WCCP returned packet	<p>This counter is incremented when a packet is returned from the Cache Engine and the security appliance does not find a route for the original source of the packet.</p> <p><b>Recommendation:</b> Verify that a route exists for the source IP address of the packet returned from Cache Engine.</p> <p><b>System log messages:</b> None</p>

Table 25-2 lists valid values for the *flow\_drop\_reason* argument for dropped flows.

**Table 25-2** Flow Drop Reasons

Flow Drop Reason Keyword	Flow Drop Reason Display	Description
<b>acl-drop</b>	Flow is denied by access rule	<p>This counter is incremented when a packet is denied by the security appliance, and flow creation is denied. The deny rule could be a default rule created when the security appliance comes up, when various features are turned on or off, when an access list is applied to an interface, or any other feature. Apart from default rule drops, a flow could be denied because of:</p> <ul style="list-style-type: none"> <li>• An access list configured on an interface</li> <li>• An access list configured for AAA, and AAA denied the user</li> <li>• Through traffic arriving at a management-only interface</li> <li>• Unencrypted traffic arriving on a IPSec-enabled interface</li> <li>• Implicit deny at the end of an access list</li> </ul> <p><b>Recommendation:</b> Observe if one of System log messages related to packet drop display. Flow drop results in the corresponding packet drop that would trigger the requisite system message.</p> <p><b>System log messages:</b> None.</p>
<b>audit-failure</b>	Audit failure	<p>A flow was freed after matching an <b>ip audit</b> signature that had reset as the associated action.</p> <p><b>Recommendation:</b> If removing the flow is not the desired outcome of matching this signature, then remove the reset action from the <b>ip audit</b> command.</p> <p><b>System log messages:</b> None.</p>
<b>closed-by-inspection</b>	Flow closed by inspection	<p>This reason is given for closing a flow due to an error detected during application inspection. For example, if an error is detected during inspecting an H323 message, the corresponding H323 flow is closed with this reason.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
<b>conn-limit-exceeded</b>	Connection limit exceeded	<p>This reason is given for closing a flow when the connection limit has been exceeded. The connection limit is configured using the <b>set connection conn-max</b> command.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> 201011</p>
<b>fin-timeout</b>	FIN Timeout	<p>This reason is given for closing a TCP flow due to expiry of half-closed timer.</p> <p><b>Recommendation:</b> If these are valid sessions which take longer to close a TCP flow, increase the half-closed timeout.</p> <p><b>System log messages:</b> 302014</p>

Table 25-2 Flow Drop Reasons (continued)

Flow Drop Reason Keyword	Flow Drop Reason Display	Description
flow-reclaimed	Non-tcp/udp flow reclaimed for new request	<p>This counter is incremented when a reclaimable flow is removed to make room for a new flow. This occurs only when the number of flows through the security appliance equals the maximum number permitted by the software imposed limit, and a new flow request is received. When this occurs, if the number of reclaimable flows exceeds the number of VPN tunnels permitted by the security appliance, then the oldest reclaimable flow is removed to make room for the new flow. All flows except the following are deemed to be reclaimable:</p> <ul style="list-style-type: none"> <li>• TCP, UDP, GRE and failover flows</li> <li>• ICMP flows if ICMP stateful inspection is enabled</li> <li>• ESP flows to the security appliance</li> </ul> <p><b>Recommendation:</b> No action is required if this counter is incrementing slowly. If this counter is incrementing rapidly, it could mean that the security appliance is under attack and the security appliance is spending more time reclaiming and rebuilding flows.</p> <p><b>System log messages:</b> 302021</p>
fo-primary-closed	Failover primary closed	<p>The standby unit received a flow delete message from the active unit and terminated the flow.</p> <p><b>Recommendation:</b> If the security appliance is running stateful failover, then this counter should increment for every replicated connection that is torn down on the standby appliance.</p> <p><b>System log messages:</b> 302014, 302016, 302018</p>
fo-standby	Flow closed by failover standby	<p>If a through-the-box packet arrives at the security appliance or a context that is in a standby state, then a flow is created, the packet is dropped, and the flow removed. This counter will increment each time a flow is removed in this manner.</p> <p><b>Recommendation:</b> This counter should never be incrementing on the active security appliance or context. However, it is normal to see it increment on the standby security appliance or context.</p> <p><b>System log messages:</b> 302014, 302016, 302018</p>
fo_rep_err	Standby flow replication error	<p>The standby unit failed to replicate a flow.</p> <p><b>Recommendation:</b> If the security appliance is processing VPN traffic, then this counter could be constantly increasing on the standby unit because the flow could be replicated before the IKE SA information. No action is required in this case. If the appliance is not processing VPN traffic, then this indicates a software defect; turn on the <b>debug fover fail</b> command on the standby unit, collect the debug output, and report the problem to Cisco TAC.</p> <p><b>System log messages:</b> 302014, 302016, 302018</p>

Table 25-2 Flow Drop Reasons (continued)

Flow Drop Reason Keyword	Flow Drop Reason Display	Description
host-removed	Host is removed	The flow was removed in response to the <b>clear local-host</b> command. <b>Recommendation:</b> This is an information counter. <b>System log messages:</b> 302014, 302016, 302018, 302021, 305010, 305012, 609002
inspect-fail	Inspection failure	This counter will increment when the security appliance fails to enable protocol inspection carried out by the NP for the connection. The cause could be memory allocation failure, or for ICMP error message, the security appliance not being able to find any established connection related to the frame embedded in the ICMP error message. <b>Recommendation:</b> Check system memory usage. For the ICMP error message, if the cause is an attack, you can deny the host using the access lists. <b>System log messages:</b> 313004 for ICMP error.
ips-fail-close	IPS fail-close	This reason is given for terminating a flow because the AIP SSM is down and the fail-close option was used with IPS inspection. <b>Recommendation:</b> Check and bring up the AIP SSM. <b>System log messages:</b> 420001
ips-request	Flow terminated by IPS	This reason is given for terminating a flow as requested by the AIP SSM. <b>Recommendation:</b> Check System log messages and alerts on the AIP SSM. <b>System log messages:</b> 420002
ipsec-spoof-detect	IPsec spoof packet detected	This counter will increment when the security appliance receives a packet that should have been encrypted but was not. The packet matched the inner header security policy check of a configured and established IPsec connection on the security appliance but was received unencrypted. This is a security issue. <b>Recommendation:</b> Analyze your network traffic to determine the source of the spoofed IPsec traffic. <b>System log messages:</b> 402117

Table 25-2 Flow Drop Reasons (continued)

Flow Drop Reason Keyword	Flow Drop Reason Display	Description
loopback	Flow is a loopback	<p>This reason is given for closing a flow due to the following conditions:</p> <ul style="list-style-type: none"> <li>U-turn traffic is present on the flow.</li> <li><b>same-security-traffic permit intra-interface</b> is not configured.</li> </ul> <p><b>Recommendation:</b> To allow U-turn traffic on an interface, configure the interface with the <b>same-security-traffic permit intra-interface</b> command.</p> <p><b>System log messages:</b> None.</p>
mcast-entry-removed	Multicast entry removed	<p>This reason is given for one of the following cases:</p> <ul style="list-style-type: none"> <li>A packet has arrived that matches a multicast flow, but the multicast service is no longer enabled, or was re-enabled after the flow was built. <p><b>Recommendation:</b> Reenable multicast if it is disabled.</p> <p><b>System log messages:</b> None.</p> </li> <li>The multicast entry has been deleted so the flow is being cleaned up, but the packet will be reinjected into the data path. <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p> </li> </ul>
mcast-intrf-removed	Multicast interface removed	<p>This reason is given for one of the following cases:</p> <ul style="list-style-type: none"> <li>An output interface has been removed from the multicast entry. <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p> </li> <li>All output interfaces have been removed from the multicast entry. <p><b>Recommendation:</b> Verify that there are no longer any receivers for this group.</p> <p><b>System log messages:</b> None.</p> </li> </ul>
nat-failed	NAT failed	<p>Failed to create an xlate to translate an IP or transport header.</p> <p><b>Recommendation:</b> If NAT is not desired, disable <b>nat-control</b>. Otherwise, use the <b>static</b>, <b>nat</b>, or <b>global</b> command to configure NAT policy for the dropped flow. For dynamic NAT, ensure that each <b>nat</b> command is paired with at least one <b>global</b> command. Use <b>show running-config nat</b> and <b>debug pix process</b> to verify NAT rules.</p> <p><b>System log messages:</b> 305005, 305006, 305009, 305010, 305011, 305012</p>



Table 25-2 Flow Drop Reasons (continued)

Flow Drop Reason Keyword	Flow Drop Reason Display	Description
nat-rpf-failed	NAT reverse path failed	<p>Rejected attempt to connect to a mapped host using the mapped host's real address.</p> <p><b>Recommendation:</b> When not on the same interface as the host undergoing NAT, use the mapped address instead of the real address to connect to the host. Also, enable the appropriate <b>inspect</b> command if the application embeds the IP address.</p> <p><b>System log messages:</b> 305005</p>
need-ike	Need to start IKE negotiation	<p>This counter will increment when the security appliance receives a packet that requires encryption but has no established IPSec security association. This is generally a normal condition for LAN-to-LAN IPSec configurations. This indication will cause the security appliance to begin ISAKMP negotiations with the destination peer.</p> <p><b>Recommendation:</b> If you have configured IPSec LAN-to-LANs on your security appliance, this indication is normal and does not indicate a problem. However, if this counter increments rapidly, it may indicate a <b>crypto</b> configuration error or network error preventing the ISAKMP negotiation from completing.</p> <p>Verify that you can communicate with the destination peer and verify your <b>crypto</b> configuration using the <b>show running-config</b> command.</p> <p><b>System log messages:</b> None.</p>
no-inspect	Failed to allocate inspection	<p>This counter will increment when the security appliance fails to allocate a run-time inspection data structure upon connection creation. The connection will be dropped.</p> <p><b>Recommendation:</b> This error condition is caused when the security appliance runs out of system memory. Please check the current available free memory by executing the <b>show memory</b> command.</p> <p><b>System log messages:</b> None.</p>
no-ipv6-ipsec	IPsec over IPv6 unsupported	<p>This counter will increment when the security appliance receives an IPSec ESP packet, IPSec NAT-T ESP packet, or an IPSec over UDP ESP packet encapsulated in an IPv6 header. The security appliance does not currently support any IPSec sessions encapsulated in IPv6.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
non_tcp_syn	non-syn TCP	<p>This reason is given for terminating a TCP flow when the first packet is not a SYN packet.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>

Table 25-2 Flow Drop Reasons (continued)

Flow Drop Reason Keyword	Flow Drop Reason Display	Description
out-of-memory	No memory to complete flow	<p>This counter is incremented when the security appliance is unable to create a flow because of insufficient memory.</p> <p><b>Recommendation:</b> Verify that the security appliance is not under attack by checking the current connections. Also verify if the configured timeout values are too large resulting in idle flows residing in memory longer. Check the free memory available by issuing the <b>show memory</b> command. If free memory is low, issue the <b>show processes memory</b> command to determine which processes are utilizing most of the memory.</p> <p><b>System log messages:</b> None.</p>
parent-closed	Parent flow is closed	<p>When the parent flow of a subordinating flow is closed, the subordinating flow is also closed. For example, an FTP data flow (subordinating flow) will be closed with this specific reason when its control flow (parent flow) is terminated. This reason is also given when a secondary flow (pin-hole) is closed by its controlling application. For example, when the BYE message is received, the SIP inspection engine (controlling application) will close the corresponding SIP RTP flows (secondary flow).</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
pinhole-timeout	Pinhole timeout	<p>This counter is incremented to report that the security appliance opened a secondary flow, but no packets passed through this flow within the timeout interval, and hence it was removed. An example of a secondary flow is the FTP data channel that is created after successful negotiation on the FTP control channel.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> 302014, 302016</p>
recurse	Close recursive flow	<p>A flow was recursively freed. This reason applies to pair flows and multicast slave flows, and serves to prevent System log messages being issued for each of these subordinate flows.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
reinject-punt	Flow terminated by punt action	<p>This counter is incremented when a packet is punted to the exception path for processing by one of the enhanced services such as inspection or AAA. The servicing routine, having detected a violation in the traffic flowing on the flow, requests that the flow be dropped. The flow is immediately dropped.</p> <p><b>Recommendation:</b> Please watch for System log messages triggered by a servicing routine. Flow drop terminates the corresponding connection.</p> <p><b>System log messages:</b> None.</p>

Table 25-2 Flow Drop Reasons (continued)

Flow Drop Reason Keyword	Flow Drop Reason Display	Description
reset-by-ips	Flow reset by IPS	This reason is given for terminating a TCP flow as requested by the AIP SSM. <b>Recommendation:</b> Check System log messages and alerts on the AIP SSM. <b>System log messages:</b> 420003
reset-in	TCP Reset-I	This reason is given for closing an outbound flow (from a low-security interface to a same- or high-security interface) when a TCP reset is received on the flow. <b>Recommendation:</b> None. <b>System log messages:</b> 302014
reset-out	TCP Reset-O	This reason is given for closing an inbound flow (from a high-security interface to low-security interface) when a TCP reset is received on the flow. <b>Recommendation:</b> None. <b>System log messages:</b> 302014
shunned	Flow shunned	This counter will increment when a packet is received that has a source IP address that matches a host in the shun database. When a <b>shun</b> command is applied, it will be incremented for each existing flow that matches the <b>shun</b> command. <b>Recommendation:</b> None. <b>System log messages:</b> 401004
ssl-bad-record-detect	SSL bad record detected	This counter is incremented for each unknown SSL record type received from the remote peer. Any unknown record type received from the peer is treated as a fatal error and the SSL connections that encounter this error must be terminated. <b>Recommendation:</b> It is not normal to see this counter increment at any time. If this counter is incremented, it usually means that the SSL protocol state is out of sync with the client software. The most likely cause of this problem is a software defect in the client software. Contact the Cisco TAC with the client software or web browser version and provide a network trace of the SSL data exchange to troubleshoot this problem. <b>System log messages:</b> None.
ssl-handshake-failed	SSL handshake failed	This counter is incremented when the TCP connection is dropped because the SSL handshake failed. <b>Recommendation:</b> This is to indicate that the TCP connection is dropped because the SSL handshake failed. If the problem cannot be resolved based on the System log messages information generated by the handshake failure condition, please include the related System log messages information when contacting the Cisco TAC. <b>System log messages:</b> 725006, 725014

Table 25-2 Flow Drop Reasons (continued)

Flow Drop Reason Keyword	Flow Drop Reason Display	Description
<b>rm-xlate-limit</b>	RM xlate limit reached	<p>This counter is incremented when the maximum number of xlates for a context or the system has been reached and a new connection is attempted.</p> <p><b>Recommendation:</b> The device administrator can use the commands <b>show resource usage</b> and <b>show resource usage system</b> to view context and system resource limits and “Denied” counts and adjust resource limits if desired.</p> <p><b>System log messages:</b> 321001</p>
<b>rm-host-limit</b>	RM host limit reached	<p>This counter is incremented when the maximum number of hosts for a context or the system has been reached and a new connection is attempted.</p> <p><b>Recommendation:</b> The device administrator can use the commands <b>show resource usage</b> and <b>show resource usage system</b> to view context and system resource limits and “Denied” counts and adjust resource limits if desired.</p> <p><b>System log messages:</b> 321001</p>
<b>rm-inspect-rate-limit</b>	RM inspect rate limit reached	<p>This counter is incremented when the maximum inspection rate for a context or the system has been reached and a new connection is attempted.</p> <p><b>Recommendation:</b> The device administrator can use the commands <b>show resource usage</b> and <b>show resource usage system</b> to view context and system resource limits and “Denied” counts and adjust resource limits if desired.</p> <p><b>System log messages:</b> 321002</p>
<b>ctm-crypto-request-error</b>	CTM crypto request error	<p>This counter is incremented each time CTM cannot accept our crypto request. This usually means the crypto hardware request queue is full.</p> <p><b>Recommendation:</b> Issue the <b>show crypto protocol statistics ssl</b> command and contact the Cisco TAC with this information.</p> <p><b>System log messages:</b> None.</p>
<b>ssl-record-decrypt-error</b>	SSL record decryption failed	<p>This counter is incremented when a decryption error occurs during SSL data receive. This usually means that there is a bug in the SSL code of the ASA or peer, or an attacker may be modifying the data stream. The SSL connection has been closed.</p> <p><b>Recommendation:</b> Investigate the SSL data streams to and from your ASA. If there is no attacker, then this indicates a software error that should be reported to the Cisco TAC.</p> <p><b>System log messages:</b> None.</p>

Table 25-2 Flow Drop Reasons (continued)

Flow Drop Reason Keyword	Flow Drop Reason Display	Description
<b>np-socket-conn-not-accepted</b>	A new socket connection was not accepted	This counter is incremented for each new socket connection that is not accepted by the security appliance.  <b>Recommendation:</b> It is possible to see this counter increment as part of normal operation. However, if the counter is rapidly incrementing and there is a major malfunction of socket-based applications, then this may be caused by a software defect. Contact the Cisco TAC to investigate the issue further.  <b>System log messages:</b> None.
<b>np-socket-failure</b>	NP socket failure	This is a general counter for critical socket processing errors.  <b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC.  <b>System log messages:</b> None.
<b>np-socket-data-move-failure</b>	NP socket data movement failure	This counter is incremented for socket data movement errors.  <b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC.  <b>System log messages:</b> None.
<b>np-socket-new-conn-failure</b>	NP socket new connection failure	This counter is incremented for new socket connection failures.  <b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC.  <b>System log messages:</b> None.
<b>np-socket-transport-closed</b>	NP socket transport closed	This counter is incremented when the transport attached to the socket is abruptly closed.  <b>Recommendation:</b> It is possible to see this counter increment as part of normal operation. However, if the counter is rapidly incrementing and there is a major malfunction of socket-based applications, then this may be caused by a software defect. Contact the Cisco TAC to investigate the issue further.  <b>System log messages:</b> None.
<b>np-socket-block-conv-failure</b>	NP socket block conversion failure	This counter is incremented for socket block conversion failures.  <b>Recommendation:</b> This indicates that a software error should be reported to the Cisco TAC.  <b>System log messages:</b> None.

Table 25-2 Flow Drop Reasons (continued)

Flow Drop Reason Keyword	Flow Drop Reason Display	Description
ssl-received-close-alert	SSL received close alert	<p>This counter is incremented each time the security appliance receives a close alert from the remote client. This indicates that the client has notified us they are going to drop the connection. It is part of the normal disconnect process.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> 725007.</p>
tracer-flow	Packet-tracer traced flow drop	<p>This counter is internally used by packet-tracer for flow freed once tracing is complete.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>
ssl-malloc-error	SSL malloc error	<p>This counter is incremented for each malloc failure that occurs in the SSL lib. This is to indicate that SSL encountered a low memory condition where it can't allocate a memory buffer or packet block.</p> <p><b>Recommendation:</b> Check the security appliance memory and packet block condition and contact Cisco the TAC with this memory information.</p> <p><b>System log messages:</b> None.</p>
ssm-app-fail	Service module failed	<p>This counter only applies to the ASA 5500 series adaptive security appliance. It is incremented when a connection that is being inspected by the SSM is terminated because the SSM has failed.</p> <p><b>Recommendation:</b> The card manager process running in the security appliance control plane issued system messages and CLI warning to inform you of the failure. Please consult the documentation that comes with the SSM to trouble shoot the SSM failure. Contact Cisco TAC if needed.</p> <p><b>System log messages:</b> 421001</p>
ssm-app-incompetent	Service module incompetent	<p>This counter only applies to the ASA 5500 series adaptive security appliance. It is incremented when a connection is supposed to be inspected by the SSM, but the SSM is not able to inspect it. This counter is reserved for future use. It should always be 0 in the current release.</p> <p><b>Recommendation:</b> None.</p> <p><b>System log messages:</b> None.</p>

Table 25-2 Flow Drop Reasons (continued)

Flow Drop Reason Keyword	Flow Drop Reason Display	Description
ssm-app-request	Flow terminated by service module	<p>This counter only applies to the ASA 5500 series adaptive security appliance. It is incremented when the application running on the SSM requests the security appliance to terminate a connection.</p> <p><b>Recommendation:</b> You can obtain more information by querying the incident report or system messages generated by the SSM itself. Please consult the documentation that comes with comes with the SSM for instructions.</p> <p><b>System log messages:</b> None.</p>
svc-failover	An SVC socket connection is being disconnected on the standby unit	<p>This counter is incremented for each new SVC socket connection that is disconnected when the active unit is transitioning into standby state as part of a failover transition.</p> <p><b>Recommendation:</b> None. This is part of a normal cleanup of a SVC connection when the current device is transitioning from active to standby. Existing SVC connections on the device are no longer valid and need to be removed.</p> <p><b>System log messages:</b> None.</p>
svc-spoof-detect	SVC spoof packet detected	<p>This counter will increment when the security appliance receives a packet which should have been encrypted but was not. The packet matched the inner header security policy check of a configured and established SVC connection on the security appliance but was received unencrypted. This is a security issue.</p> <p><b>Recommendation:</b> Analyze your network traffic to determine the source of the spoofed SVC traffic.</p> <p><b>System log messages:</b> None.</p>
syn-timeout	SYN Timeout	<p>This reason is given for closing a TCP flow due to expiry of embryonic timer.</p> <p><b>Recommendation:</b> If these are valid sessions that take longer to establish a connection, then increase the embryonic timeout.</p> <p><b>System log messages:</b> 302014</p>
tcp-fins	TCP FINs	<p>This reason is given for closing a TCP flow when TCP FIN packets are received.</p> <p><b>Recommendation:</b> This counter will increment for each TCP connection that is terminated normally with FINs.</p> <p><b>System log messages:</b> 302014</p>
tcp-intercept-no-response	TCP intercept server no respond	<p>SYN retransmission timeout after trying three times, once every second. Server unreachable, tearing down connection.</p> <p><b>Recommendation:</b> Check if the server is reachable from the security appliance.</p> <p><b>System log messages:</b> None.</p>

Table 25-2 Flow Drop Reasons (continued)

Flow Drop Reason Keyword	Flow Drop Reason Display	Description
<b>tcp-intercept-kill</b>	Flow terminated by TCP Intercept	<p>TCP intercept tore down the connection for the following reasons:</p> <ol style="list-style-type: none"> <li>1. This is the first SYN</li> <li>2. A connection is created for the SYN</li> <li>3. TCP intercept replied with a SYN cookie; or TCP intercept sends a SYN to the server and the server replies with a RST after seeing a valid ACK from the client.</li> </ol> <p><b>Recommendation:</b> TCP intercept normally does not create a connection for the first SYN, except when there are nailed rules, the packet comes over a VPN tunnel, or the next hop gateway address to reach the client is not resolved. So for the first SYN, this indicates that a connection was created. When TCP intercept receives a RST from server, it is likely that the corresponding port is closed on the server.</p> <p><b>System log messages:</b> None.</p>
<b>tcp-intercept-unexpected</b>	TCP intercept unexpected state	<p>Logic error in the TCP intercept module; this should never happen.</p> <p><b>Recommendation:</b> Indicates memory corruption or some other logic error in the TCP intercept module.</p> <p><b>System log messages:</b> None.</p>
<b>tcpmod-connect-clash</b>	TCP module port collision between client and server	<p>A TCP connect socket clashes with an existing listen connection. This is an internal system error.</p> <p><b>Recommendation:</b> Contact TAC.</p> <p><b>System log messages:</b> None.</p>
<b>tcpnorm-invalid-syn</b>	TCP invalid SYN	<p>This reason is given for closing a TCP flow when the SYN packet is invalid.</p> <p><b>Recommendation:</b> The SYN packet could be invalid for a number of reasons, such as an invalid checksum or an invalid TCP header. Please use the packet capture feature to understand why the SYN packet is invalid. If you would like to allow these connections, use the <b>tcp-map</b> configuration to bypass checks.</p> <p><b>System log messages:</b> 302014</p>
<b>tcpnorm-rexmit-bad</b>	TCP bad retransmission	<p>This reason is given for closing a TCP flow when the <b>check-retransmission</b> feature is enabled, and the TCP endpoint sent a retransmission with different data from the original packet.</p> <p><b>Recommendation:</b> The TCP endpoint may be attacking by sending different data in TCP retransmits. Please use the packet capture feature to learn more about the origin of the packet.</p> <p><b>System log messages:</b> 302014</p>



Table 25-2 Flow Drop Reasons (continued)

Flow Drop Reason Keyword	Flow Drop Reason Display	Description
<b>tcpcnorm-win-variation</b>	TCP unexpected window size variation	This reason is given for closing a TCP flow when the window size advertised by the TCP endpoint is drastically changed without accepting that much data.  <b>Recommendation:</b> In order to allow this connection, use the <b>window-variation</b> command.  <b>System log messages:</b> 302014
<b>timeout</b>	Conn-timeout	This counter is incremented when a flow is closed because of the expiration of its inactivity timer.  <b>Recommendation:</b> None.  <b>System log messages:</b> 302014, 302016, 302018, 302021
<b>tunnel-pending</b>	Tunnel being brought up or torn down	This counter will increment when the security appliance receives a packet matching an entry in the security policy database (i.e. <b>crypto map</b> ) but the security association is in the process of being negotiated; its not complete yet.  This counter will also increment when the security appliance receives a packet matching an entry in the security policy database but the security association has been or is in the process of being deleted. The difference between this indication and the “Tunnel has been torn down” indication is that the “Tunnel has been torn down” indication is for established flows.  <b>Recommendation:</b> This is a normal condition when the IPSec tunnel is in the process of being negotiated or deleted.  <b>System log messages:</b> None.
<b>tunnel-torn-down</b>	Tunnel has been torn down	This counter will increment when the security appliance receives a packet associated with an established flow whose IPSec security association is in the process of being deleted.  <b>Recommendation:</b> This is a normal condition when the IPSec tunnel is torn down for any reason.  <b>System log messages:</b> None
<b>xlate-removed</b>	Xlate Clear	The flow was removed in response to the <b>clear xlate</b> command or <b>clear local-host</b> command.  <b>Recommendation:</b> This is an information counter.  <b>System log messages:</b> 302014, 302016, 302018, 302021, 305010, 305012, 609002

**Examples**

The following is sample output from the **show asp drop** command:

```
hostname# show asp drop

Frame drop:
  Invalid encapsulation          10897
  Invalid tcp length             9382
```

## show asp drop

```

Invalid udp length                10
No valid adjacency                5594
No route to host                  1009
Reverse-path verify failed        15
Flow is denied by access rule    25247101
First TCP packet not SYN         36888
Bad TCP flags                     67148
Bad option length in TCP         731
TCP MSS was too large            10942
TCP Window scale on non-SYN      2591
Bad TCP SACK ALLOW option        224
TCP Dual open denied             11
TCP data send after FIN          62
TCP failed 3 way handshake       328859
TCP RST/FIN out of order        258871
TCP SEQ in SYN/SYNACK invalid    142
TCP ACK in SYNACK invalid        278
TCP packet SEQ past window       46331
TCP invalid ACK                  1234749
TCP packet buffer full           90009943
TCP RST/SYN in window           43136
TCP DUP and has been ACKed       927075
TCP packet failed PAWS test      9907
Early security checks failed      3
Slowpath security checks failed   19
DNS Inspect invalid packet       1097
DNS Inspect invalid domain label  10
DNS Inspect packet too long      5
DNS Inspect id not matched       8270
FP L2 rule drop                  783
FP no mcast output intrf         5
Interface is down                3881
Non-IP packet received in routed mode 158

Flow drop:
Flow is denied by access rule     24
NAT failed                        28739
NAT reverse path failed           22266
Inspection failure                19433

```

## Related Commands

Command	Description
<b>capture</b>	Captures packets, including the option to capture packets based on an asp drop code.
<b>clear asp drop</b>	Clears drop statistics for the accelerated security path.
<b>show conn</b>	Shows information about connections.

# show asp table arp

To debug the accelerated security path ARP tables, use the **show asp table arp** command in privileged EXEC mode.

```
show asp table arp [interface interface_name] [address ip_address [netmask mask]]
```

Syntax Description	Parameter	Description
	<b>address</b> <i>ip_address</i>	(Optional) Identifies an IP address for which you want to view ARP table entries.
	<b>interface</b> <i>interface_name</i>	(Optional) Identifies a specific interface for which you want to view the ARP table.
	<b>netmask</b> <i>mask</i>	(Optional) Sets the subnet mask for the IP address.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **show arp** command shows the contents of the control plane, while the **show asp table arp** command shows the contents of the accelerated security path, which might help you troubleshoot a problem. See the *Cisco Security Appliance Command Line Configuration Guide* for more information about the accelerated security path. These tables are used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

**Examples** The following is sample output from the **show asp table arp** command:

```
hostname# show asp table arp

Context: single_vf, Interface: inside
 10.86.194.50      Active  000f.66ce.5d46 hits 0
 10.86.194.1      Active  00b0.64ea.91a2 hits 638
 10.86.194.172    Active  0001.03cf.9e79 hits 0
 10.86.194.204    Active  000f.66ce.5d3c hits 0
 10.86.194.188    Active  000f.904b.80d7 hits 0

Context: single_vf, Interface: identity
```

## ■ show asp table arp

```
:: Active 0000.0000.0000 hits 0  
0.0.0.0 Active 0000.0000.0000 hits 50208
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show arp</b>	Shows the ARP table.
<b>show arp statistics</b>	Shows ARP statistics.

# show asp table classify

To debug the accelerated security path classifier tables, use the **show asp table classify** command in privileged EXEC mode. The classifier examines properties of incoming packets, such as protocol, and source and destination address, to match each packet to an appropriate classification rule. Each rule is labeled with a classification domain that determines what types of actions are performed, such as dropping a packet or allowing it through.

```
show asp table classify [crypto | domain domain_name | interface interface_name]
```

## Syntax Description

<b>domain</b> <i>domain_name</i>	(Optional) Shows entries for a specific classifier domain. See “Usage Guidelines” for a list of domains.
<b>interface</b> <i>interface_name</i>	(Optional) Identifies a specific interface for which you want to view the classifier table.
<b>crypto</b>	(Optional) Shows the encrypt, decrypt, and ipsec tunnel flow domains only.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **show asp table classifier** command shows the classifier contents of the accelerated security path, which might help you troubleshoot a problem. See the *Cisco Security Appliance Command Line Configuration Guide* for more information about the accelerated security path. These tables are used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

Classifier domains include the following:

```
aaa-acct
aaa-auth
aaa-user
accounting
arp
capture
capture
conn-nailed
conn-set
```

```
ctcp
decrypt
encrypt
established
filter-activex
filter-ftp
filter-https
filter-java
filter-url
host
ids
inspect
inspect-ctiqbe
inspect-dns
inspect-dns-ids
inspect-ftp
inspect-ftp-data
inspect-gtp
inspect-h323
inspect-http
inspect-icmp
inspect-icmp-error
inspect-ils
inspect-mgcp
inspect-netbios
inspect-pptp
inspect-rsh
inspect-rtsp
inspect-sip
inspect-skinny
inspect-smtp
inspect-snmp
inspect-sqlnet
inspect-sqlnet-plus
inspect-sunrpc
inspect-tftp
inspect-xdmcp
ipsec-natt
ipsec-tunnel-flow
ipsec-user
l2tp
l2tp-ppp
limits
lu
mac-permit
mgmt-lockdown
mgmt-tcp-intercept
multicast
nat
nat-exempt
nat-exempt-reverse
nat-reverse
null
permit
permit-ip-option
permit-log
pim
ppp
priority-q
punt
punt-l2
punt-root
qos
qos-per-class
```

```

qos-per-dest
qos-per-flow
qos-per-source
shun
tcp-intercept

```

### Examples

The following is sample output from the **show asp table classify** command:

```

hostname# show asp table classify

Interface test:
in id=0x36f3800, priority=10, domain=punt, deny=false
  hits=0, user_data=0x0, flags=0x0
  src ip=0.0.0.0, mask=0.0.0.0, port=0
  dst ip=10.86.194.60, mask=255.255.255.255, port=0
in id=0x33d3508, priority=99, domain=inspect, deny=false
  hits=0, user_data=0x0, use_real_addr, flags=0x0
  src ip=0.0.0.0, mask=0.0.0.0, port=0
  dst ip=0.0.0.0, mask=0.0.0.0, port=0
in id=0x33d3978, priority=99, domain=inspect, deny=false
  hits=0, user_data=0x0, use_real_addr, flags=0x0
  src ip=0.0.0.0, mask=0.0.0.0, port=53
  dst ip=0.0.0.0, mask=0.0.0.0, port=0
...

```

### Related Commands

Command	Description
<b>show asp drop</b>	Shows the accelerated security path counters for dropped packets.

# show asp table interfaces

To debug the accelerated security path interface tables, use the **show asp table interfaces** command in privileged EXEC mode.

## show asp table interfaces

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **show asp table interfaces** command shows the interface table contents of the accelerated security path, which might help you troubleshoot a problem. See the *Cisco Security Appliance Command Line Configuration Guide* for more information about the accelerated security path. These tables are used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

**Examples** The following is sample output from the **show asp table interfaces** command:

```
hostname# show asp table interfaces

** Flags: 0x0001-DHCP, 0x0002-VMAC, 0x0010-Ident Ifc, 0x0020-HDB Initd,
0x0040-RPF Enabled
Soft-np interface 'dmz' is up
  context single_vf, nicnum 0, mtu 1500
  vlan 300, Not shared, seclvl 50
  0 packets input, 1 packets output
  flags 0x20

Soft-np interface 'foo' is down
  context single_vf, nicnum 2, mtu 1500
  vlan <None>, Not shared, seclvl 0
  0 packets input, 0 packets output
  flags 0x20
```



```
Soft-np interface 'outside' is down
  context single_vf, nicnum 1, mtu 1500
  vlan <None>, Not shared, seclvl 50
  0 packets input, 0 packets output
  flags 0x20

Soft-np interface 'inside' is up
  context single_vf, nicnum 0, mtu 1500
  vlan <None>, Not shared, seclvl 100
  680277 packets input, 92501 packets output
  flags 0x20
...
```

**Related Commands**

Command	Description
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.

# show asp table mac-address-table

To debug the accelerated security path MAC address tables, use the **show asp table mac-address-table** command in privileged EXEC mode.

```
show asp table mac-address-table [interface interface_name]
```

<b>Syntax Description</b>	<b>interface</b> (Optional) Shows MAC address tables for a specific interface. <i>interface_name</i>
---------------------------	---

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	—	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **show asp table mac-address-table** command shows the MAC address table contents of the accelerated security path, which might help you troubleshoot a problem. See the *Cisco Security Appliance Command Line Configuration Guide* for more information about the accelerated security path. These tables are used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

**Examples** The following is sample output from the **show asp table mac-address-table** command:

```
hostname# show asp table mac-address-table

interface          mac address          flags
-----
inside1            0009.b74d.3800      None
inside1            0007.e903.ad6e      None
inside1            0007.e950.2067      None
inside1            0050.0499.3749      None
inside1            0012.d96f.e200      None
inside1            0001.02a7.f4ec      None
inside1            0001.032c.6477      None
inside1            0004.5a2d.a1c8      None
inside1            0003.4773.c87b      None
inside1            000d.88ef.5d1c      None
inside1            00c0.b766.adce      None
```

```
    inside1          0050.5640.450d    None
    inside1          0001.03cf.0431    None
    ...
```

**Related Commands**

Command	Description
<b>show mac-address-table</b>	Shows the MAC address table, including dynamic and static entries.

# show asp table routing

To debug the accelerated security path routing tables, use the **show asp table routing** command in privileged EXEC mode. This command supports IPv4 and IPv6 addresses.

```
show asp table routing [input | output] [address ip_address [netmask mask] |
interface interface_name]
```

Syntax Description	Parameter	Description
	<b>address</b> <i>ip_address</i>	Sets the IP address for which you want to view routing entries. For IPv6 addresses, you can include the subnet mask as a slash (/) followed by the prefix (0 to 128). For example, enter the following:  fe80::2e0:b6ff:fe01:3b7a/128
	<b>input</b>	Shows the entries from the input route table.
	<b>interface</b> <i>interface_name</i>	(Optional) Identifies a specific interface for which you want to view the routing table.
	<b>netmask</b> <i>mask</i>	For IPv4 addresses, specifies the subnet mask.
	<b>output</b>	Shows the entries from the output route table.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **show asp table routing** command shows the routing table contents of the accelerated security path, which might help you troubleshoot a problem. See the *Cisco Security Appliance Command Line Configuration Guide* for more information about the accelerated security path. These tables are used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

**Examples** The following is sample output from the **show asp table routing** command:

```
hostname# show asp table routing

in 255.255.255.255 255.255.255.255 identity
```

```

in 224.0.0.9      255.255.255.255 identity
in 10.86.194.60   255.255.255.255 identity
in 10.86.195.255  255.255.255.255 identity
in 10.86.194.0    255.255.255.255 identity
in 209.165.202.159 255.255.255.255 identity
in 209.165.202.255 255.255.255.255 identity
in 209.165.201.30  255.255.255.255 identity
in 209.165.201.0   255.255.255.255 identity
in 10.86.194.0     255.255.254.0    inside
in 224.0.0.0       240.0.0.0        identity
in 0.0.0.0         0.0.0.0          inside
out 255.255.255.255 255.255.255.255 foo
out 224.0.0.0       240.0.0.0        foo
out 255.255.255.255 255.255.255.255 test
out 224.0.0.0       240.0.0.0        test
out 255.255.255.255 255.255.255.255 inside
out 10.86.194.0     255.255.254.0    inside
out 224.0.0.0       240.0.0.0        inside
out 0.0.0.0         0.0.0.0          via 10.86.194.1, inside
out 0.0.0.0         0.0.0.0          via 0.0.0.0, identity
out ::              ::               via 0.0.0.0, identity

```

**Related Commands**

Command	Description
<b>show route</b>	Shows the routing table in the control plane.

# show asp table vpn-context

To debug the accelerated security path VPN context tables, use the **show asp table vpn-context** command in privileged EXEC mode.

**show asp table vpn-context [detail]**

## Syntax Description

**detail** (Optional) Shows additional detail for the VPN context tables.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **show asp table vpn-context** command shows the VPN context contents of the accelerated security path, which might help you troubleshoot a problem. See the *Cisco Security Appliance Command Line Configuration Guide* for more information about the accelerated security path. These tables are used for debugging purposes only, and the information output is subject to change. Consult Cisco TAC to help you debug your system with this command.

## Examples

The following is sample output from the **show asp table vpn-context** command:

```
hostname# show asp table vpn-context

VPN ID=0058070576, DECR+ESP, UP, pk=0000000000, rk=0000000000, gc=0
VPN ID=0058193920, ENCR+ESP, UP, pk=0000000000, rk=0000000000, gc=0
VPN ID=0058168568, DECR+ESP, UP, pk=0000299627, rk=0000000061, gc=2
VPN ID=0058161168, ENCR+ESP, UP, pk=0000305043, rk=0000000061, gc=1
VPN ID=0058153728, DECR+ESP, UP, pk=0000271432, rk=0000000061, gc=2
VPN ID=0058150440, ENCR+ESP, UP, pk=0000285328, rk=0000000061, gc=1
VPN ID=0058102088, DECR+ESP, UP, pk=0000268550, rk=0000000061, gc=2
VPN ID=0058134088, ENCR+ESP, UP, pk=0000274673, rk=0000000061, gc=1
VPN ID=0058103216, DECR+ESP, UP, pk=0000252854, rk=0000000061, gc=2
...
```

The following is sample output from the **show asp table vpn-context detail** command:

```
hostname# show asp table vpn-context detail
```

```

VPN Ctx = 0058070576 [0x03761630]
State   = UP
Flags   = DECR+ESP
SA      = 0x037928F0
SPI     = 0xEA0F21F0
Group   = 0
Pkts    = 0
Bad Pkts = 0
Bad SPI = 0
Spoof   = 0
Bad Crypto = 0
Rekey Pkt = 0
Rekey Call = 0

VPN Ctx = 0058193920 [0x0377F800]
State   = UP
Flags   = ENCR+ESP
SA      = 0x037B4B70
SPI     = 0x900FDC32
Group   = 0
Pkts    = 0
Bad Pkts = 0
Bad SPI = 0
Spoof   = 0
Bad Crypto = 0
Rekey Pkt = 0
Rekey Call = 0
...

```

**Related Commands**

Command	Description
<b>show asp drop</b>	Shows the accelerated security path counters for dropped packets.

# show blocks

To show the packet buffer utilization, use the **show blocks** command in privileged EXEC mode.

```
show blocks [{address hex | all | assigned | free | old | pool size [summary]}] [diagnostics |
dump | header | packet] | queue history [detail]
```

## Syntax Description

<b>address <i>hex</i></b>	(Optional) Shows a block corresponding to this address, in hexadecimal.
<b>all</b>	(Optional) Shows all blocks.
<b>assigned</b>	(Optional) Shows blocks that are assigned and in use by an application.
<b>detail</b>	(Optional) Shows a portion (128 bytes) of the first block for each unique queue type.
<b>dump</b>	(Optional) Shows the entire block contents, including the header and packet information. The difference between dump and packet is that dump includes additional information between the header and the packet.
<b>diagnostics</b>	(Optional) Shows block diagnostics.
<b>free</b>	(Optional) Shows blocks that are available for use.
<b>header</b>	(Optional) Shows the header of the block.
<b>old</b>	(Optional) Shows blocks that were assigned more than a minute ago.
<b>packet</b>	(Optional) Shows the header of the block as well as the packet contents.
<b>pool <i>size</i></b>	(Optional) Shows blocks of a specific size.
<b>queue history</b>	(Optional) Shows where blocks are assigned when the security appliance runs out of blocks. Sometimes, a block is allocated from the pool but never assigned to a queue. In that case, the location is the code address that allocated the block.
<b>summary</b>	(Optional) Shows detailed information about block usage sorted by the program addresses of applications that allocated blocks in this class, program addresses of applications that released blocks in this class, and the queues to which valid blocks in this class belong.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	The <b>pool summary</b> option was added.



**Usage Guidelines**

The **show blocks** command helps you determine if the security appliance is overloaded. This command lists preallocated system buffer utilization. A full memory condition is not a problem as long as traffic is moving through the security appliance. You can use the **show conn** command to see if traffic is moving. If traffic is not moving and the memory is full, there may be a problem.

You can also view this information using SNMP.

The information shown in a security context includes the system-wide information as well as context-specific information about the blocks in use and the high water mark for block usage.

See the “Examples” section for a description of the display output.

**Examples**

The following is sample output from the **show blocks** command in single mode:

```
hostname# show blocks
  SIZE   MAX   LOW   CNT
    4    1600  1598  1599
   80     400   398   399
  256   3600  3540  3542
 1550   4716  3177  3184
16384     10    10    10
 2048   1000  1000  1000
```

Table 25-3 shows each field description.

**Table 25-3** show blocks Fields

Field	Description
SIZE	Size, in bytes, of the block pool. Each size represents a particular type. Examples are shown below.
4	Duplicates existing blocks in applications such as DNS, ISAKMP, URL filtering, uauth, TFTP, and TCP modules.
80	Used in TCP intercept to generate acknowledgment packets and for failover hello messages.
256	Used for Stateful Failover updates, syslogging, and other TCP functions.  These blocks are mainly used for Stateful Failover messages. The active security appliance generates and sends packets to the standby security appliance to update the translation and connection table. In bursty traffic, where high rates of connections are created or torn down, the number of available blocks might drop to 0. This situation indicates that one or more connections were not updated to the standby security appliance. The Stateful Failover protocol catches the missing translation or connection the next time. If the CNT column for 256-byte blocks stays at or near 0 for extended periods of time, then the security appliance is having trouble keeping the translation and connection tables synchronized because of the number of connections per second that the security appliance is processing.  Syslog messages sent out from the security appliance also use the 256-byte blocks, but they are generally not released in such quantity to cause a depletion of the 256-byte block pool. If the CNT column shows that the number of 256-byte blocks is near 0, ensure that you are not logging at Debugging (level 7) to the syslog server. This is indicated by the logging trap line in the security appliance configuration. We recommend that you set logging at Notification (level 5) or lower, unless you require additional information for debugging purposes.

**Table 25-3** show blocks Fields (continued)

Field	Description
1550	Used to store Ethernet packets for processing through the security appliance. When a packet enters a security appliance interface, it is placed on the input interface queue, passed up to the operating system, and placed in a block. The security appliance determines whether the packet should be permitted or denied based on the security policy and processes the packet through to the output queue on the outbound interface. If the security appliance is having trouble keeping up with the traffic load, the number of available blocks will hover close to 0 (as shown in the CNT column of the command output). When the CNT column is zero, the security appliance attempts to allocate more blocks, up to a maximum of 8192. If no more blocks are available, the security appliance drops the packet.
16384	Only used for the 64-bit, 66-MHz Gigabit Ethernet cards (i82543). See the description for 1550 for more information about Ethernet packets.
2048	Control or guided frames used for control updates.
MAX	Maximum number of blocks available for the specified byte block pool. The maximum number of blocks are carved out of memory at bootup. Typically, the maximum number of blocks does not change. The exception is for the 256- and 1550-byte blocks, where the security appliance can dynamically create more when needed, up to a maximum of 8192.
LOW	Low-water mark. This number indicates the lowest number of this size blocks available since the security appliance was powered up, or since the last clearing of the blocks (with the <b>clear blocks</b> command). A zero in the LOW column indicates a previous event where memory was full.
CNT	Current number of blocks available for that specific size block pool. A zero in the CNT column means memory is full now.

The following is sample output from the **show blocks all** command:

```
hostname# show blocks all
Class 0, size 4
  Block   allocd_by   freed_by   data size   alloccnt   dup_cnt   oper location
0x01799940 0x00000000 0x00101603      0         0         0 alloc not_specified
0x01798e80 0x00000000 0x00101603      0         0         0 alloc not_specified
0x017983c0 0x00000000 0x00101603      0         0         0 alloc not_specified
...
Found 1000 of 1000 blocks
Displaying 1000 of 1000 blocks
```

Table 25-4 shows each field description.

**Table 25-4** show blocks all Fields

Field	Description
Block	The block address.
allocd_by	The program address of the application that last used the block (0 if not used).
freed_by	The program address of the application that last released the block.
data size	The size of the application buffer/packet data that is inside the block.

**Table 25-4** show blocks all Fields

Field	Description
allocnt	The number of times this block has been used since the block came into existence.
dup_cnt	The current number of references to this block if used: 0 means 1 reference, 1 means 2 references.
oper	One of the four operations that was last performed on the block: alloc, get, put, or free.
location	The application that uses the block, or the program address of the application that last allocated the block (same as the allocd_by field).

The following is sample output from the **show blocks** command in a context:

```
hostname/contexta# show blocks
  SIZE   MAX    LOW    CNT   INUSE  HIGH
    4    1600  1599  1599     0     0
   80    400   400   400     0     0
  256   3600  3538  3540     0     1
 1550   4616  3077  3085     0     0
```

The following is sample output from the **show blocks queue history** command:

```
hostname# show blocks queue history
Each Summary for User and Queue_type is followed its top 5 individual queues
Block Size: 4
Summary for User "http", Queue "tcp_unp_c_in", Blocks 1595, Queues 1396
Blk_cnt Q_cnt Last_Op Queue_Type      User      Context
   186    1 put      tcp_unp_c_in  http     contexta
    15    1 put      tcp_unp_c_in  http     contexta
     1    1 put      tcp_unp_c_in  http     contexta
     1    1 put      tcp_unp_c_in  http     contextb
     1    1 put      tcp_unp_c_in  http     contextc
Summary for User "aaa", Queue "tcp_unp_c_in", Blocks 220, Queues 200
Blk_cnt Q_cnt Last_Op Queue_Type      User      Context
    21    1 put      tcp_unp_c_in  aaa      contexta
     1    1 put      tcp_unp_c_in  aaa      contexta
     1    1 put      tcp_unp_c_in  aaa      contexta
     1    1 put      tcp_unp_c_in  aaa      contextb
     1    1 put      tcp_unp_c_in  aaa      contextc
Blk_cnt Q_cnt Last_Op Queue_Type      User      Context
   200    1 alloc   ip_rx        tcp      contexta
   108    1 get     ip_rx        udp      contexta
    85    1 free    fixup        h323_ras contextb
    42    1 put     fixup        skinny   contextb

Block Size: 1550
Summary for User "http", Queue "tcp_unp_c_in", Blocks 1595, Queues 1000
Blk_cnt Q_cnt Last_Op Queue_Type      User      Context
   186    1 put      tcp_unp_c_in  http     contexta
    15    1 put      tcp_unp_c_in  http     contexta
     1    1 put      tcp_unp_c_in  http     contexta
     1    1 put      tcp_unp_c_in  http     contextb
     1    1 put      tcp_unp_c_in  http     contextc
...
```

The following is sample output from the **show blocks queue history detail** command:

```
hostname# show blocks queue history detail
History buffer memory usage: 2136 bytes (default)
Each Summary for User and Queue type is followed its top 5 individual queues
Block Size: 4
```

```

Summary for User "http", Queue_Type "tcp_unp_c_in", Blocks 1595, Queues 1396
Blk_cnt Q_cnt Last_Op Queue_Type      User      Context
    186     1 put
    15     1 put
     1     1 put
     1     1 put
     1     1 put
First Block information for Block at 0x....
dup_count 0, flags 0x8000000, alloc_pc 0x43ea2a,
start_addr 0xefb1074, read_addr 0xefb118c, write_addr 0xefb1193
urgent_addr 0xefb118c, end_addr 0xefb17b2
0efb1150: 00 00 00 03 47 c5 61 c5 00 05 9a 38 76 80 a3 00 | ....G.a....8v...
0efb1160: 00 0a 08 00 45 00 05 dc 9b c9 00 00 ff 06 f8 f3 | ....E.....
0efb1170: 0a 07 0d 01 0a 07 00 50 00 17 cb 3d c7 e5 60 62 | .....P...=..`b
0efb1180: 7e 73 55 82 50 18 10 00 45 ca 00 00 2d 2d 20 49 | ~sU.P...E...-- I
0efb1190: 50 20 2d 2d 0d 0a 31 30 2e 37 2e 31 33 2e 31 09 | P --..10.7.13.1.
0efb11a0: 3d 3d 3e 09 31 30 2e 37 2e 30 2e 38 30 0d 0a 0d | ==>.10.7.0.80...

Summary for User "aaa", Queue "tcp_unp_c_in", Blocks 220, Queues 200
Blk_cnt Q_cnt Last_Op Queue_Type      User      Context
    21     1 put
     1     1 put
     1     1 put
     1     1 put
     1     1 put
First Block information for Block at 0x....
dup_count 0, flags 0x8000000, alloc_pc 0x43ea2a,
start_addr 0xefb1074, read_addr 0xefb118c, write_addr 0xefb1193
urgent_addr 0xefb118c, end_addr 0xefb17b2
0efb1150: 00 00 00 03 47 c5 61 c5 00 05 9a 38 76 80 a3 00 | ....G.a....8v...
0efb1160: 00 0a 08 00 45 00 05 dc 9b c9 00 00 ff 06 f8 f3 | ....E.....
0efb1170: 0a 07 0d 01 0a 07 00 50 00 17 cb 3d c7 e5 60 62 | .....P...=..`b
0efb1180: 7e 73 55 82 50 18 10 00 45 ca 00 00 2d 2d 20 49 | ~sU.P...E...-- I
0efb1190: 50 20 2d 2d 0d 0a 31 30 2e 37 2e 31 33 2e 31 09 | P --..10.7.13.1.
0efb11a0: 3d 3d 3e 09 31 30 2e 37 2e 30 2e 38 30 0d 0a 0d | ==>.10.7.0.80...
...

```

total\_count: total buffers in this class

The following is sample output from the **show blocks pool summary** command:

```

hostname# show blocks pool 1550 summary
Class 3, size 1550

=====
total_count=1531    miss_count=0
Alloc_pc    valid_cnt    invalid_cnt
0x3b0a18    00000256    00000000
             0x01ad0760 0x01acfe00 0x01acf4a0 0x01aceb40 00000000 0x00000000
0x3a8f6b    00001275    00000012
             0x05006aa0 0x05006140 0x050057e0 0x05004520 00000000
0x00000000

=====
total_count=9716    miss_count=0
Freed_pc    valid_cnt    invalid_cnt
0x9a81f3    00000104    00000007
             0x05006140 0x05000380 0x04fffa20 0x04ffde00 00000000 0x00000000
0x9a0326    00000053    00000033
             0x05006aa0 0x050057e0 0x05004e80 0x05003260 00000000 0x00000000
0x4605a2    00000005    00000000
             0x04ff5ac0 0x01e8e2e0 0x01e2eac0 0x01e17d20 00000000 0x00000000
...
=====

```

```

total_count=1531    miss_count=0
Queue  valid_cnt      invalid_cnt
0x3b0a18      00000256      00000000  Invalid Bad qtype
              0x01ad0760 0x01acfe00 0x01acf4a0 0x01aceb40 00000000 0x00000000
0x3a8f6b      00001275      00000000  Invalid Bad qtype
              0x05006aa0 0x05006140 0x050057e0 0x05004520 00000000
0x00000000

=====
free_cnt=8185  fails=0  actual_free=8185  hash_miss=0
03a8d3e0 03a8b7c0 03a7fc40 03a6ff20 03a6f5c0 03a6ec60 kao-f1#

```

Table 25-5 shows each field description.

**Table 25-5** show blocks pool summary Fields

Field	Description
total_count	The number of blocks for a given class.
miss_count	The number of blocks not reported in the specified category due to technical reasons.
Freed_pc	The program addresses of applications that released blocks in this class.
Alloc_pc	The program addresses of applications that allocated blocks in this class.
Queue	The queues to which valid blocks in this class belong.
valid_cnt	The number of blocks that are currently allocated.
invalid_cnt	The number of blocks that are not currently allocated.
Invalid Bad qtype	Either this queue has been freed and the contents are invalid or this queue was never initialized.
Valid tcp_usr_conn_inp	The queue is valid.

#### Related Commands

Command	Description
<b>blocks</b>	Increases the memory assigned to block diagnostics
<b>clear blocks</b>	Clears the system buffer statistics.
<b>show conn</b>	Shows active connections.

# show bootvar

To show the boot file and configuration properties, use the **show boot** command in privileged configuration mode.

## show bootvar

Syntax Description	show bootvar	The system boot properties.
--------------------	--------------	-----------------------------

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged Mode	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The BOOT variable specifies a list of bootable images on various devices. The CONFIG\_FILE variable specifies the configuration file used during system initialization. Set these variables with the **boot system** command, and **boot config** command, respectively.

**Examples** The following example, the BOOT variable contains disk0:/f1\_image, which is the image booted when the system reloads. The current value of BOOT is disk0:/f1\_image; disk0:/f1\_backupimage. This means boot variable has been modified with the boot system command, but the running configuration has not been saved with the **write memory** command. When the running config is saved, the BOOT variable and current BOOT variable will both be disk0:/f1\_image; disk0:/f1\_backupimage. Assuming the running configuration is saved the boot loader will attempt to load the contents of the BOOT variable, starting with disk0:/f1image, but if that is not present or invalid, it will attempt to boot disk0:/f1\_backupimage.

The CONFIG\_FILE variable points to the system startup configuration. In this example it is not set, so the startup configuration file is the default specified with the **boot config** command. The current CONFIG\_FILE variable may be modified with the **boot config** command and saved with the **write memory** command.

```
hostname# show bootvar
BOOT variable = disk0:/f1_image
Current BOOT variable = disk0:/f1_image; disk0:/f1_backupimage
CONFIG_FILE variable =
Current CONFIG_FILE variable =
hostname#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>boot</b>	Specifies the configuration file or image file used at startup.

# show capture

To display the capture configuration when no options are specified, use the **show capture** command.

```
show capture [capture_name] [access-list access_list_name] [count number] [decode] [detail]
[dump] [packet-number number]
```

## Syntax Description

<i>capture_name</i>	(Optional) Name of the packet capture.
access-list <i>access_list_name</i>	(Optional) Displays information for packets that are based on IP or higher fields for the specific access list identification.
<b>count</b> <i>number</i>	(Optional) Displays the number of packets specified data.
decode	This option is useful when a capture of type isakmp is applied to an interface. All isakmp data flowing through that interface will be captured after decryption and shown with more information after decoding the fields.
detail	(Optional) Displays additional protocol information for each packet.
dump	(Optional) Displays a hexadecimal dump of the packets that are transported over the data link transport.
packet-number <i>number</i>	Starts the display at the specified packet number.

## Defaults

This command has no default settings.

## Command Modes

Security Context Mode: single context mode and multiple context mode

Access Location: system and context command line

Command Mode: privileged mode

Firewall Mode: routed firewall mode and transparent firewall mode

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If you specify the *capture\_name*, then the capture buffer contents for that capture are displayed.

The **dump** keyword does not display MAC information in the hexadecimal dump.

The decoded output of the packets depend on the protocol of the packet. In Table 25-6, the bracketed output is displayed when you specify the **detail** keyword.

**Table 25-6 Packet Capture Output Formats**

Packet Type	Capture Output Format
802.1Q	HH:MM:SS.ms [ether-hdr] VLAN-info encap-ether-packet
ARP	HH:MM:SS.ms [ether-hdr] arp-type arp-info



**Table 25-6 Packet Capture Output Formats (continued)**

Packet Type	Capture Output Format
IP/ICMP	<i>HH:MM:SS.ms</i> [ether-hdr] <i>ip-source</i> > <i>ip-destination</i> : icmp: <i>icmp-type icmp-code</i> [checksum-failure]
IP/UDP	<i>HH:MM:SS.ms</i> [ether-hdr] <i>src-addr.src-port</i> <i>dest-addr.dst-port</i> : [checksum-info] udp <i>payload-len</i>
IP/TCP	<i>HH:MM:SS.ms</i> [ether-hdr] <i>src-addr.src-port</i> <i>dest-addr.dst-port</i> : <i>tcp-flags</i> [header-check] [checksum-info] <i>sequence-number</i> <i>ack-number tcp-window urgent-info tcp-options</i>
IP/Other	<i>HH:MM:SS.ms</i> [ether-hdr] <i>src-addr</i> <i>dest-addr</i> : <i>ip-protocol</i> <i>ip-length</i>
Other	<i>HH:MM:SS.ms ether-hdr: hex-dump</i>

**Examples**

This example shows how to display the capture configuration:

```
hostname(config)# show capture
capture arp ethernet-type arp interface outside
capture http access-list http packet-length 74 interface inside
```

This example shows how to display the packets that are captured by an ARP capture:

```
hostname(config)# show capture arp
2 packets captured
19:12:23.478429 arp who-has 171.69.38.89 tell 171.69.38.10
19:12:26.784294 arp who-has 171.69.38.89 tell 171.69.38.10
2 packets shown
```

**Related Commands**

Command	Description
<b>capture</b>	Enables packet capture capabilities for packet sniffing and network fault isolation.
<b>clear capture</b>	Clears the capture buffer.
<b>copy capture</b>	Copies a capture file to a server.

# show chardrop

To display the count of characters dropped from the serial console, use the **show chardrop** command in privileged EXEC mode.

**show chardrop**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show chardrop** command:

```
hostname# show chardrop
Chars dropped pre-TxTimeouts: 0, post-TxTimeouts: 0
```

Related Commands	Command	Description
	<b>show running-config</b>	Shows the current operating configuration.

# show checkheaps

To show the checkheaps statistics, use the **show checkheaps** command in privileged EXEC mode. Checkheaps is a periodic process that verifies the sanity of the heap memory buffers (dynamic memory is allocated from the system heap memory region) and the integrity of the code region.

## show checkheaps

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show checkheaps** command:

```
hostname# show checkheaps

Checkheaps stats from buffer validation runs
-----
Time elapsed since last run      : 42 secs
Duration of last run            : 0 millisecs
Number of buffers created       : 8082
Number of buffers allocated     : 7808
Number of buffers free         : 274
Total memory in use             : 43570344 bytes
Total memory in free buffers    : 87000 bytes
Total number of runs           : 310
```

**Related Commands**

Command	Description
checkheaps	Sets the checkheap verification intervals.

# show checksum

To display the configuration checksum, use the **show checksum** command in privileged EXEC mode.

**show checksum**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command has no default settings.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	

Command History	Release	Modification
	7.0(1)	Support for this command was introduced on the security appliance.

**Usage Guidelines** The **show checksum** command allows you to display four groups of hexadecimal numbers that act as a digital summary of the configuration contents. This checksum is calculated only when you store the configuration in Flash memory.

If a dot (“.”) appears before the checksum in the **show config** or **show checksum** command output, the output indicates a normal configuration load or write mode indicator (when loading from or writing to the security appliance Flash partition). The “.” shows that the security appliance is preoccupied with the operation but is not “hung up.” This message is similar to a “system processing, please wait” message.

**Examples** This example shows how to display the configuration or the checksum:

```
hostname(config)# show checksum
Cryptochecksum: 1a2833c0 129ac70b 1a88df85 650dbb81
```

# show chunkstat

To display the chunk statistics, use the **show chunkstat** command in privileged EXEC mode.

## show chunkstat

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Examples** This example shows how to display the chunk statistics:

```
hostname# show chunkstat
Global chunk statistics: created 181, destroyed 34, siblings created 94, siblings
destroyed 34

Per-chunk statistics: siblings created 0, siblings trimmed 0
Dump of chunk at 01edb4cc, name "Managed Chunk Queue Elements", data start @ 01ebd24, end
@ 01eddc54
next: 01eddc8c, next_sibling: 00000000, prev_sibling: 00000000
flags 00000001
maximum chunk elt's: 499, elt size: 16, index first free 498
# chunks in use: 1, HWM of total used: 1, alignment: 0
Per-chunk statistics: siblings created 0, siblings trimmed 0
Dump of chunk at 01eddc8c, name "Registry Function List", data start @ 01eddea4, end @
01ede348
next: 01ede37c, next_sibling: 00000000, prev_sibling: 00000000
flags 00000001
maximum chunk elt's: 99, elt size: 12, index first free 42
# chunks in use: 57, HWM of total used: 57, alignment: 0
```

**Related Commands**

Command	Description
<b>show counters</b>	Displays the protocol stack counters.
<b>show cpu</b>	Displays the CPU utilization information.

# show class

To show the contexts assigned to a class, use the **show class** command in privileged EXEC mode.

**show class** *name*

## Syntax Description

*name* Specifies the name as a string up to 20 characters long. To show the default class, enter **default** for the name.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	—	—	•

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following is sample output from the **show class default** command:

```
hostname# show class default

Class Name      Members  ID  Flags
default         All     1   0001
```

## Related Commands

Command	Description
<b>class</b>	Configures a resource class.
<b>clear configure class</b>	Clears the class configuration.
<b>context</b>	Configures a security context.
<b>limit-resource</b>	Sets the resource limit for a class.
<b>member</b>	Assigns a context to a resource class.

# show clock

To view the time on the security appliance, use the **show clock** command in user EXEC mode.

**show clock [detail]**

<b>Syntax Description</b>	<b>detail</b>	(Optional) Indicates the clock source (NTP or user configuration) and the current summer-time setting (if any).
---------------------------	---------------	---

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** The following is sample output from the **show clock** command:

```
hostname> show clock
12:35:45.205 EDT Tue Jul 27 2004
```

The following is sample output from the **show clock detail** command:

```
hostname> show clock detail
12:35:45.205 EDT Tue Jul 27 2004
Time source is user configuration
Summer time starts 02:00:00 EST Sun Apr 4 2004
Summer time ends 02:00:00 EDT Sun Oct 31 2004
```

Related Commands	Command	Description
	<b>clock set</b>	Manually sets the clock on the security appliance.
	<b>clock summer-time</b>	Sets the date range to show daylight saving time.
	<b>clock timezone</b>	Sets the time zone.
	<b>ntp server</b>	Identifies an NTP server.
	<b>show ntp status</b>	Shows the status of the NTP association.

# show compression svc

To view compression statistics for SVC connections on the security appliance, use the **show compression svc** command from privileged EXEC mode:

```
show compression svc
```

## Defaults

There is no default behavior for this command.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Examples

The following example shows the output of the **show compression svc** command:

```
hostname# show compression svc
Compression SVC Sessions                1
Compressed Frames                       249756
Compressed Data In (bytes)             0048042
Compressed Data Out (bytes)           4859704
Expanded Frames                        1
Compression Errors                     0
Compression Resets                     0
Compression Output Buf Too Small       0
Compression Ratio                       2.06
Decompressed Frames                    876687
Decompressed Data In                   279300233
```

## Related Commands

Command	Description
<b>compression</b>	Enables compression for all SVC and WebVPN connections.
<b>svc compression</b>	Enables compression of http data over an SVC connection for a specific group or user.



# show conn

To display the connection state for the designated connection type, use the **show conn** command in privileged EXEC mode. This command supports IPv4 and IPv6 addresses.

```
show conn [all | count] [state state_type] | [{" foreign | local } ip [-ip2] netmask mask] | [long | detail] | [{" {lport | fport } port1 } [-port2]] | [protocol {tcp | udp}]
```

## Syntax Description

<b>all</b>	Display connections that are to the device or from the device, in addition to through-traffic connections.
<b>count</b>	(Optional) Displays the number of active connections.
<b>detail</b>	Displays connections in detail, including translation type and interface information.
<b>foreign</b>	Displays connections with the specified foreign IP address.
<b>fport</b>	Displays connections with the specified foreign port.
<i>ip</i>	IP address in dotted-decimal format or beginning address in a range of IP addresses.
<i>-ip2</i>	(Optional) Ending IP address in a range of IP addresses.
<b>local</b>	Displays connections with the specified local IP address.
<b>long</b>	(Optional) Displays connections in long format.
<b>lport</b>	Displays connections with the specified local port.
<b>netmask</b>	Specifies a subnet mask for use with the given IP address.
<i>mask</i>	Subnet mask in dotted-decimal format.
<i>port1</i>	Port number or beginning port number in a range of port numbers.
<i>-port2</i>	(Optional) Ending port number in a range of port numbers.
<b>protocol</b>	(Optional) Specifies the connection protocol.
<b>state</b>	(Optional) Displays the state of specified connections.
<i>state_type</i>	Specifies the connection state type. See Table 25-9 for a list of the keywords available for connection state types.
<b>tcp</b>	Displays TCP protocol connections.
<b>udp</b>	Displays UDP protocol connections.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

The **show conn** command displays the number of active TCP connections, and provides information about connections of various types. Use the **show conn all** command to see the entire table of connections.

**Note**

When the security appliance creates a pinhole to allow secondary connections, this is shown as an incomplete conn by the **show conn** command. To clear this incomplete conn use the **clear local** command.

The connection types that you can specify using the **show conn state** command are defined in Table 25-9. When specifying multiple connection types, use commas without spaces to separate the keywords.

**Table 25-7 Connection State Types**

Keyword	Connection Type Displayed
<b>up</b>	Connections in the up state.
<b>conn_inbound</b>	Inbound connections.
<b>ctiqbe</b>	CTIQBE connections
<b>data_in</b>	Inbound data connections.
<b>data_out</b>	Outbound data connections.
<b>finin</b>	FIN inbound connections.
<b>finout</b>	FIN outbound connections.
<b>h225</b>	H.225 connections
<b>h323</b>	H.323 connections
<b>http_get</b>	HTTP get connections.
<b>mgcp</b>	MGCP connections.
<b>nojava</b>	Connections that deny access to Java applets.
<b>rpc</b>	RPC connections.
<b>service_module</b>	Connections being scanned by an SSM.
<b>sip</b>	SIP connections.
<b>skinny</b>	SCCP connections.
<b>smtp_data</b>	SMTP mail data connections.
<b>sqlnet_fixup_data</b>	SQL*Net data inspection engine connections.

When you use the **detail** option, the system displays information about the translation type and interface information using the connection flags defined in Table 25-10.

**Table 25-8 Connection Flags**

Flag	Description
a	awaiting outside ACK to SYN
A	awaiting inside ACK to SYN
B	initial SYN from outside

Table 25-8 Connection Flags (continued)

Flag	Description
C	Computer Telephony Interface Quick Buffer Encoding (CTIQBE) media connection
d	dump
D	DNS
E	outside back connection
f	inside FIN
F	outside FIN
g	Media Gateway Control Protocol (MGCP) connection
G	connection is part of a group <sup>1</sup>
h	H.225
H	H.323
i	incomplete TCP or UDP connection
I	inbound data
k	Skinny Client Control Protocol (SCCP) media connection
K	GTP t3-response
m	SIP media connection
M	SMTP data
O	outbound data
p	replicated (unused)
P	inside back connection
q	SQL*Net data
r	inside acknowledged FIN
R	outside acknowledged FIN for TCP connection
R	UDP RPC <sup>2</sup>
s	awaiting outside SYN
S	awaiting inside SYN
t	SIP transient connection <sup>3</sup>
T	SIP connection <sup>4</sup>
U	up
X	Inspected by the service module, such as a CSC SSM.

1. The G flag indicates the connection is part of a group. It is set by the GRE and FTP Strict fixups to designate the control connection and all its associated secondary connections. If the control connection terminates, then all associated secondary connections are also terminated.
2. Because each row of **show conn** command output represents one connection (TCP or UDP), there will be only one R flag per row.
3. For UDP connections, the value t indicates that it will timeout after one minute.
4. For UDP connections, the value T indicates that the connection will timeout according to the value specified using the **timeout sip** command.

**Note**

For connections using a DNS server, the source port of the connection may be replaced by the *IP address of DNS server* in the **show conn** command output.

A single connection is created for multiple DNS sessions, as long as they are between the same two hosts, and the sessions have the same 5-tuple (source/destination IP address, source/destination port, and protocol). DNS identification is tracked by *app\_id*, and the idle timer for each *app\_id* runs independently.

Because the *app\_id* expires independently, a legitimate DNS response can only pass through the security appliance within a limited period of time and there is no resource build-up. However, when you enter the **show conn** command, you will see the idle timer of a DNS connection being reset by a new DNS session. This is due to the nature of the shared DNS connection and is by design.

**Note**

When there is no TCP traffic for the period of inactivity defined by the **conn timeout** command (by default, 1:00:00), the connection is closed and the corresponding conn flag entries are no longer displayed.

**Examples**

When specifying multiple connection types, use commas without spaces to separate the keywords. The following example displays information about RPC, H.323, and SIP connections in the Up state:

```
hostname# show conn state up, rpc, h323, sip
```

The following example shows a TCP session connection from inside host 10.1.1.15 to the outside Telnet server at 192.168.49.10. Because there is no B flag, the connection is initiated from the inside. The “U”, “I”, and “O” flags denote that the connection is active and has received inbound and outbound data.

```
hostname# show conn
2 in use, 2 most used
TCP out 192.168.49.10:23 in 10.1.1.15:1026 idle 0:00:22
Bytes 1774 flags UIO
UDP out 192.168.49.10:31649 in 10.1.1.15:1028 idle 0:00:14
flags D-
```

The following example includes the “X” flag to indicate that the connection is being scanned by the SSM.

```
hostname(config)# show conn local 10.0.0.122 state service_module
TCP out 10.1.0.121:22 in 10.0.0.122:34446 idle 0:00:03 bytes 2733 flags UIOX
```

The following example shows a UDP connection from outside host 192.168.49.10 to inside host 10.1.1.15. The D flag denotes that this is a DNS connection. The number 1028 is the DNS ID over the connection.

```
hostname(config)# show conn detail
2 in use, 2 most used
Flags: A - awaiting inside ACK to SYN, a - awaiting outside ACK to SYN,
      B - initial SYN from outside, C - CTIBQE media, D - DNS, d - dump,
      E - outside back connection, f - inside FIN, F - outside FIN,
      G - group, g - MGCP, H - H.323, h - H.255.0, I - inbound data, i - incomplete,
      k - Skinny media, M - SMTP data, m - SIP media
      O - outbound data, P - inside back connection,
      q - SQL*Net data, R - outside acknowledged FIN,
      R - UDP RPC, r - inside acknowledged FIN, S - awaiting inside SYN,
      s - awaiting outside SYN, T - SIP, t - SIP transient, U - up
```

```

X - inspected by service module
TCP outside:192.168.49.10/23 inside:10.1.1.15/1026 flags UIO
UDP outside:192.168.49.10/31649 inside:10.1.1.15/1028 flags dD

```

The following is sample output from the **show conn all** command:

```

hostname# show conn all
6 in use, 6 most used
TCP out 209.165.201.1:80 in 10.3.3.4:1404 idle 0:00:00 Bytes 11391
TCP out 209.165.201.1:80 in 10.3.3.4:1405 idle 0:00:00 Bytes 3709
TCP out 209.165.201.1:80 in 10.3.3.4:1406 idle 0:00:01 Bytes 2685
TCP out 209.165.201.1:80 in 10.3.3.4:1407 idle 0:00:01 Bytes 2683
TCP out 209.165.201.1:80 in 10.3.3.4:1403 idle 0:00:00 Bytes 15199
TCP out 209.165.201.1:80 in 10.3.3.4:1408 idle 0:00:00 Bytes 2688
UDP out 209.165.201.7:24 in 10.3.3.4:1402 idle 0:01:30
UDP out 209.165.201.7:23 in 10.3.3.4:1397 idle 0:01:30
UDP out 209.165.201.7:22 in 10.3.3.4:1395 idle 0:01:30

```

In this example, host 10.3.3.4 on the inside has accessed a website at 209.165.201.1. The global address on the outside interface is 209.165.201.7.

#### Related Commands

Commands	Description
<b>inspect ctiqbe</b>	Enables CTIQBE application inspection.
<b>inspect h323</b>	Enables H.323 application inspection.
<b>inspect mgcp</b>	Enables MGCP application inspection.
<b>inspect sip</b>	Removes Java applets from HTTP traffic.
<b>inspect skinny</b>	Enables SCCP application inspection.

# show conn

To display the connection state for the designated connection type, use the **show conn** command in privileged EXEC mode. This command supports IPv4 and IPv6 addresses.

```
show conn [all | count] [state state_type] | [{"foreign | local"} ip [-ip2] netmask mask] | [long | detail]
| [{"lport | fport"} port1] [-port2]] | [protocol {tcp | udp}]
```

## Syntax Description

<b>all</b>	Display connections that are to the device or from the device, in addition to through-traffic connections.
<b>count</b>	(Optional) Displays the number of active connections.
<b>detail</b>	Displays connections in detail, including translation type and interface information.
<b>foreign</b>	Displays connections with the specified foreign IP address.
<b>fport</b>	Displays connections with the specified foreign port.
<i>ip</i>	IP address in dotted-decimal format or beginning address in a range of IP addresses.
<i>-ip2</i>	(Optional) Ending IP address in a range of IP addresses.
<b>local</b>	Displays connections with the specified local IP address.
<b>long</b>	(Optional) Displays connections in long format.
<b>lport</b>	Displays connections with the specified local port.
<b>netmask</b>	Specifies a subnet mask for use with the given IP address.
<i>mask</i>	Subnet mask in dotted-decimal format.
<i>port1</i>	Port number or beginning port number in a range of port numbers.
<i>-port2</i>	(Optional) Ending port number in a range of port numbers.
<b>protocol</b>	(Optional) Specifies the connection protocol.
<b>state</b>	(Optional) Displays the state of specified connections.
<i>state_type</i>	Specifies the connection state type. See Table 25-9 for a list of the keywords available for connection state types.
<b>tcp</b>	Displays TCP protocol connections.
<b>udp</b>	Displays UDP protocol connections.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

The **show conn** command displays the number of active TCP connections, and provides information about connections of various types. Use the **show conn all** command to see the entire table of connections.

**Note**

When the security appliance creates a pinhole to allow secondary connections, this is shown as an incomplete conn by the **show conn** command. To clear this incomplete conn use the **clear local** command.

The connection types that you can specify using the **show conn state** command are defined in Table 25-9. When specifying multiple connection types, use commas without spaces to separate the keywords.

**Table 25-9 Connection State Types**

Keyword	Connection Type Displayed
<b>up</b>	Connections in the up state.
<b>conn_inbound</b>	Inbound connections.
<b>ctiqbe</b>	CTIQBE connections
<b>data_in</b>	Inbound data connections.
<b>data_out</b>	Outbound data connections.
<b>finin</b>	FIN inbound connections.
<b>finout</b>	FIN outbound connections.
<b>h225</b>	H.225 connections
<b>h323</b>	H.323 connections
<b>http_get</b>	HTTP get connections.
<b>mgcp</b>	MGCP connections.
<b>nojava</b>	Connections that deny access to Java applets.
<b>rpc</b>	RPC connections.
<b>service_module</b>	Connections being scanned by an SSM.
<b>sip</b>	SIP connections.
<b>skinny</b>	SCCP connections.
<b>smtp_data</b>	SMTP mail data connections.
<b>sqlnet_fixup_data</b>	SQL*Net data inspection engine connections.

When you use the **detail** option, the system displays information about the translation type and interface information using the connection flags defined in Table 25-10.

**Table 25-10 Connection Flags**

Flag	Description
a	awaiting outside ACK to SYN
A	awaiting inside ACK to SYN
B	initial SYN from outside

Table 25-10 Connection Flags (continued)

Flag	Description
C	Computer Telephony Interface Quick Buffer Encoding (CTIQBE) media connection
d	dump
D	DNS
E	outside back connection
f	inside FIN
F	outside FIN
g	Media Gateway Control Protocol (MGCP) connection
G	connection is part of a group <sup>1</sup>
h	H.225
H	H.323
i	incomplete TCP or UDP connection
I	inbound data
k	Skinny Client Control Protocol (SCCP) media connection
K	GTP t3-response
m	SIP media connection
M	SMTP data
O	outbound data
p	replicated (unused)
P	inside back connection
q	SQL*Net data
r	inside acknowledged FIN
R	outside acknowledged FIN for TCP connection
R	UDP RPC <sup>2</sup>
s	awaiting outside SYN
S	awaiting inside SYN
t	SIP transient connection <sup>3</sup>
T	SIP connection <sup>4</sup>
U	up
X	Inspected by the service module, such as a CSC SSM.

1. The G flag indicates the connection is part of a group. It is set by the GRE and FTP Strict fixups to designate the control connection and all its associated secondary connections. If the control connection terminates, then all associated secondary connections are also terminated.
2. Because each row of **show conn** command output represents one connection (TCP or UDP), there will be only one R flag per row.
3. For UDP connections, the value t indicates that it will timeout after one minute.
4. For UDP connections, the value T indicates that the connection will timeout according to the value specified using the **timeout sip** command.



**Note**

For connections using a DNS server, the source port of the connection may be replaced by the *IP address of DNS server* in the **show conn** command output.

A single connection is created for multiple DNS sessions, as long as they are between the same two hosts, and the sessions have the same 5-tuple (source/destination IP address, source/destination port, and protocol). DNS identification is tracked by *app\_id*, and the idle timer for each *app\_id* runs independently.

Because the *app\_id* expires independently, a legitimate DNS response can only pass through the security appliance within a limited period of time and there is no resource build-up. However, when you enter the **show conn** command, you will see the idle timer of a DNS connection being reset by a new DNS session. This is due to the nature of the shared DNS connection and is by design.

**Note**

When there is no TCP traffic for the period of inactivity defined by the **conn timeout** command (by default, 1:00:00), the connection is closed and the corresponding conn flag entries are no longer displayed.

**Examples**

When specifying multiple connection types, use commas without spaces to separate the keywords. The following example displays information about RPC, H.323, and SIP connections in the Up state:

```
hostname# show conn state up,rpc,h323,sip
```

The following example shows a TCP session connection from inside host 10.1.1.15 to the outside Telnet server at 192.168.49.10. Because there is no B flag, the connection is initiated from the inside. The “U”, “I”, and “O” flags denote that the connection is active and has received inbound and outbound data.

```
hostname# show conn
2 in use, 2 most used
TCP out 192.168.49.10:23 in 10.1.1.15:1026 idle 0:00:22
Bytes 1774 flags UIO
UDP out 192.168.49.10:31649 in 10.1.1.15:1028 idle 0:00:14
flags D-
```

The following example includes the “X” flag to indicate that the connection is being scanned by the SSM.

```
hostname(config)# show conn local 10.0.0.122 state service_module
TCP out 10.1.0.121:22 in 10.0.0.122:34446 idle 0:00:03 bytes 2733 flags UIOX
```

The following example shows a UDP connection from outside host 192.168.49.10 to inside host 10.1.1.15. The D flag denotes that this is a DNS connection. The number 1028 is the DNS ID over the connection.

```
hostname(config)# show conn detail
2 in use, 2 most used
Flags: A - awaiting inside ACK to SYN, a - awaiting outside ACK to SYN,
      B - initial SYN from outside, C - CTIBQE media, D - DNS, d - dump,
      E - outside back connection, f - inside FIN, F - outside FIN,
      G - group, g - MGCP, H - H.323, h - H.255.0, I - inbound data, i - incomplete,
      k - Skinny media, M - SMTP data, m - SIP media
      O - outbound data, P - inside back connection,
      q - SQL*Net data, R - outside acknowledged FIN,
      R - UDP RPC, r - inside acknowledged FIN, S - awaiting inside SYN,
      s - awaiting outside SYN, T - SIP, t - SIP transient, U - up
```

```

X - inspected by service module
TCP outside:192.168.49.10/23 inside:10.1.1.15/1026 flags UIO
UDP outside:192.168.49.10/31649 inside:10.1.1.15/1028 flags dD

```

The following is sample output from the **show conn all** command:

```

hostname# show conn all
6 in use, 6 most used
TCP out 209.165.201.1:80 in 10.3.3.4:1404 idle 0:00:00 Bytes 11391
TCP out 209.165.201.1:80 in 10.3.3.4:1405 idle 0:00:00 Bytes 3709
TCP out 209.165.201.1:80 in 10.3.3.4:1406 idle 0:00:01 Bytes 2685
TCP out 209.165.201.1:80 in 10.3.3.4:1407 idle 0:00:01 Bytes 2683
TCP out 209.165.201.1:80 in 10.3.3.4:1403 idle 0:00:00 Bytes 15199
TCP out 209.165.201.1:80 in 10.3.3.4:1408 idle 0:00:00 Bytes 2688
UDP out 209.165.201.7:24 in 10.3.3.4:1402 idle 0:01:30
UDP out 209.165.201.7:23 in 10.3.3.4:1397 idle 0:01:30
UDP out 209.165.201.7:22 in 10.3.3.4:1395 idle 0:01:30

```

In this example, host 10.3.3.4 on the inside has accessed a website at 209.165.201.1. The global address on the outside interface is 209.165.201.7.

#### Related Commands

Commands	Description
<b>inspect ctique</b>	Enables CTIQBE application inspection.
<b>inspect h323</b>	Enables H.323 application inspection.
<b>inspect mgcp</b>	Enables MGCP application inspection.
<b>inspect sip</b>	Removes Java applets from HTTP traffic.
<b>inspect skinny</b>	Enables SCCP application inspection.

# show console-output

To display the currently captured console output, use the **show console-output** command in privileged EXEC mode.

## show console-output

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** The following example shows the message that displays when there is no console output:

```
hostname# show console-output
Sorry, there are no messages to display
```

Related Commands	Command	Description
	<b>clear configure console</b>	Restores the default console connection settings.
	<b>clear configure timeout</b>	Restores the default idle time durations in the configuration.
	<b>console timeout</b>	Sets the idle timeout for a console connection to the security appliance.
	<b>show running-config console timeout</b>	Displays the idle timeout for a console connection to the security appliance.

# show context

To show context information including allocated interfaces and the configuration file URL, the number of contexts configured, or from the system execution space, a list of all contexts, use the **show context** command in privileged EXEC mode.

**show context** [*name* | **detail** | **count**]

Syntax Description	Parameter	Description
	<b>count</b>	(Optional) Shows the number of contexts configured.
	<b>detail</b>	(Optional) Shows additional detail about the context(s) including the running state and information for internal use.
	<i>name</i>	(Optional) Sets the context name. If you do not specify a name, the security appliance displays all contexts. Within a context, you can only enter the current context name.

**Defaults** In the system execution space, the security appliance displays all contexts if you do not specify a name.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** See the “Examples” section for a description of the display output.

**Examples** The following is sample output from the **show context** command. The following sample display shows three contexts:

```
hostname# show context

Context Name      Interfaces                                URL
*admin           GigabitEthernet0/1.100                  flash:/admin.cfg
                 GigabitEthernet0/1.101
contexta         GigabitEthernet0/1.200                  flash:/contexta.cfg
                 GigabitEthernet0/1.201
contextb         GigabitEthernet0/1.300                  flash:/contextb.cfg
                 GigabitEthernet0/1.301
Total active Security Contexts: 3
```

Table 25-11 shows each field description.

**Table 25-11** show context Fields

Field	Description
Context Name	Lists all context names. The context name with the asterisk (*) is the admin context.
Interfaces	The interfaces assigned to the context.
URL	The URL from which the security appliance loads the context configuration.

The following is sample output from the **show context detail** command:

```
hostname# show context detail

Context "admin", has been created, but initial ACL rules not complete
  Config URL: flash:/admin.cfg
  Real Interfaces: Management0/0
  Mapped Interfaces: Management0/0
  Flags: 0x00000013, ID: 1

Context "ctx", has been created, but initial ACL rules not complete
  Config URL: ctx.cfg
  Real Interfaces: GigabitEthernet0/0.10, GigabitEthernet0/1.20,
  GigabitEthernet0/2.30
  Mapped Interfaces: int1, int2, int3
  Flags: 0x00000011, ID: 2

Context "system", is a system resource
  Config URL: startup-config
  Real Interfaces:
  Mapped Interfaces: Control0/0, GigabitEthernet0/0,
  GigabitEthernet0/0.10, GigabitEthernet0/1, GigabitEthernet0/1.10,
  GigabitEthernet0/1.20, GigabitEthernet0/2, GigabitEthernet0/2.30,
  GigabitEthernet0/3, Management0/0, Management0/0.1
  Flags: 0x00000019, ID: 257

Context "null", is a system resource
  Config URL: ... null ...
  Real Interfaces:
  Mapped Interfaces:
  Flags: 0x00000009, ID: 258
```

Table 25-12 shows each field description.

**Table 25-12** Context States

Field	Description
Context	The context name. The null context information is for internal use only. The system context represents the system execution space.
State Message:	The context state. See the possible messages below.

Table 25-12 Context States

Field	Description
Has been created, but initial ACL rules not complete	The security appliance parsed the configuration but has not yet downloaded the default ACLs to establish the default security policy. The default security policy applies to all contexts initially, and includes disallowing traffic from lower security levels to higher security levels, enabling application inspection, and other parameters. This security policy ensures that no traffic can pass through the security appliance after the configuration is parsed but before the configuration ACLs are compiled. You are unlikely to see this state because the configuration ACLs are compiled very quickly.
Has been created, but not initialized	You entered the <b>context name</b> command, but have not yet entered the <b>config-url</b> command.
Has been created, but the config hasn't been parsed	The default ACLs were downloaded, but the security appliance has not parsed the configuration. This state might exist because the configuration download might have failed because of network connectivity issues, or you have not yet entered the <b>config-url</b> command. To reload the configuration, from within the context, enter <b>copy startup-config running-config</b> . From the system, reenter the <b>config-url</b> command. Alternatively, you can start configuring the blank running configuration.
Is a system resource	This state applies only to the system execution space and to the null context. The null context is used by the system, and the information is for internal use only.
Is a zombie	You deleted the context using the <b>no context</b> or <b>clear context</b> command, but the context information persists in memory until the security appliance reuses the context ID for a new context, or you restart.
Is active	This context is currently running and can pass traffic according to the context configuration security policy.
Is ADMIN and active	This context is the admin context and is currently running.
Was a former ADMIN, but is now a zombie	You deleted the admin context using the <b>clear configure context</b> command, but the context information persists in memory until the security appliance reuses the context ID for a new context, or you restart.
Real Interfaces	The interfaces assigned to the context. If you mapped the interface IDs in the <b>allocate-interface</b> command, this display shows the real name of the interface. The system execution space includes all interfaces.
Mapped Interfaces	If you mapped the interface IDs in the <b>allocate-interface</b> command, this display shows the mapped names. If you did not map the interfaces, the display lists the real names again.
Flag	For internal use only.
ID	An internal ID for this context.

The following is sample output from the **show context count** command:

```
hostname# show context count
Total active contexts: 2
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>admin-context</b>	Sets the admin context.
<b>allocate-interface</b>	Assigns interfaces to a context.
<b>changeto</b>	Changes between contexts or the system execution space.
<b>config-url</b>	Specifies the location of the context configuration.
<b>context</b>	Creates a security context in the system configuration and enters context configuration mode.

# show controller

To view controller-specific information of all interfaces present in the system of an ASA 5505 adaptive security appliance, use the **show controller** command in privileged EXEC mode.

**show controller** [*switch\_port*]

Syntax Description	<i>switch_port</i>	(Optional) Identifies the interface ID: <b>ethernet0/0</b> through <b>ethernet0/7</b> .
--------------------	--------------------	---

Defaults	If you do not identify a switch port, this command shows information for all interfaces.
----------	--

Command Modes	The following table shows the modes in which you can enter the command:
---------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.2(1)	This command was introduced.

Usage Guidelines	This command helps Cisco TAC gather useful debug information about the controller when investigating internal and customer found defects.
------------------	---

Examples	The following is sample output from the <b>show controller</b> command:
----------	---

```
hostname# show controller

Ethernet0/0:
  Marvell 88E6095 revision 2, switch port 7
  PHY Register:
    Control:      0x3000  Status:      0x786d
    Identifier1:  0x0141  Identifier2: 0x0c85
    Auto Neg:     0x01e1  LP Ability:  0x40a1
    Auto Neg Ex:  0x0005  PHY Spec Ctrl: 0x0130
    PHY Status:   0x4c00  PHY Intr En: 0x0400
    Int Port Sum: 0x0000  Rcv Err Cnt: 0x0000
    Led select:   0x1a34
    Reg 29:       0x0003  Reg 30:      0x0000
  Port Registers:
    Status:       0x0907  PCS Ctrl:    0x0003
    Identifier:   0x0952  Port Ctrl:   0x0074
    Port Ctrl-1: 0x0000  Vlan Map:   0x077f
    VID and PRI: 0x0001  Port Ctrl-2: 0x0cc8
    Rate Ctrl:   0x0000  Rate Ctrl-2: 0x3000
```



```

Port Asc Vt: 0x0080
In Discard Lo: 0x0000 In Discard Hi: 0x0000
In Filtered: 0x0000 Out Filtered: 0x0000

Global Registers:
Control: 0x0482

-----
Number of VLANs: 1
-----
Vlan[db]\Port| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
-----
<0001[01]> | EUT| EUT| EUT| EUT| EUT| EUT| EUT| EUT| EUM| NM | NM |
-----

Ethernet0/1:
Marvell 88E6095 revision 2, switch port 6
PHY Register:
Control: 0x3000 Status: 0x7849
Identifier1: 0x0141 Identifier2: 0x0c85
Auto Neg: 0x01e1 LP Ability: 0x0000
Auto Neg Ex: 0x0004 PHY Spec Ctrl: 0x0130
PHY Status: 0x0040 PHY Intr En: 0x0400
Int Port Sum: 0x0000 Rcv Err Cnt: 0x0000
Led select: 0x1a34
Reg 29: 0x0003 Reg 30: 0x0000
Port Registers:
Status: 0x0007 PCS Ctrl: 0x0003
Identifier: 0x0952 Port Ctrl: 0x0077
Port Ctrl-1: 0x0000 Vlan Map: 0x07bf
VID and PRI: 0x0001 Port Ctrl-2: 0x0cc8
Rate Ctrl: 0x0000 Rate Ctrl-2: 0x3000
Port Asc Vt: 0x0040
In Discard Lo: 0x0000 In Discard Hi: 0x0000
In Filtered: 0x0000 Out Filtered: 0x0000

Ethernet0/2:
Marvell 88E6095 revision 2, switch port 5
PHY Register:
Control: 0x3000 Status: 0x786d
Identifier1: 0x0141 Identifier2: 0x0c85
Auto Neg: 0x01e1 LP Ability: 0x41e1
Auto Neg Ex: 0x0005 PHY Spec Ctrl: 0x0130
PHY Status: 0x6c00 PHY Intr En: 0x0400
Int Port Sum: 0x0000 Rcv Err Cnt: 0x0000
Led select: 0x1a34
Reg 29: 0x0003 Reg 30: 0x0000
Port Registers:
Status: 0x0d07 PCS Ctrl: 0x0003
Identifier: 0x0952 Port Ctrl: 0x0077
Port Ctrl-1: 0x0000 Vlan Map: 0x07df
VID and PRI: 0x0001 Port Ctrl-2: 0x0cc8
Rate Ctrl: 0x0000 Rate Ctrl-2: 0x3000
Port Asc Vt: 0x0020
In Discard Lo: 0x0000 In Discard Hi: 0x0000
In Filtered: 0x0000 Out Filtered: 0x0000

Ethernet0/3:
Marvell 88E6095 revision 2, switch port 4
PHY Register:
Control: 0x3000 Status: 0x786d
Identifier1: 0x0141 Identifier2: 0x0c85
Auto Neg: 0x01e1 LP Ability: 0x41e1
Auto Neg Ex: 0x0005 PHY Spec Ctrl: 0x0130

```

```

PHY Status:      0x6c00  PHY Intr En:   0x0400
Int Port Sum:    0x0000  Rcv Err Cnt:  0x0000
Led select:      0x1a34
Reg 29:          0x0003  Reg 30:        0x0000
Port Registers:
Status:          0x0d07  PCS Ctrl:      0x0003
Identifier:      0x0952  Port Ctrl:     0x0077
Port Ctrl-1:     0x0000  Vlan Map:      0x07ef
VID and PRI:     0x0001  Port Ctrl-2:   0x0cc8
Rate Ctrl:       0x0000  Rate Ctrl-2:   0x3000
Port Asc Vt:     0x0010
In Discard Lo:  0x0000  In Discard Hi: 0x0000
In Filtered:    0x0000  Out Filtered:  0x0000

```

## Ethernet0/4:

Marvell 88E6095 revision 2, switch port 3

```

PHY Register:
Control:         0x3000  Status:        0x786d
Identifier1:     0x0141  Identifier2:    0x0c85
Auto Neg:        0x01e1  LP Ability:     0x41e1
Auto Neg Ex:     0x0005  PHY Spec Ctrl: 0x0130
PHY Status:      0x6c00  PHY Intr En:   0x0400
Int Port Sum:    0x0000  Rcv Err Cnt:  0x0000
Led select:      0x1a34
Reg 29:          0x0003  Reg 30:        0x0000
Port Registers:
Status:          0x0d07  PCS Ctrl:      0x0003
Identifier:      0x0952  Port Ctrl:     0x0077
Port Ctrl-1:     0x0000  Vlan Map:      0x07f7
VID and PRI:     0x0001  Port Ctrl-2:   0x0cc8
Rate Ctrl:       0x0000  Rate Ctrl-2:   0x3000
Port Asc Vt:     0x0008
In Discard Lo:  0x0000  In Discard Hi: 0x0000
In Filtered:    0x0000  Out Filtered:  0x0000

```

## Ethernet0/5:

Marvell 88E6095 revision 2, switch port 2

```

PHY Register:
Control:         0x3000  Status:        0x786d
Identifier1:     0x0141  Identifier2:    0x0c85
Auto Neg:        0x01e1  LP Ability:     0x41e1
Auto Neg Ex:     0x0005  PHY Spec Ctrl: 0x0130
PHY Status:      0x6c00  PHY Intr En:   0x0400
Int Port Sum:    0x0000  Rcv Err Cnt:  0x0000
Led select:      0x1a34
Reg 29:          0x0003  Reg 30:        0x0000
Port Registers:
Status:          0x0d07  PCS Ctrl:      0x0003
Identifier:      0x0952  Port Ctrl:     0x0077
Port Ctrl-1:     0x0000  Vlan Map:      0x07fb
VID and PRI:     0x0001  Port Ctrl-2:   0x0cc8
Rate Ctrl:       0x0000  Rate Ctrl-2:   0x3000
Port Asc Vt:     0x0004
In Discard Lo:  0x0000  In Discard Hi: 0x0000
In Filtered:    0x0000  Out Filtered:  0x0000

```

## Ethernet0/6:

Marvell 88E6095 revision 2, switch port 1

```

PHY Register:
Control:         0x3000  Status:        0x7849
Identifier1:     0x0141  Identifier2:    0x0c85
Auto Neg:        0x01e1  LP Ability:     0x0000
Auto Neg Ex:     0x0004  PHY Spec Ctrl: 0x8130
PHY Status:      0x0040  PHY Intr En:   0x8400

```

```

        Int Port Sum: 0x0000 Rcv Err Cnt: 0x0000
        Led select: 0x1a34
        Reg 29: 0x0003 Reg 30: 0x0000
    Port Registers:
        Status: 0x0007 PCS Ctrl: 0x0003
        Identifier: 0x0952 Port Ctrl: 0x0077
        Port Ctrl-1: 0x0000 Vlan Map: 0x07fd
        VID and PRI: 0x0001 Port Ctrl-2: 0x0cc8
        Rate Ctrl: 0x0000 Rate Ctrl-2: 0x3000
        Port Asc Vt: 0x0002
        In Discard Lo: 0x0000 In Discard Hi: 0x0000
        In Filtered: 0x0000 Out Filtered: 0x0000
    ----Inline power related counters and registers----
    Power on fault: 0 Power off fault: 0
    Detect enable fault: 0 Detect disable fault: 0
    Faults: 0
    Driver counters:
    I2C Read Fail: 0 I2C Write Fail: 0
    Resets: 1 Initialized: 1
    PHY reset error: 0
    LTC4259 registers:
    INTRPT STATUS = 0x88 INTRPT MASK = 0x00 POWER EVENT = 0x00
    DETECT EVENT = 0x03 FAULT EVENT = 0x00 TSTART EVENT = 0x00
    SUPPLY EVENT = 0x02 PORT1 STATUS = 0x06 PORT2 STATUS = 0x06
    PORT3 STATUS = 0x00 PORT4 STATUS = 0x00 POWER STATUS = 0x00
    OPERATE MODE = 0x0f DISC. ENABLE = 0x30 DT/CLASS ENBL = 0x33
    TIMING CONFIG = 0x00 MISC. CONFIG = 0x00

Ethernet0/7:
Marvell 88E6095 revision 2, switch port 0
PHY Register:
    Control: 0x3000 Status: 0x7849
    Identifier1: 0x0141 Identifier2: 0x0c85
    Auto Neg: 0x01e1 LP Ability: 0x0000
    Auto Neg Ex: 0x0004 PHY Spec Ctrl: 0x8130
    PHY Status: 0x0040 PHY Intr En: 0x8400
    Int Port Sum: 0x0000 Rcv Err Cnt: 0x0000
    Led select: 0x1a34
    Reg 29: 0x0003 Reg 30: 0x0000
    Port Registers:
        Status: 0x0007 PCS Ctrl: 0x0003
        Identifier: 0x0952 Port Ctrl: 0x0077
        Port Ctrl-1: 0x0000 Vlan Map: 0x07fe
        VID and PRI: 0x0001 Port Ctrl-2: 0x0cc8
        Rate Ctrl: 0x0000 Rate Ctrl-2: 0x3000
        Port Asc Vt: 0x0001
        In Discard Lo: 0x0000 In Discard Hi: 0x0000
        In Filtered: 0x0000 Out Filtered: 0x0000
    ----Inline power related counters and registers----
    Power on fault: 0 Power off fault: 0
    Detect enable fault: 0 Detect disable fault: 0
    Faults: 0
    Driver counters:
    I2C Read Fail: 0 I2C Write Fail: 0
    Resets: 1 Initialized: 1
    PHY reset error: 0
    LTC4259 registers:
    INTRPT STATUS = 0x88 INTRPT MASK = 0x00 POWER EVENT = 0x00
    DETECT EVENT = 0x03 FAULT EVENT = 0x00 TSTART EVENT = 0x00
    SUPPLY EVENT = 0x02 PORT1 STATUS = 0x06 PORT2 STATUS = 0x06
    PORT3 STATUS = 0x00 PORT4 STATUS = 0x00 POWER STATUS = 0x00
    OPERATE MODE = 0x0f DISC. ENABLE = 0x30 DT/CLASS ENBL = 0x33
    TIMING CONFIG = 0x00 MISC. CONFIG = 0x00

```

```

Internal-Data0/0:
Y88ACS06 Register settings:
  rap                                0xe0004000 = 0x00000000
  ctrl_status                        0xe0004004 = 0x5501064a
  irq_src                            0xe0004008 = 0x00000000
  irq_msk                            0xe000400c = 0x00000000
  irq_hw_err_src                    0xe0004010 = 0x00000000
  irq_hw_err_msk                    0xe0004014 = 0x00001000
  bmu_cs_rxq                        0xe0004060 = 0x002aaa80
  bmu_cs_stxq                       0xe0004068 = 0x01155540
  bmu_cs_atxq                       0xe000406c = 0x012aaa80

Bank 2: MAC address registers:
  mac_addr1_lo                      0xe0004100 = 0x00000000
  mac_addr1_hi                      0xe0004104 = 0x00000000
  mac_addr2_lo                      0xe0004108 = 0x00000000
  mac_addr2_hi                      0xe000410c = 0x00000000
  mac_addr3_lo                      0xe0004110 = 0x00000000
  mac_addr3_hi                      0xe0004114 = 0x00000000
  chip_info                         0xe0004118 = 0xb0110000
  eprom                             0xe000411c = 0x00000000
  flash_addr_reg                    0xe0004120 = 0x0001ffffe
  flash_data_port                   0xe0004124 = 0x0000000ff
  loader                            0xe0004128 = 0x000000400
  timer_init_val                    0xe0004130 = 0x00000000
  timer_val                         0xe0004134 = 0x00000000
  timer_ctrl                        0xe0004138 = 0x00000202
  irq_mod_timer_init_val            0xe0004140 = 0x00000000
  irq_mod_timer                     0xe0004144 = 0x00000000
  irq_mod_timer_ctrl                0xe0004148 = 0x00000202
  irq_mod_msk                       0xe000414c = 0x00000000
  irq_hw_err_mod_mask               0xe0004150 = 0x00000000
  tst_ctrl                          0xe0004158 = 0x00000001
  gp_io                             0xe000415c = 0x0000000f
  i2c_ctrl                          0xe0004160 = 0x00000000
  i2c_data                          0xe0004164 = 0x00000000
  i2c_irq                           0xe0004168 = 0x00000000
  i2c_sw                            0xe000416c = 0x00000003

RAM Random Registers:
  ram_addr                          0xe0004180 = 0x00000000
  ram_data_port_lo                  0xe0004184 = 0x00000000
  ram_data_port_hi                  0xe0004188 = 0x00000000

Ram Interface Registers:
  ram_if_to_lo                      0xe0004190 = 0x24242424
  ram_if_to_hi                      0xe0004194 = 0x00002424
  ram_if_timeout_val                0xe000419c = 0x00000000
  ram_if_ctrl                       0xe00041a0 = 0x000a0002

Transmit Arbiter MAC:
  tx_arb_iti_init                   0xe0004200 = 0x00000000
  tx_arb_iti_val                    0xe0004204 = 0x00000000
  tx_arb_lim_init                   0xe0004208 = 0x00000000
  tx_arb_lim_val                    0xe000420c = 0x00000000
  tx_arb_ctrl_tst_status            0xe0004210 = 0x00001256

Bank 8: Receive queue registers:
  rx_qregs.buf_ctrl                 0xe0004400 = 0xc8550800
  rx_qregs.next_desc_addr_lo        0xe0004404 = 0x016d4020
  rx_qregs.buf_addr_lo              0xe0004408 = 0x019acd00
  rx_qregs.buf_addr_hi              0xe000440c = 0x00000000
  rx_qregs.frame_sw                 0xe0004410 = 0x00000000
  rx_qregs.time_stamp               0xe0004414 = 0x00000000

```

```

rx_qregs.tcp_csum          0xe0004418 = 0x00000000
rx_qregs.tcp_csum_start   0xe000441c = 0x00000000
rx_qregs.desc_addr_lo     0xe0004420 = 0x016d4000
rx_qregs.desc_addr_hi     0xe0004424 = 0x00000000
rx_qregs.addr_cntr_lo     0xe0004428 = 0x016d4020
rx_qregs.addr_cntr_hi     0xe000442c = 0x00000000
rx_qregs.byte_cntr        0xe0004430 = 0x00000000
rx_qregs.bmu_cs           0xe0004434 = 0x002aaa80
rx_qregs.flag             0xe0004438 = 0x00000600
rx_qregs.tst1             0xe000443c = 0xd2020202
rx_qregs.tst2             0xe0004440 = 0x00000050
rx_qregs.tst3             0xe0004444 = 0x00000000

```

## Bank 12: Synchronous transmit queue registers:

```

stx_qregs.buf_ctrl        0xe0004600 = 0x00000000
stx_qregs.next_desc_addr_lo 0xe0004604 = 0x00000000
stx_qregs.buf_addr_lo     0xe0004608 = 0x00000000
stx_qregs.buf_addr_hi     0xe000460c = 0x00000000
stx_qregs.frame_sw        0xe0004610 = 0x00000000
stx_qregs.time_stamp      0xe0004614 = 0x00000000
stx_qregs.tcp_csum        0xe0004618 = 0x00000000
stx_qregs.tcp_csum_start  0xe000461c = 0x00000000
stx_qregs.desc_addr_lo     0xe0004620 = 0x00000000
stx_qregs.desc_addr_hi     0xe0004624 = 0x00000000
stx_qregs.addr_cntr_lo     0xe0004628 = 0x00000000
stx_qregs.addr_cntr_hi     0xe000462c = 0x00000000
stx_qregs.byte_cntr        0xe0004630 = 0x00000000
stx_qregs.bmu_cs           0xe0004634 = 0x01155540
stx_qregs.flag             0xe0004638 = 0x0a000600
stx_qregs.tst1             0xe000463c = 0x02020202
stx_qregs.tst2             0xe0004640 = 0x00000050
stx_qregs.tst3             0xe0004644 = 0x00000000

```

## Bank 13: Asynchronous transmit queue registers:

```

atx_qregs.buf_ctrl        0xe0004680 = 0x00000000
atx_qregs.next_desc_addr_lo 0xe0004684 = 0x00000000
atx_qregs.buf_addr_lo     0xe0004688 = 0x00000000
atx_qregs.buf_addr_hi     0xe000468c = 0x00000000
atx_qregs.frame_sw        0xe0004690 = 0x00000000
atx_qregs.time_stamp      0xe0004694 = 0x00000000
atx_qregs.tcp_csum        0xe0004698 = 0x00000000
atx_qregs.tcp_csum_start  0xe000469c = 0x00000000
atx_qregs.desc_addr_lo     0xe00046a0 = 0x016d9000
atx_qregs.desc_addr_hi     0xe00046a4 = 0x00000000
atx_qregs.addr_cntr_lo     0xe00046a8 = 0x016d901c
atx_qregs.addr_cntr_hi     0xe00046ac = 0x00000000
atx_qregs.byte_cntr        0xe00046b0 = 0x00000000
atx_qregs.bmu_cs           0xe00046b4 = 0x012aaa80
atx_qregs.flag             0xe00046b8 = 0x0a000600
atx_qregs.tst1             0xe00046bc = 0x02020202
atx_qregs.tst2             0xe00046c0 = 0x00000050
atx_qregs.tst3             0xe00046c4 = 0x00000000

```

## Bank 16: Receive RAM buffer registers:

```

rx_ram_buf_regs.start_addr 0xe0004800 = 0x00000000
rx_ram_buf_regs.end_addr   0xe0004804 = 0x000017ff
rx_ram_buf_regs.wr_ptr     0xe0004808 = 0x00000000
rx_ram_buf_regs.rd_ptr     0xe000480c = 0x00000000
rx_ram_buf_regs.up_thres_pp 0xe0004810 = 0x00001400
rx_ram_buf_regs.lo_thres_pp 0xe0004814 = 0x00001000
rx_ram_buf_regs.up_thres_hp 0xe0004818 = 0x00000000
rx_ram_buf_regs.lo_thres_hp 0xe000481c = 0x00000000
rx_ram_buf_regs.pak_cnt    0xe0004820 = 0x00000000
rx_ram_buf_regs.level      0xe0004824 = 0x00000000

```

```

rx_ram_buf_regs.ctrl          0xe0004828 = 0x0002222a

Bank 20: Synchronous transmit RAM buffer registers:
stx_ram_buf_regs.start_addr  0xe0004a00 = 0x00000000
stx_ram_buf_regs.end_addr    0xe0004a04 = 0x00000000
stx_ram_buf_regs.wr_ptr      0xe0004a08 = 0x00000000
stx_ram_buf_regs.rd_ptr      0xe0004a0c = 0x00000000
stx_ram_buf_regs.pak_cnt     0xe0004a20 = 0x00000000
stx_ram_buf_regs.level       0xe0004a24 = 0x00000000
stx_ram_buf_regs.ctrl        0xe0004a28 = 0x00022215

Bank 21: Asynchronous transmit RAM buffer registers:
atx_ram_buf_regs.start_addr  0xe0004a80 = 0x00001800
atx_ram_buf_regs.end_addr    0xe0004a84 = 0x00002fff
atx_ram_buf_regs.wr_ptr      0xe0004a88 = 0x00001800
atx_ram_buf_regs.rd_ptr      0xe0004a8c = 0x00001800
atx_ram_buf_regs.up_thres_pp 0xe0004a90 = 0x00000000
atx_ram_buf_regs.lo_thres_pp 0xe0004a94 = 0x00000000
atx_ram_buf_regs.up_thres_hp 0xe0004a98 = 0x00000000
atx_ram_buf_regs.lo_thres_hp 0xe0004a9c = 0x00000000
atx_ram_buf_regs.pak_cnt     0xe0004aa0 = 0x00000000
atx_ram_buf_regs.level       0xe0004aa4 = 0x00000000
atx_ram_buf_regs.ctrl        0xe0004aa8 = 0x0002222a

Bank 24: Receive GMAC FIFO registers:
rx_gmfifo_regs.end_addr     0xe0004c40 = 0x0000007f
rx_gmfifo_regs.thr          0xe0004c44 = 0x00000070
rx_gmfifo_regs.ctrl         0xe0004c48 = 0x0000224a

Bank 26: Transmit GMAC FIFO registers:
tx_gmfifo_regs.end_addr     0xe0004d40 = 0x0000007f
tx_gmfifo_regs.thr          0xe0004d44 = 0x00000010
tx_gmfifo_regs.ctrl         0xe0004d48 = 0x0002220a
tx_gmfifo_regs.wr_ptr       0xe0004d60 = 0x00000000
tx_gmfifo_regs.wr_shdw_ptr  0xe0004d64 = 0x00000000
tx_gmfifo_regs.wr_level     0xe0004d68 = 0x00000000
tx_gmfifo_regs.rd_ptr       0xe0004d70 = 0x00000000
tx_gmfifo_regs.restart_ptr  0xe0004d74 = 0x00000000
tx_gmfifo_regs.rd_level     0xe0004d78 = 0x00000000

Descriptor poll timer registers:
dpt_init_val                0xe0004e00 = 0x00000000
dpt_val                      0xe0004e04 = 0x00000000
dpt_ctrl                     0xe0004e08 = 0x00020001

Timestamp timer register:
ts_timer_val                 0xe0004e14 = 0x00000000
ts_timer_ctrl                0xe0004e18 = 0x00000202

GMAC and GPHY control registers:
gmac_ctrl                    0xe0004f00 = 0x00000056
gphy_ctrl                     0xe0004f04 = 0x0b7de002
gmac_irq_src                  0xe0004f08 = 0x00000000
gmac_irq_msk                  0xe0004f0c = 0x0000003a
gmac_link_ctrl                0xe0004f10 = 0x00000002

Wake on LAN control registers:
wol_ctrl                      0xe0004f20 = 0x00000555
wol_mac_addr_lo               0xe0004f24 = 0x00000000
wol_mac_addr_hi               0xe0004f28 = 0x00000000
wol_patt_rd_ptr               0xe0004f2c = 0x00000000
wol_patt_len_lo               0xe0004f30 = 0x3b3b3b3b
wol_patt_len_hi               0xe0004f34 = 0x003b3b3b
wol_patt_cnt_lo               0xe0004f38 = 0x00000000

```

```

wol_patt_cnt_hi          0xe0004f3c = 0x00000000

Bank 80 (0x50): GMAC registers:
gmac_gpsr                0xe0006800 = 0x0000f014
gmac_gpcr                0xe0006804 = 0x000038ff
gmac_tx_ctrl             0xe0006808 = 0x00001c00
gmac_rx_ctrl             0xe000680c = 0x0000a000
gmac_tx_fctrl            0xe0006810 = 0x0000ffff
gmac_tx_parm             0xe0006814 = 0x0000c000
gmac_smod                0xe0006818 = 0x00002306
gmac_sa1_lo              0xe000681c = 0x0000d000
gmac_sa1_md              0xe0006820 = 0x0000ff2b
gmac_sa1_hi              0xe0006824 = 0x00009f44
gmac_sa2_lo              0xe0006828 = 0x0000d000
gmac_sa2_md              0xe000682c = 0x0000ff2b
gmac_sa2_hi              0xe0006830 = 0x00009f44
gmac_mcast_addr_hash1   0xe0006834 = 0x00000000
gmac_mcast_addr_hash2   0xe0006838 = 0x00000000
gmac_mcast_addr_hash3   0xe000683c = 0x00000000
gmac_mcast_addr_hash4   0xe0006840 = 0x00000000
gmac_tx_irq_src          0xe0006844 = 0x00000000
gmac_rx_irq_src          0xe0006848 = 0x00000000
gmac_tr_irq_src          0xe000684c = 0x00000000
gmac_tx_irq_msk          0xe0006850 = 0x00000000
gmac_rx_irq_msk          0xe0006854 = 0x00000000
gmac_tr_irq_msk          0xe0006858 = 0x00000000

```

Internal-Data0/1:

Marvell 88E6095 revision 2, switch port 8

Port Registers:

```

Status:      0x0e84  PCS Ctrl:      0xc13e
Identifier:  0x0952  Port Ctrl:    0x0177
Port Ctrl-1: 0x0000  Vlan Map:    0x06ff
VID and PRI: 0x0001  Port Ctrl-2: 0x0cc8
Rate Ctrl:   0x0000  Rate Ctrl-2: 0x3000
Port Asc Vt: 0x0100
In Discard Lo: 0x0000  In Discard Hi: 0x0000
In Filtered: 0x0000  Out Filtered: 0x0000

```

## Related Commands

Command	Description
<b>show interface</b>	Shows the interface statistics.
<b>show tech-support</b>	Shows information so Cisco TAC can diagnose problems.

# show counters

To display the protocol stack counters, use the **show counters** command in privileged EXEC mode.

```
show counters [all | context context-name | summary | top N ] [detail] [protocol protocol_name
[:counter_name]] [ threshold N ]
```

## Syntax Description

<b>all</b>	Displays the filter details.
<b>context</b> <i>context-name</i>	Specifies the context name.
<i>:counter_name</i>	Specifies a counter by name.
<b>detail</b>	Displays additional counters information.
<b>protocol</b> <i>protocol_name</i>	Displays the counters for the specified protocol.
<b>summary</b>	Displays a counter summary.
<b>threshold</b> <i>N</i>	Displays only those counters at or above the specified threshold. The range is 1 through 4294967295.
<b>top</b> <i>N</i>	Displays the counters at or above the specified threshold. The range is 1 through 4294967295.

## Defaults

**show counters summary detail threshold 1**

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example shows how to display all counters:

```
hostname# show counters all
Protocol      Counter      Value  Context
IOS_IPC      IN_PKTS      2      single_vf
IOS_IPC      OUT_PKTS     2      single_vf

hostname# show counters
Protocol      Counter      Value  Context
NPCP         IN_PKTS     7195   Summary
NPCP         OUT_PKTS     7603   Summary
IOS_IPC      IN_PKTS     869    Summary
IOS_IPC      OUT_PKTS     865    Summary
IP           IN_PKTS     380    Summary
```



```

IP          OUT_PKTS          411  Summary
IP          TO_ARP            105  Summary
IP          TO_UDP            9    Summary
UDP         IN_PKTS           9    Summary
UDP         DROP_NO_APP       9    Summary
FIXUP      IN_PKTS           202  Summary

```

The following example shows how to display a summary of counters:

```

hostname# show counters summary
Protocol    Counter          Value  Context
IOS_IPC     IN_PKTS          2     Summary
IOS_IPC     OUT_PKTS         2     Summary

```

The following example shows how to display counters for a context:

```

hostname# show counters context single_vf
Protocol    Counter          Value  Context
IOS_IPC     IN_PKTS          4     single_vf
IOS_IPC     OUT_PKTS         4     single_vf

```

---

**Related Commands**

Command	Description
<b>clear counters</b>	Clears the protocol stack counters.

---

# show cpu

To display the CPU utilization information, use the **show cpu usage** command in privileged EXEC mode.

```
show cpu [usage | profile]
```

From the system configuration in multiple context mode:

```
show cpu [usage] [context {all | context_name}]
```

## Syntax Description

all	Specifies that the display show all contexts.
context	Specifies that the display show a context.
<i>context_name</i>	Specifies the name of the context to display.
<b>profile</b>	Displays CPU profile usage. The information displayed can be used by TAC for troubleshooting purposes.
usage	(Optional) Displays the CPU usage.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The cpu usage is computed using an approximation of the load every five seconds, and by further feeding this approximation into two, following moving averages.

You can use the **show cpu** command to find process related loads (that is, activity on behalf of items listed by the output of the **show process** command in both single mode and from the system configuration in multiple context mode).

Further, you can request, when in multiple context mode, a breakdown of the process related load to CPU consumed by any configured contexts by changing to each context and entering the **show cpu** command or by entering the **show cpu context** variant of this command.

While process related load is rounded to the nearest whole number, context related loads include one additional decimal digit of precision. For example, entering **show cpu** from the system context produces a different number than from entering the **show cpu context system** command. The former is an approximate summary of everything in **show cpu context all**, and the latter is only a portion of that summary.

The **show cpu profile** command can be used in conjunction with the **cpu profile activate** command to display information that can be collected and used by the TAC to aid in troubleshooting CPU issues. The information displayed by the **show cpu profile** command is in hexadecimal.

## Examples

The following example shows how to display the CPU utilization:

```
hostname# show cpu usage
CPU utilization for 5 seconds = 18%; 1 minute: 18%; 5 minutes: 18%
```

This example shows how to display the CPU utilization for the system context in multiple mode:

```
hostname# show cpu context system
CPU utilization for 5 seconds = 9.1%; 1 minute: 9.2%; 5 minutes: 9.1%
```

The following shows how to display the CPU utilization for all contexts:

```
hostname# show cpu usage context all
5 sec 1 min 5 min Context Name
9.1% 9.2% 9.1% system
0.0% 0.0% 0.0% admin
5.0% 5.0% 5.0% one
4.2% 4.3% 4.2% two
```

This example shows how to display the CPU utilization for a context named “one”:

```
hostname/one# show cpu usage
CPU utilization for 5 seconds = 5.0%; 1 minute: 5.0%; 5 minutes: 5.0%
```

The following example activates the profiler and instructs it to store 5000 samples.

```
hostname# cpu profile activate 5000
Activated CPU profiling for 5000 samples.
```

Use the **show cpu profile** command to see the results.



**Note** Executing the **show cpu profile** command while the **cpu profile activate** command is running will display the progress.

```
hostname# show cpu profile
CPU profiling started: 07:54:40.888 PDT Fri Sep 1 2006 CPU profiling currently in
progress, 1640 out of 5000 samples collected.
```

Once it is complete, the **show cpu profile** command output will provide the results. Copy this information and provide to the TAC to be decoded.

```
hostname# show cpu profile
CPU profiling started: 07:54:40.888 PDT Fri Sep 1 2006 Profiling finished, 5000 samples:
00c483f5 00115283 002199d3 001151d1 002199e5 00116258 002199fc 00115230 0021984e
002198f6 00c48496 00219803 004a55b1 002198b1 00c484d9 00c48472
00116258 00c48401 002199f3 00c48401 00c484b2 004a5580 0011520a 002198b4
```

## ■ show cpu

```

00116258 00219807 0011520a 00116258 002198a9 00116258 00219a2e 00112009 0021989c
00fff023 008be861 0011525e 002198be 0021984e 00115277 00219807 002199d0 00114a6d 002198af
0011520a 00115260 00115274 004a55a6 00c48472
00c48472 00c48496 002199f9 002198ad 00c484c4 004a55a6 00115260 002198f4 0011528e
002198e0 00c484bb 00c48496 00c484a6 002199f3 00219810 001161d6 .

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show counters</b>	Displays the protocol stack counters.
<b>cpu profile activate</b>	Activates CPU profiling.

# show crashinfo

To display the contents of the crash file stored in Flash memory, enter the **show crashinfo** command in privileged EXEC mode.

**show crashinfo [save]**

## Syntax Description

<b>save</b>	(Optional) Displays if the security appliance is configured to save crash information to Flash memory or not.
-------------	---

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

If the crash file is from a test crash (generated from the **crashinfo test** command), the first string of the crash file is “: Saved\_Test\_Crash” and the last string is “: End\_Test\_Crash”. If the crash file is from a real crash, the first string of the crash file is “: Saved\_Crash” and the last string is “: End\_Crash”. (This includes crashes from use of the **crashinfo force page-fault** or **crashinfo force watchdog** commands).

If there is no crash data saved in flash, or if the crash data has been cleared by entering the **clear crashinfo** command, the **show crashinfo** command displays an error message.

## Examples

The following example shows how to display the current crash information configuration:

```
hostname# show crashinfo save
crashinfo save enable
```

The following example shows the output for a crash file test. (However, this test does not actually crash the security appliance. It provides a simulated example file.)

```
hostname(config)# crashinfo test
hostname(config)# exit
hostname# show crashinfo
: Saved_Test_Crash
```

```
Thread Name: ci/console (Old pc 0x001a6ff5 ebp 0x00e88920)
```

```

Traceback:
0: 00323143
1: 0032321b
2: 0010885c
3: 0010763c
4: 001078db
5: 00103585
6: 00000000
   vector 0x000000ff (user defined)
       edi 0x004f20c4
       esi 0x00000000
       ebp 0x00e88c20
       esp 0x00e88bd8
       ebx 0x00000001
       edx 0x00000074
       ecx 0x00322f8b
       eax 0x00322f8b
error code n/a
   eip 0x0010318c
   cs 0x00000008
   eflags 0x00000000
   CR2 0x00000000
Stack dump: base:0x00e8511c size:16384, active:1476
0x00e89118: 0x004f1bb4
0x00e89114: 0x001078b4
0x00e89110-0x00e8910c: 0x00000000
0x00e89108-0x00e890ec: 0x12345678
0x00e890e8: 0x004f1bb4
0x00e890e4: 0x00103585
0x00e890e0: 0x00e8910c
0x00e890dc-0x00e890cc: 0x12345678
0x00e890c8: 0x00000000
0x00e890c4-0x00e890bc: 0x12345678
0x00e890b8: 0x004f1bb4
0x00e890b4: 0x001078db
0x00e890b0: 0x00e890e0
0x00e890ac-0x00e890a8: 0x12345678
0x00e890a4: 0x001179b3
0x00e890a0: 0x00e890b0
0x00e8909c-0x00e89064: 0x12345678
0x00e89060: 0x12345600
0x00e8905c: 0x20232970
0x00e89058: 0x616d2d65
0x00e89054: 0x74002023
0x00e89050: 0x29676966
0x00e8904c: 0x6e6f6328
0x00e89048: 0x31636573
0x00e89044: 0x7069636f
0x00e89040: 0x64786970
0x00e8903c-0x00e88e50: 0x00000000
0x00e88e4c: 0x000a7473
0x00e88e48: 0x6574206f
0x00e88e44: 0x666e6968
0x00e88e40: 0x73617263
0x00e88e3c-0x00e88e38: 0x00000000
0x00e88e34: 0x12345600
0x00e88e30-0x00e88dfc: 0x00000000
0x00e88df8: 0x00316761
0x00e88df4: 0x74706100
0x00e88df0: 0x12345600
0x00e88dec-0x00e88ddc: 0x00000000
0x00e88dd8: 0x00000070
0x00e88dd4: 0x616d2d65

```

```

0x00e88dd0: 0x74756f00
0x00e88dcc: 0x00000000
0x00e88dc8: 0x00e88e40
0x00e88dc4: 0x004f20c4
0x00e88dc0: 0x12345600
0x00e88dbc: 0x00000000
0x00e88db8: 0x00000035
0x00e88db4: 0x315f656c
0x00e88db0: 0x62616e65
0x00e88dac: 0x0030fcf0
0x00e88da8: 0x3011111f
0x00e88da4: 0x004df43c
0x00e88da0: 0x0053fef0
0x00e88d9c: 0x004f1bb4
0x00e88d98: 0x12345600
0x00e88d94: 0x00000000
0x00e88d90: 0x00000035
0x00e88d8c: 0x315f656c
0x00e88d88: 0x62616e65
0x00e88d84: 0x00000000
0x00e88d80: 0x004f20c4
0x00e88d7c: 0x00000001
0x00e88d78: 0x01345678
0x00e88d74: 0x00f53854
0x00e88d70: 0x00f7f754
0x00e88d6c: 0x00e88db0
0x00e88d68: 0x00e88d7b
0x00e88d64: 0x00f53874
0x00e88d60: 0x00e89040
0x00e88d5c-0x00e88d54: 0x12345678
0x00e88d50-0x00e88d4c: 0x00000000
0x00e88d48: 0x004f1bb4
0x00e88d44: 0x00e88d7c
0x00e88d40: 0x00e88e40
0x00e88d3c: 0x00f53874
0x00e88d38: 0x004f1bb4
0x00e88d34: 0x0010763c
0x00e88d30: 0x00e890b0
0x00e88d2c: 0x00e88db0
0x00e88d28: 0x00e88d88
0x00e88d24: 0x0010761a
0x00e88d20: 0x00e890b0
0x00e88d1c: 0x00e88e40
0x00e88d18: 0x00f53874
0x00e88d14: 0x0010166d
0x00e88d10: 0x0000000e
0x00e88d0c: 0x00f53874
0x00e88d08: 0x00f53854
0x00e88d04: 0x0048b301
0x00e88d00: 0x00e88d30
0x00e88cfc: 0x0000000e
0x00e88cf8: 0x00f53854
0x00e88cf4: 0x0048a401
0x00e88cf0: 0x00f53854
0x00e88cec: 0x00f53874
0x00e88ce8: 0x0000000e
0x00e88ce4: 0x0048a64b
0x00e88ce0: 0x0000000e
0x00e88cdc: 0x00f53874
0x00e88cd8: 0x00f7f96c
0x00e88cd4: 0x0048b4f8
0x00e88cd0: 0x00e88d00
0x00e88ccc: 0x0000000f
0x00e88cc8: 0x00f7f96c

```

```

0x00e88cc4-0x00e88cc0: 0x0000000e
0x00e88cbc: 0x00e89040
0x00e88cb8: 0x00000000
0x00e88cb4: 0x00f5387e
0x00e88cb0: 0x00f53874
0x00e88cac: 0x00000002
0x00e88ca8: 0x00000001
0x00e88ca4: 0x00000009
0x00e88ca0-0x00e88c9c: 0x00000001
0x00e88c98: 0x00e88cb0
0x00e88c94: 0x004f20c4
0x00e88c90: 0x0000003a
0x00e88c8c: 0x00000000
0x00e88c88: 0x0000000a
0x00e88c84: 0x00489f3a
0x00e88c80: 0x00e88d88
0x00e88c7c: 0x00e88e40
0x00e88c78: 0x00e88d7c
0x00e88c74: 0x001087ed
0x00e88c70: 0x00000001
0x00e88c6c: 0x00e88cb0
0x00e88c68: 0x00000002
0x00e88c64: 0x0010885c
0x00e88c60: 0x00e88d30
0x00e88c5c: 0x00727334
0x00e88c58: 0xa0ffffff
0x00e88c54: 0x00e88cb0
0x00e88c50: 0x00000001
0x00e88c4c: 0x00e88cb0
0x00e88c48: 0x00000002
0x00e88c44: 0x0032321b
0x00e88c40: 0x00e88c60
0x00e88c3c: 0x00e88c7f
0x00e88c38: 0x00e88c5c
0x00e88c34: 0x004b1ad5
0x00e88c30: 0x00e88c60
0x00e88c2c: 0x00e88e40
0x00e88c28: 0xa0ffffff
0x00e88c24: 0x00323143
0x00e88c20: 0x00e88c40
0x00e88c1c: 0x00000000
0x00e88c18: 0x00000008
0x00e88c14: 0x0010318c
0x00e88c10-0x00e88c0c: 0x00322f8b
0x00e88c08: 0x00000074
0x00e88c04: 0x00000001
0x00e88c00: 0x00e88bd8
0x00e88bfc: 0x00e88c20
0x00e88bf8: 0x00000000
0x00e88bf4: 0x004f20c4
0x00e88bf0: 0x000000ff
0x00e88bec: 0x00322f87
0x00e88be8: 0x00f5387e
0x00e88be4: 0x00323021
0x00e88be0: 0x00e88c10
0x00e88bdc: 0x004f20c4
0x00e88bd8: 0x00000000 *
0x00e88bd4: 0x004eabb0
0x00e88bd0: 0x00000001
0x00e88bcc: 0x00f5387e
0x00e88bc8-0x00e88bc4: 0x00000000
0x00e88bc0: 0x00000008
0x00e88bbc: 0x0010318c
0x00e88bb8-0x00e88bb4: 0x00322f8b

```



```

0x00e88bb0: 0x00000074
0x00e88bac: 0x00000001
0x00e88ba8: 0x00e88bd8
0x00e88ba4: 0x00e88c20
0x00e88ba0: 0x00000000
0x00e88b9c: 0x004f20c4
0x00e88b98: 0x000000ff
0x00e88b94: 0x001031f2
0x00e88b90: 0x00e88c20
0x00e88b8c: 0xffffffff
0x00e88b88: 0x00e88cb0
0x00e88b84: 0x00320032
0x00e88b80: 0x37303133
0x00e88b7c: 0x312f6574
0x00e88b78: 0x6972772f
0x00e88b74: 0x342f7665
0x00e88b70: 0x64736666
0x00e88b6c: 0x00020000
0x00e88b68: 0x00000010
0x00e88b64: 0x00000001
0x00e88b60: 0x123456cd
0x00e88b5c: 0x00000000
0x00e88b58: 0x00000008

```

```

Cisco XXX Firewall Version X.X
Cisco XXX Device Manager Version X.X

```

```

Compiled on Fri 15-Nov-04 14:35 by root

```

```

hostname up 10 days 0 hours

```

```

Hardware: XXX-XXX, 64 MB RAM, CPU Pentium 200 MHz
Flash i28F640J5 @ 0x300, 16MB
BIOS Flash AT29C257 @ 0xffffd8000, 32KB

```

```

0: ethernet0: address is 0003.e300.73fd, irq 10
1: ethernet1: address is 0003.e300.73fe, irq 7
2: ethernet2: address is 00d0.b7c8.139e, irq 9

```

```

Licensed Features:

```

```

Failover:           Disabled
VPN-DES:            Enabled
VPN-3DES-AES:      Disabled
Maximum Interfaces: 3
Cut-through Proxy: Enabled
Guards:             Enabled
URL-filtering:     Enabled
Inside Hosts:      Unlimited
Throughput:        Unlimited
IKE peers:         Unlimited

```

```

This XXX has a Restricted (R) license.

```

```

Serial Number: 480430455 (0x1ca2c977)
Running Activation Key: 0xc2e94182 0xc21d8206 0x15353200 0x633f6734
Configuration last modified by enable_15 at 13:49:42.148 UTC Wed Nov 20 2004

```

```

----- show clock -----

```

```

15:34:28.129 UTC Sun Nov 24 2004

```

```

----- show memory -----

```

```

Free memory:      50444824 bytes
Used memory:      16664040 bytes

```

```

-----
Total memory:          67108864 bytes

----- show conn count -----

0 in use, 0 most used

----- show xlate count -----

0 in use, 0 most used

----- show blocks -----

  SIZE    MAX    LOW    CNT
    4    1600   1600   1600
   80     400    400    400
  256     500    499    500
 1550   1188    795    927

----- show interface -----

interface ethernet0 "outside" is up, line protocol is up
Hardware is i82559 ethernet, address is 0003.e300.73fd
IP address 172.23.59.232, subnet mask 255.255.0.0
MTU 1500 bytes, BW 10000 Kbit half duplex
    6139 packets input, 830375 bytes, 0 no buffer
    Received 5990 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    90 packets output, 6160 bytes, 0 underruns
    0 output errors, 13 collisions, 0 interface resets
    0 babbles, 0 late collisions, 47 deferred
    0 lost carrier, 0 no carrier
    input queue (curr/max blocks): hardware (5/128) software (0/2)
    output queue (curr/max blocks): hardware (0/1) software (0/1)
interface ethernet1 "inside" is up, line protocol is down
Hardware is i82559 ethernet, address is 0003.e300.73fe
IP address 10.1.1.1, subnet mask 255.255.255.0
MTU 1500 bytes, BW 10000 Kbit half duplex
    0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    1 packets output, 60 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
    0 babbles, 0 late collisions, 0 deferred
    1 lost carrier, 0 no carrier
    input queue (curr/max blocks): hardware (128/128) software (0/0)
    output queue (curr/max blocks): hardware (0/1) software (0/1)
interface ethernet2 "intf2" is administratively down, line protocol is down
Hardware is i82559 ethernet, address is 00d0.b7c8.139e
IP address 127.0.0.1, subnet mask 255.255.255.255
MTU 1500 bytes, BW 10000 Kbit half duplex
    0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    0 packets output, 0 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
    0 babbles, 0 late collisions, 0 deferred
    0 lost carrier, 0 no carrier
    input queue (curr/max blocks): hardware (128/128) software (0/0)
    output queue (curr/max blocks): hardware (0/0) software (0/0)

----- show cpu usage -----

CPU utilization for 5 seconds = 0%; 1 minute: 0%; 5 minutes: 0%

```

```

----- show process -----
      PC          SP          STATE          Runtime          SBASE          Stack Process
Hsi 001e3329 00763e7c 0053e5c8          0 00762ef4 3784/4096 arp_timer
Lsi 001e80e9 00807074 0053e5c8          0 008060fc 3792/4096 FragDBGC
Lwe 00117e3a 009dc2e4 00541d18          0 009db46c 3704/4096 dbgtrace
Lwe 003cee95 009de464 00537718          0 009dc51c 8008/8192 Logger
Hwe 003d2d18 009e155c 005379c8          0 009df5e4 8008/8192 tcp_fast
Hwe 003d2c91 009e360c 005379c8          0 009e1694 8008/8192 tcp_slow
Lsi 002ec97d 00b1a464 0053e5c8          0 00b194dc 3928/4096 xlate clean
Lsi 002ec88b 00b1b504 0053e5c8          0 00b1a58c 3888/4096 uxlate clean
Mrd 002e3a17 00c8f8d4 0053e600          0 00c8d93c 7908/8192 tcp_intercept_times
Lsi 00423dd5 00d3a22c 0053e5c8          0 00d392a4 3900/4096 route_process
Hsi 002d59fc 00d3b2bc 0053e5c8          0 00d3a354 3780/4096 PIX Garbage Collec
Hwe 0020e301 00d5957c 0053e5c8          0 00d55614 16048/16384 isakmp_time_keepr
Lsi 002d377c 00d7292c 0053e5c8          0 00d719a4 3928/4096 perfmon
Hwe 0020bd07 00d9c12c 0050bb90          0 00d9b1c4 3944/4096 IPsec
Mwe 00205e25 00d9e1ec 0053e5c8          0 00d9c274 7860/8192 IPsec timer handler
Hwe 003864e3 00db26bc 00557920          0 00db0764 6904/8192 qos_metric_daemon
Mwe 00255a65 00dc9244 0053e5c8          0 00dc8adc 1436/2048 IP Background
Lwe 002e450e 00e7bb94 00552c30          0 00e7ad1c 3704/4096 pix/trace
Lwe 002e471e 00e7cc44 00553368          0 00e7bdcc 3704/4096 pix/tconsole
Hwe 001e5368 00e7ed44 00730674          0 00e7ce9c 7228/8192 pix/intf0
Hwe 001e5368 00e80e14 007305d4          0 00e7ef6c 7228/8192 pix/intf1
Hwe 001e5368 00e82ee4 00730534          2470 00e8103c 4892/8192 pix/intf2
H* 001a6ff5 0009ff2c 0053e5b0          4820 00e8511c 12860/16384 ci/console
Csi 002dd8ab 00e8a124 0053e5c8          0 00e891cc 3396/4096 update_cpu_usage
Hwe 002cb4d1 00f2bfb3 0051e360          0 00f2a134 7692/8192 uauth_in
Hwe 003d17d1 00f2e0bc 00828cf0          0 00f2c1e4 7896/8192 uauth_thread
Hwe 003e71d4 00f2f20c 00537d20          0 00f2e294 3960/4096 udp_timer
Hsi 001db3ca 00f30fc4 0053e5c8          0 00f3004c 3784/4096 557mcfix
Crd 001db37f 00f32084 0053ea40          508286220 00f310fc 3688/4096 557poll
Lsi 001db435 00f33124 0053e5c8          0 00f321ac 3700/4096 557timer
Hwe 001e5398 00f441dc 008121e0          0 00f43294 3912/4096 fover_ip0
Cwe 001dcdad 00f4523c 00872b48          120 00f44344 3528/4096 ip/0:0
Hwe 001e5398 00f4633c 008121bc          10 00f453f4 3532/4096 icmp0
Hwe 001e5398 00f47404 00812198          0 00f464cc 3896/4096 udp_thread/0
Hwe 001e5398 00f4849c 00812174          0 00f475a4 3456/4096 tcp_thread/0
Hwe 001e5398 00f495bc 00812150          0 00f48674 3912/4096 fover_ip1
Cwe 001dcdad 00f4a61c 008ea850          0 00f49724 3832/4096 ip/1:1
Hwe 001e5398 00f4b71c 0081212c          0 00f4a7d4 3912/4096 icmp1
Hwe 001e5398 00f4c7e4 00812108          0 00f4b8ac 3896/4096 udp_thread/1
Hwe 001e5398 00f4d87c 008120e4          0 00f4c984 3832/4096 tcp_thread/1
Hwe 001e5398 00f4e99c 008120c0          0 00f4da54 3912/4096 fover_ip2
Cwe 001e542d 00f4fa6c 00730534          0 00f4eb04 3944/4096 ip/2:2
Hwe 001e5398 00f50afc 0081209c          0 00f4fbb4 3912/4096 icmp2
Hwe 001e5398 00f51bc4 00812078          0 00f50c8c 3896/4096 udp_thread/2
Hwe 001e5398 00f52c5c 00812054          0 00f51d64 3832/4096 tcp_thread/2
Hwe 003d1a65 00f78284 008140f8          0 00f77fdc 300/1024 listen/http1
Mwe 0035cafa 00f7a63c 0053e5c8          0 00f786c4 7640/8192 Crypto CA

```

```
----- show failover -----
```

```
No license for Failover
```

```
----- show traffic -----
```

```
outside:
  received (in 865565.090 secs):
    6139 packets      830375 bytes
    0 pkts/sec        0 bytes/sec
  transmitted (in 865565.090 secs):
```

## show crashinfo

```

          90 packets      6160 bytes
          0 pkts/sec     0 bytes/sec
inside:
  received (in 865565.090 secs):
    0 packets      0 bytes
    0 pkts/sec     0 bytes/sec
  transmitted (in 865565.090 secs):
    1 packets      60 bytes
    0 pkts/sec     0 bytes/sec
intf2:
  received (in 865565.090 secs):
    0 packets      0 bytes
    0 pkts/sec     0 bytes/sec
  transmitted (in 865565.090 secs):
    0 packets      0 bytes
    0 pkts/sec     0 bytes/sec

```

```
----- show perfmon -----
```

```

PERFMON STATS:   Current   Average
Xlates           0/s      0/s
Connections      0/s      0/s
TCP Conns        0/s      0/s
UDP Conns        0/s      0/s
URL Access       0/s      0/s
URL Server Req   0/s      0/s
TCP Fixup        0/s      0/s
TCPIntercept     0/s      0/s
HTTP Fixup       0/s      0/s
FTP Fixup        0/s      0/s
AAA Authen       0/s      0/s
AAA Author       0/s      0/s
AAA Account      0/s      0/s
: End_Test_Crash

```

## Related Commands

Command	Description
<b>clear crashinfo</b>	Deletes the contents of the crash file.
<b>crashinfo force</b>	Forces a crash of the security appliance.
<b>crashinfo save disable</b>	Disables crash information from writing to Flash memory.
<b>crashinfo test</b>	Tests the ability of the security appliance to save crash information to a file in Flash memory.

# show crashinfo console

To read, write, and configure crash write to flash, use the **crashinfo console disable** command. This forces a crash.

## show crashinfo console

### Syntax Description

**console** controls putput of crashinfo to the console.

### Defaults

This command has no default settings.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

### Command History

Release	Modification
7.0(4)	This command was introduced.

### Usage Guidelines

Compliance with FIPS 140-2 prohibits the distribution of Critical Security Parameters (keys, passwords, etc.) outside of the crypto boundary (chassis). When the device crashes, due to an assert or checkheaps failure, it is possible that the stack or memory regions dumped to the console contain sensitive data. This output must be suppressed in FIPS-mode.

### Examples

```
sw8-5520(config)# show crashinfo console
```

### Related Commands

Command	Description
<b>clear configure fips</b>	Clears the system or module FIPS configuration information stored in NVRAM.
<b>crashinfo console disable</b>	Disables the reading, writing and configuration of crash write info to flash.
<b>fips enable</b>	Enables or disablea policy-checking to enforce FIPS compliance on the system or module.

Command	Description
<b>fips self-test poweron</b>	Executes power-on self-tests.
<b>show running-config fips</b>	Displays the FIPS configuration that is running on the security appliance.

# show crypto accelerator statistics

To display the global and accelerator-specific statistics from the hardware crypto accelerator MIB, use the **show crypto accelerator statistics** command in global configuration or privileged EXEC mode.

## show crypto accelerator statistics

### Syntax Description

This command has no keywords or variables.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Examples

The following example entered in global configuration mode, displays global crypto accelerator statistics:

```
hostname # show crypto accelerator statistics

Crypto Accelerator Status
-----
[Capacity]
  Supports hardware crypto: True
  Supports modular hardware crypto: False
  Max accelerators: 1
  Max crypto throughput: 100 Mbps
  Max crypto connections: 750
[Global Statistics]
  Number of active accelerators: 1
  Number of non-operational accelerators: 0
  Input packets: 700
  Input bytes: 753488
  Output packets: 700
  Output error packets: 0
  Output bytes: 767496
[Accelerator 0]
  Status: Active
  Software crypto engine
  Slot: 0
  Active time: 167 seconds
  Total crypto transforms: 7
```

```

Total dropped packets: 0
[Input statistics]
  Input packets: 0
  Input bytes: 0
  Input hashed packets: 0
  Input hashed bytes: 0
  Decrypted packets: 0
  Decrypted bytes: 0
[Output statistics]
  Output packets: 0
  Output bad packets: 0
  Output bytes: 0
  Output hashed packets: 0
  Output hashed bytes: 0
  Encrypted packets: 0
  Encrypted bytes: 0
[Diffie-Hellman statistics]
  Keys generated: 0
  Secret keys derived: 0
[RSA statistics]
  Keys generated: 0
  Signatures: 0
  Verifications: 0
  Encrypted packets: 0
  Encrypted bytes: 0
  Decrypted packets: 0
  Decrypted bytes: 0
[DSA statistics]
  Keys generated: 0
  Signatures: 0
  Verifications: 0
[SSL statistics]
  Outbound records: 0
  Inbound records: 0
[RNG statistics]
  Random number requests: 98
  Random number request failures: 0
[Accelerator 1]
  Status: Active
  Encryption hardware device : Cisco ASA-55x0 on-board accelerator
(revision 0x0)

                                Boot microcode   : CNlite-MC-Boot-Cisco-1.2
                                SSL/IKE microcode: CNlite-MC-IPSEC-Admin-3.03
                                IPsec microcode  : CNlite-MC-IPSECM-MAIN-2.03

Slot: 1
Active time: 170 seconds
Total crypto transforms: 1534
Total dropped packets: 0
[Input statistics]
  Input packets: 700
  Input bytes: 753544
  Input hashed packets: 700
  Input hashed bytes: 736400
  Decrypted packets: 700
  Decrypted bytes: 719944
[Output statistics]
  Output packets: 700
  Output bad packets: 0
  Output bytes: 767552
  Output hashed packets: 700
  Output hashed bytes: 744800
  Encrypted packets: 700
  Encrypted bytes: 728352
[Diffie-Hellman statistics]

```



```

    Keys generated: 97
    Secret keys derived: 1
[RSA statistics]
    Keys generated: 0
    Signatures: 0
    Verifications: 0
    Encrypted packets: 0
    Encrypted bytes: 0
    Decrypted packets: 0
    Decrypted bytes: 0
[DSA statistics]
    Keys generated: 0
    Signatures: 0
    Verifications: 0
[SSL statistics]
    Outbound records: 0
    Inbound records: 0
[RNG statistics]
    Random number requests: 1
    Random number request failures: 0
hostname #

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear crypto accelerator statistics</b>	Clears the global and accelerator-specific statistics in the crypto accelerator MIB.
clear crypto protocol statistics	Clears the protocol-specific statistics in the crypto accelerator MIB.
<b>show crypto protocol statistics</b>	Displays the protocol-specific statistics from the crypto accelerator MIB.

# show crypto ca certificates

To display the certificates associated with a specific trustpoint or to display all the certificates installed on the system, use the **show crypto ca certificates** command in global configuration or privileged EXEC mode.

```
show crypto ca certificates [trustpointname]
```

## Syntax Description

*trustpointname* (Optional) The name of a trustpoint. If you do not specify a name, this command displays all certificates installed on the system.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example entered in global configuration mode, displays a CA certificate for a trustpoint named tp1:

```
hostname(config)# show crypto ca certificates tp1
CA Certificate
  Status: Available
  Certificate Serial Number 2957A3FF296EF854FD0D6732FE25B45
  Certificate Usage: Signature
  Issuer:
    CN = ms-root-sha-06-2004
    OU = rootou
    O = cisco
    L = franklin
    ST = massachusetts
    C = US
    EA = a@b.com
  Subject:
    CN = ms-root-sha-06-2004
    OU = rootou
    O = cisco
    L = franklin
    ST = massachusetts
    C = US
    EA = a@b.com
```

```
CRL Distribution Point
  ldap://w2kadvancedsrv/CertEnroll/ms-root-sha-06-2004.crl
Validity Date:
  start date: 14:11:40 UTC Jun 26 2004
  end date: 14:01:30 UTC Jun 4 2022
Associated Trustpoints: tp2 tp1
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>crypto ca authenticate</b>	Obtains a CA certificate for a specified trustpoint.
<b>crypto ca crl request</b>	Requests a CRL based on the configuration parameters of a specified trustpoint.
<b>crypto ca enroll</b>	Initiates the enrollment process with a CA.
<b>crypto ca import</b>	Imports a certificate to a specified trustpoint.
<b>crypto ca trustpoint</b>	Enters trustpoint mode for a specified trustpoint.

# show crypto ca crls

To display all cached CRLs or to display all CRLs cached for a specified trustpoint, use the **show crypto ca crls** command in global configuration or privileged EXEC mode.

```
show crypto ca crls [trustpointname]
```

## Syntax Description

<i>trustpointname</i>	(Optional) The name of a trustpoint. If you do not specify a name, this command displays all CRLs cached on the system.
-----------------------	---

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	
Privileged EXEC	•	•	•	•	

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example entered in global configuration mode, displays a CRL for a trustpoint named tp1:

```
hostname(config)# show crypto ca crls tp1
CRL Issuer Name:
  cn=ms-sub1-ca-5-2004,ou=Franklin DevTest,o=Cisco
Systems,l=Franklin,st=MA,c=US,ea=user@cisco.com
  LastUpdate: 19:45:53 UTC Dec 24 2004
  NextUpdate: 08:05:53 UTC Jan 1 2005
Retrieved from CRL Distribution Point:
  http://win2k-ad2.frk-ms-pki.cisco.com/CertEnroll/ms-sub1-ca-5-2004.crl
Associated Trustpoints: tp1
hostname(config)#
```

## Related Commands

Command	Description
<b>crypto ca authenticate</b>	Obtains a CA certificate for a specified trustpoint.
<b>crypto ca crl request</b>	Requests a CRL based on the configuration parameters of a specified trustpoint.
<b>crypto ca enroll</b>	Initiates the enrollment process with a CA.
<b>crypto ca import</b>	Imports a certificate to a specified trustpoint.
<b>crypto ca trustpoint</b>	Enters trustpoint mode for a specified trustpoint.

# show crypto ipsec df-bit

To display the IPsec DF-bit policy for IPsec packets for a specified interface, use the **show crypto ipsec df-bit** command in global configuration mode and privileged EXEC mode.

**show crypto ipsec df-bit** *interface*

## Syntax Description

<i>interface</i>	Specifies an interface name.
<i>token</i>	Indicate a token-based server for user authentication is used.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example displays the IPsec DF-bit policy for interface named inside:

```
hostname(config)# show crypto ipsec df-bit inside
df-bit inside copy
hostname(config)#
```

## Related Commands

Command	Description
<b>crypto ipsec df-bit</b>	Configures the IPsec DF-bit policy for IPsec packets.
<b>crypto ipsec fragmentation</b>	Configures the fragmentation policy for IPsec packets.
<b>show crypto ipsec fragmentation</b>	Displays the fragmentation policy for IPsec packets.

# show crypto ipsec fragmentation

To display the fragmentation policy for IPSec packets, use the **show crypto ipsec fragmentation** command in global configuration or privileged EXEC modes.

**show crypto ipsec fragmentation** *interface*

## Syntax Description

<i>interface</i>	Specifies an interface name.
token	Indicate a token-based server for user authentication is used.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example, entered in global configuration mode, displays the IPSec fragmentation policy for an interface named inside:

```
hostname(config)# show crypto ipsec fragmentation inside
fragmentation inside before-encryption
hostname(config)#
```

## Related Commands

Command	Description
<b>crypto ipsec fragmentation</b>	Configures the fragmentation policy for IPSec packets.
<b>crypto ipsec df-bit</b>	Configures the DF-bit policy for IPSec packets.
<b>show crypto ipsec df-bit</b>	Displays the DF-bit policy for a specified interface.

# show crypto ipsec sa

To display a list of IPsec SAs, use the **show crypto ipsec sa** command in global configuration mode or privileged EXEC mode. You can also use the alternate form of this command: **show ipsec sa**.

**show crypto ipsec sa** [**entry** | **identity** | **map** *map-name* | **peer** *peer-addr*] [**detail**]

Syntax Description		
<b>detail</b>	(Optional)	Displays detailed error information on what is displayed.
<b>entry</b>	(Optional)	Displays IPsec SAs sorted by peer address
<b>identity</b>	(Optional)	Displays IPsec SAs for sorted by identity, not including ESPs. This is a condensed form.
<b>map</b> <i>map-name</i>	(Optional)	Displays IPsec SAs for the specified crypto map.
<b>peer</b> <i>peer-addr</i>	(Optional)	Displays IPsec SAs for specified peer IP addresses.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example, entered in global configuration mode, displays IPsec SAs.

```
hostname(config)# show crypto ipsec sa
interface: outside2
  Crypto map tag: def, local addr: 10.132.0.17

  local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
  remote ident (addr/mask/prot/port): (172.20.0.21/255.255.255.0/0)
  current_peer: 172.20.0.21
  dynamic allocated peer ip: 10.135.1.5

  #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
  #pkts decaps: 1145, #pkts decrypt: 1145, #pkts verify: 1145
  #pkts compressed: 0, #pkts decompressed: 0
  #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
  #pre-frag successes: 2, #pre-frag failures: 1, #fragments created: 10
  #PMTUs sent: 5, #PMTUs rcvd: 2, #decapstulated frags needing reassembly: 1
  #send errors: 0, #recv errors: 0
```

```

local crypto endpt.: 10.132.0.17, remote crypto endpt.: 172.20.0.21

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: DC15BF68

inbound esp sas:
 spi: 0x1E8246FC (511854332)
  transform: esp-3des esp-md5-hmac
  in use settings ={RA, Tunnel, }
  slot: 0, conn_id: 3, crypto-map: def
  sa timing: remaining key lifetime (sec): 548
  IV size: 8 bytes
  replay detection support: Y
outbound esp sas:
 spi: 0xDC15BF68 (3692412776)
  transform: esp-3des esp-md5-hmac
  in use settings ={RA, Tunnel, }
  slot: 0, conn_id: 3, crypto-map: def
  sa timing: remaining key lifetime (sec): 548
  IV size: 8 bytes
  replay detection support: Y

Crypto map tag: def, local addr: 10.132.0.17

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
hostname(config)#

```

**Note**

Fragmentation statistics are pre-fragmentation statistics if the IPSec SA policy states that fragmentation occurs before IPSec processing. Post-fragmentation statistics appear if the SA policy states that fragmentation occurs after IPSec processing.

The following example, entered in global configuration mode, displays IPSec SAs for a crypto map named def.

```

hostname(config)# show crypto ipsec sa map def
cryptomap: def
Crypto map tag: def, local addr: 172.20.0.17

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
current_peer: 10.132.0.21
dynamic allocated peer ip: 90.135.1.5

#pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
#pkts decaps: 1146, #pkts decrypt: 1146, #pkts verify: 1146
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
#send errors: 0, #recv errors: 0

local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: DC15BF68

inbound esp sas:
 spi: 0x1E8246FC (511854332)
  transform: esp-3des esp-md5-hmac
  in use settings ={RA, Tunnel, }
  slot: 0, conn_id: 3, crypto-map: def
  sa timing: remaining key lifetime (sec): 480
  IV size: 8 bytes
  replay detection support: Y

```



```

outbound esp sas:
  spi: 0xDC15BF68 (3692412776)
    transform: esp-3des esp-md5-hmac
    in use settings = {RA, Tunnel, }
    slot: 0, conn_id: 3, crypto-map: def
    sa timing: remaining key lifetime (sec): 480
    IV size: 8 bytes
    replay detection support: Y

Crypto map tag: def, local addr: 172.20.0.17

  local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
  remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
  current_peer: 10.135.1.8
  dynamic allocated peer ip: 0.0.0.0

  #pkts encaps: 73672, #pkts encrypt: 73672, #pkts digest: 73672
  #pkts decaps: 78824, #pkts decrypt: 78824, #pkts verify: 78824
  #pkts compressed: 0, #pkts decompressed: 0
  #pkts not compressed: 73672, #pkts comp failed: 0, #pkts decomp failed: 0
  #send errors: 0, #recv errors: 0

  local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

  path mtu 1500, ipsec overhead 60, media mtu 1500
  current outbound spi: 3B6F6A35

inbound esp sas:
  spi: 0xB32CF0BD (3006066877)
    transform: esp-3des esp-md5-hmac
    in use settings = {RA, Tunnel, }
    slot: 0, conn_id: 4, crypto-map: def
    sa timing: remaining key lifetime (sec): 263
    IV size: 8 bytes
    replay detection support: Y
outbound esp sas:
  spi: 0x3B6F6A35 (997157429)
    transform: esp-3des esp-md5-hmac
    in use settings = {RA, Tunnel, }
    slot: 0, conn_id: 4, crypto-map: def
    sa timing: remaining key lifetime (sec): 263
    IV size: 8 bytes
    replay detection support: Y
hostname(config)#

```

The following example, entered in global configuration mode, shows IPSec SAs for the keyword **entry**.

```

hostname(config)# show crypto ipsec sa entry
peer address: 10.132.0.21
  Crypto map tag: def, local addr: 172.20.0.17

    local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
    remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.0/0/0)
    current_peer: 10.132.0.21
    dynamic allocated peer ip: 90.135.1.5

    #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
    #pkts decaps: 1147, #pkts decrypt: 1147, #pkts verify: 1147
    #pkts compressed: 0, #pkts decompressed: 0
    #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
    #send errors: 0, #recv errors: 0

    local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

```

```

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: DC15BF68

inbound esp sas:
  spi: 0x1E8246FC (511854332)
    transform: esp-3des esp-md5-hmac
    in use settings ={RA, Tunnel, }
    slot: 0, conn_id: 3, crypto-map: def
    sa timing: remaining key lifetime (sec): 429
    IV size: 8 bytes
    replay detection support: Y
outbound esp sas:
  spi: 0xDC15BF68 (3692412776)
    transform: esp-3des esp-md5-hmac
    in use settings ={RA, Tunnel, }
    slot: 0, conn_id: 3, crypto-map: def
    sa timing: remaining key lifetime (sec): 429
    IV size: 8 bytes
    replay detection support: Y

peer address: 10.135.1.8
Crypto map tag: def, local addr: 172.20.0.17

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
current_peer: 10.135.1.8
dynamic allocated peer ip: 0.0.0.0

#pkts encaps: 73723, #pkts encrypt: 73723, #pkts digest: 73723
#pkts decaps: 78878, #pkts decrypt: 78878, #pkts verify: 78878
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 73723, #pkts comp failed: 0, #pkts decomp failed: 0
#send errors: 0, #recv errors: 0

local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: 3B6F6A35

inbound esp sas:
  spi: 0xB32CF0BD (3006066877)
    transform: esp-3des esp-md5-hmac
    in use settings ={RA, Tunnel, }
    slot: 0, conn_id: 4, crypto-map: def
    sa timing: remaining key lifetime (sec): 212
    IV size: 8 bytes
    replay detection support: Y
outbound esp sas:
  spi: 0x3B6F6A35 (997157429)
    transform: esp-3des esp-md5-hmac
    in use settings ={RA, Tunnel, }
    slot: 0, conn_id: 4, crypto-map: def
    sa timing: remaining key lifetime (sec): 212
    IV size: 8 bytes
    replay detection support: Y
hostname(config)#

```

The following example, entered in global configuration mode, shows IPSec SAs with the keywords **entry detail**.

```

hostname(config)# show crypto ipsec sa entry detail
peer address: 10.132.0.21
Crypto map tag: def, local addr: 172.20.0.17

```

```

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.0/0/0)
current_peer: 10.132.0.21
dynamic allocated peer ip: 90.135.1.5

#pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
#pkts decaps: 1148, #pkts decrypt: 1148, #pkts verify: 1148
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
#pkts no sa (send): 0, #pkts invalid sa (rcv): 0
#pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
#pkts invalid prot (rcv): 0, #pkts verify failed: 0
#pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
#pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
#pkts replay failed (rcv): 0
#pkts internal err (send): 0, #pkts internal err (rcv): 0

local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: DC15BF68

inbound esp sas:
spi: 0x1E8246FC (511854332)
  transform: esp-3des esp-md5-hmac
  in use settings = {RA, Tunnel, }
  slot: 0, conn_id: 3, crypto-map: def
  sa timing: remaining key lifetime (sec): 322
  IV size: 8 bytes
  replay detection support: Y
outbound esp sas:
spi: 0xDC15BF68 (3692412776)
  transform: esp-3des esp-md5-hmac
  in use settings = {RA, Tunnel, }
  slot: 0, conn_id: 3, crypto-map: def
  sa timing: remaining key lifetime (sec): 322
  IV size: 8 bytes
  replay detection support: Y

peer address: 10.135.1.8
Crypto map tag: def, local addr: 172.20.0.17

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
remote ident (addr/mask/prot/port): (192.168.132.0/255.255.0/0/0)
current_peer: 10.135.1.8
dynamic allocated peer ip: 0.0.0.0

#pkts encaps: 73831, #pkts encrypt: 73831, #pkts digest: 73831
#pkts decaps: 78989, #pkts decrypt: 78989, #pkts verify: 78989
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 73831, #pkts comp failed: 0, #pkts decomp failed: 0
#pkts no sa (send): 0, #pkts invalid sa (rcv): 0
#pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
#pkts invalid prot (rcv): 0, #pkts verify failed: 0
#pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
#pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
#pkts replay failed (rcv): 0
#pkts internal err (send): 0, #pkts internal err (rcv): 0

local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: 3B6F6A35

```

```

inbound esp sas:
  spi: 0xB32CF0BD (3006066877)
    transform: esp-3des esp-md5-hmac
    in use settings ={RA, Tunnel, }
    slot: 0, conn_id: 4, crypto-map: def
    sa timing: remaining key lifetime (sec): 104
    IV size: 8 bytes
    replay detection support: Y
outbound esp sas:
  spi: 0x3B6F6A35 (997157429)
    transform: esp-3des esp-md5-hmac
    in use settings ={RA, Tunnel, }
    slot: 0, conn_id: 4, crypto-map: def
    sa timing: remaining key lifetime (sec): 104
    IV size: 8 bytes
    replay detection support: Y
hostname(config)#

```

The following example shows IPSec SAs with the keyword **identity**.

```

hostname(config)# show crypto ipsec sa identity
interface: outside2
  Crypto map tag: def, local addr: 172.20.0.17

    local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
    remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
    current_peer: 10.132.0.21
    dynamic allocated peer ip: 90.135.1.5

    #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
    #pkts decaps: 1147, #pkts decrypt: 1147, #pkts verify: 1147
    #pkts compressed: 0, #pkts decompressed: 0
    #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
    #send errors: 0, #recv errors: 0

    local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

    path mtu 1500, ipsec overhead 60, media mtu 1500
    current outbound spi: DC15BF68

  Crypto map tag: def, local addr: 172.20.0.17

    local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
    remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
    current_peer: 10.135.1.8
    dynamic allocated peer ip: 0.0.0.0

    #pkts encaps: 73756, #pkts encrypt: 73756, #pkts digest: 73756
    #pkts decaps: 78911, #pkts decrypt: 78911, #pkts verify: 78911
    #pkts compressed: 0, #pkts decompressed: 0
    #pkts not compressed: 73756, #pkts comp failed: 0, #pkts decomp failed: 0
    #send errors: 0, #recv errors: 0

    local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

    path mtu 1500, ipsec overhead 60, media mtu 1500
    current outbound spi: 3B6F6A35

```

The following example shows IPSec SAs with the keywords **identity** and **detail**.

```

hostname(config)# show crypto ipsec sa identity detail
interface: outside2
  Crypto map tag: def, local addr: 172.20.0.17

```

```

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.0/0/0)
current_peer: 10.132.0.21
dynamic allocated peer ip: 90.135.1.5

#pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
#pkts decaps: 1147, #pkts decrypt: 1147, #pkts verify: 1147
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
#pkts no sa (send): 0, #pkts invalid sa (rcv): 0
#pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
#pkts invalid prot (rcv): 0, #pkts verify failed: 0
#pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
#pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
#pkts replay failed (rcv): 0
#pkts internal err (send): 0, #pkts internal err (rcv): 0

local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: DC15BF68

Crypto map tag: def, local addr: 172.20.0.17

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
remote ident (addr/mask/prot/port): (192.168.132.0/255.255.0/0/0)
current_peer: 10.135.1.8
dynamic allocated peer ip: 0.0.0.0

#pkts encaps: 73771, #pkts encrypt: 73771, #pkts digest: 73771
#pkts decaps: 78926, #pkts decrypt: 78926, #pkts verify: 78926
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 73771, #pkts comp failed: 0, #pkts decomp failed: 0
#pkts no sa (send): 0, #pkts invalid sa (rcv): 0
#pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
#pkts invalid prot (rcv): 0, #pkts verify failed: 0
#pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
#pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
#pkts replay failed (rcv): 0
#pkts internal err (send): 0, #pkts internal err (rcv): 0

local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: 3B6F6A35

```

**Related Commands**

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the security appliance.
<b>show running-config isakmp</b>	Displays all the active ISAKMP configuration.

# show crypto ipsec stats

To display a list of IPSec statistics, use the **show crypto ipsec stats** command in global configuration mode or privileged EXEC mode.

## show crypto ipsec stats

**Syntax Description** This command has no keywords or variables.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example, entered in global configuration mode, displays IPSec statistics:

```
hostname(config)# show crypto ipsec stats
```

```
IPsec Global Statistics
-----
Active tunnels: 2
Previous tunnels: 9
Inbound
  Bytes: 4933013
  Decompressed bytes: 4933013
  Packets: 80348
  Dropped packets: 0
  Replay failures: 0
  Authentications: 80348
  Authentication failures: 0
  Decryptions: 80348
  Decryption failures: 0
  Decapsulated fragments needing reassembly: 0
Outbound
  Bytes: 4441740
  Uncompressed bytes: 4441740
  Packets: 74029
  Dropped packets: 0
  Authentications: 74029
  Authentication failures: 0
  Encryptions: 74029
```

```

Encryption failures: 0
Fragmentation successes: 3
  Pre-fragmentation successes:2
  Post-fragmentation successes: 1
Fragmentation failures: 2
  Pre-fragmentation failures:1
  Post-fragmentation failures: 1
Fragments created: 10
PMTUs sent: 1
PMTUs recvd: 2
Protocol failures: 0
Missing SA failures: 0
System capacity failures: 0
hostname(config)#

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear ipsec sa</b>	Clears IPsec SAs or counters based on specified parameters.
<b>crypto ipsec transform-set</b>	Defines a transform set.
<b>show ipsec sa</b>	Displays IPsec SAs based on specified parameters.
<b>show ipsec sa summary</b>	Displays a summary of IPsec SAs.

# show crypto isakmp stats

To display runtime statistics, use the **show crypto isakmp stats** command in global configuration mode or privileged EXEC mode.

**show crypto isakmp stats**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	The <b>show isakmp stats</b> command was introduced.
7.2(1)	The <b>show isakmp stats</b> command was deprecated. The <b>show crypto isakmp stats</b> command replaces it.

## Usage Guidelines

The output from this command includes the following fields:

- Global IKE Statistics
- Active Tunnels
- In Octets
- In Packets
- In Drop Packets
- In Notifys
- In P2 Exchanges
- In P2 Exchange Invalids
- In P2 Exchange Rejects
- In P2 Sa Delete Requests
- Out Octets
- Out Packets
- Out Drop Packets



- Out Notifys
- Out P2 Exchanges
- Out P2 Exchange Invalids
- Out P2 Exchange Rejects
- Out P2 Sa Delete Requests
- Initiator Tunnels
- Initiator Fails
- Responder Fails
- System Capacity Fails
- Auth Fails
- Decrypt Fails
- Hash Valid Fails
- No Sa Fails

### Examples

The following example, issued in global configuration mode, displays ISAKMP statistics:

```
hostname(config)# show crypto isakmp stats
Global IKE Statistics
Active Tunnels: 132
Previous Tunnels: 132
In Octets: 195471
In Packets: 1854
In Drop Packets: 925
In Notifys: 0
In P2 Exchanges: 132
In P2 Exchange Invalids: 0
In P2 Exchange Rejects: 0
In P2 Sa Delete Requests: 0
Out Octets: 119029
Out Packets: 796
Out Drop Packets: 0
Out Notifys: 264
Out P2 Exchanges: 0
Out P2 Exchange Invalids: 0
Out P2 Exchange Rejects: 0
Out P2 Sa Delete Requests: 0
Initiator Tunnels: 0
Initiator Fails: 0
Responder Fails: 0
System Capacity Fails: 0
Auth Fails: 0
Decrypt Fails: 0
Hash Valid Fails: 0
No Sa Fails: 0
hostname(config)#
```

### Related Commands

Command	Description
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
<b>crypto isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPSec peer communicates with the security appliance.
<b>show running-config crypto isakmp</b>	Displays all the active ISAKMP configuration.

# show crypto isakmp sa

To display the IKE runtime SA database, use the **show crypto isakmp sa** command in global configuration mode or privileged EXEC mode.

**show crypto isakmp sa [detail]**

## Syntax Description

**detail** Displays detailed output about the SA database.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	The <b>show isakmp sa</b> command was introduced.
7.2(1)	This command was deprecated. The <b>show crypto isakmp sa</b> command replaces it.

## Usage Guidelines

The output from this command includes the following fields:

Detail not specified.

**Table 25-13**

IKE Peer	Type	Dir	Rky	State
209.165.200.225	L2L	Init	No	MM_Active

Detail specified.

**Table 25-14**

IKE Peer	Type	Dir	Rky	State	Encrypt	Hash	Auth	Lifetime
209.165.200.225	L2L	Init	No	MM_Active	3des	md5	preshrd	86400

**Examples**

The following example, entered in global configuration mode, displays detailed information about the SA database:

```
hostname(config)# show crypto isakmp sa detail

IKE Peer  Type  Dir  Rky  State  Encrypt Hash  Auth  Lifetime
1 209.165.200.225 User  Resp No  AM_Active 3des  SHA  preshrd 86400

IKE Peer  Type  Dir  Rky  State  Encrypt Hash  Auth  Lifetime
2 209.165.200.226 User  Resp No  AM_ACTIVE 3des  SHA  preshrd 86400

IKE Peer  Type  Dir  Rky  State  Encrypt Hash  Auth  Lifetime
3 209.165.200.227 User  Resp No  AM_ACTIVE 3des  SHA  preshrd 86400

IKE Peer  Type  Dir  Rky  State  Encrypt Hash  Auth  Lifetime
4 209.165.200.228 User  Resp No  AM_ACTIVE 3des  SHA  preshrd 86400

hostname(config)#
```

**Related Commands**

Command	Description
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
<b>crypto isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPSec peer communicates with the security appliance.
<b>show running-config crypto isakmp</b>	Displays all the active ISAKMP configuration.

# show crypto isakmp stats

To display runtime statistics, use the **show crypto isakmp stats** command in global configuration mode or privileged EXEC mode.

## show crypto isakmp stats

### Syntax Description

This command has no arguments or keywords.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	The <b>show isakmp stats</b> command was introduced.
7.2(1)	The <b>show isakmp stats</b> command was deprecated. The <b>show crypto isakmp stats</b> command replaces it.

### Usage Guidelines

The output from this command includes the following fields:

- Global IKE Statistics
- Active Tunnels
- In Octets
- In Packets
- In Drop Packets
- In Notifys
- In P2 Exchanges
- In P2 Exchange Invalids
- In P2 Exchange Rejects
- In P2 Sa Delete Requests
- Out Octets
- Out Packets
- Out Drop Packets

- Out Notifys
- Out P2 Exchanges
- Out P2 Exchange Invalids
- Out P2 Exchange Rejects
- Out P2 Sa Delete Requests
- Initiator Tunnels
- Initiator Fails
- Responder Fails
- System Capacity Fails
- Auth Fails
- Decrypt Fails
- Hash Valid Fails
- No Sa Fails

### Examples

The following example, issued in global configuration mode, displays ISAKMP statistics:

```
hostname(config)# show crypto isakmp stats
Global IKE Statistics
Active Tunnels: 132
Previous Tunnels: 132
In Octets: 195471
In Packets: 1854
In Drop Packets: 925
In Notifys: 0
In P2 Exchanges: 132
In P2 Exchange Invalids: 0
In P2 Exchange Rejects: 0
In P2 Sa Delete Requests: 0
Out Octets: 119029
Out Packets: 796
Out Drop Packets: 0
Out Notifys: 264
Out P2 Exchanges: 0
Out P2 Exchange Invalids: 0
Out P2 Exchange Rejects: 0
Out P2 Sa Delete Requests: 0
Initiator Tunnels: 0
Initiator Fails: 0
Responder Fails: 0
System Capacity Fails: 0
Auth Fails: 0
Decrypt Fails: 0
Hash Valid Fails: 0
No Sa Fails: 0
hostname(config)#
```

### Related Commands

<b>Command</b>	<b>Description</b>
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
<b>crypto isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPSec peer communicates with the security appliance.
<b>show running-config crypto isakmp</b>	Displays all the active ISAKMP configuration.

# show crypto protocol statistics

To display the protocol-specific statistics in the crypto accelerator MIB, use the **show crypto protocol statistics** command in global configuration or privileged EXEC mode.

```
show crypto protocol statistics protocol
```

<b>Syntax Description</b>	<i>protocol</i>	Specifies the name of the protocol for which to display statistics. Protocol choices are as follows:  <b>ikev1</b> —Internet Key Exchange version 1. <b>ipsec</b> —IP Security Phase-2 protocols. <b>ssl</b> —Secure Socket Layer. <b>other</b> —Reserved for new protocols. <b>all</b> —All protocols currently supported.
---------------------------	-----------------	---

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

<b>Command History</b>	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following examples entered in global configuration mode, display crypto accelerator statistics for specified protocols:

```
hostname # show crypto protocol statistics ikev1
[IKEv1 statistics]
  Encrypt packet requests: 39
  Encapsulate packet requests: 39
  Decrypt packet requests: 35
  Decapsulate packet requests: 35
  HMAC calculation requests: 84
  SA creation requests: 1
  SA rekey requests: 3
  SA deletion requests: 2
  Next phase key allocation requests: 2
  Random number generation requests: 0
  Failed requests: 0
```



```
hostname # show crypto protocol statistics ipsec
[IPsec statistics]
  Encrypt packet requests: 700
  Encapsulate packet requests: 700
  Decrypt packet requests: 700
  Decapsulate packet requests: 700
  HMAC calculation requests: 1400
  SA creation requests: 2
  SA rekey requests: 0
  SA deletion requests: 0
  Next phase key allocation requests: 0
  Random number generation requests: 0
  Failed requests: 0

hostname # show crypto protocol statistics ssl
[SSL statistics]
  Encrypt packet requests: 0
  Encapsulate packet requests: 0
  Decrypt packet requests: 0
  Decapsulate packet requests: 0
  HMAC calculation requests: 0
  SA creation requests: 0
  SA rekey requests: 0
  SA deletion requests: 0
  Next phase key allocation requests: 0
  Random number generation requests: 0
  Failed requests: 0

hostname # show crypto protocol statistics other
[Other statistics]
  Encrypt packet requests: 0
  Encapsulate packet requests: 0
  Decrypt packet requests: 0
  Decapsulate packet requests: 0
  HMAC calculation requests: 0
  SA creation requests: 0
  SA rekey requests: 0
  SA deletion requests: 0
  Next phase key allocation requests: 0
  Random number generation requests: 99
  Failed requests: 0

hostname # show crypto protocol statistics all
[IKEv1 statistics]
  Encrypt packet requests: 46
  Encapsulate packet requests: 46
  Decrypt packet requests: 40
  Decapsulate packet requests: 40
  HMAC calculation requests: 91
  SA creation requests: 1
  SA rekey requests: 3
  SA deletion requests: 3
  Next phase key allocation requests: 2
  Random number generation requests: 0
  Failed requests: 0
[IKEv2 statistics]
  Encrypt packet requests: 0
  Encapsulate packet requests: 0
  Decrypt packet requests: 0
  Decapsulate packet requests: 0
  HMAC calculation requests: 0
  SA creation requests: 0
  SA rekey requests: 0
  SA deletion requests: 0
```

```

Next phase key allocation requests: 0
Random number generation requests: 0
Failed requests: 0
[IPsec statistics]
  Encrypt packet requests: 700
  Encapsulate packet requests: 700
  Decrypt packet requests: 700
  Decapsulate packet requests: 700
  HMAC calculation requests: 1400
  SA creation requests: 2
  SA rekey requests: 0
  SA deletion requests: 0
  Next phase key allocation requests: 0
  Random number generation requests: 0
  Failed requests: 0
[SSL statistics]
  Encrypt packet requests: 0
  Encapsulate packet requests: 0
  Decrypt packet requests: 0
  Decapsulate packet requests: 0
  HMAC calculation requests: 0
  SA creation requests: 0
  SA rekey requests: 0
  SA deletion requests: 0
  Next phase key allocation requests: 0
  Random number generation requests: 0
  Failed requests: 0
[SSH statistics are not supported]
[SRTP statistics are not supported]
[Other statistics]
  Encrypt packet requests: 0
  Encapsulate packet requests: 0
  Decrypt packet requests: 0
  Decapsulate packet requests: 0
  HMAC calculation requests: 0
  SA creation requests: 0
  SA rekey requests: 0
  SA deletion requests: 0
  Next phase key allocation requests: 0
  Random number generation requests: 99
  Failed requests: 0
hostname #

```

**Related Commands**

Command	Description
<b>clear crypto accelerator statistics</b>	Clears the global and accelerator-specific statistics in the crypto accelerator MIB.
<b>clear crypto protocol statistics</b>	Clears the protocol-specific statistics in the crypto accelerator MIB.
<b>show crypto accelerator statistics</b>	Displays the global and accelerator-specific statistics from the crypto accelerator MIB.

# show csc node-count

A node is any distinct source IP address or the address of a device that is on a network protected by the security appliance. The security appliance keeps track of a daily node count and communicates this to the CSC SSM for user license enforcement. To display the number of nodes for which the CSC SSM scanned traffic, use the **show csc node-count** command in privileged EXEC mode:

```
show csc node-count [yesterday]
```

## Syntax Description

<b>yesterday</b>	(Optional) Shows the number of nodes for which the CSC SSM scanned traffic in the preceding 24-hour period, from midnight to midnight.
------------------	--

## Defaults

By default, the node count displayed is the number of nodes scanned since midnight.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

This example shows the use of the **show csc node-count** command to display the number of nodes for which the CSC SSM has scanned traffic since midnight:

```
hostname# show csc node-count
```

This example shows the use of the **show csc node-count** command to display the number of nodes for which the CSC SSM scanned traffic in the preceding 24-hour period, from midnight to midnight:

```
hostname(config)# show csc node-count yesterday
```

## Related Commands

<b>csc</b>	Sends network traffic to the CSC SSM for scanning of FTP, HTTP, POP3, and SMTP, as configured on the CSC SSM.
<b>show running-config class-map</b>	Show current class map configuration.
<b>show running-config policy-map</b>	Show current policy map configuration.
<b>show running-config service-policy</b>	Show current service policy configuration.

# show ctiqbe

To display information about CTIQBE sessions established across the security appliance, use the **show ctiqbe** command in privileged EXEC mode.

**show ctiqbe**

## Syntax Description

This command has no arguments or keywords.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **show ctiqbe** command displays information of CTIQBE sessions established across the security appliance. Along with **debug ctiqbe** and **show local-host**, this command is used for troubleshooting CTIQBE inspection engine issues.



### Note

We recommend that you have the **pager** command configured before using the **show ctiqbe** command. If there are a lot of CTIQBE sessions and the **pager** command is not configured, it can take a while for the **show ctiqbe** command output to reach the end.

## Examples

The following is sample output from the **show ctiqbe** command under the following conditions. There is only one active CTIQBE session setup across the security appliance. It is established between an internal CTI device (for example, a Cisco IP SoftPhone) at local address 10.0.0.99 and an external Cisco Call Manager at 172.29.1.77, where TCP port 2748 is the Cisco CallManager. The heartbeat interval for the session is 120 seconds.

```
hostname# | show ctiqbe

Total: 1
| LOCAL | FOREIGN | STATE | HEARTBEAT
-----
1 | 10.0.0.99/1117 | 172.29.1.77/2748 | 1 | 120
| RTP/RTCP: PAT xlates: mapped to 172.29.1.99(1028 | 1029)
```

```

| MEDIA: Device ID 27 | Call ID 0
| Foreign 172.29.1.99 | (1028 | 1029)
| Local | 172.29.1.88 | (26822 | 26823)
| -----

```

The CTI device has already registered with the CallManager. The device internal address and RTP listening port is PATed to 172.29.1.99 UDP port 1028. Its RTCP listening port is PATed to UDP 1029.

The line beginning with `RTP/RTCP: PAT xlates:` appears only if an internal CTI device has registered with an external CallManager and the CTI device address and ports are PATed to that external interface. This line does not appear if the CallManager is located on an internal interface, or if the internal CTI device address and ports are NATed to the same external interface that is used by the CallManager.

The output indicates a call has been established between this CTI device and another phone at 172.29.1.88. The RTP and RTCP listening ports of the other phone are UDP 26822 and 26823. The other phone locates on the same interface as the CallManager because the security appliance does not maintain a CTIQBE session record associated with the second phone and CallManager. The active call leg on the CTI device side can be identified with Device ID 27 and Call ID 0.

The following is the xlate information for these CTIBQE connections:

```

hostname# show xlate debug
3 in use, 3 most used
Flags: D|DNS, d|dump, I|identity, i|inside, n|no random,
|o|outside, r|portmap, s|static
TCP PAT from inside:10.0.0.99/1117 to outside:172.29.1.99/1025 flags ri idle 0:00:22
timeout 0:00:30
UDP PAT from inside:10.0.0.99/16908 to outside:172.29.1.99/1028 flags ri idle 0:00:00
timeout 0:04:10
UDP PAT from inside:10.0.0.99/16909 to outside:172.29.1.99/1029 flags ri idle 0:00:23
timeout 0:04:10
hostname#

```

## Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect ctiqbe</b>	Enables CTIQBE application inspection.
<b>service-policy</b>	Applies a policy map to one or more interfaces.
<b>show conn</b>	Displays the connection state for different connection types.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types.

# show curpriv

To display the current user privileges, use the **show curpriv** command:

```
show curpriv
```

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	—	—	•
Privileged EXEC	•	•	—	—	•
Unprivileged	•	•	—	—	•

Command History	Release	Modification
	7.0(1)	Modified to conform to CLI guidelines.

**Usage Guidelines** The **show curpriv** command displays the current privilege level. Lower privilege level numbers indicate lower privilege levels.

## Examples

These examples show output from the **show curpriv** command when a user named enable\_15 is at different privilege levels. The username indicates the name that the user entered when the user logged in, P\_PRIV indicates that the user has entered the **enable** command, and P\_CONF indicates that the user has entered the **config terminal** command.

```
hostname(config)# show curpriv
Username : enable_15
Current privilege level : 15
Current Mode/s : P_PRIV P_CONF
hostname(config)# exit
```

```
hostname(config)# show curpriv
Username : enable_15
Current privilege level : 15
Current Mode/s : P_PRIV
hostname(config)# exit
```

```
hostname(config)# show curpriv
Username : enable_1
```

```
Current privilege level : 1
Current Mode/s : P_UNPR
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure privilege</b>	Remove privilege command statements from the configuration.
<b>show running-config privilege</b>	Display privilege levels for commands.







## **show ddns update interface through show ipv6 traffic Commands**

---

# show ddns update interface

To display the DDNS methods assigned to security appliance interfaces, use the **show ddns update interface** command in privileged EXEC mode.

```
show ddns update interface [interface-name]
```

## Syntax Description

*interface-name* (Optional) The name of a network interface.

## Defaults

Omitting the *interface-name* string displays the DDNS method assigned to each interface.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example displays the DDNS method assigned to the inside interface:

```
hostname# show ddns update interface inside
Dynamic DNS Update on inside:
  Update Method Name      Update Destination
  ddns-2                  not available
hostname#
```

## Related Commands

Command	Description
<b>ddns (DDNS-update-method mode)</b>	Specifies a DDNS update method type for a created DDNS method.
<b>ddns update (interface config mode)</b>	Associates a security appliance interface with a DDNS update method or a DDNS update hostname.
<b>ddns update method (global config mode)</b>	Creates a method for dynamically updating DNS resource records.
<b>show ddns update method</b>	Displays the type and interval for each configured DDNS method. a DHCP server to perform DDNS updates.
<b>show running-config ddns</b>	Displays the type and interval of all configured DDNS methods in the running configuration.

# show ddns update method

To display the DDNS update methods in the running configuration, use the **show ddns update method** command in privileged EXEC mode.

**show ddns update method** [*method-name*]

## Syntax Description

*method-name* (Optional) The name of a configured DDNS update method.

## Defaults

Omitting the *method-name* string displays all configured DDNS update methods.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example displays the DDNS method named ddns-2:

```
hostname(config)# show ddns update method ddns-2

Dynamic DNS Update Method: ddns-2
  IETF standardized Dynamic DNS 'A' and 'PTR' records update
  Maximum update interval: 0 days 0 hours 10 minutes 0 seconds
hostname(config)#
```

## Related Commands

Command	Description
<b>ddns (DDNS-update-method mode)</b>	Specifies a DDNS update method type for a created DDNS method.
<b>ddns update (interface config mode)</b>	Associates a security appliance interface with a Dynamic DNS (DDNS) update method or a DDNS update hostname.
<b>ddns update method (global config mode)</b>	Creates a method for dynamically updating DNS resource records.
<b>show ddns update interface</b>	Displays the interfaces associated with each configured DDNS method.
<b>show running-config ddns</b>	Displays the type and interval of all configured DDNS methods in the running configuration.

# show debug

To show the current debugging configuration, use the **show debug** command.

**show debug** [*command* [*keywords*]]

## Syntax Description

*command* (Optional) Specifies the debug command whose current configuration you want to view. For each *command*, the syntax following *command* is identical to the syntax supported by the associated **debug** command. For example, valid *keywords* following **show debug aaa** are the same as the valid keywords for the **debug aaa** command. Thus, **show debug aaa** supports an **accounting** keyword, which allows you to specify that you want to see the debugging configuration for that portion of AAA debugging.

## Defaults

This command has no default settings.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The valid *command* values follow. For information about valid syntax after *command*, see the entry for **debug command**, as applicable.



### Note

The availability of each *command* value depends upon the command modes that support the applicable **debug** command.

- **aaa**
- **appfw**
- **arp**
- **asdm**
- **context**
- **crypto**
- **ctiqbe**

- **ctm**
- **dhcpc**
- **dhcpcd**
- **dhcprelay**
- **disk**
- **dns**
- **email**
- **entity**
- **fixup**
- **fover**
- **fsm**
- **ftp**
- **generic**
- **gtp**
- **h323**
- **http**
- **http-map**
- **icmp**
- **igmp**
- **ils**
- **imagemgr**
- **ipsec-over-tcp**
- **ipv6**
- **iua-proxy**
- **kerberos**
- **ldap**
- **mfib**
- **mgcp**
- **mrrib**
- **ntdomain**
- **ntp**
- **ospf**
- **parser**
- **pim**
- **pix**
- **pptp**
- **radius**
- **rip**

- **rtsp**
- **sdi**
- **sequence**
- **sip**
- **skinny**
- **smtp**
- **sqlnet**
- **ssh**
- **ssl**
- **sunrpc**
- **tacacs**
- **timestamps**
- **vpn-sessiondb**
- **webvpn**
- **xdmcp**

---

## Examples

The following commands enable debugging for authentication, accounting, and Flash memory. The **show debug** command is used in three ways to demonstrate how you can use it to view all debugging configuration, debugging configuration for a specific feature, and even debugging configuration for a subset of a feature.

```
hostname# debug aaa authentication
debug aaa authentication enabled at level 1
hostname# debug aaa accounting
debug aaa accounting enabled at level 1
hostname# debug disk filesystem
debug disk filesystem enabled at level 1
hostname# show debug
debug aaa authentication enabled at level 1
debug aaa accounting enabled at level 1
debug disk filesystem enabled at level 1
hostname# show debug aaa
debug aaa authentication enabled at level 1
debug aaa authorization is disabled.
debug aaa accounting enabled at level 1
debug aaa internal is disabled.
debug aaa vpn is disabled.
hostname# show debug aaa accounting
debug aaa accounting enabled at level 1
hostname#
```

---

## Related Commands

Command	Description
<b>debug</b>	See all <b>debug</b> commands.

# show dhcpd

To view DHCP binding, state, and statistical information, use the **show dhcpd** command in privileged EXEC or global configuration mode.

```
show dhcpd {binding [IP_address] | state | statistics}
```

## Syntax Description

<b>binding</b>	Displays binding information for a given server IP address and its associated client hardware address and lease length.
<i>IP_address</i>	Shows the binding information for the specified IP address.
<b>state</b>	Displays the state of the DHCP server, such as whether it is enabled in the current context and whether it is enabled on each of the interfaces.
<b>statistics</b>	Displays statistical information, such as the number of address pools, bindings, expired bindings, malformed messages, sent messages, and received messages.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

If you include the optional IP address in the **show dhcpd binding** command, only the binding for that IP address is shown.

The **show dhcpd binding | state | statistics** commands are also available in global configuration mode.

## Examples

The following is sample output from the **show dhcpd binding** command:

```
hostname# show dhcpd binding
IP Address Hardware Address Lease Expiration Type
10.0.1.100 0100.a0c9.868e.43 84985 seconds automatic
```

The following is sample output from the **show dhcpd state** command:

```
hostname# show dhcpd state
Context Not Configured for DHCP
Interface outside, Not Configured for DHCP
```

Interface inside, Not Configured for DHCP

The following is sample output from the **show dhcpd statistics** command:

```
hostname# show dhcpd statistics

DHCP UDP Unreachable Errors: 0
DHCP Other UDP Errors: 0

Address pools          1
Automatic bindings    1
Expired bindings      1
Malformed messages    0

Message                Received
BOOTREQUEST           0
DHCPDISCOVER          1
DHCPRREQUEST          2
DHCPCDECLINE          0
DHCPRELEASE           0
DHCPIFORM             0

Message                Sent
BOOTREPLY             0
DHCPOFFER             1
DHCPACK               1
DHCPCNAK              1
```

#### Related Commands

Command	Description
<b>clear configure dhcpd</b>	Removes all DHCP server settings.
<b>clear dhcpd</b>	Clears the DHCP server bindings and statistic counters.
<b>dhcpd lease</b>	Defines the lease length for DHCP information granted to clients.
<b>show running-config dhcpd</b>	Displays the current DHCP server configuration.



# show dhcprelay state

To view the state of the DHCP relay agent, use the **show dhcprelay state** command in privileged EXEC or global configuration mode.

**show dhcprelay state**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** This command displays the DHCP relay agent state information for the current context and each interface.

**Examples** The following is sample output from the **show dhcprelay state** command:

```
hostname# show dhcprelay state

Context Configured as DHCP Relay
Interface outside, Not Configured for DHCP
Interface infrastructure, Configured for DHCP RELAY SERVER
Interface inside, Configured for DHCP RELAY
```

Related Commands	Command	Description
	<b>show dhcpd</b>	Displays DHCP server statistics and state information.
	<b>show dhcprelay statistics</b>	Displays the DHCP relay statistics.
	<b>show running-config dhcprelay</b>	Displays the current DHCP relay agent configuration.

# show dhcprelay statistics

To display the DHCP relay statistics, use the **show dhcprelay statistics** command in privileged EXEC mode.

## show dhcprelay statistics

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The output of the **show dhcprelay statistics** command increments until you enter the **clear dhcprelay statistics** command.

**Examples** The following shows sample output for the **show dhcprelay statistics** command:

```
hostname# show dhcprelay statistics

DHCP UDP Unreachable Errors: 0
DHCP Other UDP Errors: 0

Packets Relayed
BOOTREQUEST          0
DHCPCDISCOVER        7
DHCPCREQUEST         3
DHCPCDECLINE         0
DHCPCRELEASE         0
DHCPCINFORM          0

BOOTREPLY            0
DHCPCOFFER           7
DHCPCPACK            3
DHCPCNAK             0
FeralPix(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure dhcprelay</b>	Removes all DHCP relay agent settings.
<b>clear dhcprelay statistics</b>	Clears the DHCP relay agent statistic counters.
<b>debug dhcprelay</b>	Displays debug information for the DHCP relay agent.
<b>show dhcprelay state</b>	Displays the state of the DHCP relay agent.
<b>show running-config dhcprelay</b>	Displays the current DHCP relay agent configuration.

# show disk

To display the contents of the Flash memory, use the **show disk** command in privileged EXEC mode. To view the Flash memory for a PIX security appliance, see the **show flash** command.

**show disk**[0 | 1] [fileys | all]

Syntax Description	0   1	Specifies the internal Flash memory (0, the default) or the external Flash memory (1).
	fileys	Shows information about the compact Flash card.
	all	Shows the contents of Flash memory plus the file system information,

**Defaults** Shows the internal Flash memory by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	7.0	This command was introduced.

**Examples** The following is sample output from the **show disk** command:

```
hostname# show disk
-#- --length-- -----date/time----- path
 11 1301      Feb 21 2005 18:01:34 test.cfg
 12 1949      Feb 21 2005 20:13:36 test1.cfg
 13 2551      Jan 06 2005 10:07:36 test2.cfg
 14 609223    Jan 21 2005 07:14:18 test3.cfg
 15 1619      Jul 16 2004 16:06:48 test4.cfg
 16 3184      Aug 03 2004 07:07:00 old_running.cfg
 17 4787      Mar 04 2005 12:32:18 test5.cfg
 20 1792      Jan 21 2005 07:29:24 test6.cfg
 21 7765184   Mar 07 2005 19:38:30 test7.cfg
 22 1674      Nov 11 2004 02:47:52 test8.cfg
 23 1863      Jan 21 2005 07:29:18 test9.cfg
 24 1197      Jan 19 2005 08:17:48 test10.cfg
 25 608554    Jan 13 2005 06:20:54 backupconfig.cfg
 26 5124096   Feb 20 2005 08:49:28 cdisk1
 27 5124096   Mar 01 2005 17:59:56 cdisk2
 28 2074      Jan 13 2005 08:13:26 test11.cfg
 29 5124096   Mar 07 2005 19:56:58 cdisk3
 30 1276      Jan 28 2005 08:31:58 lead
 31 7756788   Feb 24 2005 12:59:46 asdmfile.dbg
```

```

32 7579792   Mar 08 2005 11:06:56 asdmfile1.dbg
33 7764344   Mar 04 2005 12:17:46 asdmfile2.dbg
34 5124096   Feb 24 2005 11:50:50 cdisk4
35 15322     Mar 04 2005 12:30:24 hs_err.log

```

10170368 bytes available (52711424 bytes used)

The following is sample output from the **show disk fileys** command:

```

hostname# show disk fileys
***** Flash Card Geometry/Format Info *****

COMPACT FLASH CARD GEOMETRY
  Number of Heads:           4
  Number of Cylinders        978
  Sectors per Cylinder       32
  Sector Size                 512
  Total Sectors               125184

COMPACT FLASH CARD FORMAT
  Number of FAT Sectors       61
  Sectors Per Cluster         8
  Number of Clusters          15352
  Number of Data Sectors      122976
  Base Root Sector            123
  Base FAT Sector              1
  Base Data Sector            155

```

#### Related Commands

Command	Description
<b>dir</b>	Displays the directory contents.
<b>show flash</b>	Displays the contents of the internal Flash memory.

# show dns-hosts

To show the DNS cache, use the **show dns-hosts** command in privileged EXEC mode. The DNS cache includes dynamically learned entries from a DNS server as well as manually entered name and IP addresses using the **name** command.

## show dns-hosts

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** See the “Examples” section for a description of the display output.

**Examples** The following is sample output from the **show dns-hosts** command:

```
hostname# show dns-hosts
Host                Flags      Age Type  Address(es)
ns2.example.com     (temp, OK) 0   IP    10.102.255.44
ns1.example.com     (temp, OK) 0   IP    192.168.241.185
snowmass.example.com (temp, OK) 0   IP    10.94.146.101
server.example.com  (temp, OK) 0   IP    10.94.146.80
```

Table 11 shows each field description.

**Table 26-1** *show dns-hosts Fields*

Field	Description
Host	Shows the hostname.
Flags	Shows the entry status, as a combination of the following: <ul style="list-style-type: none"> <li>temp—This entry is temporary because it comes from a DNS server. The security appliance removes this entry after 72 hours of inactivity.</li> <li>perm—This entry is permanent because it was added with the <b>name</b> command.</li> <li>OK—This entry is valid.</li> <li>??—This entry is suspect and needs to be revalidated.</li> <li>EX—This entry is expired.</li> </ul>
Age	Shows the number of hours since this entry was last referenced.
Type	Shows the type of DNS record; this value is always IP.
Address(es)	The IP addresses.

#### Related Commands

Command	Description
<b>clear dns-hosts</b>	Clears the DNS cache.
<b>dns domain-lookup</b>	Enables the security appliance to perform a name lookup.
<b>dns name-server</b>	Configures a DNS server address.
<b>dns retries</b>	Specifies the number of times to retry the list of DNS servers when the security appliance does not receive a response.
<b>dns timeout</b>	Specifies the amount of time to wait before trying the next DNS server.

# show failover

To display information about the failover status of the unit, use the **show failover** command in privileged EXEC mode.

```
show failover [group num | history | interface | state | statistics]
```

## Syntax Description

<b>group</b>	Displays the running state of the specified failover group.
<b>history</b>	Displays failover history. The failover history displays past failover state changes and the reason for the state change. History information is cleared with the device is rebooted.
<b>interface</b>	Displays failover command and stateful link information.
<i>num</i>	Failover group number.
<b>state</b>	Displays the failover state of both failover units. The information displayed includes the primary or secondary status of the unit, the Active/Standby status of the unit, and the last reported reason for failover. The fail reason remains in the output even when the reason for failure is cleared.
<b>statistics</b>	Displays transmit and receive packet count of failover command interface.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was modified. The output includes additional information.

## Usage Guidelines

The **show failover** command displays the dynamic failover information, interface status, and Stateful Failover statistics. The Stateful Failover Logical Update Statistics output appears only when Stateful Failover is enabled. The “xerr” and “rerr” values do not indicate errors in failover, but rather the number of packet transmit or receive errors.



### Note

Stateful Failover, and therefore Stateful Failover statistics output, is not available on the ASA 5505 series adaptive security appliance.

In the **show failover** command output, the Stateful Failover fields have the following values:



- Stateful Obj has these values:
  - xmit—Indicates the number of packets transmitted.
  - xerr—Indicates the number of transmit errors.
  - rcv—Indicates the number of packets received.
  - rerr—Indicates the number of receive errors.
- Each row is for a particular object static count as follows:
  - General—Indicates the sum of all stateful objects.
  - sys cmd—Refers to the logical update system commands, such as **login** or **stay alive**.
  - up time—Indicates the value for the security appliance up time, which the active security appliance passes on to the standby security appliance.
  - RPC services—Remote Procedure Call connection information.
  - TCP conn—Dynamic TCP connection information.
  - UDP conn—Dynamic UDP connection information.
  - ARP tbl—Dynamic ARP table information.
  - Xlate\_Timeout—Indicates connection translation timeout information.
  - VPN IKE upd—IKE connection information.
  - VPN IPSEC upd—IPSec connection information.
  - VPN CTCP upd—cTCP tunnel connection information.
  - VPN SDI upd—SDI AAA connection information.
  - VPN DHCP upd—Tunneled DHCP connection information.

If you do not enter a failover IP address, the **show failover** command displays 0.0.0.0 for the IP address, and monitoring of the interfaces remain in a “waiting” state. You must set a failover IP address for failover to work.

In multiple configuration mode, only the **show failover** command is available in a security context; you cannot enter the optional keywords.

## Examples

The following is sample output from the **show failover** command for Active/Standby Failover. The security appliances are ASA 5500 series adaptive security appliances, each equipped with a CSC SSM as shown in the details for slot 1 of each security appliance.

```
hostname# show failover

Failover On
Cable status: N/A - LAN-based failover enabled
Failover unit Primary
Failover LAN Interface: fover Ethernet2 (up)
Unit Poll frequency 1 seconds, holdtime 3 seconds
Interface Poll frequency 15 seconds
Interface Policy 1
Monitored Interfaces 2 of 250 maximum
failover replication http
Last Failover at: 22:44:03 UTC Dec 8 2004
  This host: Primary - Active
    Active time: 13434 (sec)
    slot 0: ASA5520 hw/sw rev (1.0/7.1(0)10) status (Up Sys)
      Interface inside (10.130.9.3): Normal
      Interface outside (10.132.9.3): Normal
```

```

slot 1: ASA-SSM-20 hw/sw rev (1.0/CSC-SSM 5.0 (Build#1176)) status (Up/Up)
  Logging port IP: 10.0.0.3/24
  CSC-SSM, 5.0 (Build#1176)
Other host: Secondary - Standby Ready
  Active time: 0 (sec)
slot 0: ASA5520 hw/sw rev (1.0/7.1(0)10) status (Up Sys)
  Interface inside (10.130.9.4): Normal
  Interface outside (10.132.9.4): Normal
slot 1: ASA-SSM-20 hw/sw rev (1.0/CSC-SSM 5.0 (Build#1176)) status (Up/Up)
  Logging port IP: 10.0.0.4/24
  CSC-SSM, 5.0 (Build#1176)

Stateful Failover Logical Update Statistics
Link : fover Ethernet2 (up)
Stateful Obj   xmit      xerr      rcv      rerr
General        0          0          0          0
sys cmd       1733        0       1733          0
up time        0          0          0          0
RPC services   0          0          0          0
TCP conn       6          0          0          0
UDP conn       0          0          0          0
ARP tbl       106         0          0          0
Xlate_Timeout 0          0          0          0
VPN IKE upd    15         0          0          0
VPN IPSEC upd  90         0          0          0
VPN CTCP upd   0          0          0          0
VPN SDI upd    0          0          0          0
VPN DHCP upd   0          0          0          0

Logical Update Queue Information
          Cur      Max      Total
Recv Q:   0        2      1733
Xmit Q:   0        2     15225

```

The following is sample output from the **show failover** command for Active/Active Failover:

```

hostname# show failover

Failover On
Failover unit Primary
Failover LAN Interface: third GigabitEthernet0/2 (up)
Unit Poll frequency 1 seconds, holdtime 15 seconds
Interface Poll frequency 4 seconds
Interface Policy 1
Monitored Interfaces 8 of 250 maximum
failover replication http
Group 1 last failover at: 13:40:18 UTC Dec 9 2004
Group 2 last failover at: 13:40:06 UTC Dec 9 2004

This host:      Primary
Group 1        State:          Active
                Active time:  2896 (sec)
Group 2        State:          Standby Ready
                Active time:   0 (sec)

slot 0: ASA-5530 hw/sw rev (1.0/7.0(0)79) status (Up Sys)
slot 1: SSM-IDS-20 hw/sw rev (1.0/5.0(0.11)S91(0.11)) status (Up)
admin Interface outside (10.132.8.5): Normal
admin Interface third (10.132.9.5): Normal
admin Interface inside (10.130.8.5): Normal
admin Interface fourth (10.130.9.5): Normal
ctx1 Interface outside (10.1.1.1): Normal
ctx1 Interface inside (10.2.2.1): Normal
ctx2 Interface outside (10.3.3.2): Normal

```

```

        ctx2 Interface inside (10.4.4.2): Normal

Other host: Secondary
Group 1    State:          Standby Ready
          Active time: 190 (sec)
Group 2    State:          Active
          Active time: 3322 (sec)

slot 0: ASA-5530 hw/sw rev (1.0/7.0(0)79) status (Up Sys)
slot 1: SSM-IDS-20 hw/sw rev (1.0/5.0(0.1)S91(0.1)) status (Up)
admin Interface outside (10.132.8.6): Normal
admin Interface third (10.132.9.6): Normal
admin Interface inside (10.130.8.6): Normal
admin Interface fourth (10.130.9.6): Normal
ctx1 Interface outside (10.1.1.2): Normal
ctx1 Interface inside (10.2.2.2): Normal
ctx2 Interface outside (10.3.3.1): Normal
ctx2 Interface inside (10.4.4.1): Normal

Stateful Failover Logical Update Statistics
Link : third GigabitEthernet0/2 (up)
Stateful Obj   xmit      xerr      rcv      rerr
General        0          0          0          0
sys cmd        380        0          380        0
up time        0          0          0          0
RPC services   0          0          0          0
TCP conn       1435       0          1450       0
UDP conn       0          0          0          0
ARP tbl        124        0          65         0
Xlate_Timeout  0          0          0          0
VPN IKE upd    15         0          0          0
VPN IPSEC upd  90         0          0          0
VPN CTCP upd   0          0          0          0
VPN SDI upd    0          0          0          0
VPN DHCP upd   0          0          0          0

Logical Update Queue Information
          Cur      Max      Total
Recv Q:   0        1      1895
Xmit Q:   0        0      1940

```

The following is sample output from the **show failover** command on the ASA 5505 series adaptive security appliance:

```

Failover On
Failover unit Primary
Failover LAN Interface: fover Vlan150 (up)
Unit Poll frequency 1 seconds, holdtime 15 seconds
Interface Poll frequency 5 seconds, holdtime 25 seconds
Interface Policy 1
Monitored Interfaces 4 of 250 maximum
Version: Ours 7.2(0)55, Mate 7.2(0)55
Last Failover at: 19:59:58 PST Apr 6 2006

This host: Primary - Active
          Active time: 34 (sec)
          slot 0: ASA5505 hw/sw rev (1.0/7.2(0)55) status (Up Sys)
                    Interface inside (192.168.1.1): Normal
                    Interface outside (192.168.2.201): Normal
                    Interface dmz (172.16.0.1): Normal
                    Interface test (172.23.62.138): Normal
          slot 1: empty

Other host: Secondary - Standby Ready

```

```

Active time: 0 (sec)
slot 0: ASA5505 hw/sw rev (1.0/7.2(0)55) status (Up Sys)
  Interface inside (192.168.1.2): Normal
  Interface outside (192.168.2.211): Normal
  Interface dmz (172.16.0.2): Normal
  Interface test (172.23.62.137): Normal
slot 1: empty

```

The following is sample output from the **show failover state** command:

```

hostname# show failover state

====My State====
Primary | Active |
====Other State====
Secondary | Standby |
====Configuration State====
      Sync Done
====Communication State====
      Mac set
=====Failed Reason=====
My Fail Reason:
Other Fail Reason:
      Service Card Failure

```

Table 26-2 describes the output of the **show failover state** command.

**Table 26-2** show failover state Output Description

Field	Description
My State	Displays the Primary/Secondary and Active/Standby status for the unit.
Other State	Displays the Primary/Secondary and Active/Standby status for peer unit.
Configuration State	<p>Displays the state of configuration synchronization.</p> <p>The following are possible configuration states for the standby unit:</p> <ul style="list-style-type: none"> <li>• <b>Config Syncing - STANDBY</b>—Set while the synchronized configuration is being executed.</li> <li>• <b>Sync Done - STANDBY</b>—Set when the standby unit has completed a configuration synchronization from the active unit.</li> </ul> <p>The following are possible configuration states for the active unit:</p> <ul style="list-style-type: none"> <li>• <b>Config Syncing</b>—Set on the active unit when it is performing a configuration synchronization to the standby unit.</li> <li>• <b>Sync Done</b>—Set when the active unit has completed a successful configuration synchronization to the standby unit.</li> <li>• <b>Ready for Config Sync</b>—Set on the active unit when the standby unit signals that it is ready to receive a configuration synchronization.</li> </ul>

**Table 26-2** show failover state Output Description (continued)

Field	Description
Communication State	<p>Displays the status of the MAC address synchronization.</p> <ul style="list-style-type: none"> <li>• <b>Mac set</b>—The MACs have been synchronized from the peer unit to this unit.</li> <li>• <b>Updated Mac</b>—Used when a MAC address is updated and needs to be synchronized to the other unit. Also used during the transition period where the unit is updating the local MAC addresses synchronized from the peer unit.</li> </ul>
Failed Reason	<p>Displays the reason for the last reported failure. This information is not cleared, even if the failure condition is cleared. This information only changes when a failover occurs.</p> <p>The following are possible fail reasons:</p> <ul style="list-style-type: none"> <li>• <b>Ifc Failure</b>—The number of interfaces that failed met the failover criteria and caused failover.</li> <li>• <b>Comm Failure</b>—The failover link failed or peer is down.</li> <li>• <b>Service card Failure</b>—The SSM card failed (ASA only).</li> </ul>

The following is sample output from the **show failover history** command:

```

hostname# show failover history

=====
From State          To State          Reason
=====
Not Detected        Negotiation        No Error

Negotiation         Cold Standby      Detected an Active mate

Cold Standby        Sync Config       Detected an Active mate

Sync Config         Sync File System  Detected an Active mate

Sync File System    Bulk Sync         Detected an Active mate

Bulk Sync           Standby Ready     Detected an Active mate

Standby Ready       Just Active       Set by the CI config cmd

Just Active         Active Drain      Set by the CI config cmd

Active Drain        Active Applying Config Set by the CI config cmd

Active Applying Config Active Config Applied Set by the CI config cmd

Active Config Applied Active            Set by the CI config cmd

Active              Disabled          Set by the CI config cmd
=====

```

Each entry provides the time and date the state change occurred, the beginning state, the resulting state, and the reason for the state change. The newest entries are located at the bottom of the display. Older entries appear at the top. A maximum of 60 entries can be displayed. Once the maximum number of entries has been reached, the oldest entries are removed from the top of the output as new entries are added to the bottom.

Table 26-3 shows the failover states. There are two types of states—stable and transient. Stable states are states that the unit can remain in until some occurrence, such as a failure, causes a state change. A transient state is a state that the unit passes through while reaching a stable state.

**Table 26-3** Failover States

State	Description
Initialization	The unit checks platform capabilities and configuration and prepares the failover communication channels. This is a transient state.
Disabled	Failover is disabled. This is a stable state.
Negotiation	The unit establishes the connection with peer and negotiates with peer to determine software version compatibility and Active/Standby role. Depending upon the role that is negotiated, the unit will go through the Standby Unit States or the Active Unit States or enter the failed state. This is a transient state.
Failed	The unit is in the failed state. This is a stable state.
<b>Standby Unit States</b>	
Cold Standby	The unit waits for the peer to reach the Active state. When the peer unit reaches the Active state, this unit progresses to the Standby Config state. This is a transient state.
Sync Config	The unit requests the running configuration from the peer unit. If an error occurs during the configuration synchronization, the unit returns to the Initialization state. This is a transient state.
Sync File System	The unit synchronizes the file system with the peer unit. This is a transient state.
Bulk Sync	The unit receives state information from the peer. This state only occurs when Stateful Failover is enabled. This is a transient state.
Standby Ready	The unit is ready to take over if the active unit fails. This is a stable state.
<b>Active Unit States</b>	
Just Active	The first state the unit enters when becoming the active unit. During this state a message is sent to the peer alerting the peer that the unit is becoming active and the IP and MAC addresses are set for the interfaces. This is a transient state.
Active Drain	Queues messages from the peer are discarded. This is a transient state.
Active Applying Config	The unit is applying the system configuration. This is a transient state.
Active Config Applied	The unit has finished applying the system configuration. This is a transient state.
Active	The unit is active and processing traffic. This is a stable state.

Each state change is followed by a reason for the state change. The reason typically remains the same as the unit progresses through the transient states to the stable state. The following are the possible state change reasons:

- No Error
- Set by the CI config cmd
- Failover state check
- Failover interface become OK
- HELLO not heard from mate
- Other unit has different software version
- Other unit operating mode is different
- Other unit license is different
- Other unit chassis configuration is different
- Other unit card configuration is different
- Other unit want me Active
- Other unit want me Standby
- Other unit reports that I am failed
- Other unit reports that it is failed
- Configuration mismatch
- Detected an Active mate
- No Active unit found
- Configuration synchronization done
- Recovered from communication failure
- Other unit has different set of vlans configured
- Unable to verify vlan configuration
- Incomplete configuration synchronization
- Configuration synchronization failed
- Interface check
- My communication failed
- ACK not received for failover message
- Other unit got stuck in learn state after sync
- No power detected from peer
- No failover cable
- HA state progression failed
- Detect service card failure
- Service card in other unit has failed
- My service card is as good as peer
- LAN Interface become un-configured
- Peer unit just reloaded

## ■ show failover

- Switch from Serial Cable to LAN-Based fover
- Unable to verify state of config sync
- Unknown reason

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show running-config failover</b>	Displays the <b>failover</b> commands in the current configuration.

---



# show file

To display information about the file system, use the **show file** command in privileged EXEC mode.

**show file descriptors | system | information *filename***

Syntax Description	Option	Description
	<b>descriptors</b>	Displays all open file descriptors.
	<b>information</b>	Displays information about a specific file.
	<i>filename</i>	Specifies the filename.
	<b>system</b>	Displays the size, bytes available, type of media, flags, and prefix information about the disk file system.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example shows how to display the file system information:

```
hostname# show file descriptors
No open file descriptors
hostname# show file system
File Systems:
  Size(b)   Free(b)   Type  Flags  Prefixes
* 60985344  60973056  disk  rw     disk:
```

Related Commands	Command	Description
	<b>dir</b>	Displays the directory contents.
	<b>pwd</b>	Displays the current working directory.

# show firewall

To show the current firewall mode (routed or transparent), use the **show firewall** command in privileged EXEC mode.

```
show firewall
```

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show firewall** command:

```
hostname# show firewall
Firewall mode: Router
```

Related Commands	Command	Description
	<b>firewall transparent</b>	Sets the firewall mode.
	<b>show mode</b>	Shows the current context mode, either single or multiple.

# show flash

To display the contents of the internal Flash memory, use the **show flash:** command in privileged EXEC mode.

**show flash:**



**Note**

In the ASA 5500 series, the **flash** keyword is aliased to **disk0**.

## Syntax Description

This command has no arguments or keywords.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example shows how to display the contents of the internal Flash memory:

```
hostname# show flash:
-#- --length-- -----date/time----- path
 11 1301      Feb 21 2005 18:01:34 test.cfg
 12 1949      Feb 21 2005 20:13:36 pepsi.cfg
 13 2551      Jan 06 2005 10:07:36 Leo.cfg
 14 609223    Jan 21 2005 07:14:18 rr.cfg
 15 1619      Jul 16 2004 16:06:48 hackers.cfg
 16 3184      Aug 03 2004 07:07:00 old_running.cfg
 17 4787      Mar 04 2005 12:32:18 admin.cfg
 20 1792      Jan 21 2005 07:29:24 Marketing.cfg
 21 7765184   Mar 07 2005 19:38:30 asdmfile-RLK
 22 1674      Nov 11 2004 02:47:52 potts.cfg
 23 1863      Jan 21 2005 07:29:18 r.cfg
 24 1197      Jan 19 2005 08:17:48 tst.cfg
 25 608554    Jan 13 2005 06:20:54 500kconfig
 26 5124096   Feb 20 2005 08:49:28 cdisk70102
 27 5124096   Mar 01 2005 17:59:56 cdisk70104
 28 2074      Jan 13 2005 08:13:26 negateACL
 29 5124096   Mar 07 2005 19:56:58 cdisk70105
 30 1276      Jan 28 2005 08:31:58 steel
 31 7756788   Feb 24 2005 12:59:46 asdmfile.50074.dbg
```

## ■ show flash

```

32 7579792   Mar 08 2005 11:06:56 asdmfile.gusingh
33 7764344   Mar 04 2005 12:17:46 asdmfile.50075.dbg
34 5124096   Feb 24 2005 11:50:50 cdisk70103
35 15322     Mar 04 2005 12:30:24 hs_err_pid2240.log

```

10170368 bytes available (52711424 bytes used)

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>dir</b>	Displays the directory contents.
<b>show disk0</b>	Displays the contents of the internal Flash memory.
<b>show disk1</b>	Displays the contents of the external Flash memory card.

# show fragment

To display the operational data of the IP fragment reassembly module, enter the **show fragment** command in privileged EXEC mode.

```
show fragment [interface]
```

## Syntax Description

*interface* (Optional) Specifies the security appliance interface.

## Defaults

If an *interface* is not specified, the command applies to all interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC mode	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	The command was separated into two commands, <b>show fragment</b> and <b>show running-config fragment</b> , to separate the configuration data from the operational data.

## Examples

This example shows how to display the operational data of the IP fragment reassembly module:

```
hostname# show fragment
Interface: inside
  Size: 200, Chain: 24, Timeout: 5, Threshold: 133
  Queue: 0, Assembled: 0, Fail: 0, Overflow: 0
Interface: outside1
  Size: 200, Chain: 24, Timeout: 5, Threshold: 133
  Queue: 0, Assembled: 0, Fail: 0, Overflow: 0
Interface: test1
  Size: 200, Chain: 24, Timeout: 5, Threshold: 133
  Queue: 0, Assembled: 0, Fail: 0, Overflow: 0
Interface: test2
  Size: 200, Chain: 24, Timeout: 5, Threshold: 133
  Queue: 0, Assembled: 0, Fail: 0, Overflow: 0
```

## Related Commands

Command	Description
<b>clear configure fragment</b>	Clears the IP fragment reassembly configuration and resets the defaults.
<b>clear fragment</b>	Clears the operational data of the IP fragment reassembly module.

<b>Command</b>	<b>Description</b>
<b>fragment</b>	Provides additional management of packet fragmentation and improves compatibility with NFS.
<b>show running-config fragment</b>	Displays the IP fragment reassembly configuration.

# show gc

To display the garbage collection process statistics, use the **show gc** command in privileged EXEC mode.

**show gc**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Examples** The following is sample output from the **show gc** command:

```
hostname# show gc

Garbage collection process stats:
Total tcp conn delete response      :          0
Total udp conn delete response      :          0
Total number of zombie cleaned      :          0
Total number of embryonic conn cleaned :          0
Total error response                 :          0
Total queries generated              :          0
Total queries with conn present response :          0
Total number of sweeps                :         946
Total number of invalid vcid         :          0
Total number of zombie vcid          :          0
```

**Related Commands**

Command	Description
<b>clear gc</b>	Removes the garbage collection process statistics.

# show h225

To display information for H.225 sessions established across the security appliance, use the **show h225** command in privileged EXEC mode.

**show h225**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **show h225** command displays information for H.225 sessions established across the security appliance. Along with the **debug h323 h225 event**, **debug h323 h245 event**, and **show local-host** commands, this command is used for troubleshooting H.323 inspection engine issues.

Before using the **show h225**, **show h245**, or **show h323-ras** commands, we recommend that you configure the **pager** command. If there are a lot of session records and the **pager** command is not configured, it may take a while for the **show** output to reach its end. If there is an abnormally large number of connections, check that the sessions are timing out based on the default timeout values or the values set by you. If they are not, then there is a problem that needs to be investigated.

**Examples** The following is sample output from the **show h225** command:

```
hostname# show h225
Total H.323 Calls: 1
1 Concurrent Call(s) for
| Local: | 10.130.56.3/1040 | Foreign: 172.30.254.203/1720
| 1. CRV 9861
| Local: | 10.130.56.3/1040 | Foreign: 172.30.254.203/1720
0 Concurrent Call(s) for
| Local: | 10.130.56.4/1050 | Foreign: 172.30.254.205/1720
```



This output indicates that there is currently 1 active H.323 call going through the security appliance between the local endpoint 10.130.56.3 and foreign host 172.30.254.203, and for these particular endpoints, there is 1 concurrent call between them, with a CRV (Call Reference Value) for that call of 9861.

For the local endpoint 10.130.56.4 and foreign host 172.30.254.205, there are 0 concurrent Calls. This means that there is no active call between the endpoints even though the H.225 session still exists. This could happen if, at the time of the **show h225** command, the call has already ended but the H.225 session has not yet been deleted. Alternately, it could mean that the two endpoints still have a TCP connection opened between them because they set “maintainConnection” to TRUE, so the session is kept open until they set it to FALSE again, or until the session times out based on the H.225 timeout value in your configuration.

#### Related Commands

Commands	Description
<b>debug h323</b>	Enables the display of debug information for H.323.
<b>inspect h323</b>	Enables H.323 application inspection.
<b>show h245</b>	Displays information for H.245 sessions established across the security appliance by endpoints using slow start.
<b>show h323-ras</b>	Displays information for H.323 RAS sessions established across the security appliance.
<b>timeout h225   h323</b>	Configures idle time after which an H.225 signalling connection or an H.323 control connection will be closed.

# show h245

To display information for H.245 sessions established across the security appliance by endpoints using slow start, use the **show h245** command in privileged EXEC mode.

**show h245**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **show h245** command displays information for H.245 sessions established across the security appliance by endpoints using slow start. (Slow start is when the two endpoints of a call open another TCP control channel for H.245. Fast start is where the H.245 messages are exchanged as part of the H.225 messages on the H.225 control channel.) Along with the **debug h323 h245 event**, **debug h323 h225 event**, and **show local-host** commands, this command is used for troubleshooting H.323 inspection engine issues.

**Examples** The following is sample output from the **show h245** command:

```
hostname# show h245
Total: 1
| LOCAL | TPKT | FOREIGN | TPKT
1 | 10.130.56.3/1041 | 0 | 172.30.254.203/1245 | 0
| MEDIA: LCN 258 Foreign 172.30.254.203 RTP 49608 RTCP 49609
| Local | 10.130.56.3 RTP 49608 RTCP 49609
| MEDIA: LCN 259 Foreign 172.30.254.203 RTP 49606 RTCP 49607
| Local | 10.130.56.3 RTP 49606 RTCP 49607
```

There is currently one H.245 control session active across the security appliance. The local endpoint is 10.130.56.3, and we are expecting the next packet from this endpoint to have a TPKT header because the TPKT value is 0. (The TKTP header is a 4-byte header preceding each H.225/H.245 message. It gives

the length of the message, including the 4-byte header.) The foreign host endpoint is 172.30.254.203, and we are expecting the next packet from this endpoint to have a TPKT header because the TPKT value is 0.

The media negotiated between these endpoints have a LCN (logical channel number) of 258 with the foreign RTP IP address/port pair of 172.30.254.203/49608 and a RTCP IP address/port of 172.30.254.203/49609 with a local RTP IP address/port pair of 10.130.56.3/49608 and a RTCP port of 49609.

The second LCN of 259 has a foreign RTP IP address/port pair of 172.30.254.203/49606 and a RTCP IP address/port pair of 172.30.254.203/49607 with a local RTP IP address/port pair of 10.130.56.3/49606 and RTCP port of 49607.

#### Related Commands

Commands	Description
<b>debug h323</b>	Enables the display of debug information for H.323.
<b>inspect h323</b>	Enables H.323 application inspection.
<b>show h245</b>	Displays information for H.245 sessions established across the security appliance by endpoints using slow start.
<b>show h323-ras</b>	Displays information for H.323 RAS sessions established across the security appliance.
<b>timeout h225   h323</b>	Configures idle time after which an H.225 signalling connection or an H.323 control connection will be closed.

## show h323-ras

To display information for H.323 RAS sessions established across the security appliance between a gatekeeper and its H.323 endpoint, use the **show h323-ras** command in privileged EXEC mode.

**show h323-ras**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **show h323-ras** command displays information for H.323 RAS sessions established across the security appliance between a gatekeeper and its H.323 endpoint. Along with the **debug h323 ras event** and **show local-host** commands, this command is used for troubleshooting H.323 RAS inspection engine issues.

The **show h323-ras** command displays connection information for troubleshooting H.323 inspection engine issues, and is described in the **inspect protocol h323 {h225 | ras}** command page.

**Examples** The following is sample output from the **show h323-ras** command:

```
hostname# show h323-ras
Total: 1
| GK | Caller
| 172.30.254.214 10.130.56.14
hostname#
```

This output shows that there is one active registration between the gatekeeper 172.30.254.214 and its client 10.130.56.14.

**Related Commands**

Commands	Description
<b>debug h323</b>	Enables the display of debug information for H.323.
<b>inspect h323</b>	Enables H.323 application inspection.
<b>show h245</b>	Displays information for H.245 sessions established across the security appliance by endpoints using slow start.
<b>show h323-ras</b>	Displays information for H.323 RAS sessions established across the security appliance.
<b>timeout h225   h323</b>	Configures idle time after which an H.225 signalling connection or an H.323 control connection will be closed.

# show history

To display the previously entered commands, use the **show history** command in user EXEC mode.

**show history**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **show history** command lets you display previously entered commands. You can examine commands individually with the up and down arrows, enter **^p** to display previously entered lines, or enter **^n** to display the next line.

**Examples** The following example shows how to display previously entered commands when you are in user EXEC mode:

```
hostname> show history
show history
help
show history
```

The following example shows how to display previously entered commands in privileged EXEC mode:

```
hostname# show history
show history
help
show history
enable
show history
```

This example shows how to display previously entered commands in global configuration mode:

```
hostname(config)# show history
show history
help
```

```
show history
enable
show history
config t
show history
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>help</b>	Displays help information for the command specified.

---

# show icmp

To display the ICMP configuration, use the **show icmp** command in privileged EXEC mode.

**show icmp**

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was previously existing.

## Usage Guidelines

The **show icmp** command displays the ICMP configuration.

## Examples

The following example shows the ICMP configuration:

```
hostname# show icmp
```

## Related Commands

<b>clear configure icmp</b>	Clears the ICMP configuration.
<b>debug icmp</b>	Enables the display of debug information for ICMP.
<b>icmp</b>	Configures access rules for ICMP traffic that terminates at a security appliance interface.
<b>inspect icmp</b>	Enables or disables the ICMP inspection engine.
<b>timeout icmp</b>	Configures the idle timeout for ICMP.



# show idb

To display information about the status of interface descriptor blocks, use the **show idb** command in privileged EXEC mode.

## show idb

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC	•	•	•	—	•

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines** IDBs are the internal data structure representing interface resources. See the “Examples” section for a description of the display output.

**Examples** The following is sample output from the **show idb** command:

```

hostname# show idb
Maximum number of Software IDBs 280. In use 23.

           HWIDBs   SWIDBs
           Active 6   21
           Inactive 1   2
           Total IDBs 7   23
Size each (bytes) 116   212
           Total bytes 812   4876

HWIDB# 1 0xbb68ebc Control0/0
HWIDB# 2 0xcd47d84 GigabitEthernet0/0
HWIDB# 3 0xcd4c1dc GigabitEthernet0/1
HWIDB# 4 0xcd5063c GigabitEthernet0/2
HWIDB# 5 0xcd54a9c GigabitEthernet0/3
HWIDB# 6 0xcd58f04 Management0/0

SWIDB# 1 0x0bb68f54 0x01010001 Control0/0
SWIDB# 2 0x0cd47e1c 0xffffffff GigabitEthernet0/0
SWIDB# 3 0x0cd772b4 0xffffffff GigabitEthernet0/0.1

```

```

PEER IDB#  1 0x0d44109c 0xffffffff      3 GigabitEthernet0/0.1
PEER IDB#  2 0x0d2c0674 0x00020002      2 GigabitEthernet0/0.1
PEER IDB#  3 0x0d05a084 0x00010001      1 GigabitEthernet0/0.1
SWIDB#   4 0x0bb7501c 0xffffffff GigabitEthernet0/0.2
SWIDB#   5 0x0cd4c274 0xffffffff GigabitEthernet0/1
SWIDB#   6 0x0bb75704 0xffffffff GigabitEthernet0/1.1
  PEER IDB#  1 0x0cf8686c 0x00020003      2 GigabitEthernet0/1.1
SWIDB#   7 0x0bb75dec 0xffffffff GigabitEthernet0/1.2
  PEER IDB#  1 0x0d2c08ac 0xffffffff      2 GigabitEthernet0/1.2
SWIDB#   8 0x0bb764d4 0xffffffff GigabitEthernet0/1.3
  PEER IDB#  1 0x0d441294 0x00030001      3 GigabitEthernet0/1.3
SWIDB#   9 0x0cd506d4 0x01010002 GigabitEthernet0/2
SWIDB#  10 0x0cd54b34 0xffffffff GigabitEthernet0/3
  PEER IDB#  1 0x0d3291ec 0x00030002      3 GigabitEthernet0/3
  PEER IDB#  2 0x0d2c0aa4 0x00020001      2 GigabitEthernet0/3
  PEER IDB#  3 0x0d05a474 0x00010002      1 GigabitEthernet0/3
SWIDB#  11 0x0cd58f9c 0xffffffff Management0/0
  PEER IDB#  1 0x0d05a65c 0x00010003      1 Management0/0

```

Table 26-1 shows each field description.

**Table 26-4** show idb stats Fields

Field	Description
HWIDBs	Shows the statistics for all HWIDBs. HWIDBs are created for each hardware port in the system.
SWIDBs	Shows the statistics for all SWIDBs. SWIDBs are created for each main and subinterface in the system, and for each interface that is allocated to a context. Some other internal software modules also create IDBs.
HWIDB#	Specifies a hardware interface entry. The IDB sequence number, address, and interface name is displayed in each line.
SWIDB#	Specifies a software interface entry. The IDB sequence number, address, corresponding vPif id, and interface name are displayed in each line.
PEER IDB#	Specifies an interface allocated to a context. The IDB sequence number, address, corresponding vPif id, context id and interface name are displayed in each line.

#### Related Commands

Command	Description
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.

# show igmp groups

To display the multicast groups with receivers that are directly connected to the security appliance and that were learned through IGMP, use the **show igmp groups** command in privileged EXEC mode.

```
show igmp groups [[reserved | group] [if_name] [detail]] | summary]
```

## Syntax Description

<b>detail</b>	(Optional) Provides a detailed description of the sources.
<i>group</i>	(Optional) The address of an IGMP group. Including this optional argument limits the display to the specified group.
<i>if_name</i>	(Optional) Displays group information for the specified interface.
<b>reserved</b>	(Optional) Displays information about reserved groups.
<b>summary</b>	(Optional) Displays group joins summary information.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

If you omit all optional arguments and keywords, the **show igmp groups** command displays all directly connected multicast groups by group address, interface type, and interface number.

## Examples

The following is sample output from the **show igmp groups** command:

```
hostname#show igmp groups
```

```
IGMP Connected Group Membership
Group Address   Interface      Uptime    Expires    Last Reporter
224.1.1.1      inside        00:00:53  00:03:26  192.168.1.6
```

## Related Commands

Command	Description
<b>show igmp interface</b>	Displays multicast information for an interface.

# show igmp interface

To display multicast information for an interface, use the **show igmp interface** command in privileged EXEC mode.

```
show igmp interface [if_name]
```

<b>Syntax Description</b>	<i>if_name</i> (Optional) Displays IGMP group information for the selected interface.
---------------------------	---

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.0(1)	This command was modified. The <b>detail</b> keyword was removed.

<b>Usage Guidelines</b>	If you omit the optional <i>if_name</i> argument, the <b>show igmp interface</b> command displays information about all interfaces.
-------------------------	---

<b>Examples</b>	The following is sample output from the <b>show igmp interface</b> command:
-----------------	---

```
hostname# show igmp interface inside

inside is up, line protocol is up
Internet address is 192.168.37.6, subnet mask is 255.255.255.0
IGMP is enabled on interface
IGMP query interval is 60 seconds
Inbound IGMP access group is not set
Multicast routing is enabled on interface
Multicast TTL threshold is 0
Multicast designated router (DR) is 192.168.37.33
No multicast groups joined
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show igmp groups</b>	Displays the multicast groups with receivers that are directly connected to the security appliance and that were learned through IGMP.

# show igmp traffic

To display IGMP traffic statistics, use the **show igmp traffic** command in privileged EXEC mode.

## show igmp traffic

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show igmp traffic** command:

```
hostname# show igmp traffic

IGMP Traffic Counters
Elapsed time since counters cleared: 00:02:30
                Received      Sent
Valid IGMP Packets      3          6
Queries                  2          6
Reports                  1          0
Leaves                   0          0
Mtrace packets          0          0
DVMRP packets           0          0
PIM packets              0          0

Errors:
Malformed Packets      0
Martian source         0
Bad Checksums          0
```

**Related Commands**

Command	Description
<b>clear igmp counters</b>	Clears all IGMP statistic counters.
<b>clear igmp traffic</b>	Clear the IGMP traffic counters.

# show interface

To view interface statistics, use the **show interface** command in user EXEC mode.

```
show interface [physical_interface[.subinterface] | mapped_name | interface_name | vlan number]
[stats | detail]
```

## Syntax Description

<b>detail</b>	(Optional) Shows detailed interface information, including the order in which the interface was added, the configured state, the actual state, and asymmetrical routing statistics, if enabled by the <b>asr-group</b> command. If you show all interfaces, then information about the internal interfaces for SSMs displays, if installed on the ASA 5500 series adaptive security appliance. The internal interface is not user-configurable, and the information is for debugging purposes only.
<i>interface_name</i>	(Optional) Identifies the interface name set with the <b>nameif</b> command.
<i>mapped_name</i>	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the <b>allocate-interface</b> command.
<i>physical_interface</i>	(Optional) Identifies the interface ID, such as <b>gigabitethernet0/1</b> . See the <b>interface</b> command for accepted values.
<b>stats</b>	(Default) Shows interface information and statistics. This keyword is the default, so this keyword is optional.
<i>subinterface</i>	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.
<b>vlan number</b>	(Optional) For models with a built-in switch, such as the ASA 5505 adaptive security appliance, specifies the VLAN interface.

## Defaults

If you do not identify any options, this command shows basic statistics for all interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)(1)	This command was modified to include the new interface numbering scheme, and to add the <b>stats</b> keyword for clarity, and the <b>detail</b> keyword.
7.0(4)	This command added support for the 4GE SSM interfaces.
7.2(1)	This command added support for switch interfaces.

**Usage Guidelines**

If an interface is shared among contexts, and you enter this command within a context, the security appliance shows only statistics for the current context. When you enter this command in the system execution space for a physical interface, the security appliance shows the combined statistics for all contexts.

The number of statistics shown for subinterfaces is a subset of the number of statistics shown for a physical interface.

You cannot use the interface name in the system execution space, because the **nameif** command is only available within a context. Similarly, if you mapped the interface ID to a mapped name using the **allocate-interface** command, you can only use the mapped name in a context. If you set the **visible** keyword in the **allocate-interface** command, the security appliance shows the interface ID in the output of the **show interface** command.

See the “Examples” section for a description of the display output.

**Examples**

The following is sample output from the **show interface** command:

```

hostname> show interface
Interface GigabitEthernet0/0 "outside", is up, line protocol is up
  Hardware is i82546GB rev03, BW 1000 Mbps
  Auto-Duplex(Full-duplex), Auto-Speed(100 Mbps)
  MAC address 000b.fcf8.c44e, MTU 1500
  IP address 10.86.194.60, subnet mask 255.255.254.0
  1328522 packets input, 124426545 bytes, 0 no buffer
  Received 1215464 broadcasts, 0 runts, 0 giants
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
  9 L2 decode drops
  124606 packets output, 86803402 bytes, 0 underruns
  0 output errors, 0 collisions
  0 late collisions, 0 deferred
  input queue (curr/max blocks): hardware (0/7) software (0/0)
  output queue (curr/max blocks): hardware (0/13) software (0/0)
  Traffic Statistics for "outside":
    1328509 packets input, 99873203 bytes
    124606 packets output, 84502975 bytes
    524605 packets dropped
Interface GigabitEthernet0/1 "inside", is administratively down, line protocol is down
  Hardware is i82546GB rev03, BW 1000 Mbps
  Auto-Duplex, Auto-Speed
  MAC address 000b.fcf8.c44f, MTU 1500
  IP address 10.10.0.1, subnet mask 255.255.0.0
  0 packets input, 0 bytes, 0 no buffer
  Received 0 broadcasts, 0 runts, 0 giants
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
  0 L2 decode drops
  0 packets output, 0 bytes, 0 underruns
  0 output errors, 0 collisions
  0 late collisions, 0 deferred
  input queue (curr/max blocks): hardware (0/0) software (0/0)
  output queue (curr/max blocks): hardware (0/0) software (0/0)
  Traffic Statistics for "inside":
    0 packets input, 0 bytes
    0 packets output, 0 bytes
    0 packets dropped
Interface GigabitEthernet0/2 "faillink", is administratively down, line protocol is down
  Hardware is i82546GB rev03, BW 1000 Mbps
  Auto-Duplex, Auto-Speed
  Description: LAN/STATE Failover Interface
  MAC address 000b.fcf8.c450, MTU 1500
  IP address 192.168.1.1, subnet mask 255.255.255.0

```

```

0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 L2 decode drops
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions
0 late collisions, 0 deferred
input queue (curr/max blocks): hardware (0/0) software (0/0)
output queue (curr/max blocks): hardware (0/0) software (0/0)
Traffic Statistics for "faillink":
0 packets input, 0 bytes
1 packets output, 28 bytes
0 packets dropped
Interface GigabitEthernet0/3 "", is administratively down, line protocol is down
Hardware is i82546GB rev03, BW 1000 Mbps
Auto-Duplex, Auto-Speed
Available but not configured via nameif
MAC address 000b.fcf8.c451, MTU not set
IP address unassigned
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 L2 decode drops
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions
0 late collisions, 0 deferred
input queue (curr/max blocks): hardware (0/0) software (0/0)
output queue (curr/max blocks): hardware (0/0) software (0/0)
Interface Management0/0 "", is administratively down, line protocol is down
Hardware is i82557, BW 100 Mbps
Auto-Duplex, Auto-Speed
Available but not configured via nameif
MAC address 000b.fcf8.c44d, MTU not set
IP address unassigned
0 packets input, 0 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 L2 decode drops
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 babbles, 0 late collisions, 0 deferred
0 lost carrier, 0 no carrier
input queue (curr/max blocks): hardware (128/128) software (0/0)
output queue (curr/max blocks): hardware (0/0) software (0/0)

```

Table 26-1 shows each field description.

**Table 26-5** show interface Fields

Field	Description
Interface <i>ID</i>	The interface ID. Within a context, the security appliance shows the mapped name (if configured), unless you set the <b>allocate-interface</b> command <b>visible</b> keyword.
" <i>interface_name</i> "	The interface name set with the <b>nameif</b> command. In the system execution space, this field is blank because you cannot set the name in the system. If you do not configure a name, the following message appears after the Hardware line: Available but not configured via nameif



**Table 26-5** show interface Fields (continued)

Field	Description
is state	The administrative state, as follows: <ul style="list-style-type: none"> <li>• up—The interface is not shut down.</li> <li>• administratively down—The interface is shut down with the <b>shutdown</b> command.</li> </ul>
Line protocol is state	The line status, as follows: <ul style="list-style-type: none"> <li>• up—A working cable is plugged into the network interface.</li> <li>• down—Either the cable is incorrect or not plugged into the interface connector.</li> </ul>
VLAN identifier	For subinterfaces, the VLAN ID.
Hardware	The interface type, maximum bandwidth, duplex, and speed. When the link is down, the duplex and speed show the configured values. When the link is up, these fields show the configured values with the actual settings in parentheses.
Media-type	(For 4GE SSM interfaces only) Shows if the interface is set as RJ-45 or SFP.
message area	A message might be displayed in some circumstances. See the following examples: <ul style="list-style-type: none"> <li>• In the system execution space, you might see the following message: Available for allocation to a context</li> <li>• If you do not configure a name, you see the following message: Available but not configured via nameif</li> </ul>
MAC address	The interface MAC address.
MTU	The maximum size, in bytes, of packets allowed on this interface. If you do not set the interface name, this field shows “MTU not set.”
IP address	The interface IP address set using the <b>ip address</b> command or received from a DHCP server. In the system execution space, this field shows “IP address unassigned” because you cannot set the IP address in the system.
Subnet mask	The subnet mask for the IP address.
Packets input	The number of packets received on this interface.
Bytes	The number of bytes received on this interface.
No buffer	The number of received packets discarded because there was no buffer space in the main system. Compare this with the ignored count. Broadcast storms on Ethernet networks are often responsible for no input buffer events.
Received:	
Broadcasts	The number of broadcasts received.
Runts	The number of packets that are discarded because they are smaller than the minimum packet size, which is 64 bytes. Runts are usually caused by collisions. They might also be caused by poor wiring and electrical interference.
Giants	The number of packets that are discarded because they exceed the maximum packet size. For example, any Ethernet packet that is greater than 1518 bytes is considered a giant.

Table 26-5 show interface Fields (continued)

Field	Description
Input errors	The number of total input errors, including the types listed below. Other input-related errors can also cause the input error count to increase, and some datagrams might have more than one error; therefore, this sum might exceed the number of errors listed for the types below.
CRC	The number of Cyclical Redundancy Check errors. When a station sends a frame, it appends a CRC to the end of the frame. This CRC is generated from an algorithm based on the data in the frame. If the frame is altered between the source and destination, the security appliance notes that the CRC does not match. A high number of CRCs is usually the result of collisions or a station transmitting bad data.
Frame	The number of frame errors. Bad frames include packets with an incorrect length or bad frame checksums. This error is usually the result of collisions or a malfunctioning Ethernet device.
Overrun	The number of times that the security appliance was incapable of handing received data to a hardware buffer because the input rate exceeded the security appliance capability to handle the data.
Ignored	The number of received packets ignored by the interface because the interface hardware ran low on internal buffers. These buffers are different from the system buffers mentioned previously in the buffer description. Broadcast storms and bursts of noise can cause the ignored count to be increased.
Abort	This field is not used. The value is always 0.
L2 decode drops	The number of packets dropped because the name is not configured ( <b>nameif</b> command) or a frame with an invalid VLAN id is received.
Packets output	The number of packets sent on this interface.
Bytes	The number of bytes sent on this interface.
Underruns	The number of times that the transmitter ran faster than the security appliance could handle.
Output Errors	The number of frames not transmitted because the configured maximum number of collisions was exceeded. This counter should only increment during heavy network traffic.
Collisions	The number of messages retransmitted due to an Ethernet collision (single and multiple collisions). This usually occurs on an overextended LAN (Ethernet or transceiver cable too long, more than two repeaters between stations, or too many cascaded multiport transceivers). A packet that collides is counted only once by the output packets.
Interface resets	The number of times an interface has been reset. If an interface is unable to transmit for three seconds, the security appliance resets the interface to restart transmission. During this interval, connection state is maintained. An interface reset can also happen when an interface is looped back or shut down.
Babbles	Unused. (“babble” means that the transmitter has been on the interface longer than the time taken to transmit the largest frame.)

**Table 26-5** show interface Fields (continued)

Field	Description
Late collisions	The number of frames that were not transmitted because a collision occurred outside the normal collision window. A late collision is a collision that is detected late in the transmission of the packet. Normally, these should never happen. When two Ethernet hosts try to talk at once, they should collide early in the packet and both back off, or the second host should see that the first one is talking and wait.  If you get a late collision, a device is jumping in and trying to send the packet on the Ethernet while the security appliance is partly finished sending the packet. The security appliance does not resend the packet, because it may have freed the buffers that held the first part of the packet. This is not a real problem because networking protocols are designed to cope with collisions by resending packets. However, late collisions indicate a problem exists in your network. Common problems are large repeated networks and Ethernet networks running beyond the specification.
Deferred	The number of frames that were deferred before transmission due to activity on the link.
Rate limit drops	(For 4GE SSM interfaces only) The number of packets dropped if you configured the interface at non-Gigabit speeds and attempted to transmit more than 10 Mbps.
Lost carrier	The number of times the carrier signal was lost during transmission.
No carrier	Unused.
Input queue (curr/max blocks):	The number of packets in the input queue, the current and the maximum.
Hardware	The number of packets in the hardware queue.
Software	The number of packets in the software queue.
Output queue (curr/max blocks):	The number of packets in the output queue, the current and the maximum.
Hardware	The number of packets in the hardware queue.
Software	The number of packets in the software queue.
Traffic Statistics:	The number of packets received, transmitted, or dropped.
Packets input	The number of packets received and the number of bytes.
Packets output	The number of packets transmitted and the number of bytes.
Packets dropped	The number of packets dropped.

The following is sample out put of the **show interface** command on the ASA 5505 adaptive security appliance, which includes switch ports:

```

hostname# show interface
Interface Vlan1 "inside", is up, line protocol is up
  Hardware is EtherSVI
    MAC address 00d0.2bff.449f, MTU 1500
    IP address 1.1.1.1, subnet mask 255.0.0.0
  Traffic Statistics for "inside":
    0 packets input, 0 bytes
    0 packets output, 0 bytes
    0 packets dropped
    1 minute input rate 0 pkts/sec, 0 bytes/sec

```

```

1 minute output rate 0 pkts/sec, 0 bytes/sec
1 minute drop rate, 0 pkts/sec
5 minute input rate 0 pkts/sec, 0 bytes/sec
5 minute output rate 0 pkts/sec, 0 bytes/sec
5 minute drop rate, 0 pkts/sec

```

```

Interface Ethernet0/0 "", is up, line protocol is up
  Hardware is 88E6095, BW 100 Mbps
    Auto-Duplex(Half-duplex), Auto-Speed(100 Mbps)
    Available but not configured via nameif
    MAC address 00d0.2bfd.6ec5, MTU not set
    IP address unassigned
    407 packets input, 53587 bytes, 0 no buffer
    Received 103 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    0 L2 decode drops
    43 switch ingress policy drops
    0 packets output, 0 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
    0 babbles, 0 late collisions, 0 deferred
    0 lost carrier, 0 no carrier
    0 rate limit drops
    0 switch egress policy drops

```

Table 26-7 shows each field description for the **show interface** command for switch interfaces, such as those for the ASA 5505 adaptive security appliance. See Table 26-1 for fields that are also shown for the **show interface** command.

**Table 26-6** show interface for Switch Interfaces Fields

Field	Description
switch ingress policy drops	<p>This drop is usually seen when a port is not configured correctly. This drop is incremented when a packet cannot be successfully forwarded within switch ports as a result of the default or user configured switch port settings. The following configurations are the likely reasons for this drop:</p> <ul style="list-style-type: none"> <li>The <b>nameif</b> command was not configured on the VLAN interface.</li> </ul> <p><b>Note</b> For interfaces in the same VLAN, even if the <b>nameif</b> command was not configured, switching within the VLAN is successful, and this counter does not increment.</p> <ul style="list-style-type: none"> <li>The VLAN is shut down.</li> <li>An access port received an 802.1Q-tagged packet.</li> <li>A trunk port received a tag that is not allowed or an untagged packet.</li> </ul>
switch egress policy drops	Not currently in use.

The following is sample output from the **show interface detail** command. The following example shows detailed interface statistics for all interfaces, including the internal interfaces (if present for your platform) and asymmetrical routing statistics, if enabled by the **asr-group** command:

```

hostname> show interface detail
Interface GigabitEthernet0/0 "outside", is up, line protocol is up
  Hardware is i82546GB rev03, BW 1000 Mbps
    Auto-Duplex(Full-duplex), Auto-Speed(100 Mbps)
    MAC address 000b.fcf8.c44e, MTU 1500
    IP address 10.86.194.60, subnet mask 255.255.254.0

```

```

1330214 packets input, 124580214 bytes, 0 no buffer
Received 1216917 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
9 L2 decode drops
124863 packets output, 86956597 bytes, 0 underruns
0 output errors, 0 collisions
0 late collisions, 0 deferred
input queue (curr/max blocks): hardware (0/7) software (0/0)
output queue (curr/max blocks): hardware (0/13) software (0/0)
Traffic Statistics for "outside":
1330201 packets input, 99995120 bytes
124863 packets output, 84651382 bytes
525233 packets dropped
Control Point Interface States:
Interface number is 1
Interface config status is active
Interface state is active
Interface Internal-Data0/0 "", is up, line protocol is up
Hardware is i82547GI rev00, BW 1000 Mbps
(Full-duplex), (1000 Mbps)
MAC address 0000.0001.0002, MTU not set
IP address unassigned
6 packets input, 1094 bytes, 0 no buffer
Received 6 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 L2 decode drops, 0 demux drops
0 packets output, 0 bytes, 0 underruns
0 output errors, 0 collisions
0 late collisions, 0 deferred
input queue (curr/max blocks): hardware (0/2) software (0/0)
output queue (curr/max blocks): hardware (0/0) software (0/0)
Control Point Interface States:
Interface number is unassigned
...

```

Table 26-7 shows each field description for the **show interface detail** command. See Table 26-1 for fields that are also shown for the **show interface** command.

**Table 26-7** show interface detail Fields

Field	Description
Demux drops	(On Internal-Data interface only) The number of packets dropped because the security appliance was unable to demultiplex packets from SSM interfaces. SSM interfaces communicate with the native interfaces across the backplane, and packets from all SSM interfaces are multiplexed on the backplane.
Control Point Interface States:	
Interface number	A number used for debugging that indicates in what order this interface was created, starting with 0.
Interface config status	The administrative state, as follows: <ul style="list-style-type: none"> <li>active—The interface is not shut down.</li> <li>not active—The interface is shut down with the <b>shutdown</b> command.</li> </ul>
Interface state	The actual state of the interface. In most cases, this state matches the config status above. If you configure high availability, it is possible there can be a mismatch because the security appliance brings the interfaces up or down as needed.

**Table 26-7** show interface detail Fields (continued)

Field	Description
Asymmetrical Routing Statistics:	
Received X1 packets	Number of ASR packets received on this interface.
Transmitted X2 packets	Number of ASR packets sent on this interfaces.
Dropped X3 packets	Number of ASR packets dropped on this interface. The packets might be dropped if the interface is down when trying to forward the packet.

**Related Commands**

Command	Description
<b>allocate-interface</b>	Assigns interfaces and subinterfaces to a security context.
<b>clear interface</b>	Clears counters for the <b>show interface</b> command.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>nameif</b>	Sets the interface name.
<b>show interface ip brief</b>	Shows the interface IP address and status.

# show interface ip brief

To view interface IP addresses and status, use the **show interface ip brief** command in privileged EXEC mode.

```
show interface [physical_interface [, subinterface] | mapped_name | interface_name | vlan number]
ip brief
```

Syntax Description		
<i>interface_name</i>	(Optional) Identifies the interface name set with the <b>nameif</b> command.	
<i>mapped_name</i>	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the <b>allocate-interface</b> command.	
<i>physical_interface</i>	(Optional) Identifies the interface ID, such as <b>gigabitethernet0/1</b> . See the <b>interface</b> command for accepted values.	
<i>subinterface</i>	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.	
<b>vlan number</b>	(Optional) For models with a built-in switch, such as the ASA 5505 adaptive security appliance, specifies the VLAN interface.	

## Defaults

If you do not specify an interface, the security appliance shows all interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent <sup>1</sup>	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

1. Available for the Management 0/0 interface or subinterface only.

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command added support for VLAN interfaces, and for the Management 0/0 interface or subinterface in transparent mode.

## Usage Guidelines

In multiple context mode, if you mapped the interface ID in the **allocate-interface** command, you can only specify the mapped name or the interface name in a context.

See the “Examples” section for a description of the display output.

## Examples

The following is sample output from the **show ip brief** command:

```
hostname# show interface ip brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
Control0/0	127.0.1.1	YES	CONFIG	up	up
GigabitEthernet0/0	209.165.200.226	YES	CONFIG	up	up
GigabitEthernet0/1	unassigned	YES	unset	administratively down	down
GigabitEthernet0/2	10.1.1.50	YES	manual	administratively down	down
GigabitEthernet0/3	192.168.2.6	YES	DHCP	administratively down	down
Management0/0	209.165.201.3	YES	CONFIG	up	

Table 26-7 shows each field description.

**Table 26-8** show interface ip brief Fields

Field	Description
Interface	The interface ID or, in multiple context mode, the mapped name if you configured it using the <b>allocate-interface</b> command. If you show all interfaces, then information about the internal interface for the AIP SSM displays, if installed on the ASA adaptive security appliance. The internal interface is not user-configurable, and the information is for debugging purposes only.
IP-Address	The interface IP address.
OK?	This column is not currently used, and always shows “Yes.”
Method	The method by which the interface received the IP address. Values include the following: <ul style="list-style-type: none"> <li>unset—No IP address configured.</li> <li>manual—Configured the running configuration.</li> <li>CONFIG—Loaded from the startup configuration.</li> <li>DHCP—Received from a DHCP server.</li> </ul>
Status	The administrative state, as follows: <ul style="list-style-type: none"> <li>up—The interface is not shut down.</li> <li>administratively down—The interface is shut down with the <b>shutdown</b> command.</li> </ul>
Protocol	The line status, as follows: <ul style="list-style-type: none"> <li>up—A working cable is plugged into the network interface.</li> <li>down—Either the cable is incorrect or not plugged into the interface connector.</li> </ul>

#### Related Commands

Command	Description
<b>allocate-interface</b>	Assigns interfaces and subinterfaces to a security context.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>ip address</b>	Sets the IP address for the interface or sets the management IP address for a transparent firewall.
<b>nameif</b>	Sets the interface name.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.



# show inventory

To display information about all of the Cisco products installed in the networking device that are assigned a product identifier (PID), version identifier (VID), and serial number (SN), use the **show inventory** command in user EXEC or privileged EXEC mode. If a Cisco entity is not assigned a PID, that entity is not retrieved or displayed.

**show inventory** [slot]

## Syntax Description

**slot** (Optional) Specifies the SSM slot number (the system is slot 0)

## Defaults

If you do not specify a slot to show inventory for:

- Show inventory information of all SSMs (including for power supply)

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	Minor semantic changes.

## Usage Guidelines

The **show inventory** command retrieves and displays inventory information about each Cisco product in the form of a UDI. The UDI is a combination of three separate data elements: a product identifier (PID), a version identifier (VID), and the serial number (SN).

The PID is the name by which the product can be ordered; it has been historically called the “Product Name” or “Part Number.” This is the identifier that one would use to order an exact replacement part.

The VID is the version of the product. Whenever a product has been revised, the VID will be incremented. The VID is incremented according to a rigorous process derived from Telcordia GR-209-CORE, an industry guideline that governs product change notices.

The SN is the vendor-unique serialization of the product. Each manufactured product will carry a unique serial number assigned at the factory, which cannot be changed in the field. This is the means by which to identify an individual, specific instance of a product.

The UDI refers to each product as an entity. Some entities, such as a chassis, will have subtentities like slots. Each entity will display on a separate line in a logically ordered presentation that is arranged hierarchically by Cisco entities.

Use the **show inventory** command without options to display a list of Cisco entities installed in the networking device that are assigned a PID.

**Examples**

The following is sample output from the **show inventory** command without any keywords or arguments. This sample output displays a list of Cisco entities installed in a router that are assigned a PID.

```
ciscoasa# show inventory
Name:"Chassis", DESCR:"ASA 5540 Adaptive Security Appliance"
PID:ASA5540          , VID:V01 , SN:P3000000998

Name:"slot 1", DESCR:"ASA 5500 Series Security Services Module-20"
PID:ASA-SSM-20      , VID:V01 , SN:P0000000999

Name:"power supply", DESCR:"ASA 5500 Series 180W AC Power Supply"
PID:ASA-180W-PWR-AC , VID:V01 , SN:123456789AB

ciscoasa# show inventory 0
Name:"Chassis", DESCR:"ASA 5540 Adaptive Security Appliance"
PID:ASA5540          , VID:V01 , SN:P3000000998

ciscoasa# show inventory 1
Name:"slot 1", DESCR:"ASA 5500 Series Security Services Module-20"
PID:ASA-SSM-20      , VID:V01 , SN:P0000000999
```

Table 26-9 describes the fields shown in the display.

**Table 26-9 show inventory Field Descriptions**

Field	Description
Name	Physical name (text string) assigned to the Cisco entity. For example, console or a simple component number (port or module number), such as "1," depending on the physical component naming syntax of the device. Equivalent to the entPhysicalName MIB variable in RFC 2737.
DESCR	Physical description of the Cisco entity that characterizes the object. Equivalent to the entPhysicalDesc MIB variable in RFC 2737.
PID	Entity product identifier. Equivalent to the entPhysicalModelName MIB variable in RFC 2737.
VID	Entity version identifier. Equivalent to the entPhysicalHardwareRev MIB variable in RFC 2737.
SN	Entity serial number. Equivalent to the entPhysicalSerialNum MIB variable in RFC 2737.

**Related Commands**

Command	Description
<b>show diag</b>	Displays diagnostic information about the controller, interface processor, and port adapters for a networking device.
<b>show tech-support</b>	Displays general information about the router when it reports a problem.

# show ip address

To view interface IP addresses or, for transparent mode, the management IP address, use the **show ip address** command in privileged EXEC mode.

```
show ip address [physical_interface[.subinterface] | mapped_name | interface_name |
                vlan number]
```

Syntax Description		
<i>interface_name</i>	(Optional)	Identifies the interface name set with the <b>nameif</b> command.
<i>mapped_name</i>	(Optional)	In multiple context mode, identifies the mapped name if it was assigned using the <b>allocate-interface</b> command.
<i>physical_interface</i>	(Optional)	Identifies the interface ID, such as <b>gigabitethernet0/1</b> . See the <b>interface</b> command for accepted values.
<i>subinterface</i>	(Optional)	Identifies an integer between 1 and 4294967293 designating a logical subinterface.
<b>vlan number</b>	(Optional)	For models with a built-in switch, such as the ASA 5505 adaptive security appliance, specifies the VLAN interface.

## Defaults

If you do not specify an interface, the security appliance shows all interface IP addresses.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command added support for VLAN interfaces.

## Usage Guidelines

This command shows the primary IP addresses (called “System” in the display) for when you configure high availability as well as the current IP addresses. If the unit is active, then the system and current IP addresses match. If the unit is standby, then the current IP addresses show the standby addresses.

## Examples

The following is sample output from the **show ip address** command:

```
hostname# show ip address
System IP Addresses:
Interface          Name          IP address    Subnet mask    Method
GigabitEthernet0/0 mgmt          10.7.12.100   255.255.255.0  CONFIG
GigabitEthernet0/1 inside        10.1.1.100    255.255.255.0  CONFIG
GigabitEthernet0/2.40 outside       209.165.201.2 255.255.255.224 DHCP
```

```

GigabitEthernet0/3      dmz      209.165.200.225 255.255.255.224 manual
Current IP Addresses:
Interface               Name      IP address      Subnet mask      Method
GigabitEthernet0/0     mgmt     10.7.12.100    255.255.255.0    CONFIG
GigabitEthernet0/1     inside   10.1.1.100     255.255.255.0    CONFIG
GigabitEthernet0/2.40  outside  209.165.201.2  255.255.255.224 DHCP
GigabitEthernet0/3     dmz      209.165.200.225 255.255.255.224 manual

```

Table 26-7 shows each field description.

**Table 26-10** show ip address Fields

Field	Description
Interface	The interface ID or, in multiple context mode, the mapped name if you configured it using the <b>allocate-interface</b> command.
Name	The interface name set with the <b>nameif</b> command.
IP address	The interface IP address.
Subnet mask	The IP address subnet mask.
Method	The method by which the interface received the IP address. Values include the following: <ul style="list-style-type: none"> <li>unset—No IP address configured.</li> <li>manual—Configured the running configuration.</li> <li>CONFIG—Loaded from the startup configuration.</li> <li>DHCP—Received from a DHCP server.</li> </ul>

#### Related Commands

Command	Description
<b>allocate-interface</b>	Assigns interfaces and subinterfaces to a security context.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>nameif</b>	Sets the interface name.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.
<b>show interface ip brief</b>	Shows the interface IP address and status.

# show ip address dhcp

To view detailed information about the DHCP lease or server for an interface, use the **show ip address dhcp** command in privileged EXEC mode.

```
show ip address {physical_interface[.subinterface] | mapped_name | interface_name} dhcp
                {lease | server}
```

Syntax Description		
<i>interface_name</i>	Identifies the interface name set with the <b>nameif</b> command.	
<b>lease</b>	Shows information about the DHCP lease.	
<i>mapped_name</i>	In multiple context mode, identifies the mapped name if it was assigned using the <b>allocate-interface</b> command.	
<i>physical_interface</i>	Identifies the interface ID, such as <b>gigabitethernet0/1</b> . See the <b>interface</b> command for accepted values.	
<b>server</b>	Shows information about the DHCP server.	
<i>subinterface</i>	Identifies an integer between 1 and 4294967293 designating a logical subinterface.	

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent <sup>1</sup>	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

1. Available for the Management 0/0 interface or subinterface only.

## Command History

Release	Modification
7.0(1)	This command was changed to include the <b>lease</b> and <b>server</b> keywords to accommodate the new server functionality.
7.2(1)	This command added support for VLAN interfaces, and for the Management 0/0 interface or subinterface in transparent mode.

## Usage Guidelines

See the “Examples” section for a description of the display output.

## Examples

The following is sample output from the **show ip address dhcp lease** command:

```
hostname# show ip address outside dhcp lease
Temp IP Addr:209.165.201.57 for peer on interface:outside
Temp sub net mask:255.255.255.224
```

```

DHCP Lease server:209.165.200.225, state:3 Bound
DHCP Transaction id:0x4123
Lease:259200 secs, Renewal:129600 secs, Rebind:226800 secs
Temp default-gateway addr:209.165.201.1
Temp ip static route0: dest 10.9.0.0 router 10.7.12.255
Next timer fires after:111797 secs
Retry count:0, Client-ID:cisco-0000.0000.0000-outside
Proxy: TRUE Proxy Network: 10.1.1.1
Hostname: device1

```

Table 26-7 shows each field description.

**Table 26-11** show ip address dhcp lease Fields

Field	Description
Temp IP Addr	The IP address assigned to the interface.
Temp sub net mask	The subnet mask assigned to the interface.
DHCP Lease server	The DHCP server address.
state	<p>The state of the DHCP lease, as follows:</p> <ul style="list-style-type: none"> <li>• Initial—The initialization state, where the security appliance begins the process of acquiring a lease. This state is also shown when a lease ends or when a lease negotiation fails.</li> <li>• Selecting—The security appliance is waiting to receive DHCPOFFER messages from one or more DHCP servers, so it can choose one.</li> <li>• Requesting—The security appliance is waiting to hear back from the server to which it sent its request.</li> <li>• Purging—The security appliance is removing the lease because of the client has released the IP address or there was some other error.</li> <li>• Bound—The security appliance has a valid lease and is operating normally.</li> <li>• Renewing—The security appliance is trying to renew the lease. It regularly sends DHCPREQUEST messages to the current DHCP server, and waits for a reply.</li> <li>• Rebinding—The security appliance failed to renew the lease with the original server, and now sends DHCPREQUEST messages until it gets a reply from any server or the lease ends.</li> <li>• Holddown—The security appliance started the process to remove the lease.</li> <li>• Releasing—The security appliance sends release messages to the server indicating that the IP address is no longer needed.</li> </ul>
DHCP transaction id	A random number chosen by the client, used by the client and server to associate the request messages.
Lease	The length of time, specified by the DHCP server, that the interface can use this IP address.
Renewal	The length of time until the interface automatically attempts to renew this lease.

**Table 26-11** show ip address dhcp lease Fields (continued)

Field	Description
Rebind	The length of time until the security appliance attempts to rebind to a DHCP server. Rebinding occurs if the security appliance cannot communicate with the original DHCP server, and 87.5 percent of the lease time has expired. The security appliance then attempts to contact any available DHCP server by broadcasting DHCP requests.
Temp default-gateway addr	The default gateway address supplied by the DHCP server.
Temp ip static route0	The default static route.
Next timer fires after	The number of seconds until the internal timer triggers.
Retry count	If the security appliance is attempting to establish a lease, this field shows the number of times the security appliance tried sending a DHCP message. For example, if the security appliance is in the Selecting state, this value shows the number of times the security appliance sent discover messages. If the security appliance is in the Requesting state, this value shows the number of times the security appliance sent request messages.
Client-ID	The client ID used in all communication with the server.
Proxy	Specifies if this interface is a proxy DHCP client for VPN clients, True or False.
Proxy Network	The requested network.
Hostname	The client hostname.

The following is sample output from the **show ip address dhcp server** command:

```
hostname# show ip address outside dhcp server

DHCP server: ANY (255.255.255.255)
Leases: 0
Offers: 0      Requests: 0      Acks: 0      Naks: 0
Declines: 0    Releases: 0      Bad: 0

DHCP server: 40.7.12.6
Leases: 1
Offers: 1      Requests: 17     Acks: 17     Naks: 0
Declines: 0    Releases: 0      Bad: 0
DNS0: 171.69.161.23,  DNS1: 171.69.161.24
WINS0: 172.69.161.23,  WINS1: 172.69.161.23
Subnet: 255.255.0.0   DNS Domain: cisco.com
```

Table 26-12 shows each field description.

**Table 26-12** show ip address dhcp server Fields

Field	Description
DHCP server	The DHCP server address from which this interface obtained a lease. The top entry (“ANY”) is the default server and is always present.
Leases	The number of leases obtained from the server. For an interface, the number of leases is typically 1. If the server is providing address for an interface that is running proxy for VPN, there will be several leases.

**Table 26-12** show ip address dhcp server Fields (continued)

Field	Description
Offers	The number of offers from the server.
Requests	The number of requests sent to the server.
Acks	The number of acknowledgements received from the server.
Naks	The number of negative acknowledgements received from the server.
Declines	The number of declines received from the server.
Releases	The number of releases sent to the server.
Bad	The number of bad packets received from the server.
DNS0	The primary DNS server address obtained from the DHCP server.
DNS1	The secondary DNS server address obtained from the DHCP server.
WINS0	The primary WINS server address obtained from the DHCP server.
WINS1	The secondary WINS server address obtained from the DHCP server.
Subnet	The subnet address obtained from the DHCP server.
DNS Domain	The domain obtained from the DHCP server.

**Related Commands**

Command	Description
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>ip address dhcp</b>	Sets the interface to obtain an IP address from a DHCP server.
<b>nameif</b>	Sets the interface name.
<b>show interface ip brief</b>	Shows the interface IP address and status.
<b>show ip address</b>	Displays the IP addresses of interfaces.



# show ip address pppoe

To view detailed information about the PPPoE connection, use the **show ip address pppoe** command in privileged EXEC mode.

```
show ip address {physical_interface[.subinterface] | mapped_name | interface_name |
                vlan number} pppoe
```

Syntax Description		
<i>interface_name</i>		Identifies the interface name set with the <b>nameif</b> command.
<i>mapped_name</i>		In multiple context mode, identifies the mapped name if it was assigned using the <b>allocate-interface</b> command.
<i>physical_interface</i>		Identifies the interface ID, such as <b>gigabitethernet0/1</b> . See the <b>interface</b> command for accepted values.
<i>subinterface</i>		Identifies an integer between 1 and 4294967293 designating a logical subinterface.
<b>vlan number</b>		(Optional) For models with a built-in switch, such as the ASA 5505 adaptive security appliance, specifies the VLAN interface.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent <sup>1</sup>	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

1. Available for the Management 0/0 interface or subinterface only.

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** See the “Examples” section for a description of the display output.

**Examples** The following is sample output from the **show ip address pppoe** command:

```
hostname# show ip address outside pppoe
```

Table 26-7 shows each field description.

**Table 26-13 show ip address dhcp lease Fields**

Field	Description
	•

#### Related Commands

Command	Description
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>ip address pppoe</b>	Sets the interface to obtain an IP address from a PPPoE server.
<b>nameif</b>	Sets the interface name.
<b>show interface ip brief</b>	Shows the interface IP address and status.
<b>show ip address</b>	Displays the IP addresses of interfaces.

# show ip audit count

To show the number of signature matches when you apply an audit policy to an interface, use the **show ip audit count** command in privileged EXEC mode.

**show ip audit count** [**global** | **interface** *interface\_name*]

## Syntax Description

<b>global</b>	(Default) Shows the number of matches for all interfaces.
<b>interface</b> <i>interface_name</i>	(Optional) Shows the number of matches for the specified interface.

## Defaults

If you do not specify a keyword, this command shows the matches for all interfaces (**global**).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To create an audit policy, use the **ip audit name** command, and to apply the policy, use the **ip audit interface** command.

## Examples

The following is sample output from the **show ip audit count** command:

```
hostname# show ip audit count
IP AUDIT GLOBAL COUNTERS

1000 I Bad IP Options List          0
1001 I Record Packet Route          0
1002 I Timestamp                    0
1003 I Provide s,c,h,tcc            0
1004 I Loose Source Route           0
1005 I SATNET ID                    0
1006 I Strict Source Route           0
1100 A IP Fragment Attack           0
1102 A Impossible IP Packet         0
1103 A IP Teardrop                  0
2000 I ICMP Echo Reply               0
2001 I ICMP Unreachable             0
2002 I ICMP Source Quench           0
2003 I ICMP Redirect                0
```

## show ip audit count

```

2004 I ICMP Echo Request          10
2005 I ICMP Time Exceed           0
2006 I ICMP Parameter Problem     0
2007 I ICMP Time Request          0
2008 I ICMP Time Reply            0
2009 I ICMP Info Request          0
2010 I ICMP Info Reply            0
2011 I ICMP Address Mask Request  0
2012 I ICMP Address Mask Reply    0
2150 A Fragmented ICMP           0
2151 A Large ICMP                0
2154 A Ping of Death             0
3040 A TCP No Flags              0
3041 A TCP SYN & FIN Flags Only  0
3042 A TCP FIN Flag Only         0
3153 A FTP Improper Address       0
3154 A FTP Improper Port         0
4050 A Bomb                      0
4051 A Snork                    0
4052 A Chargen                  0
6050 A DNS Host Info            0
6051 A DNS Zone Xfer            0
6052 A DNS Zone Xfer High Port   0
6053 A DNS All Records          0
6100 I RPC Port Registration     0
6101 I RPC Port Unregistration   0
6102 I RPC Dump                 0
6103 A Proxied RPC              0
6150 I ypserv Portmap Request    0
6151 I ypbind Portmap Request    0
6152 I yppasswdd Portmap Request 0
6153 I ypupdated Portmap Request 0
6154 I ypxfrd Portmap Request    0
6155 I mountd Portmap Request    0
6175 I rexd Portmap Request      0
6180 I rexd Attempt             0
6190 A statd Buffer Overflow     0

```

```

IP AUDIT INTERFACE COUNTERS: inside
...

```

## Related Commands

Command	Description
<b>clear ip audit count</b>	Clears the count of signature matches for an audit policy.
<b>ip audit interface</b>	Assigns an audit policy to an interface.
<b>ip audit name</b>	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
<b>show running-config ip audit attack</b>	Shows the configuration for the <b>ip audit attack</b> command.

# show ip verify statistics

To show the number of packets dropped because of the Unicast RPF feature, use the **show ip verify statistics** command in privileged EXEC mode. Use the **ip verify reverse-path** command to enable Unicast RPF.

```
show ip verify statistics [interface interface_name]
```

<b>Syntax Description</b>	<b>interface</b> (Optional) Shows statistics for the specified interface. <i>interface_name</i>
---------------------------	--

**Defaults** This command shows statistics for all interfaces.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** The following is sample output from the **show ip verify statistics** command:

```
hostname# show ip verify statistics
interface outside: 2 unicast rpf drops
interface inside: 1 unicast rpf drops
interface intf2: 3 unicast rpf drops
```

Related Commands	Command	Description
	<b>clear configure ip verify reverse-path</b>	Clears the <b>ip verify reverse-path</b> configuration.
	<b>clear ip verify statistics</b>	Clears the Unicast RPF statistics.
	<b>ip verify reverse-path</b>	Enables the Unicast Reverse Path Forwarding feature to prevent IP spoofing.
	<b>show running-config ip verify reverse-path</b>	Shows the <b>ip verify reverse-path</b> configuration.

# show ipsec sa

To display a list of IPsec SAs, use the **show ipsec sa** command in global configuration mode or privileged EXEC mode. You can also use the alternate form of this command: **show crypto ipsec sa**.

**show ipsec sa** [**entry** | **identity** | **map** *map-name* | **peer** *peer-addr*] [**detail**]

Syntax Description	Parameter	Description
	<b>detail</b>	(Optional) Displays detailed error information on what is displayed.
	<b>entry</b>	(Optional) Displays IPsec SAs sorted by peer address
	<b>identity</b>	(Optional) Displays IPsec SAs for sorted by identity, not including ESPs. This is a condensed form.
	<b>map</b> <i>map-name</i>	(Optional) Displays IPsec SAs for the specified crypto map.
	<b>peer</b> <i>peer-addr</i>	(Optional) Displays IPsec SAs for specified peer IP addresses.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example, entered in global configuration mode, displays IPsec SAs.

```
hostname(config)# show ipsec sa
interface: outside2
  Crypto map tag: def, local addr: 10.132.0.17

  local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
  remote ident (addr/mask/prot/port): (172.20.0.21/255.255.255.255/0/0)
  current_peer: 172.20.0.21
  dynamic allocated peer ip: 10.135.1.5

  #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
  #pkts decaps: 1145, #pkts decrypt: 1145, #pkts verify: 1145
  #pkts compressed: 0, #pkts decompressed: 0
  #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
  #pre-frag successes: 2, #pre-frag failures: 1, #fragments created: 10
  #PMTUs sent: 5, #PMTUs rcvd: 2, #decapstulated frags needing reassembly: 1
  #send errors: 0, #rcv errors: 0
```

```

local crypto endpt.: 10.132.0.17, remote crypto endpt.: 172.20.0.21

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: DC15BF68

inbound esp sas:
spi: 0x1E8246FC (511854332)
  transform: esp-3des esp-md5-hmac
  in use settings = {RA, Tunnel, }
  slot: 0, conn_id: 3, crypto-map: def
  sa timing: remaining key lifetime (sec): 548
  IV size: 8 bytes
  replay detection support: Y
outbound esp sas:
spi: 0xDC15BF68 (3692412776)
  transform: esp-3des esp-md5-hmac
  in use settings = {RA, Tunnel, }
  slot: 0, conn_id: 3, crypto-map: def
  sa timing: remaining key lifetime (sec): 548
  IV size: 8 bytes
  replay detection support: Y

Crypto map tag: def, local addr: 10.132.0.17

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
hostname(config)#

```

**Note**

Fragmentation statistics are pre-fragmentation statistics if the IPsec SA policy states that fragmentation occurs before IPsec processing. Post-fragmentation statistics appear if the SA policy states that fragmentation occurs after IPsec processing.

The following example, entered in global configuration mode, displays IPsec SAs for a crypto map named def.

```

hostname(config)# show ipsec sa map def
cryptomap: def
  Crypto map tag: def, local addr: 172.20.0.17

  local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
  remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
  current_peer: 10.132.0.21
  dynamic allocated peer ip: 90.135.1.5

  #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
  #pkts decaps: 1146, #pkts decrypt: 1146, #pkts verify: 1146
  #pkts compressed: 0, #pkts decompressed: 0
  #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
  #send errors: 0, #recv errors: 0

  local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

  path mtu 1500, ipsec overhead 60, media mtu 1500
  current outbound spi: DC15BF68

inbound esp sas:
spi: 0x1E8246FC (511854332)
  transform: esp-3des esp-md5-hmac
  in use settings = {RA, Tunnel, }
  slot: 0, conn_id: 3, crypto-map: def
  sa timing: remaining key lifetime (sec): 480
  IV size: 8 bytes
  replay detection support: Y

```

```

outbound esp sas:
  spi: 0xDC15BF68 (3692412776)
    transform: esp-3des esp-md5-hmac
    in use settings =(RA, Tunnel, )
    slot: 0, conn_id: 3, crypto-map: def
    sa timing: remaining key lifetime (sec): 480
    IV size: 8 bytes
    replay detection support: Y

Crypto map tag: def, local addr: 172.20.0.17

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
current_peer: 10.135.1.8
dynamic allocated peer ip: 0.0.0.0

#pkts encaps: 73672, #pkts encrypt: 73672, #pkts digest: 73672
#pkts decaps: 78824, #pkts decrypt: 78824, #pkts verify: 78824
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 73672, #pkts comp failed: 0, #pkts decomp failed: 0
#send errors: 0, #recv errors: 0

local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: 3B6F6A35

inbound esp sas:
  spi: 0xB32CF0BD (3006066877)
    transform: esp-3des esp-md5-hmac
    in use settings =(RA, Tunnel, )
    slot: 0, conn_id: 4, crypto-map: def
    sa timing: remaining key lifetime (sec): 263
    IV size: 8 bytes
    replay detection support: Y
outbound esp sas:
  spi: 0x3B6F6A35 (997157429)
    transform: esp-3des esp-md5-hmac
    in use settings =(RA, Tunnel, )
    slot: 0, conn_id: 4, crypto-map: def
    sa timing: remaining key lifetime (sec): 263
    IV size: 8 bytes
    replay detection support: Y
hostname(config)#

```

The following example, entered in global configuration mode, shows IPSec SAs for the keyword **entry**.

```

hostname(config)# show ipsec sa entry
peer address: 10.132.0.21
Crypto map tag: def, local addr: 172.20.0.17

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
current_peer: 10.132.0.21
dynamic allocated peer ip: 90.135.1.5

#pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
#pkts decaps: 1147, #pkts decrypt: 1147, #pkts verify: 1147
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
#send errors: 0, #recv errors: 0

local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

```



```

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: DC15BF68

inbound esp sas:
  spi: 0x1E8246FC (511854332)
    transform: esp-3des esp-md5-hmac
    in use settings = {RA, Tunnel, }
    slot: 0, conn_id: 3, crypto-map: def
    sa timing: remaining key lifetime (sec): 429
    IV size: 8 bytes
    replay detection support: Y
outbound esp sas:
  spi: 0xDC15BF68 (3692412776)
    transform: esp-3des esp-md5-hmac
    in use settings = {RA, Tunnel, }
    slot: 0, conn_id: 3, crypto-map: def
    sa timing: remaining key lifetime (sec): 429
    IV size: 8 bytes
    replay detection support: Y

peer address: 10.135.1.8
Crypto map tag: def, local addr: 172.20.0.17

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
current_peer: 10.135.1.8
dynamic allocated peer ip: 0.0.0.0

#pkts encaps: 73723, #pkts encrypt: 73723, #pkts digest: 73723
#pkts decaps: 78878, #pkts decrypt: 78878, #pkts verify: 78878
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 73723, #pkts comp failed: 0, #pkts decomp failed: 0
#send errors: 0, #recv errors: 0

local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: 3B6F6A35

inbound esp sas:
  spi: 0xB32CF0BD (3006066877)
    transform: esp-3des esp-md5-hmac
    in use settings = {RA, Tunnel, }
    slot: 0, conn_id: 4, crypto-map: def
    sa timing: remaining key lifetime (sec): 212
    IV size: 8 bytes
    replay detection support: Y
outbound esp sas:
  spi: 0x3B6F6A35 (997157429)
    transform: esp-3des esp-md5-hmac
    in use settings = {RA, Tunnel, }
    slot: 0, conn_id: 4, crypto-map: def
    sa timing: remaining key lifetime (sec): 212
    IV size: 8 bytes
    replay detection support: Y
hostname(config)#

```

The following example, entered in global configuration mode, shows IPSec SAs with the keywords **entry detail**.

```

hostname(config)# show ipsec sa entry detail
peer address: 10.132.0.21
Crypto map tag: def, local addr: 172.20.0.17

```

```

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.0/0/0)
current_peer: 10.132.0.21
dynamic allocated peer ip: 90.135.1.5

#pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
#pkts decaps: 1148, #pkts decrypt: 1148, #pkts verify: 1148
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
#pkts no sa (send): 0, #pkts invalid sa (rcv): 0
#pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
#pkts invalid prot (rcv): 0, #pkts verify failed: 0
#pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
#pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
#pkts replay failed (rcv): 0
#pkts internal err (send): 0, #pkts internal err (rcv): 0

local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: DC15BF68

inbound esp sas:
spi: 0x1E8246FC (511854332)
  transform: esp-3des esp-md5-hmac
  in use settings ={RA, Tunnel, }
  slot: 0, conn_id: 3, crypto-map: def
  sa timing: remaining key lifetime (sec): 322
  IV size: 8 bytes
  replay detection support: Y
outbound esp sas:
spi: 0xDC15BF68 (3692412776)
  transform: esp-3des esp-md5-hmac
  in use settings ={RA, Tunnel, }
  slot: 0, conn_id: 3, crypto-map: def
  sa timing: remaining key lifetime (sec): 322
  IV size: 8 bytes
  replay detection support: Y

peer address: 10.135.1.8
Crypto map tag: def, local addr: 172.20.0.17

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
current_peer: 10.135.1.8
dynamic allocated peer ip: 0.0.0.0

#pkts encaps: 73831, #pkts encrypt: 73831, #pkts digest: 73831
#pkts decaps: 78989, #pkts decrypt: 78989, #pkts verify: 78989
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 73831, #pkts comp failed: 0, #pkts decomp failed: 0
#pkts no sa (send): 0, #pkts invalid sa (rcv): 0
#pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
#pkts invalid prot (rcv): 0, #pkts verify failed: 0
#pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
#pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
#pkts replay failed (rcv): 0
#pkts internal err (send): 0, #pkts internal err (rcv): 0

local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: 3B6F6A35

```

```

inbound esp sas:
  spi: 0xB32CF0BD (3006066877)
    transform: esp-3des esp-md5-hmac
    in use settings = {RA, Tunnel, }
    slot: 0, conn_id: 4, crypto-map: def
    sa timing: remaining key lifetime (sec): 104
    IV size: 8 bytes
    replay detection support: Y
outbound esp sas:
  spi: 0x3B6F6A35 (997157429)
    transform: esp-3des esp-md5-hmac
    in use settings = {RA, Tunnel, }
    slot: 0, conn_id: 4, crypto-map: def
    sa timing: remaining key lifetime (sec): 104
    IV size: 8 bytes
    replay detection support: Y
hostname(config)#

```

The following example shows IPsec SAs with the keyword **identity**.

```

hostname(config)# show ipsec sa identity
interface: outside2
  Crypto map tag: def, local addr: 172.20.0.17

    local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
    remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.255/0/0)
    current_peer: 10.132.0.21
    dynamic allocated peer ip: 90.135.1.5

    #pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
    #pkts decaps: 1147, #pkts decrypt: 1147, #pkts verify: 1147
    #pkts compressed: 0, #pkts decompressed: 0
    #pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
    #send errors: 0, #recv errors: 0

    local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

    path mtu 1500, ipsec overhead 60, media mtu 1500
    current outbound spi: DC15BF68

  Crypto map tag: def, local addr: 172.20.0.17

    local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
    remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
    current_peer: 10.135.1.8
    dynamic allocated peer ip: 0.0.0.0

    #pkts encaps: 73756, #pkts encrypt: 73756, #pkts digest: 73756
    #pkts decaps: 78911, #pkts decrypt: 78911, #pkts verify: 78911
    #pkts compressed: 0, #pkts decompressed: 0
    #pkts not compressed: 73756, #pkts comp failed: 0, #pkts decomp failed: 0
    #send errors: 0, #recv errors: 0

    local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

    path mtu 1500, ipsec overhead 60, media mtu 1500
    current outbound spi: 3B6F6A35

```

The following example shows IPsec SAs with the keywords **identity** and **detail**.

```

hostname(config)# show ipsec sa identity detail
interface: outside2
  Crypto map tag: def, local addr: 172.20.0.17

```

```

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
remote ident (addr/mask/prot/port): (10.132.0.21/255.255.255.0/0/0)
current_peer: 10.132.0.21
dynamic allocated peer ip: 90.135.1.5

#pkts encaps: 0, #pkts encrypt: 0, #pkts digest: 0
#pkts decaps: 1147, #pkts decrypt: 1147, #pkts verify: 1147
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
#pkts no sa (send): 0, #pkts invalid sa (rcv): 0
#pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
#pkts invalid prot (rcv): 0, #pkts verify failed: 0
#pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
#pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
#pkts replay failed (rcv): 0
#pkts internal err (send): 0, #pkts internal err (rcv): 0

local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.132.0.21

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: DC15BF68

Crypto map tag: def, local addr: 172.20.0.17

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
remote ident (addr/mask/prot/port): (192.168.132.0/255.255.255.0/0/0)
current_peer: 10.135.1.8
dynamic allocated peer ip: 0.0.0.0

#pkts encaps: 73771, #pkts encrypt: 73771, #pkts digest: 73771
#pkts decaps: 78926, #pkts decrypt: 78926, #pkts verify: 78926
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 73771, #pkts comp failed: 0, #pkts decomp failed: 0
#pkts no sa (send): 0, #pkts invalid sa (rcv): 0
#pkts encaps failed (send): 0, #pkts decaps failed (rcv): 0
#pkts invalid prot (rcv): 0, #pkts verify failed: 0
#pkts invalid identity (rcv): 0, #pkts invalid len (rcv): 0
#pkts replay rollover (send): 0, #pkts replay rollover (rcv): 0
#pkts replay failed (rcv): 0
#pkts internal err (send): 0, #pkts internal err (rcv): 0

local crypto endpt.: 172.20.0.17, remote crypto endpt.: 10.135.1.8

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: 3B6F6A35

```

**Related Commands**

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPSec peer communicates with the security appliance.
<b>show running-config isakmp</b>	Displays all the active ISAKMP configuration.

# show ipsec sa summary

To display a summary of IPsec SAs, use the **show ipsec sa summary** command in global configuration mode or privileged EXEC mode.

## show ipsec sa summary

**Syntax Description** This command has no arguments or variables.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following example, entered in global configuration mode, displays a summary of IPsec SAs by the following connection types:

- IPsec
- IPsec over UDP
- IPsec over NAT-T
- IPsec over TCP
- IPsec VPN load balancing

```
hostname(config)# show ipsec sa summary
```

```
Current IPsec SA's:          Peak IPsec SA's:
IPsec           :           2   Peak Concurrent SA   :   14
IPsec over UDP  :           2   Peak Concurrent L2L  :    0
IPsec over NAT-T :           4   Peak Concurrent RA   :   14
IPsec over TCP  :           6
IPsec VPN LB   :           0
Total          :           14
hostname(config)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>clear ipsec sa</b>	Removes IPSec SAs entirely or based on specific parameters.
show ipsec sa	Displays a list of IPSec SAs.
<b>show ipsec stats</b>	Displays a list of IPSec statistics.

# show ipsec stats

To display a list of IPSec statistics, use the **show ipsec stats** command in global configuration mode or privileged EXEC mode.

## show ipsec stats

**Syntax Description** This command has no keywords or variables.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following example, entered in global configuration mode, displays IPSec statistics:

```
hostname(config)# show ipsec stats

IPsec Global Statistics
-----
Active tunnels: 2
Previous tunnels: 9
Inbound
  Bytes: 4933013
  Decompressed bytes: 4933013
  Packets: 80348
  Dropped packets: 0
  Replay failures: 0
  Authentications: 80348
  Authentication failures: 0
  Decryptions: 80348
  Decryption failures: 0
  Decapsulated fragments needing reassembly: 0
Outbound
  Bytes: 4441740
  Uncompressed bytes: 4441740
  Packets: 74029
  Dropped packets: 0
  Authentications: 74029
  Authentication failures: 0
  Encryptions: 74029
```

```

Encryption failures: 0
Fragmentation successes: 3
  Pre-fragmentation successes:2
  Post-fragmentation successes: 1
Fragmentation failures: 2
  Pre-fragmentation failures:1
  Post-fragmentation failures: 1
Fragments created: 10
PMTUs sent: 1
PMTUs recvd: 2
Protocol failures: 0
Missing SA failures: 0
System capacity failures: 0
hostname(config)#

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear ipsec sa</b>	Clears IPSec SAs or counters based on specified parameters.
<b>crypto ipsec transform-set</b>	Defines a transform set.
<b>show ipsec sa</b>	Displays IPSec SAs based on specified parameters.
<b>show ipsec sa summary</b>	Displays a summary of IPSec SAs.



# show ipv6 access-list

To display the IPv6 access list, use the **show ipv6 access-list** command in privileged EXEC mode. The IPv6 access list determines what IPv6 traffic can pass through the security appliance.

```
show ipv6 access-list [id [source-ipv6-prefix/prefix-length | any | host source-ipv6-address]]
```

## Syntax Description

<b>any</b>	(Optional) An abbreviation for the IPv6 prefix <code>::/0</code> .
<b>host</b> <i>source-ipv6-address</i>	(Optional) IPv6 address of a specific host. When provided, only the access rules for the specified host are displayed.
<i>id</i>	(Optional) The access list name. When provided, only the specified access list is displayed.
<i>source-ipv6-prefix</i> <i>/prefix-length</i>	(Optional) IPv6 network address and prefix. When provided, only the access rules for the specified IPv6 network are displayed.

## Defaults

Displays all IPv6 access lists.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **show ipv6 access-list** command provides output similar to the **show ip access-list** command, except that it is IPv6-specific.

## Examples

The following is sample output from the **show ipv6 access-list** command. It shows IPv6 access lists named inbound, tcptraffic, and outbound.

```
hostname# show ipv6 access-list
IPv6 access list inbound
  permit tcp any any eq bgp reflect tcptraffic (8 matches) sequence 10
  permit tcp any any eq telnet reflect tcptraffic (15 matches) sequence 20
  permit udp any any reflect udptraffic sequence 30
IPv6 access list tcptraffic (reflexive) (per-user)
  permit tcp host 2001:0DB8:1::1 eq bgp host 2001:0DB8:1::2 eq 11000 timeout 300 (time
    left 243) sequence 1
  permit tcp host 2001:0DB8:1::1 eq telnet host 2001:0DB8:1::2 eq 11001 timeout 300
    (time left 296) sequence 2
```

## ■ show ipv6 access-list

```
IPv6 access list outbound
  evaluate udptraffic
  evaluate tcptraffic
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>ipv6 access-list</b>	Creates an IPv6 access list.

# show ipv6 interface

To display the status of interfaces configured for IPv6, use the **show ipv6 interface** command in privileged EXEC mode.

```
show ipv6 interface [brief] [if_name [prefix]]
```

Syntax Description	Parameter	Description
	<b>brief</b>	Displays a brief summary of IPv6 status and configuration for each interface.
	<i>if_name</i>	(Optional) The internal or external interface name, as designated by the <b>nameif</b> command. The status and configuration for only the designated interface is shown.
	<b>prefix</b>	(Optional) Prefix generated from a local IPv6 prefix pool.

**Defaults** Displays all IPv6 interfaces.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **show ipv6 interface** command provides output similar to the **show interface** command, except that it is IPv6-specific. If the interface hardware is usable, the interface is marked *up*. If the interface can provide two-way communication, the line protocol is marked *up*.

When an interface name is not specified, information on all IPv6 interfaces is displayed. Specifying an interface name displays information about the specified interface.

**Examples** The following is sample output from the **show ipv6 interface** command:

```
hostname# show ipv6 interface outside
interface ethernet0 "outside" is up, line protocol is up
  IPv6 is enabled, link-local address is 2001:0DB8::/29 [TENTATIVE]
  Global unicast address(es):
    2000::2, subnet is 2000::/64
  Joined group address(es):
    FF02::1
    FF02::1:FF11:6770
  MTU is 1500 bytes
```

```

ND DAD is enabled, number of DAD attempts: 1
ND reachable time is 30000 milliseconds
ND advertised reachable time is 0 milliseconds
ND advertised retransmit interval is 0 milliseconds
ND router advertisements are sent every 200 seconds
ND router advertisements live for 1800 seconds

```

The following is sample output from the **show ipv6 interface** command when entered with the **brief** keyword:

```

hostname# show ipv6 interface brief
outside [up/up]
    unassigned
inside [up/up]
    fe80::20d:29ff:fe1d:69f0
    fec0::a:0:0:a0a:a70
vlan101 [up/up]
    fe80::20d:29ff:fe1d:69f0
    fec0::65:0:0:a0a:6570
dmz-ca [up/up]
    unassigned

```

The following is sample output from the **show ipv6 interface** command. It shows the characteristics of an interface which has generated a prefix from an address.

```

hostname# show ipv6 interface inside prefix
IPv6 Prefix Advertisements inside
Codes: A - Address, P - Prefix-Advertisement, O - Pool
        U - Per-user prefix, D - Default          N - Not advertised, C - Calendar
AD      fec0:0:0:a::/64 [LA] Valid lifetime 2592000, preferred lifetime 604800

```

# show ipv6 neighbor

To display the IPv6 neighbor discovery cache information, use the **show ipv6 neighbor** command in privileged EXEC mode.

```
show ipv6 neighbor [if_name | address]
```

## Syntax Description

<i>address</i>	(Optional) Displays neighbor discovery cache information for the supplied IPv6 address only.
<i>if_name</i>	(Optional) Displays cache information for the supplied interface name, as configure by the <b>nameif</b> command, only.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The following information is provided by the **show ipv6 neighbor** command:

- **IPv6 Address**—the IPv6 address of the neighbor or interface.
- **Age**—the time (in minutes) since the address was confirmed to be reachable. A hyphen (-) indicates a static entry.
- **Link-layer Addr**—MAC address. If the address is unknown, a hyphen (-) is displayed.
- **State**—The state of the neighbor cache entry.



**Note** Reachability detection is not applied to static entries in the IPv6 neighbor discovery cache; therefore, the descriptions for the **INCOMP** (Incomplete) and **REACH** (Reachable) states are different for dynamic and static cache entries.

The following are possible states for dynamic entries in the IPv6 neighbor discovery cache:

- **INCOMP**—(Incomplete) Address resolution is being performed on the entry. A neighbor solicitation message has been sent to the solicited-node multicast address of the target, but the corresponding neighbor advertisement message has not yet been received.

- **REACH**—(Reachable) Positive confirmation was received within the last ReachableTime milliseconds that the forward path to the neighbor was functioning properly. While in **REACH** state, the device takes no special action as packets are sent.
- **STALE**—More than ReachableTime milliseconds have elapsed since the last positive confirmation was received that the forward path was functioning properly. While in **STALE** state, the device takes no action until a packet is sent.
- **DELAY**—More than ReachableTime milliseconds have elapsed since the last positive confirmation was received that the forward path was functioning properly. A packet was sent within the last DELAY\_FIRST\_PROBE\_TIME seconds. If no reachability confirmation is received within DELAY\_FIRST\_PROBE\_TIME seconds of entering the **DELAY** state, send a neighbor solicitation message and change the state to **PROBE**.
- **PROBE**—A reachability confirmation is actively sought by resending neighbor solicitation messages every RetransTimer milliseconds until a reachability confirmation is received.
- **????**—Unknown state.

The following are possible states for static entries in the IPv6 neighbor discovery cache:

- **INCMP**—(Incomplete) The interface for this entry is down.
- **REACH**—(Reachable) The interface for this entry is up.

- **Interface**

Interface from which the address was reachable.

## Examples

The following is sample output from the **show ipv6 neighbor** command when entered with an interface:

```
hostname# show ipv6 neighbor inside
IPv6 Address                               Age Link-layer Addr State Interface
2000:0:0:4::2                             0 0003.a0d6.141e REACH inside
FE80::203:A0FF:FED6:141E                   0 0003.a0d6.141e REACH inside
3001:1::45a                                - 0002.7d1a.9472 REACH inside
```

The following is sample output from the **show ipv6 neighbor** command when entered with an IPv6 address:

```
hostname# show ipv6 neighbor 2000:0:0:4::2
IPv6 Address                               Age Link-layer Addr State Interface
2000:0:0:4::2                             0 0003.a0d6.141e REACH inside
```

## Related Commands

Command	Description
<b>clear ipv6 neighbors</b>	Deletes all entries in the IPv6 neighbor discovery cache, except static entries.
<b>ipv6 neighbor</b>	Configures a static entry in the IPv6 neighbor discovery cache.

# show ipv6 route

To display the contents of the IPv6 routing table, use the **show ipv6 route** command in privileged EXEC mode.

## show ipv6 route

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **show ipv6 route** command provides output similar to the **show route** command, except that the information is IPv6-specific.

The following information appears in the IPv6 routing table:

- **Codes**—Indicates the protocol that derived the route. Values are as follows:
  - **C**—Connected
  - **L**—Local
  - **S**—Static
  - **R**—RIP derived
  - **B**—BGP derived
  - **I1**—ISIS L1—Integrated IS-IS Level 1 derived
  - **I2**—ISIS L2—Integrated IS-IS Level 2 derived
  - **IA**—ISIS interarea—Integrated IS-IS interarea derived
- **fe80::/10**—Indicates the IPv6 prefix of the remote network.
- **[0/0]**—The first number in the brackets is the administrative distance of the information source; the second number is the metric for the route.
- **via ::**—Specifies the address of the next router to the remote network.

- **inside**—Specifies the interface through which the next router to the specified network can be reached.

### Examples

The following is sample output from the **show ipv6 route** command:

```
hostname# show ipv6 route

IPv6 Routing Table - 7 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2

L fe80::/10 [0/0]
  via ::, inside
  via ::, vlan101
L fec0::a:0:0:a0a:a70/128 [0/0]
  via ::, inside
C fec0:0:0:a::/64 [0/0]
  via ::, inside
L fec0::65:0:0:a0a:6570/128 [0/0]
  via ::, vlan101
C fec0:0:0:65::/64 [0/0]
  via ::, vlan101
L ff00::/8 [0/0]
  via ::, inside
  via ::, vlan101
S ::/0 [0/0]
  via fec0::65:0:0:a0a:6575, vlan101
```

### Related Commands

Command	Description
<b>debug ipv6 route</b>	Displays debug messages for IPv6 routing table updates and route cache updates.
<b>ipv6 route</b>	Adds a static entry to the IPv6 routing table.



# show ipv6 routers

To display IPv6 router advertisement information received from on-link routers, use the **show ipv6 routers** command in privileged EXEC mode.

```
show ipv6 routers [if_name]
```

## Syntax Description

*if\_name* (Optional) The internal or external interface name, as designated by the **nameif** command, that you want to display information about.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

When an interface name is not specified, information on all IPv6 interfaces is displayed. Specifying an interface name displays information about the specified interface.

## Examples

The following is sample output from the **show ipv6 routers** command when entered without an interface name:

```
hostname# show ipv6 routers
Router FE80::83B3:60A4 on outside, last update 3 min
  Hops 0, Lifetime 6000 sec, AddrFlag=0, OtherFlag=0
  Reachable time 0 msec, Retransmit time 0 msec
  Prefix 3FFE:C00:8007::800:207C:4E37/96 autoconfig
  Valid lifetime -1, preferred lifetime -1
Router FE80::290:27FF:FE8C:B709 on inside, last update 0 min
  Hops 64, Lifetime 1800 sec, AddrFlag=0, OtherFlag=0
  Reachable time 0 msec, Retransmit time 0 msec
```

## Related Commands

Command	Description
<b>ipv6 route</b>	Adds a static entry to the IPv6 routing table.

# show ipv6 traffic

To display statistics about IPv6 traffic, use the **show ipv6 traffic** command in privileged EXEC mode.

**show ipv6 traffic**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Use the **clear ipv6 traffic** command to clear the traffic counters.

**Examples** The following is sample output from the **show ipv6 traffic** command:

```
hostname# show ipv6 traffic
IPv6 statistics:
  Rcvd: 545 total, 545 local destination
        0 source-routed, 0 truncated
        0 format errors, 0 hop count exceeded
        0 bad header, 0 unknown option, 0 bad source
        0 unknown protocol, 0 not a router
        218 fragments, 109 total reassembled
        0 reassembly timeouts, 0 reassembly failures
  Sent: 228 generated, 0 forwarded
        1 fragmented into 2 fragments, 0 failed
        0 encapsulation failed, 0 no route, 0 too big
  Mcast: 168 received, 70 sent

ICMP statistics:
  Rcvd: 116 input, 0 checksum errors, 0 too short
        0 unknown info type, 0 unknown error type
  unreachable: 0 routing, 0 admin, 0 neighbor, 0 address, 0 port
  parameter: 0 error, 0 header, 0 option
        0 hopcount expired, 0 reassembly timeout, 0 too big
        0 echo request, 0 echo reply
        0 group query, 0 group report, 0 group reduce
```

```

    0 router solicit, 60 router advert, 0 redirects
    31 neighbor solicit, 25 neighbor advert
Sent: 85 output, 0 rate-limited
    unreachable: 0 routing, 0 admin, 0 neighbor, 0 address, 0 port
    parameter: 0 error, 0 header, 0 option
    0 hopcount expired, 0 reassembly timeout, 0 too big
    0 echo request, 0 echo reply
    0 group query, 0 group report, 0 group reduce
    0 router solicit, 18 router advert, 0 redirects
    33 neighbor solicit, 34 neighbor advert

UDP statistics:
  Rcvd: 109 input, 0 checksum errors, 0 length errors
        0 no port, 0 dropped
  Sent: 37 output

TCP statistics:
  Rcvd: 85 input, 0 checksum errors
  Sent: 103 output, 0 retransmitted

```

**Related Commands**

Command	Description
<b>clear ipv6 traffic</b>	Clears ipv6 traffic counters.





## **show isakmp ipsec-over-tcp stats through show route Commands**

---

# show isakmp ipsec-over-tcp stats

To display runtime statistics for IPsec over TCP, use the **show isakmp ipsec-over tcp stats** command in global configuration mode or privileged EXEC mode.

## show isakmp ipsec-over-tcp stats

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	The <b>show isakmp ipsec-over-tcp stats</b> command was introduced.
7.2(1)	The <b>show isakmp ipsec-over-tcp stats</b> command was deprecated. The <b>show crypto isakmp ipsec-over-tcp stats</b> command replaces it.

## Usage Guidelines

The output from this command includes the following fields:

- Embryonic connections
- Active connections
- Previous connections
- Inbound packets
- Inbound dropped packets
- Outbound packets
- Outbound dropped packets
- RST packets
- Received ACK heart-beat packets
- Bad headers
- Bad trailers
- Timer failures
- Checksum errors

- Internal errors

### Examples

The following example, issued in global configuration mode, displays ISAKMP statistics:

```
hostname(config)# show isakmp ipsec-over-tcp stats
Global IPsec over TCP Statistics
-----
Embryonic connections: 2
Active connections: 132
Previous connections: 146
Inbound packets: 6000
Inbound dropped packets: 30
Outbound packets: 0
Outbound dropped packets: 0
RST packets: 260
Received ACK heart-beat packets: 10
Bad headers: 0
Bad trailers: 0
Timer failures: 0
Checksum errors: 0
Internal errors: 0
hostname(config)#
```

### Related Commands

Command	Description
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.
<b>crypto isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the security appliance.
<b>show running-config crypto isakmp</b>	Displays all the active ISAKMP configuration.

# show isakmp sa

To display the IKE runtime SA database, use the **show isakmp sa** command in global configuration mode or privileged EXEC mode.

**show isakmp sa [detail]**

## Syntax Description

**detail** Displays detailed output about the SA database.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	The <b>show isakmp sa</b> command was introduced.
7.2(1)	This command was deprecated. The <b>show crypto isakmp sa</b> command replaces it.

## Usage Guidelines

The output from this command includes the following fields:

Detail not specified.

**Table 27-1**

IKE Peer	Type	Dir	Rky	State
209.165.200.225	L2L	Init	No	MM_Active

Detail specified.

**Table 27-2**

IKE Peer	Type	Dir	Rky	State	Encrypt	Hash	Auth	Lifetime
209.165.200.225	L2L	Init	No	MM_Active	3des	md5	preshrd	86400



**Examples**

The following example, entered in global configuration mode, displays detailed information about the SA database:

```
hostname(config)# show isakmp sa detail
hostname(config)# sho isakmp sa detail

IKE Peer Type Dir Rky State Encrypt Hash Auth Lifetime
1 209.165.200.225 User Resp No AM_Active 3des SHA preshrd 86400

IKE Peer Type Dir Rky State Encrypt Hash Auth Lifetime
2 209.165.200.226 User Resp No AM_ACTIVE 3des SHA preshrd 86400

IKE Peer Type Dir Rky State Encrypt Hash Auth Lifetime
3 209.165.200.227 User Resp No AM_ACTIVE 3des SHA preshrd 86400

IKE Peer Type Dir Rky State Encrypt Hash Auth Lifetime
4 209.165.200.228 User Resp No AM_ACTIVE 3des SHA preshrd 86400

hostname(config)#
```

**Related Commands**

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPSec peer communicates with the security appliance.
<b>show running-config isakmp</b>	Displays all the active ISAKMP configuration.

# show isakmp stats

To display runtime statistics, use the **show isakmp stats** command in global configuration mode or privileged EXEC mode.

**show isakmp stats**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	The <b>show isakmp stats</b> command was introduced.
7.2(1)	This command was deprecated. The <b>show crypto isakmp stats</b> command replaces it.

## Usage Guidelines

The output from this command includes the following fields:

- Global IKE Statistics
- Active Tunnels
- In Octets
- In Packets
- In Drop Packets
- In Notifys
- In P2 Exchanges
- In P2 Exchange Invalids
- In P2 Exchange Rejects
- In P2 Sa Delete Requests
- Out Octets
- Out Packets
- Out Drop Packets

- Out Notifys
- Out P2 Exchanges
- Out P2 Exchange Invalids
- Out P2 Exchange Rejects
- Out P2 Sa Delete Requests
- Initiator Tunnels
- Initiator Fails
- Responder Fails
- System Capacity Fails
- Auth Fails
- Decrypt Fails
- Hash Valid Fails
- No Sa Fails

### Examples

The following example, issued in global configuration mode, displays ISAKMP statistics:

```
hostname(config)# show isakmp stats
Global IKE Statistics
Active Tunnels: 132
Previous Tunnels: 132
In Octets: 195471
In Packets: 1854
In Drop Packets: 925
In Notifys: 0
In P2 Exchanges: 132
In P2 Exchange Invalids: 0
In P2 Exchange Rejects: 0
In P2 Sa Delete Requests: 0
Out Octets: 119029
Out Packets: 796
Out Drop Packets: 0
Out Notifys: 264
Out P2 Exchanges: 0
Out P2 Exchange Invalids: 0
Out P2 Exchange Rejects: 0
Out P2 Sa Delete Requests: 0
Initiator Tunnels: 0
Initiator Fails: 0
Responder Fails: 0
System Capacity Fails: 0
Auth Fails: 0
Decrypt Fails: 0
Hash Valid Fails: 0
No Sa Fails: 0
hostname(config)#
```

### Related Commands

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.

<b>Command</b>	<b>Description</b>
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPSec peer communicates with the security appliance.
<b>show running-config isakmp</b>	Displays all the active ISAKMP configuration.

# show local-host

To display the network states of local hosts, use the **show local-host** command in privileged EXEC mode.

```
show local-host [ip_address] [detail] [all]
```

## Syntax Description

<b>all</b>	(Optional) Includes local hosts connecting to the security appliance and from the security appliance.
<b>detail</b>	(Optional) Displays the detailed network states of local host information, including more information about active xlates and network connections.
<i>ip_address</i>	(Optional) Specifies the local host IP address.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	For models with host limits, this command now shows which interface is considered to be the outside interface.

## Usage Guidelines

The **show local-host** command lets you display the network states of local hosts. A local-host is created for any host that forwards traffic to, or through, the security appliance.

This command lets you show the translation and connection slots for the local hosts. This command provides information for hosts that are configured with the **nat 0 access-list** command when normal translation and connection states may not apply.

This command also displays the connection limit values. If a connection limit is not set, the value displays as 0 and the limit is not applied.

For models with host limits, In routed mode, hosts on the inside (Work and Home zones) count towards the limit only when they communicate with the outside (Internet zone). Internet hosts are not counted towards the limit. Hosts that initiate traffic between Work and Home are also not counted towards the limit. The interface associated with the default route is considered to be the Internet interface. If there is no default route, hosts on all interfaces are counted toward the limit. In transparent mode, the interface with the lowest number of hosts is counted towards the host limit.

In the event of a SYN attack (with TCP intercept configured), the **show local-host** command output includes the number of intercepted connections in the usage count. This field typically displays only full open connections.

In the **show local-host** command output, the `TCP embryonic count to host counter` is used when a maximum embryonic limit (TCP intercept watermark) is configured for a host using a static connection. This counter shows the total embryonic connections to the host from other hosts. If this total exceeds the maximum configured limit, TCP intercept is applied to new connections to the host.

## Examples

The following sample output is displayed by the **show local-host** command:

```
hostname# show local-host
Interface inside: 0 active, 0 maximum active, 0 denied
Interface outside: 1 active, 2 maximum active, 0 denied
```

The following sample output is displayed by the **show local-host** command on a security appliance with host limits:

```
hostname# show local-host
Detected interface 'outside' as the Internet interface. Host limit applies to all other
interfaces.

Current host count: 3, towards licensed host limit of: 50

Interface inside: 1 active, 1 maximum active, 0 denied
Interface outside: 0 active, 0 maximum active, 0 denied
```

The following sample output is displayed by the **show local-host** command on a security appliance with host limits, but without a default route, the host limits apply to all interfaces. The default route interface might not be detected if the default route or the interface that the route uses is down.

```
hostname# show local-host
Unable to determine Internet interface from default route. Host limit applied to all
interfaces.

Current host count: 3, towards licensed host limit of: 50

Interface clin: 1 active, 1 maximum active, 0 denied
Interface clout: 0 active, 0 maximum active, 0 denied
```

The following sample output is displayed by the **show local-host** command on a security appliance with unlimited hosts:

```
hostname# show local-host
Licensed host limit: Unlimited

Interface clin: 1 active, 1 maximum active, 0 denied
Interface clout: 0 active, 0 maximum active, 0 denied
```

The following examples show how to display the network states of local hosts:

```
hostname# show local-host all
Interface outside: 1 active, 2 maximum active, 0 denied
local host: <11.0.0.4>,
TCP flow count/limit = 0/unlimited
TCP embryonic count to host = 0
TCP intercept watermark = unlimited
UDP flow count/limit = 0/unlimited
Conn:
105 out 11.0.0.4 in 11.0.0.3 idle 0:01:42 bytes 4464
105 out 11.0.0.4 in 11.0.0.3 idle 0:01:44 bytes 4464
```

```

Interface inside: 1 active, 2 maximum active, 0 denied
local host: <17.3.8.2>,
TCP flow count/limit = 0/unlimited
TCP embryonic count to host = 0
TCP intercept watermark = unlimited
UDP flow count/limit = 0/unlimited
Conn:
105 out 17.3.8.2 in 17.3.8.1 idle 0:01:42 bytes 4464
105 out 17.3.8.2 in 17.3.8.1 idle 0:01:44 bytes 4464
Interface NP Identity Ifc: 2 active, 4 maximum active, 0 denied
local host: <11.0.0.3>,
TCP flow count/limit = 0/unlimited
TCP embryonic count to host = 0
TCP intercept watermark = unlimited
UDP flow count/limit = 0/unlimited
Conn:
105 out 11.0.0.4 in 11.0.0.3 idle 0:01:44 bytes 4464
105 out 11.0.0.4 in 11.0.0.3 idle 0:01:42 bytes 4464
local host: <17.3.8.1>,
TCP flow count/limit = 0/unlimited
TCP embryonic count to host = 0
TCP intercept watermark = unlimited
UDP flow count/limit = 0/unlimited
Conn:
105 out 17.3.8.2 in 17.3.8.1 idle 0:01:44 bytes 4464
105 out 17.3.8.2 in 17.3.8.1 idle 0:01:42 bytes 4464

hostname# show local-host 10.1.1.91
Interface third: 0 active, 0 maximum active, 0 denied
Interface inside: 1 active, 1 maximum active, 0 denied
local host: <10.1.1.91>,
TCP flow count/limit = 1/unlimited
TCP embryonic count to (from) host = 0 (0)
TCP intercept watermark = unlimited
UDP flow count/limit = 0/unlimited

Xlate:
PAT Global 192.150.49.1(1024) Local 10.1.1.91(4984)

Conn:
TCP out 192.150.49.10:21 in 10.1.1.91:4984 idle 0:00:07 bytes 75 flags UI Interface
outside: 1 active, 1 maximum active, 0 denied

hostname# show local-host 10.1.1.91 detail
Interface third: 0 active, 0 maximum active, 0 denied
Interface inside: 1 active, 1 maximum active, 0 denied
local host: <10.1.1.91>,
TCP flow count/limit = 1/unlimited
TCP embryonic count to (from) host = 0 (0)
TCP intercept watermark = unlimited
UDP flow count/limit = 0/unlimited

Xlate:
TCP PAT from inside:10.1.1.91/4984 to outside:192.150.49.1/1024 flags ri

Conn:
TCP outside:192.150.49.10/21 inside:10.1.1.91/4984 flags UI Interface outside: 1 active, 1
maximum active, 0 denied

```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>clear local-host</b>	Releases network connections from local hosts displayed by the <b>show local-host</b> command.
<b>nat</b>	Associates a network with a pool of global IP addresses.



# show logging

To show the logs in the buffer or to show other logging settings, use the **show logging** command.

```
show logging [message [syslog_id | all] | asdm | queue | setting]
```

Syntax Description	message	(Optional) Displays messages that are at a non-default level. See the <b>logging message</b> command to set the message level.
	<i>syslog_id</i>	(Optional) Specifies a message number to display.
	<b>all</b>	(Optional) Displays all system log message IDs, along with whether they are enabled or disabled.
	<b>setting</b>	(Optional) Displays the logging setting, without displaying the logging buffer.
	<b>asdm</b>	(Optional) Displays ASDM logging buffer content.
	<b>queue</b>	(Optional) Displays the system log message queue.

## Defaults

This command has no default settings.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

If the **logging buffered** command is in use, the **show logging** command without any keywords shows the current message buffer and the current settings.

The **show logging queue** command allows you to display the following:

- Number of messages that are in the queue
- Highest number of messages recorded that are in the queue
- Number of messages that are discarded because block memory was not available to process them

## Examples

The following is sample output from the **show logging** command:

```
hostname(config)# show logging
Syslog logging: enabled
Timestamp logging: disabled
Console logging: disabled
```

```

Monitor logging: disabled
Buffer logging: level debugging, 37 messages logged
Trap logging: disabled
305001: Portmapped translation built for gaddr 209.165.201.5/0 laddr 192.168.1.2/256
...

```

The following is sample output from the **show logging message all** command:

```

hostname(config)# show logging message all

syslog 111111: default-level alerts (enabled)
syslog 101001: default-level alerts (enabled)
syslog 101002: default-level alerts (enabled)
syslog 101003: default-level alerts (enabled)
syslog 101004: default-level alerts (enabled)
syslog 101005: default-level alerts (enabled)
syslog 102001: default-level alerts (enabled)
syslog 103001: default-level alerts (enabled)
syslog 103002: default-level alerts (enabled)
syslog 103003: default-level alerts (enabled)
syslog 103004: default-level alerts (enabled)
syslog 103005: default-level alerts (enabled)
syslog 103011: default-level alerts (enabled)
syslog 103012: default-level informational (enabled)

```

#### Related Commands

Command	Description
<b>logging asdm</b>	Enables logging to ASDM
<b>logging buffered</b>	Enables logging to the buffer.
<b>logging message</b>	Sets the message level, or disables messages.
<b>logging queue</b>	Configures the logging queue.

# show logging rate-limit

To display the disallowed messages to the original set, use the **show logging rate-limit** command.

**show logging rate-limit**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command has no default settings.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0	Support for this command was introduced on the security appliance.

**Usage Guidelines** After the information is cleared, nothing more displays until the hosts reestablish their connections.

**Examples** This example shows how to display the disallowed messages:

```
hostname(config)# show logging rate-limit
```

Related Commands	Command	Description
	show logging	Displays the enabled logging options.

# show mac-address-table

To show the MAC address table, use the **show mac-address-table** command in privileged EXEC mode.

```
show mac-address-table [interface_name | count | static]
```

Syntax Description	Parameter	Description
	<b>count</b>	(Optional) Lists the total number of dynamic and static entries.
	<i>interface_name</i>	(Optional) Identifies the interface name for which you want to view MAC address table entries.
	<b>static</b>	(Optional) Lists only static entries.

**Defaults** If you do not specify an interface, all interface MAC address entries are shown.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	—	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show mac-address-table** command:

```
hostname# show mac-address-table
interface      mac address      type      Time Left
-----
outside       0009.7cbe.2100   static    -
inside        0010.7cbe.6101   static    -
inside        0009.7cbe.5101   dynamic   10
```

The following is sample output from the **show mac-address-table** command for the inside interface:

```
hostname# show mac-address-table inside
interface      mac address      type      Time Left
-----
inside        0010.7cbe.6101   static    -
inside        0009.7cbe.5101   dynamic   10
```

The following is sample output from the **show mac-address-table count** command:

```
hostname# show mac-address-table count
Static      mac-address bridges (curr/max): 0/65535
Dynamic     mac-address bridges (curr/max): 103/65535
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>firewall transparent</b>	Sets the firewall mode to transparent.
<b>mac-address-table aging-time</b>	Sets the timeout for dynamic MAC address entries.
<b>mac-address-table static</b>	Adds a static MAC address entry to the MAC address table.
<b>mac-learn</b>	Disables MAC address learning.

# show management-access

To display the name of the internal interface configured for management access, use the show management-access command in privileged EXEC mode.

**show management-access**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **management-access** command lets you define an internal management interface using the IP address of the firewall interface specified in *mgmt\_if*. (The interface names are defined by the **nameif** command and displayed in quotes, “”, in the output of the **show interface** command.)

**Examples** The following example shows how to configure a firewall interface named “inside” as the management access interface and display the result:

```
hostname(config)# management-access inside
hostname(config)# show management-access
management-access inside
```

Related Commands	Command	Description
	<b>clear configure management-access</b>	Removes the configuration of an internal interface for management access of the security appliance.
	<b>management-access</b>	Configures an internal interface for management access.

# show memory

To display a summary of the maximum physical memory and current free memory available to the operating system, use the **show memory** command in privileged EXEC mode.

**show memory [detail]**

<b>Syntax Description</b>	<b>detail</b> (Optional) Displays a detailed view of free and allocated system memory.
---------------------------	--

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **show memory** command lets you display a summary of the maximum physical memory and current free memory available to the operating system. Memory is allocated as needed.

You can use the **show memory detail** output with **show memory binsize** command to debug memory leaks.

You can also display the information from the **show memory** command using SNMP.

**Examples** This example shows how to display a summary of the maximum physical memory and current free memory available:

```
hostname# show memory
Free memory:      845044716 bytes (79%)
Used memory:     228697108 bytes (21%)
-----
Total memory:    1073741824 bytes (100%)
```

This example shows detailed memory output:

```
hostname# show memory detail
Free memory: 15958088 bytes (24%)
Used memory:
Allocated memory in use: 29680332 bytes (44%)
Reserved memory: 21470444 bytes (32%)
-----
```

```

Total memory: 67108864 bytes (100%)

Least free memory: 4551716 bytes ( 7%)
Most used memory: 62557148 bytes (93%)

----- fragmented memory statistics -----

fragment size count total
(bytes) (bytes)
-----
16 8 128
24 4 96
32 2 64
40 5 200
64 3 192
88 1 88
168 1 168
224 1 224
256 1 256
296 2 592
392 1 392
400 1 400
1816 1 1816*
4435968 1 4435968**
11517504 1 11517504

* - top most releasable chunk.
** - contiguous memory on top of heap.

```

```

----- allocated memory statistics -----

fragment size count total
(bytes) (bytes)
-----
40 50 2000
48 144 6912
56 24957 1397592
64 101 6464
72 99 7128
80 1032 82560
88 18 1584
96 64 6144
104 57 5928
112 6 672
120 112 13440
128 15 1920
136 87 11832
144 22 3168
152 31 4712
160 90 14400
168 65 10920
176 74 13024
184 11 2024
192 8 1536
200 1 200
<output omitted>

```

## Related Commands



Command	Description
<b>show memory profile</b>	Displays information about the memory usage (profiling) of the security appliance.
<b>show memory binsize</b>	Displays summary information about the chunks allocated for a specific bin size.

# show memory binsize

To display summary information about the chunks allocated for a specific bin size, use the **show memory binsize** command in privileged EXEC mode.

```
show memory binsize size
```

## Syntax Description

*size* Displays chunks (memory blocks) of a specific bin size. The bin size is from the "fragment size" column of the **show memory detail** command output.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command has no usage guidelines.

## Examples

The following example displays summary information about a chunk allocated to a bin size of 500:

```
hostname# show memory binsize 500
pc = 0x00b33657, size = 460      , count = 1
```

## Related Commands

Command	Description
<b>show memory-caller address</b>	Displays the address ranges configured on the security appliance.
<b>show memory profile</b>	Displays information about the memory usage (profiling) of the security appliance.
<b>show memory</b>	Displays a summary of the maximum physical memory and current free memory available to the operating system.

# show memory delayed-free-poisoner

To display a summary of the **memory delayed-free-poisoner** queue usage, use the **show memory delayed-free-poisoner** command in privileged EXEC mode.

**show memory delayed-free-poisoner**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Use the **clear memory delayed-free-poisoner** command to clear the queue and statistics.

**Examples** This following is sample output from the **show memory delayed-free-poisoner** command:

```
hostname# show memory delayed-free-poisoner
delayed-free-poisoner statistics:
  3335600: memory held in queue
   6095: current queue count
    0: elements dequeued
    3: frees ignored by size
  1530: frees ignored by locking
    27: successful validate runs
    0: aborted validate runs
01:09:36: local time of last validate
```

Table 27-3 describes the significant fields in the **show memory delayed-free-poisoner** command output.

**Table 27-3** show memory delayed-free-poisoner Command Output Descriptions

Field	Description
memory held in queue	The memory that is held in the delayed free-memory poisoner tool queue. Such memory is normally in the “Free” quantity in the <b>show memory</b> output if the delayed free-memory poisoner tool is not enabled.
current queue count	The number of elements in the queue.
elements dequeued	The number of elements that have been removed from the queue. This number begins to increase when most or all of the otherwise free memory in the system ends up in being held in the queue.
frees ignored by size	The number of free requests not placed into the queue because the request was too small to hold required tracking information.
frees ignored by locking	The number of free requests intercepted by the tool not placed into the queue because the memory is in use by more than one application. The last application to free the memory back to the system ends up placing such memory regions into the queue.
successful validate runs	The number of times since monitoring was enabled or cleared using the <b>clear memory delayed-free-poisoner</b> command that the queue contents were validated (either automatically or by the <b>memory delayed-free-poisoner validate</b> command).
aborted validate runs	The number of times since monitoring was enabled or cleared using the <b>clear memory delayed-free-poisoner</b> command that requests to check the queue contents have been aborted because more than one task (either the periodic run or a validate request from the CLI) attempted to use the queue at a time.
local time of last validate	The local system time when the last validate run completed.

**Related Commands**

Command	Description
<b>clear memory delayed-free-poisoner</b>	Clears the delayed free-memory poisoner tool queue and statistics.
<b>memory delayed-free-poisoner enable</b>	Enables the delayed free-memory poisoner tool.
<b>memory delayed-free-poisoner validate</b>	Forces validation of the elements in the delayed free-memory poisoner tool queue.

# show memory profile

To display information about the memory usage (profiling) of the security appliance, use the **show memory profile** command in privileged EXEC mode.

**show memory profile [peak] [detail | collated | status]**

## Syntax Description

<b>collated</b>	(Optional) Collates the memory information displayed.
<b>detail</b>	(Optional) Displays detailed memory information.
<b>peak</b>	(Optional) Displays the peak capture buffer rather than the “in use” buffer.
<b>status</b>	(Optional) Displays the current state of memory profiling and the peak capture buffer.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the **show memory profile** command to troubleshoot memory usage level and memory leaks. You can still see the profile buffer contents even if profiling has been stopped. Starting profiling clears the buffer automatically.



### Note

The security appliance might experience a temporary reduction in performance when memory profiling is enabled.

## Examples

The following example shows...

```
hostname# show memory profile
Range: start = 0x004018b4, end = 0x004169d0, increment = 00000004
Total = 0
```

The output of the **show memory profile detail** command (below) is divided into six data columns and one header column, at the far left. The address of the memory bucket corresponding to the first data column is given at the header column (the hexadecimal number). The data itself is the number of bytes

that is held by the text/code that falls in the bucket address. A period (.) in the data column means no memory is held by the text at this bucket. Other columns in the row correspond to the bucket address that is greater than the increment amount from the previous column. For example, the address bucket of the first data column in the first row is 0x001069e0. The address bucket of the second data column in the first row is 0x001069e4 and so on. Normally the header column address is the next bucket address; that is, the address of the last data column of the previous row plus the increment. All rows without any usage are suppressed. More than one such contiguous row can be suppressed, indicated with three periods at the header column (...).

```
hostname# show memory profile detail
Range: start = 0x00100020, end = 0x00e006e0, increment = 00000004
Total = 48941152
...
0x001069e0 . 24462 . . . .
...
0x00106d88 . 1865870 . . . .
...
0x0010adf0 . 7788 . . . .
...
0x00113640 . . . . 433152 .
...
0x00116790 2480 . . . .
<snip>
```

The following example shows collated output:

```
hostname# show memory profile collated
Range: start = 0x00100020, end = 0x00e006e0, increment = 00000004
Total = 48941152
24462 0x001069e4
1865870 0x00106d8c
7788 0x0010adf4
433152 0x00113650
2480 0x00116790
<snip>
```

The following example shows the peak capture buffer:

```
hostname# show memory profile peak
Range: start = 0x004018b4, end = 0x004169d0, increment = 00000004
Total = 102400
```

The following example shows the peak capture buffer and the number of bytes that is held by the text/code that falls in the corresponding bucket address:

```
hostname# show memory profile peak detail
Range: start = 0x004018b4, end = 0x004169d0, increment = 00000004
Total = 102400
...
0x00404c8c . . 102400 . . .
```

The following example shows the current state of memory profiling and the peak capture buffer:

```
hostname# show memory profile status
InUse profiling: ON
Peak profiling: OFF
Memory used by profile buffers: 11518860 bytes
Profile:
0x00100020-0x00bfc3a8(00000004)
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>memory profile enable</b>	Enables the monitoring of memory usage (memory profiling).
<b>memory profile text</b>	Configures a program text range of memory to profile.
<b>clear memory profile</b>	Clears the memory buffers held by the memory profiling function.

# show memory webvpn

To generate memory usage statistics for webvpn, use the **show memory webvpn** command in privileged EXEC mode.

```
show memory webvpn [allobjects | blocks | dumpstate [cache | disk0 | disk1 | flash | ftp | system
| tftp]] pools | profile [clear | dump | start | stop] | usedobjects {{begin | exclude | grep |
include} line line}}
```

Syntax	Description
<b>allobjects</b>	Displays webvpn memory consumption details for pools, blocks and all used and freed objects.
<b>begin</b>	Begins with the line that matches.
<b>blocks</b>	Displays webvpn memory consumption details for memory blocks.
<b>cache</b>	Specifies a filename for a webvpn memory cache state dump.
<b>clear</b>	Clears the webvpn memory profile.
<b>disk0</b>	Specifies a filename for webvpn memory disk0 state dump.
<b>disk1</b>	Specifies a filename for webvpn memory disk1 state dump.
<b>dump</b>	Puts webvpn memory profile into a file.
<b>dumpstate</b>	Puts webvpn memory state into a file.
<b>exclude</b>	Excludes the line(s) that match.
<b>flash</b>	Specifies a filename for webvpn memory flash state dump.
<b>ftp</b>	Specifies a filename for webvpn memory ftp state dump.
<b>grep</b>	Includes/excludes lines that match.
<b>include</b>	Includes the line(s) that match.
<b>line</b>	Identifies the line(s) to match.
<i>line</i>	Specifies the line(s) to match.
<b>pools</b>	Show webvpn memory consumption details for memory pools.
<b>profile</b>	Gathers the webvpn memory profile and places it in a file.
<b>system</b>	Specifies a filename for webvpn memory system state dump.
<b>start</b>	Starts gathering the webvpn memory profile.
<b>stop</b>	Stops gathering the webvpn memory profile.
<b>tftp</b>	Specifies a filename for a webvpn memory tftp state dump.
<b>usedobjects</b>	Displays webvpn memory consumption details for used objects.

## Defaults

No default behavior or value.

## Command Modes

The following table shows the modes in which you can enter the command:



Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—
Webvpn mode	•	—	•	—	—

**Command History**

Release	Modification
7.1(1)	This command was introduced.

**Examples**

The following is sample output from the **show memory webvpn allobjects** command:

```
hostname# show memory webvpn allobjects
Arena 0x36b14f8 of 4094744 bytes (61 blocks of size 66048), maximum 134195200
130100456 free bytes (97%; 1969 blocks, zone 0)
Arena is dynamically allocated, not contiguous
Features: GroupMgmt: SET, MemDebugLog: unset
Pool 0xd719a78 ("cp_entries" => "pool for class cpool entries") (next 0xd6d91d8)
Size: 66040 (1% of current, 0% of limit)
Object frame size: 32
Load related limits: 70/50/30
Callbacks: !init!/!prep!/!f2ca!/!dstr!/!dump
Blocks in use:
Block 0xd719ac0..0xd729cb8 (size 66040), pool "cp_entries"
Watermarks { 0xd7098f8 <= 0xd70bb60 <= 0xd719a60 } = 57088 ready
Block size 66040 not equal to arena block 66048 (realigned-to-8)
Used objects: 0
Top allocated count: 275
Objects dump:
0. Object 0xd70bb50: FREED (by "jvclass_pool_free")
```

**Related Commands**

Command	Description
<b>memory-size</b>	Sets the amount of memory on the security appliance that WebVPN services can use.

# show memory-caller address

To display the address ranges configured on the security appliance, use the **show memory-caller address** command in privileged EXEC mode.

**show memory-caller address**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	•	•

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines** You must first configure an address ranges with the **memory caller-address** command before you can display them with the **show memory-caller address** command.

**Examples** The following examples show the address ranges configured with the **memory caller-address** commands, and the resulting display of the **show memory-caller address** command:

```
hostname# memory caller-address 0x00109d5c 0x00109e08
hostname# memory caller-address 0x009b0ef0 0x009b0f14
hostname# memory caller-address 0x00cf211c 0x00cf4464
```

```
hostname# show memory-caller address
Move down stack frame for the addresses:
pc = 0x00109d5c-0x00109e08
pc = 0x009b0ef0-0x009b0f14
pc = 0x00cf211c-0x00cf4464
```

If address ranges are not configured before entering the **show memory-caller address** command, no addresses display:

```
hostname# show memory-caller address
Move down stack frame for the addresses:
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>memory caller-address</b>	Configures block of memory for the caller PC.

# show mfib

To display MFIB in terms of forwarding entries and interfaces, use the **show mfib** command in user EXEC or privileged EXEC mode.

```
show mfib [group [source]] [verbose]
```

## Syntax Description

<i>group</i>	(Optional) IP address of the multicast group.
<i>source</i>	(Optional) IP address of the multicast route source. This is a unicast IP address in four-part dotted-decimal notation.
<b>verbose</b>	(Optional) Displays additional information about the entries.

## Defaults

Without the optional arguments, information for all groups is shown.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following is sample output from the **show mfib** command:

```
hostname# show mfib 224.0.2.39
Entry Flags: C - Directly Connected, S - Signal, IA - Inherit A flag,
             AR - Activity Required, D - Drop
Forwarding counts: Pkt Count/Pkts per second/Avg Pkt Size/Kbits per second
Other counts: Total/RPF failed/Other drops
Interface flags: A - Accept, F - Forward, NS - Negate Signalling
                IC - Internal Copy, NP - Not platform switched
                SP - Signal Present
Interface Counts: FS Pkt Count/PS Pkt Count
(*,224.0.1.39) Flags: S K
Forwarding: 0/0/0/0, Other: 0/0/0
```

## Related Commands

Command	Description
<b>show mfib verbose</b>	Displays detail information about the forwarding entries and interfaces.

## show mfib active

To display active multicast sources, use the **show mfib active** command in user EXEC or privileged EXEC mode.

```
show mfib [group] active [kbps]
```

### Syntax Description

<i>group</i>	(Optional) IP address of the multicast group.
<i>kbps</i>	(Optional) Limits the display to multicast streams that are greater-than or equal to this value.

This command has no arguments or keywords.

### Defaults

The default value for *kbps* is 4. If a *group* is not specified, all groups are shown.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

The output for the **show mfib active** command displays either positive or negative numbers for the rate PPS. The security appliance displays negative numbers when RPF packets fail or when the router observes RPF packets with an interfaces out (OIF) list. This type of activity may indicate a multicast routing problem.

### Examples

The following is sample output from the **show mfib active** command:

```
hostname# show mfib active
Active IP Multicast Sources - sending >= 4 kbps

Group: 224.2.127.254, (sdr.cisco.com)
  Source: 192.168.28.69 (mbone.ipd.anl.gov)
    Rate: 1 pps/4 kbps(1sec), 4 kbps(last 1 secs), 4 kbps(life avg)

Group: 224.2.201.241, ACM 97
  Source: 192.168.52.160 (webcast3-e1.acm97.interop.net)
    Rate: 9 pps/93 kbps(1sec), 145 kbps(last 20 secs), 85 kbps(life avg)
```

## ■ show mfib active

```
Group: 224.2.207.215, ACM 97
Source: 192.168.52.160 (webcast3-e1.acm97.interop.net)
Rate: 3 pps/31 kbps(1sec), 63 kbps(last 19 secs), 65 kbps(life avg)
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show mroute active</b>	Displays active multicast streams.

---

# show mfib count

To display MFIB route and packet count data, use the **show mfib count** command in user EXEC or privileged EXEC mode.

**show mfib** [*group* [*source*]] **count**

## Syntax Description

<i>group</i>	(Optional) IP address of the multicast group.
<i>source</i>	(Optional) IP address of the multicast route source. This is a unicast IP address in four-part dotted-decimal notation.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command displays packet drop statistics.

## Examples

The following sample output from the **show mfib count** command:

```
hostname# show mfib count
MFIB global counters are :
* Packets [no input idb] : 0
* Packets [failed route lookup] : 0
* Packets [Failed idb lookup] : 0
* Packets [Mcast disabled on input I/F] : 0
```

## Related Commands

Command	Description
<b>clear mfib counters</b>	Clears MFIB router packet counters.
<b>show mroute count</b>	Displays multicast route counters.

# show mfib interface

To display packet statistics for interfaces that are related to the MFIB process, use the **show mfib interface** command in user EXEC or privileged EXEC mode.

```
show mfib interface [interface]
```

<b>Syntax Description</b>	<i>interface</i>	(Optional) Interface name. Limits the display to the specified interface.
---------------------------	------------------	---

<b>Defaults</b>	Information for all MFIB interfaces is shown.
-----------------	---

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.0(1)	This command was introduced.

<b>Examples</b>	The following example is sample output from the <b>show mfib interface</b> command:
-----------------	---

```
hostname# show mfib interface
IP Multicast Forwarding (MFIB) status:
  Configuration Status: enabled
  Operational Status: running
MFIB interface      status      CEF-based output
                   [configured, available]
Ethernet0           up          [no, no]
Ethernet1           up          [no, no]
Ethernet2           up          [no, no]
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show mfib</b>	Displays MFIB information in terms of forwarding entries and interfaces.



# show mfib reserved

To display reserved groups, use the **show mfib reserved** command in user EXEC or privileged EXEC mode.

**show mfib reserved** [**count** | **verbose** | **active** [*kpbs*]]

Syntax Description		
<b>count</b>	(Optional)	Displays packet and route count data.
<b>verbose</b>	(Optional)	Displays additional information.
<b>active</b>	(Optional)	Displays active multicast sources.
<i>kpbs</i>	(Optional)	Limits the display to active multicast sources greater-than or equal to this value.

**Defaults** The default value for *kpbs* is 4.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** This command displays MFIB entries in the range 224.0.0.0 through 224.0.0.225.

**Examples** The following is sample output from the **show mfib reserved** command:

```
hostname# command example
Entry Flags: C - Directly Connected, S - Signal, IA - Inherit A flag,
             AR - Activity Required, D - Drop Forwarding Counts: Pkt Count/Pkts per
             second/Avg Pkt Size/Kbits per second Other counts: Total/RPF failed/Other drops Interface
             Flags: A - Accept, F - Forward, NS - Negate Signalling
             IC - Internal Copy, NP - Not platform switched
             SP - Signal Present
Interface Counts: FS Pkt Count/PS Pkt Count
(*,224.0.0.0/4) Flags: C K
  Forwarding: 0/0/0/0, Other: 0/0/0
(*,224.0.0.0/24) Flags: K
  Forwarding: 0/0/0/0, Other: 0/0/0
(*,224.0.0.1) Flags:
  Forwarding: 0/0/0/0, Other: 0/0/0
outside Flags: IC
```

■ show mfib reserved

```
dmz Flags: IC
inside Flags: IC
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show mfib active</b>	Displays active multicast streams.

---

# show mfib status

To display the general MFIB configuration and operational status, use the **show mfib status** command in user EXEC or privileged EXEC mode.

**show mfib status**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show mfib status** command:

```
hostname# show mfib status
IP Multicast Forwarding (MFIB) status:
  Configuration Status: enabled
  Operational Status: running
```

**Related Commands**

Command	Description
<b>show mfib</b>	Displays MFIB information in terms of forwarding entries and interfaces.

# show mfib summary

To display summary information about the number of MFIB entries and interfaces, use the **show mfib summary** command in user EXEC or privileged EXEC mode.

**show mfib summary**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show mfib summary** command:

```
hostname# show mfib summary
IPv6 MFIB summary:

 54      total entries [1 (S,G), 7 (*,G), 46 (*,G/m)]

 17      total MFIB interfaces
```

Related Commands	Command	Description
	<b>show mroute summary</b>	Displays multicast routing table summary information.

# show mfib verbose

To display detail information about the forwarding entries and interfaces, use the **show mfib verbose** command in user EXEC or privileged EXEC mode.

## show mfib verbose

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show mfib verbose** command:

```
hostname# show mfib verbose
Entry Flags: C - Directly Connected, S - Signal, IA - Inherit A flag,
             AR - Activity Required, D - Drop
Forwarding counts: Pkt Count/Pkts per second/Avg Pkt Size/Kbits per second
Other counts: Total/RPF failed/Other drops
Interface flags: A - Accept, F - Forward, NS - Negate Signalling
                IC - Internal Copy, NP - Not platform switched
                SP - Signal Present
Interface Counts: FS Pkt Count/PS Pkt Count
(*,224.0.1.39) Flags: S K
  Forwarding: 0/0/0/0, Other: 0/0/0
(*,224.0.1.40) Flags: S K
  Forwarding: 0/0/0/0, Other: 0/0/0
(*,224.0.0.0/8) Flags: K
  Forwarding: 0/0/0/0, Other: 0/0/0
```

**Related Commands**

Command	Description
<b>show mfib</b>	Displays MFIB information in terms of forwarding entries and interfaces.
<b>show mfib summary</b>	Displays summary information about the number of MFIB entries and interfaces.

# show mgcp

To display MGCP configuration and session information, use the **show mgcp** command in privileged EXEC mode.

```
show mgcp { commands | sessions } [detail]
```

## Syntax Description

<b>commands</b>	Lists the number of MGCP commands in the command queue.
<b>sessions</b>	Lists the number of existing MGCP sessions.
<b>detail</b>	(Optional) Lists additional information about each command (or session) in the output.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **show mgcp commands** command lists the number of MGCP commands in the command queue. The **show mgcp sessions** command lists the number of existing MGCP sessions. The **detail** option includes additional information about each command (or session) in the output.

## Examples

The following are examples of the **show mgcp** command options:

```
hostname# show mgcp commands
1 in use, 1 most used, 200 maximum allowed
CRCX, gateway IP: host-pc-2, transaction ID: 2052, idle: 0:00:07
hostname#
```

```
hostname# show mgcp commands detail
1 in use, 1 most used, 200 maximum allowed
CRCX, idle: 0:00:10
  Gateway IP | host-pc-2
  Transaction ID | 2052
  Endpoint name | aaln/1
  Call ID | 9876543210abcdef
  Connection ID |
  Media IP | 192.168.5.7
```

```

Media port | 6058
hostname#

hostname# show mgcp sessions
1 in use, 1 most used
Gateway IP host-pc-2, connection ID 6789af54c9, active 0:00:11
hostname#

hostname# show mgcp sessions detail
1 in use, 1 most used
Session active 0:00:14
Gateway IP | host-pc-2
Call ID | 9876543210abcdef
Connection ID | 6789af54c9
Endpoint name | aaln/1
Media lcl port 6166
Media rmt IP | 192.168.5.7
Media rmt port 6058
hostname#

```

**Related Commands**

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug mgcp</b>	Enables MGCP debug information.
<b>inspect mgcp</b>	Enables MGCP application inspection.
<b>mgcp-map</b>	Defines an MGCP map and enables MGCP map configuration mode.
<b>show conn</b>	Displays the connection state for different connection types.

# show mode

To show the security context mode for the running software image and for any image in Flash memory, use the **show mode** command in privileged EXEC mode.

**show mode**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show mode** command. The following example shows the current mode and the mode for the non-running image “image.bin”:

```
hostname# show mode flash:/image.bin
Firewall mode: multiple
```

The mode can be multiple or single.

Related Commands	Command	Description
	<b>context</b>	Creates a security context in the system configuration and enters context configuration mode.
	<b>mode</b>	Sets the context mode to single or multiple.



# show module

To show information about the SSM on the ASA 5500 series adaptive security appliance as well as system information, use the **show module** command in user EXEC mode.

**show module [all | slot [details | recover]]**

Syntax	Description
<b>all</b>	(Default) Shows information for the SSM in slot 1 and the system in slot 0.
<b>details</b>	(Optional) Shows additional information, including remote management configuration for intelligent SSMs (for example ASA-SSM-x0).
<b>recover</b>	(Optional) For intelligent SSMs, shows the settings for the <b>hw-module module recover</b> command.  <b>Note</b> The <b>recover</b> keyword is valid only when you have created a recovery configuration for the SSM by using the <b>configure</b> keyword with the <b>hw-module module recover</b> command.
<i>slot</i>	(Optional) Specifies the slot number, 0 or 1. Slot 0 is security appliance base system.

## Defaults

Shows information for both slots.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context <sup>1</sup>	System
User EXEC	•	•	•	•	•

1. The **show module recover** command is only available in the system execution space.

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was modified to include more detail in the output.

## Usage Guidelines

This command shows information about the SSM as well as the system and built-in interfaces.

For a description of the display output, see the “Examples” section, below.

## Examples

The following is sample output from the **show module** command. Slot 0 is the base system, while slot 1 is a CSC SSM.

```
hostname> show module
Mod Card Type                               Model                               Serial No.
```

```

-----
 0 ASA 5520 Adaptive Security Appliance          ASA5520          P3000000034
 1 ASA 5500 Series Security Services Module-20   ASA-SSM-20      0

Mod MAC Address Range                          Hw Version      Fw Version      Sw Version
-----
 0 000b.fcf8.c30d to 000b.fcf8.c311  1.0             1.0(10)0       7.1(0)5
 1 000b.fcf8.012c to 000b.fcf8.012c  1.0             1.0(10)0       CSC SSM 5.0 (Build#1187)

Mod SSM Application Name                      SSM Application Version
-----
 1 CSC SSM scan services are not
 1 CSC SSM                                     5.0 (Build#1187)

Mod Status          Data Plane Status      Compatibility
-----
 0 Up Sys           Not Applicable
 1 Up               Up

```

Table 22 shows each field description.

**Table 27-4** show module Fields

Field	Description
Mod	The slot number, 0 or 1.
Card Type	For the system shown in slot 0, the type is the platform model. For the SSM in slot 1, the SSM type.
Model	The model for this slot.
Serial No.	The serial number.
MAC Address Range	The MAC address range for interfaces on this SSM or, for the system, the built-in interfaces.
Hw Version	The hardware version.
Fw Version	The firmware version.
Sw Version	The software version.
SSM Application Name	The name of the application running on the SSM.
SSM Application Version	The version of the application running on the SSM.
Status	For the system in slot 0, the status is Up Sys. The status of the SSM in slot 1 is as follows: <ul style="list-style-type: none"> <li>• Initializing—The SSM is being detected and the control communication is being initialized by the system.</li> <li>• Up—The SSM has completed initialization by the system.</li> <li>• Unresponsive—The system encountered an error communicating with this SSM.</li> <li>• Reloading—For intelligent SSMs, the SSM is reloading.</li> <li>• Shutting Down—The SSM is shutting down.</li> <li>• Down—The SSM is shut down.</li> <li>• Recover—For intelligent SSMs, the SSM is attempting to download a recovery image.</li> </ul>

**Table 27-4** show module Fields

Field	Description
Data Plane Status	The current state of the data plane to the SSM.
Compatibility	The compatibility of the SSM relative to the rest of the system.

The output of the show module details command varies depending upon which SSM is in the slot. For example, output for the CSC SSM includes fields about components of the CSC SSM software. These fields do not appear if the slot has an AIP SSM instead. The following is generic sample output from the **show module details** command:

```
hostname> show module 1 details
Getting details from the Service Module, please wait...
ASA 5500 Series Security Services Module-20
Model:                ASA-SSM-20
Hardware version:     V1.0
Serial Number:        12345678
Firmware version:     1.0(7)2
Software version:     4.1(1.1)S47(0.1)
MAC Address Range:   000b.fcf8.0156 to 000b.fcf8.0156
Data plane Status:   Up
Status:              Up
Mgmt IP addr:        10.89.147.13
Mgmt web ports:      443
Mgmt TLS enabled:    true
```

Table 23 shows each field description. See Table 22 for fields that are also shown for the **show module** command.

**Table 27-5** show module details Fields

Field	Description
Mgmt IP addr	For intelligent SSMs, shows the IP address for the SSM management interface.
Mgmt web ports	For intelligent SSMs, shows the ports configured for the management interface.
Mgmt TLS enabled	For intelligent SSMs, shows whether transport layer security is enabled for connections to the management interface of the SSM (true or false).

The following is sample output from the **show module** command when the **recover** keyword is used:

```
hostname> show module 1 recover
Module 1 recover parameters. . .
Boot Recovery Image: Yes
Image URL:           tftp://10.21.18.1/ids-oldimg
Port IP Address:     10.1.2.10
Port Mask :          255.255.255.0
Gateway IP Address:  10.1.2.254
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>debug module-boot</b>	Shows debug messages about the SSM booting process.
<b>hw-module module recover</b>	Recovers an intelligent SSM by loading a recovery image from a TFTP server.
<b>hw-module module reset</b>	Shuts down an SSM and performs a hardware reset.
<b>hw-module module reload</b>	Reloads the intelligent SSM software.
<b>hw-module module shutdown</b>	Shuts down the SSM software in preparation for being powered off without losing configuration data.

# show mrib client

To display information about the MRIB client connections, use the **show mrib client** command in user EXEC or privileged EXEC mode.

```
show mrib client [filter] [name client_name]
```

## Syntax Description

<b>filter</b>	(Optional) Displays client filter. Used to view information about the MRIB flags that each client owns and the flags in which each clients is interested.
<b>name client_name</b>	(Optional) Name of a multicast routing protocol that acts as a client of MRIB, such as PIM or IGMP.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **filter** option is used to display the route and interface level flag changes that various MRIB clients have registered. This command option also shows what flags are owned by the MRIB clients.

## Examples

The following sample output from the **show mrib client** command using the **filter** keyword:

```
hostname# show mrib client filter
MFWD:0 (connection id 0)
interest filter:
entry attributes: S C IA D
interface attributes: F A IC NS DP SP
groups:
include 0.0.0.0/0
interfaces:
include All
ownership filter:
groups:
include 0.0.0.0/0
interfaces:
include All
igmp:77964 (connection id 1)
```

```

ownership filter:
interface attributes: II ID LI LD
groups:
include 0.0.0.0/0
interfaces:
include All
pim:49287 (connection id 5)
interest filter:
entry attributes: E
interface attributes: SP II ID LI LD
groups:
include 0.0.0.0/0
interfaces:
include All
ownership filter:
entry attributes: L S C IA D
interface attributes: F A IC NS DP
groups:
include 0.0.0.0/0
interfaces:
include All

```

**Related Commands**

Command	Description
<b>show mrib route</b>	Displays MRIB table entries.

# show mrrib route

To display entries in the MRIB table, use the **show mrrib route** command in user EXEC or privileged EXEC mode.

```
show mrrib route [[source | *] [group[/prefix-length]]]
```

## Syntax Description

<i>*</i>	(Optional) Display shared tree entries.
<i>/prefix-length</i>	(Optional) Prefix length of the MRIB route. A decimal value that indicates how many of the high-order contiguous bits of the address comprise the prefix (the network portion of the address). A slash mark must precede the decimal value.
<i>group</i>	(Optional) IP address or name of the group.
<i>source</i>	(Optional) IP address or name of the route source.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC or Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The MFIB table maintains a subset of entries and flags updated from MRIB. The flags determine the forwarding and signaling behavior according to a set of forwarding rules for multicast packets.

In addition to the list of interfaces and flags, each route entry shows various counters. Byte count is the number of total bytes forwarded. Packet count is the number of packets received for this entry. The **show mfib count** command displays global counters independent of the routes.

## Examples

The following is sample output from the **show mrrib route** command:

```
hostname# show mrrib route
IP Multicast Routing Information Base
Entry flags: L - Domain-Local Source, E - External Source to the Domain,
             C - Directly-Connected Check, S - Signal, IA - Inherit Accept, D - Drop
Interface flags: F - Forward, A - Accept, IC - Internal Copy,
                NS - Negate Signal, DP - Don't Preserve, SP - Signal Present,
                II - Internal Interest, ID - Internal Disinterest, LI - Local Interest,
```

## show mrib route

```
LD - Local Disinterest
(*,224.0.0.0/4) RPF nbr: 10.11.1.20 Flags: L C
  Decapstunnel0 Flags: NS

(*,224.0.0.0/24) Flags: D

(*,224.0.1.39) Flags: S

(*,224.0.1.40) Flags: S
  POS0/3/0/0 Flags: II LI

(*,238.1.1.1) RPF nbr: 10.11.1.20 Flags: C
  POS0/3/0/0 Flags: F NS LI
  Decapstunnel0 Flags: A

(*,239.1.1.1) RPF nbr: 10.11.1.20 Flags: C
  POS0/3/0/0 Flags: F NS
  Decapstunnel0 Flags: A
```

### Related Commands

Command	Description
<b>show mfib count</b>	Displays route and packet count data for the MFIB table.
<b>show mrib route summary</b>	Displays a summary of the MRIB table entries.



# show mroute

To display the IPv4 multicast routing table, use the **show mroute** command in privileged EXEC mode.

```
show mroute [group [source] | reserved] [active [rate] | count | pruned | summary]
```

Syntax Description		
<b>active</b> <i>rate</i>	(Optional) Displays only active multicast sources. Active sources are those sending at the specified <i>rate</i> or higher. If the <i>rate</i> is not specified, active sources are those sending at a rate of 4 kbps or higher.	
<b>count</b>	(Optional) Displays statistics about the group and source, including number of packets, packets per second, average packet size, and bits per second.	
<b>group</b>	(Optional) IP address or name of the multicast group as defined in the DNS hosts table.	
<b>pruned</b>	(Optional) Displays pruned routes.	
<b>reserved</b>	(Optional) Displays reserved groups.	
<i>source</i>	(Optional) Source hostname or IP address.	
<b>summary</b>	(Optional) Displays a one-line, abbreviated summary of each entry in the multicast routing table.	

## Defaults

If not specified, the *rate* argument defaults to 4 kbps.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **show mroute** command displays the contents of the multicast routing table. The security appliance populates the multicast routing table by creating (S,G) and (\*,G) entries based on PIM protocol messages, IGMP reports, and traffic. The asterisk (\*) refers to all source addresses, the “S” refers to a single source address, and the “G” is the destination multicast group address. In creating (S, G) entries, the software uses the best path to that destination group found in the unicast routing table (through RPF).

To view the **mroute** commands in the running configuration, use the **show running-config mroute** command.

**Examples**

The following is sample output from the **show mroute** command:

```
hostname(config)# show mroute

Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group,
       C - Connected, L - Local, I - Received Source Specific Host Report,
       P - Pruned, R - RP-bit set, F - Register flag, T - SPT-bit set,
       J - Join SPT
Timers: Uptime/Expires
Interface state: Interface, State

(*, 239.1.1.40), 08:07:24/never, RP 0.0.0.0, flags: DPC
  Incoming interface: Null
  RPF nbr: 0.0.0.0
  Outgoing interface list:
    inside, Null, 08:05:45/never
    tftp, Null, 08:07:24/never

(*, 239.2.2.1), 08:07:44/never, RP 140.0.0.70, flags: SCJ
  Incoming interface: outside
  RPF nbr: 140.0.0.70
  Outgoing interface list:
    inside, Forward, 08:07:44/never
```

The following fields are shown in the **show mroute** output:

- **Flags**—Provides information about the entry.
  - **D—Dense.** Entry is operating in dense mode.
  - **S—Sparse.** Entry is operating in sparse mode.
  - **B—Bidir Group.** Indicates that a multicast group is operating in bidirectional mode.
  - **s—SSM Group.** Indicates that a multicast group is within the SSM range of IP addresses. This flag is reset if the SSM range changes.
  - **C—Connected.** A member of the multicast group is present on the directly connected interface.
  - **L—Local.** The security appliance itself is a member of the multicast group. Groups are joined locally by the **igmp join-group** command (for the configured group).
  - **I—Received Source Specific Host Report.** Indicates that an (S, G) entry was created by an (S, G) report. This (S, G) report could have been created by IGMP. This flag is set only on the DR.
  - **P—Pruned.** Route has been pruned. The software keeps this information so that a downstream member can join the source.
  - **R—RP-bit set.** Indicates that the (S, G) entry is pointing toward the RP.
  - **F—Register flag.** Indicates that the software is registering for a multicast source.
  - **T—SPT-bit set.** Indicates that packets have been received on the shortest path source tree.
  - **J—Join SPT.** For (\*, G) entries, indicates that the rate of traffic flowing down the shared tree is exceeding the SPT-Threshold set for the group. (The default SPT-Threshold setting is 0 kbps.) When the J - Join shortest path tree (SPT) flag is set, the next (S, G) packet received down the shared tree triggers an (S, G) join in the direction of the source, thereby causing the security appliance to join the source tree.

For (S, G) entries, indicates that the entry was created because the SPT-Threshold for the group was exceeded. When the J - Join SPT flag is set for (S, G) entries, the security appliance monitors the traffic rate on the source tree and attempts to switch back to the shared tree for this source if the traffic rate on the source tree falls below the SPT-Threshold of the group for more than 1 minute.



**Note** The security appliance measures the traffic rate on the shared tree and compares the measured rate to the SPT-Threshold of the group once every second. If the traffic rate exceeds the SPT-Threshold, the J - Join SPT flag is set on the (\*, G) entry until the next measurement of the traffic rate. The flag is cleared when the next packet arrives on the shared tree and a new measurement interval is started.

If the default SPT-Threshold value of 0 kbps is used for the group, the J - Join SPT flag is always set on (\*, G) entries and is never cleared. When the default SPT-Threshold value is used, the security appliance immediately switches to the shortest path source tree when traffic from a new source is received.

- **Timers:Uptime/Expires**—Uptime indicates per interface how long (in hours, minutes, and seconds) the entry has been in the IP multicast routing table. Expires indicates per interface how long (in hours, minutes, and seconds) until the entry will be removed from the IP multicast routing table.
- **Interface state**—Indicates the state of the incoming or outgoing interface.
  - **Interface**—The interface name listed in the incoming or outgoing interface list.
  - **State**—Indicates that packets will either be forwarded, pruned, or null on the interface depending on whether there are restrictions due to access lists or a time-to-live (TTL) threshold.
- **(\* , 239.1.1.40) and (\* , 239.2.2.1)**—Entries in the IP multicast routing table. The entry consists of the IP address of the source followed by the IP address of the multicast group. An asterisk (\*) in place of the source indicates all sources.
- **RP**—Address of the RP. For routers and access servers operating in sparse mode, this address is always 224.0.0.0.
- **Incoming interface**—Expected interface for a multicast packet from the source. If the packet is not received on this interface, it is discarded.
- **RPF nbr**—IP address of the upstream router to the source.
- **Outgoing interface list**—Interfaces through which packets will be forwarded.

#### Related Commands

Command	Description
<b>clear configure mroute</b>	Removes the <b>mroute</b> commands from the running configuration.
<b>mroute</b>	Configures a static multicast route.
<b>show mroute</b>	Displays IPv4 multicast routing table.
<b>show running-config mroute</b>	Displays configured multicast routes.

# show nameif

To view the interface name set using the **nameif** command, use the show nameif command in privileged EXEC mode.

```
show nameif [physical_interface[.subinterface] | mapped_name]
```

## Syntax Description

mapped_name	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the <b>allocate-interface</b> command.
physical_interface	(Optional) Identifies the interface ID, such as <b>gigabitethernet0/1</b> . See the <b>interface</b> command for accepted values.
subinterface	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.

## Defaults

If you do not specify an interface, the security appliance shows all interface names.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

In multiple context mode, if you mapped the interface ID in the **allocate-interface** command, you can only specify the mapped name in a context. The output for this command shows only the mapped name in the Interface column.

## Examples

The following is sample output from the **show nameif** command:

```
hostname# show nameif
Interface          Name          Security
GigabitEthernet0/0  outside      0
GigabitEthernet0/1  inside       100
GigabitEthernet0/2  test2        50
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>allocate-interface</b>	Assigns interfaces and subinterfaces to a security context.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>nameif</b>	Sets the interface name.
<b>show interface ip brief</b>	Shows the interface IP address and status.

# show ntp associations

To view NTP association information, use the **show ntp associations** command in user EXEC mode.

**show ntp associations [detail]**

<b>Syntax Description</b>	<b>detail</b> (Optional) Shows additional details about each association.
---------------------------	---

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC	•	•	•	—	•

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Preexisting	This command was preexisting.

<b>Usage Guidelines</b>	See the “Examples” section for a description of the display output.
-------------------------	---

<b>Examples</b>	The following is sample output from the <b>show ntp associations</b> command:
-----------------	---

```
hostname> show ntp associations
  address          ref clock      st  when  poll  reach  delay  offset  disp
~172.31.32.2      172.31.32.1    5   29   1024  377    4.2   -8.59   1.6
+~192.168.13.33   192.168.1.111  3   69   128   377    4.1   3.48   2.3
*~192.168.13.57   192.168.1.111  3   32   128   377    7.9   11.18  3.6
* master (syncd), # master (unsyncd), + selected, - candidate, ~ configured
```

Table 27-6 shows each field description.

**Table 27-6** show ntp associations Fields

Field	Description
(leading characters in display lines)	The first characters in a display line can be one or more of the following characters: <ul style="list-style-type: none"> <li>• * —Synchronized to this peer.</li> <li>• # —Almost synchronized to this peer.</li> <li>• + —Peer selected for possible synchronization.</li> <li>• - —Peer is a candidate for selection.</li> <li>• ~ —Peer is statically configured, but not synchronized.</li> </ul>
address	The address of the NTP peer.
ref clock	The address of the reference clock of the peer.
st	The stratum of the peer.
when	The time since the last NTP packet was received from the peer.
poll	The polling interval (in seconds).
reach	The peer reachability (as a bit string, in octal).
delay	The round-trip delay to the peer (in milliseconds).
offset	The relative time of the peer clock to the local clock (in milliseconds).
disp	The dispersion value.

The following is sample output from the **show ntp associations detail** command:

```
hostname> show ntp associations detail
172.23.56.249 configured, our_master, sane, valid, stratum 4
ref ID 172.23.56.225, time c0212639.2ecfc9e0 (20:19:05.182 UTC Fri Feb 22 2002)
our mode client, peer mode server, our poll intvl 128, peer poll intvl 128
root delay 38.04 msec, root disp 9.55, reach 177, sync dist 156.021
delay 4.47 msec, offset -0.2403 msec, dispersion 125.21
precision 2**19, version 3
org time c02128a9.731f127b (20:29:29.449 UTC Fri Feb 22 2002)
rcv time c02128a9.73c1954b (20:29:29.452 UTC Fri Feb 22 2002)
xmt time c02128a9.6b3f729e (20:29:29.418 UTC Fri Feb 22 2002)
filtdelay =    4.47    4.58    4.97    5.63    4.79    5.52    5.87    0.00
filtoffset =   -0.24   -0.36   -0.37    0.30   -0.17    0.57   -0.74    0.00
filterror =    0.02    0.99    1.71    2.69    3.66    4.64    5.62   16000.0
```

Table 27-7 shows each field description.

**Table 27-7** show ntp associations detail Fields

Field	Description
IP-address configured	The server (peer) IP address.
(status)	<ul style="list-style-type: none"> <li>• our_master—The security appliance is synchronized to this peer.</li> <li>• selected—Peer is selected for possible synchronization.</li> <li>• candidate—Peer is a candidate for selection.</li> </ul>

**Table 27-7** show ntp associations detail Fields (continued)

Field	Description
(sanity)	<ul style="list-style-type: none"> <li>sane—The peer passes basic sanity checks.</li> <li>insane—The peer fails basic sanity checks.</li> </ul>
(validity)	<ul style="list-style-type: none"> <li>valid—The peer time is believed to be valid.</li> <li>invalid—The peer time is believed to be invalid.</li> <li>leap_add—The peer is signalling that a leap second will be added.</li> <li>leap-sub—The peer is signalling that a leap second will be subtracted.</li> </ul>
stratum	The stratum of the peer.
(reference peer)	unsynced—The peer is not synchronized to any other machine. ref ID—The address of the machine that the peer is synchronized to.
time	The last time stamp the peer received from its master.
our mode client	Our mode relative to the peer, which is always client.
peer mode server	The peer's mode relative to us, which is always server.
our poll intvl	Our poll interval to the peer.
peer poll intvl	The peer poll interval to us.
root delay	The delay along the path to the root (ultimate stratum 1 time source).
root disp	The dispersion of the path to the root.
reach	The peer reachability (as a bit string in octal).
sync dist	The peer synchronization distance.
delay	The round-trip delay to the peer.
offset	The offset of the peer clock relative to our clock.
dispersion	The dispersion of the peer clock.
precision	The precision of the peer clock (in hertz).
version	The NTP version number that the peer is using.
org time	The originate time stamp.
rcv time	The receive time stamp.
xmt time	The transmit time stamp.
filtdelay	The round-trip delay (in milliseconds) of each sample.
filtoffset	The clock offset (in milliseconds) of each sample.
filterror	The approximate error of each sample.

**Related Commands**

Command	Description
<b>ntp authenticate</b>	Enables NTP authentication.
<b>ntp authentication-key</b>	Sets an encrypted authentication key to synchronize with an NTP server.
<b>ntp server</b>	Identifies an NTP server.



<b>Command</b>	<b>Description</b>
<b>ntp trusted-key</b>	Provides a key ID for the security appliance to use in packets for authentication with an NTP server.
<b>show ntp status</b>	Shows the status of the NTP association.

# show ntp status

To show the status of each NTP association, use the **show ntp status** command in user EXEC mode.

```
show ntp status
```

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC	•	•	•	—	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** See the “Examples” section for a description of the display output.

**Examples** The following is sample output from the **show ntp status** command:

```
hostname> show ntp status
Clock is synchronized, stratum 5, reference is 172.23.56.249
nominal freq is 99.9984 Hz, actual freq is 100.0266 Hz, precision is 2**6
reference time is c02128a9.73c1954b (20:29:29.452 UTC Fri Feb 22 2002)
clock offset is -0.2403 msec, root delay is 42.51 msec
root dispersion is 135.01 msec, peer dispersion is 125.21 msec
```

Table 27-8 shows each field description.

**Table 27-8** show ntp status Fields

Field	Description
Clock	<ul style="list-style-type: none"> <li>synchronized—The security appliance is synchronized to an NTP server.</li> <li>unsynchronized—The security appliance is not synchronized to an NTP server.</li> </ul>
stratum	NTP stratum of this system.

**Table 27-8** show ntp status Fields

Field	Description
reference	The address of the NTP server to which the security appliance is synchronized.
nominal freq	The nominal frequency of the system hardware clock.
actual freq	The measured frequency of the system hardware clock.
precision	The precision of the clock of this system (in hertz).
reference time	The reference time stamp.
clock offset	The offset of the system clock to the synchronized peer.
root delay	The total delay along the path to the root clock.
root dispersion	The dispersion of the root path.
peer dispersion	The dispersion of the synchronized peer.

**Related Commands**

Command	Description
<b>ntp authenticate</b>	Enables NTP authentication.
<b>ntp authentication-key</b>	Sets an encrypted authentication key to synchronize with an NTP server.
<b>ntp server</b>	Identifies an NTP server.
<b>ntp trusted-key</b>	Provides a key ID for the security appliance to use in packets for authentication with an NTP server.
<b>show ntp associations</b>	Shows the NTP servers with which the security appliance is associated.

# show ospf

To display the general information about the OSPF routing processes, use the **show ospf** command in privileged EXEC mode.

```
show ospf [pid [area_id]]
```

## Syntax Description

<i>area_id</i>	(Optional) ID of the area that is associated with the OSPF address range.
<i>pid</i>	(Optional) The ID of the OSPF process.

## Defaults

Lists all OSPF processes if no *pid* is specified.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

If the *pid* is included, only information for the specified routing process is included.

## Examples

The following is sample output from the **show ospf** command, showing how to display general information about a specific OSPF routing process:

```
hostname# show ospf 5
Routing Process "ospf 5" with ID 127.0.0.1 and Domain ID 0.0.0.5
Supports only single TOS(TOS0) routes
Supports opaque LSA
SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
Number of external LSA 0. Checksum Sum 0x 0
Number of opaque AS LSA 0. Checksum Sum 0x 0
Number of DCbitless external and opaque AS LSA 0
Number of DoNotAge external and opaque AS LSA 0
Number of areas in this router is 0. 0 normal 0 stub 0 nssa
External flood list length 0
```

The following is sample output from the **show ospf** command, showing how to display general information about all OSPF routing processes:

```
hostname# show ospf
Routing Process "ospf 5" with ID 127.0.0.1 and Domain ID 0.0.0.5
```

```

Supports only single TOS(TOS0) routes
Supports opaque LSA
SPF schedule delay 5 secs, Hold time between two SPF's 10 secs
Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
Number of external LSA 0. Checksum Sum 0x      0
Number of opaque AS LSA 0. Checksum Sum 0x      0
Number of DCbitless external and opaque AS LSA 0
Number of DoNotAge external and opaque AS LSA 0
Number of areas in this router is 0. 0 normal 0 stub 0 nssa
External flood list length 0

Routing Process "ospf 12" with ID 172.23.59.232 and Domain ID 0.0.0.12
Supports only single TOS(TOS0) routes
Supports opaque LSA
SPF schedule delay 5 secs, Hold time between two SPF's 10 secs
Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
Number of external LSA 0. Checksum Sum 0x      0
Number of opaque AS LSA 0. Checksum Sum 0x      0
Number of DCbitless external and opaque AS LSA 0
Number of DoNotAge external and opaque AS LSA 0
Number of areas in this router is 0. 0 normal 0 stub 0 nssa
External flood list length 0

```

**Related Commands**

Command	Description
<b>router ospf</b>	Enables OSPF routing and configures global OSPF routing parameters.

# show ospf border-routers

To display the internal OSPF routing table entries to ABRs and ASBRs, use the **show ospf border-routers** command in privileged EXEC mode.

```
show ospf border-routers
```

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

Release	Modification
Preexisting	This command was preexisting.

**Examples** The following is sample output from the **show ospf border-routers** command:

```
hostname# show ospf border-routers

OSPF Process 109 internal Routing Table

Codes: i - Intra-area route, I - Inter-area route

i 192.168.97.53 [10] via 192.168.1.53, fifth, ABR, Area 0, SPF 20
i 192.168.103.51 [10] via 192.168.96.51, outside, ASBR, Area 192.168.12.0, SPF 14
i 192.168.103.52 [10] via 192.168.96.51, outside, ABR/ASBR, Area 192.168.12.0, SPF 14
```

Command	Description
<b>router ospf</b>	Enables OSPF routing and configures global OSPF routing parameters.

# show ospf database

To display the information contained in the OSPF topological database on the security appliance, use the **show ospf database** command in privileged EXEC mode.

```
show ospf [pid [area_id]] database [router | network | summary | asbr-summary | external |
nssa-external] [lsid] [internal] [self-originate | adv-router addr]
```

```
show ospf [pid [area_id]] database database-summary
```

## Syntax Description

<i>addr</i>	(Optional) Router address.
<b>adv-router</b>	(Optional) Advertised router.
<i>area_id</i>	(Optional) ID of the area that is associated with the OSPF address range.
<b>asbr-summary</b>	(Optional) Displays an ASBR list summary.
database	Displays the database information.
<b>database-summary</b>	(Optional) Displays the complete database summary list.
<b>external</b>	(Optional) Displays routes external to a specified autonomous system.
<b>internal</b>	(Optional) Routes that are internal to a specified autonomous system.
<i>lsid</i>	(Optional) LSA ID.
<b>network</b>	(Optional) Displays the OSPF database information about the network.
<b>nssa-external</b>	(Optional) Displays the external not-so-stubby-area list.
<i>pid</i>	(Optional) ID of the OSPF process.
<b>router</b>	(Optional) Displays the router.
<b>self-originate</b>	(Optional) Displays the information for the specified autonomous system.
summary	(Optional) Displays a summary of the list.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

The OSPF routing-related **show** commands are available in privileged mode on the security appliance. You do not need to be in an OSPF configuration mode to use the OSPF-related **show** commands.

**Examples**

The following is sample output from the **show ospf database** command:

```
hostname# show ospf database
OSPF Router with ID(192.168.1.11) (Process ID 1)

          Router Link States(Area 0)
Link ID  ADV Router   Age   Seq#  Checksum Link count
192.168.1.8 192.168.1.8 1381 0x8000010D  0xEF60 2
192.168.1.11 192.168.1.11 1460 0x800002FE  0xEB3D 4
192.168.1.12 192.168.1.12 2027 0x80000090  0x875D 3
192.168.1.27 192.168.1.27 1323 0x800001D6  0x12CC 3

          Net Link States(Area 0)
Link ID ADV Router   Age   Seq#  Checksum
172.16.1.27 192.168.1.27 1323 0x8000005B  0xA8EE
172.17.1.11 192.168.1.11 1461 0x8000005B  0x7AC

          Type-10 Opaque Link Area Link States (Area 0)
Link ID ADV Router   Age Seq#  Checksum Opaque ID
10.0.0.0 192.168.1.11 1461 0x800002C8  0x8483 0
10.0.0.0 192.168.1.12 2027 0x80000080  0xF858 0
10.0.0.0 192.168.1.27 1323 0x800001BC  0x919B 0
10.0.0.1 192.168.1.11 1461 0x8000005E  0x5B43 1
```

The following is sample output from the **show ospf database asbr-summary** command:

```
hostname# show ospf database asbr-summary
OSPF Router with ID(192.168.239.66) (Process ID 300)
Summary ASB Link States(Area 0.0.0.0)
Routing Bit Set on this LSA
LS age: 1463
Options: (No TOS-capability)
LS Type: Summary Links(AS Boundary Router)
Link State ID: 172.16.245.1 (AS Boundary Router address)
Advertising Router: 172.16.241.5
LS Seq Number: 80000072
Checksum: 0x3548
Length: 28
Network Mask: 0.0.0.0
TOS: 0 Metric: 1
```

The following is sample output from the **show ospf database router** command:

```
hostname# show ospf database router
OSPF Router with id(192.168.239.66) (Process ID 300)
Router Link States(Area 0.0.0.0)
Routing Bit Set on this LSA
LS age: 1176
Options: (No TOS-capability)
LS Type: Router Links
Link State ID: 10.187.21.6
Advertising Router: 10.187.21.6
LS Seq Number: 80002CF6
Checksum: 0x73B7
Length: 120
AS Boundary Router
Number of Links: 8
Link connected to: another Router (point-to-point)
(link ID) Neighboring Router ID: 10.187.21.5
```



```
(Link Data) Router Interface address: 10.187.21.6
Number of TOS metrics: 0
TOS 0 Metrics: 2
```

The following is sample output from the **show ospf database network** command:

```
hostname# show ospf database network
OSPF Router with id(192.168.239.66) (Process ID 300)
Displaying Net Link States(Area 0.0.0.0)
LS age: 1367
Options: (No TOS-capability)
LS Type: Network Links
Link State ID: 10.187.1.3 (address of Designated Router)
Advertising Router: 192.168.239.66
LS Seq Number: 800000E7
Checksum: 0x1229
Length: 52
Network Mask: 255.255.255.0
Attached Router: 192.168.239.66
Attached Router: 10.187.241.5
Attached Router: 10.187.1.1
Attached Router: 10.187.54.5
Attached Router: 10.187.1.5
```

The following is sample output from the **show ospf database summary** command:

```
hostname# show ospf database summary
OSPF Router with id(192.168.239.66) (Process ID 300)
Displaying Summary Net Link States(Area 0.0.0.0)
LS age: 1401
Options: (No TOS-capability)
LS Type: Summary Links(Network)
Link State ID: 10.187.240.0 (summary Network Number)
Advertising Router: 10.187.241.5
LS Seq Number: 80000072
Checksum: 0x84FF
Length: 28
Network Mask: 255.255.255.0 TOS: 0 Metric: 1
```

The following is sample output from the **show ospf database external** command:

```
hostname# show ospf database external
OSPF Router with id(192.168.239.66) (Autonomous system 300)

                Displaying AS External Link States
LS age: 280
Options: (No TOS-capability)
LS Type: AS External Link
Link State ID: 172.16.0.0 (External Network Number)
Advertising Router: 10.187.70.6
LS Seq Number: 80000AFD
Checksum: 0xC3A
Length: 36
Network Mask: 255.255.0.0

                Metric Type: 2 (Larger than any link state path)
TOS: 0
Metric: 1
Forward Address: 0.0.0.0
External Route Tag: 0
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>router ospf</b>	Enables OSPF routing and configures global OSPF routing parameters.

# show ospf flood-list

To display a list of OSPF LSAs waiting to be flooded over an interface, use the **show ospf flood-list** command in privileged EXEC mode.

```
show ospf flood-list interface_name
```

## Syntax Description

<i>interface_name</i>	The name of the interface for which to display neighbor information.
-----------------------	--

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The OSPF routing-related **show** commands are available in privileged mode on the security appliance. You do not need to be in an OSPF configuration mode to use the OSPF-related **show** commands.

## Examples

The following is sample output from the **show ospf flood-list** command:

```
hostname# show ospf flood-list outside
```

```
Interface outside, Queue length 20
Link state flooding due in 12 msec
```

Type	LS ID	ADV RTR	Seq NO	Age	Checksum
5	10.2.195.0	192.168.0.163	0x80000009	0	0xFB61
5	10.1.192.0	192.168.0.163	0x80000009	0	0x2938
5	10.2.194.0	192.168.0.163	0x80000009	0	0x757
5	10.1.193.0	192.168.0.163	0x80000009	0	0x1E42
5	10.2.193.0	192.168.0.163	0x80000009	0	0x124D
5	10.1.194.0	192.168.0.163	0x80000009	0	0x134C

## Related Commands

Command	Description
<b>router ospf</b>	Enables OSPF routing and configures global OSPF routing parameters.

# show ospf interface

To display the OSPF-related interface information, use the **show ospf interface** command in privileged EXEC mode.

```
show ospf interface [interface_name]
```

Syntax Description	<i>interface_name</i>	(Optional) Name of the interface for which to display the OSPF-related information.
--------------------	-----------------------	---

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** When used without the *interface\_name* argument, the OSPF information for all interfaces is shown.

**Examples** The following is sample output from the **show ospf interface** command:

```
hostname# show ospf interface inside
inside is up, line protocol is up
Internet Address 192.168.254.202, Mask 255.255.255.0, Area 0.0.0.0
AS 201, Router ID 192.77.99.1, Network Type BROADCAST, Cost: 10
Transmit Delay is 1 sec, State OTHER, Priority 1
Designated Router id 192.168.254.10, Interface address 192.168.254.10
Backup Designated router id 192.168.254.28, Interface addr 192.168.254.28
Timer intervals configured, Hello 10, Dead 60, Wait 40, Retransmit 5
Hello due in 0:00:05
Neighbor Count is 8, Adjacent neighbor count is 2
  Adjacent with neighbor 192.168.254.28 (Backup Designated Router)
  Adjacent with neighbor 192.168.254.10 (Designated Router)
```

Related Commands	Command	Description
	<b>interface</b>	Opens interface configuration mode.

# show ospf neighbor

To display the OSPF-neighbor information on a per-interface basis, use the **show ospf neighbor** command in privileged EXEC mode.

```
show ospf neighbor [detail | interface_name [nbr_router_id]]
```

Syntax Description	detail	(Optional) Lists detail information for the specified router.
	<i>interface_name</i>	(Optional) Name of the interface for which to display neighbor information.
	<i>nbr_router_id</i>	(Optional) Router ID of the neighbor router.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** The following is sample output from the **show ospf neighbor** command. It shows how to display the OSPF-neighbor information on a per-interface basis.

```
hostname# show ospf neighbor outside

Neighbor 192.168.5.2, interface address 10.225.200.28
  In the area 0 via interface outside
  Neighbor priority is 1, State is FULL, 6 state changes
  DR is 10.225.200.28 BDR is 10.225.200.30
  Options is 0x42
  Dead timer due in 00:00:36
  Neighbor is up for 00:09:46
Index 1/1, retransmission queue length 0, number of retransmission 1
  First 0x0(0)/0x0(0) Next 0x0(0)/0x0(0)
  Last retransmission scan length is 1, maximum is 1
  Last retransmission scan time is 0 msec, maximum is 0 msec
```

## Related Commands

Command	Description
<b>neighbor</b>	Configures OSPF routers interconnecting to non-broadcast networks.
<b>router ospf</b>	Enables OSPF routing and configures global OSPF routing parameters.

# show ospf request-list

To display a list of all LSAs that are requested by a router, use the **show ospf request-list** command in privileged EXEC mode.

```
show ospf request-list nbr_router_id interface_name
```

## Syntax Description

<i>interface_name</i>	Name of the interface for which to display neighbor information. Displays the list of all LSAs that are requested by the router from this interface.
<i>nbr_router_id</i>	Router ID of the neighbor router. Displays the list of all LSAs that are requested by the router from this neighbor.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following is sample output from the **show ospf request-list** command:

```
hostname# show ospf request-list 192.168.1.12 inside

      OSPF Router with ID (192.168.1.11) (Process ID 1)

Neighbor 192.168.1.12, interface inside address 172.16.1.12

Type  LS ID          ADV RTR          Seq NO          Age    Checksum
  1    192.168.1.12     192.168.1.12    0x8000020D     8      0x6572
```

## Related Commands

Command	Description
<b>show ospf retransmission-list</b>	Displays a list of all LSAs waiting to be resent.

# show ospf retransmission-list

To display a list of all LSAs waiting to be resent, use the **show ospf retransmission-list** command in privileged EXEC mode.

```
show ospf retransmission-list nbr_router_id interface_name
```

## Syntax Description

<i>interface_name</i>	Name of the interface for which to display neighbor information.
<i>nbr_router_id</i>	Router ID of the neighbor router.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The OSPF routing-related **show** commands are available in privileged mode on the security appliance. You do not need to be in an OSPF configuration mode to use the OSPF-related **show** commands.

The *nbr\_router\_id* argument displays the list of all LSAs that are waiting to be resent for this neighbor.

The *interface\_name* argument displays the list of all LSAs that are waiting to be resent for this interface.

## Examples

The following is sample output from the **show ospf retransmission-list** command, where the *nbr\_router\_id* argument is 192.168.1.11 and the *if\_name* argument is outside:

```
hostname# show ospf retransmission-list 192.168.1.11 outside

      OSPF Router with ID (192.168.1.12) (Process ID 1)

Neighbor 192.168.1.11, interface outside address 172.16.1.11
Link state retransmission due in 3764 msec, Queue length 2

Type  LS ID          ADV RTR          Seq NO          Age  Checksum
  1    192.168.1.12    192.168.1.12    0x80000210     0    0xB196
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show ospf request-list</b>	Displays a list of all LSAs that are requested by a router.

# show ospf summary-address

To display a list of all summary address redistribution information that is configured under an OSPF process, use the **show ospf summary-address** command in privileged EXEC mode.

**show ospf summary-address**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** The following shows sample output from the **show ospf summary-address** command. It shows how to display a list of all summary address redistribution information before a summary address has been configured for an OSPF process with the ID of 5.

```
hostname# show ospf 5 summary-address

OSPF Process 2, Summary-address

10.2.0.0/255.255.0.0 Metric -1, Type 0, Tag 0
10.2.0.0/255.255.0.0 Metric -1, Type 0, Tag 10
```

Related Commands	Command	Description
	summary-address	Creates aggregate addresses for OSPF.

# show ospf virtual-links

To display the parameters and the current state of OSPF virtual links, use the **show ospf virtual-links** command in privileged EXEC mode.

## show ospf virtual-links

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Examples** The following is sample output from the **show ospf virtual-links** command:

```
hostname# show ospf virtual-links

Virtual Link to router 192.168.101.2 is up
Transit area 0.0.0.1, via interface Ethernet0, Cost of using 10
Transmit Delay is 1 sec, State POINT_TO_POINT
Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
Hello due in 0:00:08
Adjacency State FULL
```

**Related Commands**

Command	Description
<b>area virtual-link</b>	Defines an OSPF virtual link.

# show perfmon

To display information about the performance of the security appliance, use the **show perfmon** command.

## show perfmon [detail]

Syntax Description	detail	(Optional) Shows additional statistics. These statistics match those gathered by the Global and Per-protocol connection objects of the Cisco Unified Firewall MIB.
--------------------	--------	--

**Defaults** This command has no default settings.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	Support for this command was introduced on the security appliance.
	7.2(1)	The <b>detail</b> keyword was added.

**Usage Guidelines** This command output does not display in a Telnet session.

The **perfmon** command shows performance statistics continuously at defined intervals. The **show perfmon** command allows you to display the information immediately.

**Examples** The following is sample output for the **show perfmon** command:

```
hostname(config)# show perfmon
Context: my_context
PERFMON STATS:      Current      Average
Xlates              0/s          0/s
Connections         0/s          0/s
TCP Conns           0/s          0/s
UDP Conns           0/s          0/s
URL Access          0/s          0/s
URL Server Req     0/s          0/s
WebSns Req         0/s          0/s
TCP Fixup           0/s          0/s
TCP Intercept       0/s          0/s
HTTP Fixup          0/s          0/s
FTP Fixup           0/s          0/s
```

```

AAA Authen          0/s          0/s
AAA Author          0/s          0/s
AAA Account         0/s          0/s

```

The following is sample output for the **show perfmon detail** command:

```

hostname(config)# show perfmon detail
PERFMON STATS:      Current      Average
Xlates              0/s          0/s
Connections         0/s          0/s
TCP Conns           0/s          0/s
UDP Conns           0/s          0/s
URL Access          0/s          0/s
URL Server Req     0/s          0/s
TCP Fixup           0/s          0/s
HTTP Fixup          0/s          0/s
FTP Fixup           0/s          0/s
AAA Authen          0/s          0/s
AAA Author          0/s          0/s
AAA Account         0/s          0/s
TCP Intercept       0/s          0/s

SETUP RATES:
Connections for 1 minute = 0/s; 5 minutes = 0/s
TCP Conns for 1 minute = 0/s; 5 minutes = 0/s
UDP Conns for 1 minute = 0/s; 5 minutes = 0/s

```

#### Related Commands

Command	Description
<b>perfmon</b>	Displays detailed performance monitoring information at defined intervals.

# show pim df

To display the bidirectional DF “winner” for a rendezvous point (RP) or interface, use the **show pim df** command in user EXEC or privileged EXEC mode.

```
show pim df [winner] [rp_address | if_name]
```

## Syntax Description

<i>rp_address</i>	Can be either one of the following: <ul style="list-style-type: none"> <li>Name of the RP, as defined in the Domain Name System (DNS) hosts table or with the domain <b>ipv4 host</b> command.</li> <li>IP address of the RP. This is a multicast IP address in four-part dotted-decimal notation.</li> </ul>
<i>if_name</i>	The physical or logical interface name.
<b>winner</b>	(Optional) Displays the DF election winner per interface per RP.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC or privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command also displays the winner metric towards the RP.

## Examples

The following is sample output from the **show pim df** command:

```
hostname# show df winner inside
RP          Interface  DF Winner  Metrics
172.16.1.3  Loopback3  172.17.3.2 [110/2]
172.16.1.3  Loopback2  172.17.2.2 [110/2]
172.16.1.3  Loopback1  172.17.1.2 [110/2]
172.16.1.3  inside     10.10.2.3  [0/0]
172.16.1.3  inside     10.10.1.2  [110/2]
```

# show pim group-map

To display group-to-protocol mapping table, use the **show pim group-map** command in user EXEC or privileged EXEC mode.

```
show pim group-map [info-source] [group]
```

## Syntax Description

<i>group</i>	(Optional) Can be either one of the following: <ul style="list-style-type: none"> <li>Name of the multicast group, as defined in the DNS hosts table or with the domain <b>ipv4 host</b> command.</li> <li>IP address of the multicast group. This is a multicast IP address in four-part dotted-decimal notation.</li> </ul>
<b>info-source</b>	(Optional) Displays the group range information source.

## Defaults

Displays group-to-protocol mappings for all groups.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC or privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command displays all group protocol address mappings for the RP. Mappings are learned on the security appliance from different clients.

The PIM implementation on the security appliance has various special entries in the mapping table. Auto-rp group ranges are specifically denied from sparse-mode group range. SSM group range also does not fall under sparse-mode. Link Local multicast groups (224.0.0.0–224.0.0.225, as defined by 224.0.0.0/24) are also denied from the sparse-mode group range. The last entry shows all remaining groups in Sparse-Mode with a given RP.

If multiple RPs are configured with the **pim rp-address** command, then the appropriate group range is displayed with their corresponding RPs.

## Examples

The following is sample output from the **show pim group-map** command:

```
hostname# show pim group-map
Group Range      Proto  Client Groups  RP address  Info
```

## show pim group-map

```

224.0.1.39/32*  DM      static 1      0.0.0.0
224.0.1.40/32*  DM      static 1      0.0.0.0
224.0.0.0/24*   NO      static 0      0.0.0.0
232.0.0.0/8*   SSM     config 0      0.0.0.0
224.0.0.0/4*   SM      autorp 1      10.10.2.2    RPF: POS01/0/3,10.10.3.2

```

In lines 1 and 2, Auto-RP group ranges are specifically denied from the sparse mode group range.

In line 3, link-local multicast groups (224.0.0.0 to 224.0.0.255 as defined by 224.0.0.0/24) are also denied from the sparse mode group range.

In line 4, the PIM Source Specific Multicast (PIM-SSM) group range is mapped to 232.0.0.0/8.

The last entry shows that all the remaining groups are in sparse mode mapped to RP 10.10.3.2.

### Related Commands

Command	Description
<b>multicast-routing</b>	Enables multicast routing on the security appliance.
<b>pim rp-address</b>	Configures the address of a PIM rendezvous point (RP).



# show pim interface

To display interface-specific information for PIM, use the **show pim interface** command in user EXEC or privileged EXEC mode.

**show pim interface** [*if\_name* | **state-off** | **state-on**]

Syntax Description		
<i>if_name</i>	(Optional) The name of an interface. Including this argument limits the displayed information to the specified interface.	
<b>state-off</b>	(Optional) Displays interfaces with PIM disabled.	
<b>state-on</b>	(Optional) Displays interfaces with PIM enabled.	

**Defaults** If you do not specify an interface, PIM information for all interfaces is shown.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC or privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The PIM implementation on the security appliance considers the security appliance itself a PIM neighbor. Therefore, the neighbor count column in the output of this command shows one more than the actual number of neighbors.

**Examples** The following example displays PIM information for the inside interface:

```
hostname# show pim interface inside
Address      Interface      Ver/      Nbr      Query      DR      DR
              Mode          Count    Intvl    Prior
172.16.1.4  inside         v2/S     2        100 ms    1       172.16.1.4
```

Related Commands	Command	Description
	<b>multicast-routing</b>	Enables multicast routing on the security appliance.

# show pim join-prune statistic

To display PIM join/prune aggregation statistics, use the **show pim join-prune statistics** command in user EXEC or privileged EXEC mode.

```
show pim join-prune statistics [if_name]
```

<b>Syntax Description</b>	<i>if_name</i>	(Optional) The name of an interface. Including this argument limits the displayed information to the specified interface.
---------------------------	----------------	---

**Defaults** If an interface is not specified, this command shows the join/prune statistics for all interfaces.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC or privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Clear the PIM join/prune statistics with the **clear pim counters** command.

**Examples** The following is sample output from the **show pim join-prune statistic** command:

```
hostname# show pim join-prune statistic

PIM Average Join/Prune Aggregation for last (1K/10K/50K) packets
Interface          Transmitted          Received
   inside          0 /   0 /   0          0 /   0 /   0
GigabitEthernet1  0 /   0 /   0          0 /   0 /   0
   Ethernet0       0 /   0 /   0          0 /   0 /   0
   Ethernet3       0 /   0 /   0          0 /   0 /   0
GigabitEthernet0  0 /   0 /   0          0 /   0 /   0
   Ethernet2       0 /   0 /   0          0 /   0 /   0
```

Related Commands	Command	Description
	<b>clear pim counters</b>	Clears the PIM traffic counters.

# show pim neighbor

To display entries in the PIM neighbor table, use the **show pim neighbor** command in user EXEC or privileged EXEC mode.

```
show pim neighbor [count | detail] [interface]
```

Syntax Description	interface	(Optional) The name of an interface. Including this argument limits the displayed information to the specified interface.
	<b>count</b>	(Optional) Displays the total number of PIM neighbors and the number of PIM neighbors on each interface.
	<b>detail</b>	(Optional) Displays additional address of the neighbor learned through the upstream-detection hello option.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC or privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** This command is used to determine the PIM neighbors known to this router through PIM hello messages. Also, this command indicates that an interface is a designated router (DR) and when the neighbor is capable of bidirectional operation.

The PIM implementation on the security appliance considers the security appliance itself to be a PIM neighbor. Therefore, the security appliance interface is shown in the output of this command. The IP address of the security appliance is indicated by an asterisk next to the address.

**Examples** The following is sample output from the **show pim neighbor** command:

```
hostname# show pim neighbor inside
Neighbor Address    Interface    Uptime      Expires     DR   pri  Bidir
10.10.1.1           inside      03:40:36    00:01:41   1    1    B
10.10.1.2*         inside      03:41:28    00:01:32   1    (DR) B
```

■ show pim neighbor

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>multicast-routing</b>	Enables multicast routing on the security appliance.

---

# show pim range-list

To display range-list information for PIM, use the **show pim range-list** command in user EXEC or privileged EXEC mode.

```
show pim range-list [rp_address]
```

## Syntax Description

*rp\_address*

Can be either one of the following:

- Name of the RP, as defined in the Domain Name System (DNS) hosts table or with the domain **ipv4 host** command.
- IP address of the RP. This is a multicast IP address in four-part dotted-decimal notation.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC or privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command is used to determine the multicast forwarding mode to group mapping. The output also indicates the rendezvous point (RP) address for the range, if applicable.

## Examples

The following is sample output from the **show pim range-list** command:

```
hostname# show pim range-list
config SSM Exp: never Src: 0.0.0.0
 230.0.0.0/8 Up: 03:47:09
config BD RP: 172.16.1.3 Exp: never Src: 0.0.0.0
 239.0.0.0/8 Up: 03:47:16
config BD RP: 172.18.1.6 Exp: never Src: 0.0.0.0
 239.100.0.0/16 Up: 03:47:10
config SM RP: 172.18.2.6 Exp: never Src: 0.0.0.0
 235.0.0.0/8 Up: 03:47:09
```

■ show pim range-list

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show pim group-map</b>	Displays group-to-PIM mode mapping and active RP information.

---

# show pim topology

To display PIM topology table information, use the **show pim topology** command in user EXEC or privileged EXEC mode.

```
show pim topology [group] [source]
```

## Syntax Description

<i>group</i>	(Optional) Can be one of the following: <ul style="list-style-type: none"> <li>Name of the multicast group, as defined in the DNS hosts table or with the domain <b>ipv4 host</b> command.</li> <li>IP address of the multicast group. This is a multicast IP address in four-part dotted-decimal notation.</li> </ul>
<i>source</i>	(Optional) Can be one of the following: <ul style="list-style-type: none"> <li>Name of the multicast source, as defined in the DNS hosts table or with the domain <b>ipv4 host</b> command.</li> <li>IP address of the multicast source. This is a multicast IP address in four-part dotted-decimal notation.</li> </ul>

## Defaults

Topology information for all groups and sources is shown.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC or privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the PIM topology table to display various entries for a given group, (\*, G), (S, G), and (S, G)RPT, each with its own interface list.

PIM communicates the contents of these entries through the MRIB, which is an intermediary for communication between multicast routing protocols, such as PIM, local membership protocols, such as Internet Group Management Protocol (IGMP), and the multicast forwarding engine of the system.

The MRIB shows on which interface the data packet should be accepted and on which interfaces the data packet should be forwarded, for a given (S, G) entry. Additionally, the Multicast Forwarding Information Base (MFIB) table is used during forwarding to decide on per-packet forwarding actions.



### Note

For forwarding information, use the **show mfib route** command.

**Examples**

The following is sample output from the **show pim topology** command:

```
hostname# show pim topology

IP PIM Multicast Topology Table
Entry state: (*S,G)[RPT/SPT] Protocol Uptime Info
Entry flags: KAT - Keep Alive Timer, AA - Assume Alive, PA - Probe Alive,
             RA - Really Alive, LH - Last Hop, DSS - Don't Signal Sources,
             RR - Register Received, SR
(*,224.0.1.40) DM Up: 15:57:24 RP: 0.0.0.0
JP: Null(never) RPF: ,0.0.0.0 Flags: LH DSS
  outside          15:57:24  off LI LH

(*,224.0.1.24) SM Up: 15:57:20 RP: 0.0.0.0
JP: Join(00:00:32) RPF: ,0.0.0.0 Flags: LH
  outside          15:57:20  fwd LI LH

(*,224.0.1.60) SM Up: 15:57:16 RP: 0.0.0.0
JP: Join(00:00:32) RPF: ,0.0.0.0 Flags: LH
  outside          15:57:16  fwd LI LH
```

**Related Commands**

Command	Description
show mrib route	Displays the MRIB table.



# show pim topology reserved

To display PIM topology table information for reserved groups, use the **show pim topology reserved** command in user EXEC or privileged EXEC mode.

## show pim topology reserved

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC or privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** None.

Related Commands	Command	Description
	show pim topology	Displays the PIM topology table.

# show pim topology route-count

To display PIM topology table entry counts, use the **show pim topology route-count** command in user EXEC or privileged EXEC mode.

**show pim topology route-count [detail]**

<b>Syntax Description</b>	<b>detail</b> (Optional) Displays more detailed count information on a per-group basis.
---------------------------	---

<b>Defaults</b>	No default behaviors or values.
-----------------	---------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC or privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

<b>Usage Guidelines</b>	This command displays the count of entries in the PIM topology table. To display more information about the entries, use the <b>show pim topology</b> command.
-------------------------	--

<b>Examples</b>	The following is sample output from the <b>show pim topology route-count</b> command:
-----------------	---

```
hostname# show pim topology route-count

PIM Topology Table Summary
  No. of group ranges = 5
  No. of (*,G) routes = 0
  No. of (S,G) routes = 0
  No. of (S,G)RPT routes = 0
```

Related Commands	Command	Description
	<b>show pim topology</b>	Displays the PIM topology table.

# show pim traffic

To display PIM traffic counters, use the **show pim traffic** command in user EXEC or privileged EXEC mode.

## show pim traffic

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC or privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Clear the PIM traffic counters with the **clear pim counters** command.

**Examples** The following is sample output from the **show pim traffic** command:

```
hostname# show pim traffic

PIM Traffic Counters
Elapsed time since counters cleared: 3d06h

Valid PIM Packets          Received      Sent
Hello                      0             9485
Join-Prune                  0             0
Register                    0             0
Register Stop               0             0
Assert                      0             0
Bidir DF Election          0             0

Errors:
Malformed Packets          0
Bad Checksums              0
Send Errors                 0
Packet Sent on Loopback Errors 0
Packets Received on PIM-disabled Interface 0
Packets Received with Unknown PIM Version 0
```

■ show pim traffic

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear pim counters</b>	Clears the PIM traffic counters.

---

# show pim tunnel

To display information about the PIM tunnel interfaces, use the **show pim tunnels** command in user EXEC or privileged EXEC mode.

```
show pim tunnels [if_name]
```

## Syntax Description

<i>if_name</i>	(Optional) The name of an interface. Including this argument limits the displayed information to the specified interface.
----------------	---

## Defaults

If an interface is not specified, this command shows the PIM tunnel information for all interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC or privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

PIM register packets are sent through the virtual encapsulation tunnel interface from the source first hop DR router to the RP. On the RP, a virtual decapsulation tunnel is used to represent the receiving interface of the PIM register packets. This command displays tunnel information for both types of interfaces.

Register tunnels are the encapsulated (in PIM register messages) multicast packets from a source that is sent to the RP for distribution through the shared tree. Registering applies only to SM, not SSM and bidirectional PIM.

## Examples

The following is sample output from the **show pim tunnel** command:

```
hostname# show pim tunnel

Interface      RP Address Source Address

Encapstunnel0 10.1.1.1   10.1.1.1
Decapstunnel0 10.1.1.1   -
```

# show power inline

For models with PoE interfaces, such as the ASA 5505 adaptive security appliance, use the **show power inline** command to show power status on the interfaces.

**show power inline**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC	•	•	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** You can use PoE interfaces to connect devices that require power, such as an IP phone or a wireless access point.

**Examples** The following is sample output from the **show power inline** command:

```
hostname> show power inline

Interface      Power   Device
-----
Ethernet0/0    n/a     n/a
Ethernet0/1    n/a     n/a
Ethernet0/2    n/a     n/a
Ethernet0/3    n/a     n/a
Ethernet0/4    n/a     n/a
Ethernet0/5    n/a     n/a
Ethernet0/6    On      Cisco
Ethernet0/7    Off     n/a
```

Table 27-9 shows each field description:

**Table 27-9** show power inline Fields

Field	Description
Interface	Shows all interfaces on the security appliance, including ones that do not have PoE available.
Power	Shows whether the power is On or Off. If a device does not need power, if there is no device on that interface, or if the interface is shut down the value is Off. If the interface does not support PoE, then the value is n/a.
Device	Shows the type of device obtaining power, either Cisco or IEEE. If the device does not draw power, the value is n/a. The display shows Cisco when the device is a Cisco powered device. IEEE indicates that the device is an IEEE 802.3af- compliant powered device.

**Related Commands****Related Commands**

Command	Description
<b>clear configure interface</b>	Clears all configuration for an interface.
<b>clear interface</b>	Clears counters for the <b>show interface</b> command.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.

# show priority-queue statistics

To display the priority-queue statistics for an interface, use the **show priority-queue statistics** command in privileged EXEC mode.

```
show priority-queue statistics [interface-name]
```

## Syntax Description

<i>interface-name</i>	(Optional) Specifies the name of the interface for which you want to show the best-effort and low-latency queue details.
-----------------------	--

## Defaults

If you omit the interface name, this command shows priority-queue statistics for all configured interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

This example shows the use of the **show priority-queue statistics** command for the interface named test, and the command output. In this output, BE indicates the best-effort queue, and LLQ represents the low-latency queue:

```
hostname# show priority-queue statistics test

Priority-Queue Statistics interface test

Queue Type      = BE
Packets Dropped = 0
Packets Transmit = 0
Packets Enqueued = 0
Current Q Length = 0
Max Q Length    = 0

Queue Type      = LLQ
Packets Dropped = 0
Packets Transmit = 0
Packets Enqueued = 0
Current Q Length = 0
Max Q Length    = 0
hostname#
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure priority-queue</b>	Removes the priority-queue configuration from the named interface.
<b>clear priority-queue statistics</b>	Clears the priority-queue statistics counters for an interface or for all configured interfaces
<b>priority-queue</b>	Configures priority queueing on an interface.
<b>show running-config priority-queue</b>	Shows the current priority-queue configuration on the named interface.

# show processes

To display a list of the processes that are running on the security appliance, use the **show processes** command in privileged EXEC mode.

**show processes [cpu-hog | memory | internals]**

## Defaults

By default this command displays the processes running on the security appliance.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	Support for this command was introduced.
7.0(4)	The Runtime value was enhanced to display accuracy within one millisecond.
7.2(1)	The output display was enhanced to display more detailed information about processes that hog the CPU.

## Usage Guidelines

The **show processes** command allows you to display a list of the processes that are running on the security appliance.

The command can also help determine what process is using the CPU, with the optional **cpu-hog** argument. A process is flagged if it is hogging the CPU for more than 100 milliseconds. The **show process cpu-hog** command displays the following columns when invoked:

- MAXHOG - Maximum CPU hog runtime in milliseconds.
- NUMHOG - Number of CPU hog runs.
- LASTHOG - Last CPU hog runtime in milliseconds.
- PC - Instruction pointer of the CPU hogging process
- Traceback - Stack trace of the CPU hogging process

Processes are lightweight threads requiring only a few instructions. In the listing, PC is the program counter, SP is the stack pointer, STATE is the address of a thread queue, Runtime is the number of milliseconds that the thread has been running based on CPU clock cycles, SBASE is the stack base address, Stack is the current number of bytes that are used and the total size of the stack, and Process lists the thread's function.

The runtime value displays accuracy within one millisecond for complete and accurate accounting of process CPU usage based on CPU clock cycles (<10ns resolution) instead of clock ticks (10ms resolution).

The traceback can have up to 14 addresses.

With the scheduler and total summary lines, you can run two consecutive **show process** commands and compare the output to determine:

- Where 100% of the CPU time was spent.
- What % of CPU is used by each thread, by comparing a thread's runtime delta to the total runtime delta.

The optional **memory** argument displays the memory allocated by each process, to help track memory usage by process.

The optional **internals** argument displays the number of invoked calls and giveups. Invoked is the number of times the scheduler has invoked, or ran, the process. Giveups is the number of times the process yielded the CPU back to the scheduler.

## Examples

This example shows how to display a list of processes that are running on the security appliance:

```
hostname(config)# show processes
```

```

      PC      SP      STATE      Runtime      SBASE      Stack Process
Hsi 00102aa0 0a63f288 0089b068    117460 0a63e2d4 3600/4096 arp_timer
Lsi 00102aa0 0a6423b4 0089b068         10 0a64140c 3824/4096 FragDBGC
Hwe 004257c8 0a7cacc4 0082dfd8          0 0a7c9d1c 3972/4096 udp_timer
Lwe 0011751a 0a7cc438 008ea5d0         20 0a7cb474 3560/4096 dbgtrace
<--- More --->
```

```

- - - - -      638515 - - scheduler
- - - - -      2625389 - - total
```

```
hostname(config)# show processes cpu
```

```
Process: ci/console, NUMHOG: 1, MAXHOG: 210, LASTHOG: 210 LASTHOG At: 01:08:24 UTC Jul 24 2005
```

```
PC:          153412
Traceback:   1532de 15352a 14b66d 14ba61 148c30 14930e 1125d1
```

```
Process: fover_parse, NUMHOG: 2, MAXHOG: 200, LASTHOG: 200
```

```
LASTHOG At: 02:08:24 UTC Jul 24 2005
PC:          6ff434
Traceback:   6ff838 6fe3a7 6fe424 6fe5ab 7060b7 3bfa44 1125d1
```

```
hostname(config)# show processes memory
```

```

-----
Allocs   Allocated      Frees      Freed      Process
         (bytes)
         (bytes)
-----
23512   13471545          6         180      *System Main*
0         0                0          0         lu_rx
2        8324            16        19488      vpnlb_thread
(other lines deleted for brevity)
```

```
hostname# sho proc internals
```

```

      Invoked      Giveups      Process
          1                0      block_diag
19108445      19108445      Dispatch Unit
```

## show processes

```
      1          0 CF OIR
      1          0 Reload Control Thread
      1          0 aaa
      2          0 CMGR Server Process
      1          0 CMGR Timer Process
      2          0 dbgtrace
     69          0 557mcfix
19108019 19108018 557poll
      2          0 557statspoll
      1          0 Chunk Manager
    135          0 PIX Garbage Collector
      6          0 route_process
      1          0 IP Address Assign
      1          0 QoS Support Module
      1          0 Client Update Task
    8973      8968 Checkheaps
      6          0 Session Manager
    237      235 uauth
(other lines deleted for brevity)
```

# show reload

To display the reload status on the security appliance, use the **show reload** command in privileged EXEC mode.

## show reload

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** This command has no usage guidelines.

**Examples** The following example shows that a reload is scheduled for 12:00 a.m. (midnight) on Saturday, April 20:

```
hostname# show reload
Reload scheduled for 00:00:00 PDT Sat April 20 (in 12 hours and 12 minutes)
```

Related Commands	Command	Description
	reload	Reboots and reloads the configuration.

# show resource allocation

To show the resource allocation for each resource across all classes and class members, use the **show resource allocation** command in privileged EXEC mode.

**show resource allocation [detail]**

<b>Syntax Description</b>	<b>detail</b>	Shows additional information.
---------------------------	---------------	-------------------------------

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	—	•

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** This command shows the resource allocation, but does not show the actual resources being used. See the **show resource usage** command for more information about actual resource usage.

**Examples** The following is sample output from the **show resource allocation** command. The display shows the total allocation of each resource as an absolute value and as a percentage of the available system resources.

```
hostname# show resource allocation
Resource           Total           % of Avail
Conns [rate]       35000           N/A
Inspects [rate]    35000           N/A
Syslogs [rate]     10500           N/A
Conns               305000          30.50%
Hosts               78842           N/A
SSH                 35              35.00%
Telnet              35              35.00%
Xlates              91749           N/A
All                 unlimited
```

Table 27-10 shows each field description.

**Table 27-10** *show resource allocation Fields*

<b>Field</b>	<b>Description</b>
Resource	The name of the resource that you can limit.
Total	The total amount of the resource that is allocated across all contexts. The amount is an absolute number of concurrent instances or instances per second. If you specified a percentage in the class definition, the security appliance converts the percentage to an absolute number for this display.
% of Avail	The percentage of the total system resources that is allocated across all contexts, if available. If a resource does not have a system limit, this column shows N/A.

The following is sample output from the **show resource allocation detail** command:

```

hostname# show resource allocation detail
Resource Origin:
  A Value was derived from the resource 'all'
  C Value set in the definition of this class
  D Value set in default class
Resource      Class      Mmbrs  Origin  Limit      Total      Total %
Conns [rate]  default   all    CA      unlimited
              gold      1      C       34000     34000     N/A
              silver   1      CA      17000     17000     N/A
              bronze  0      CA      8500      51000     N/A
              All Contexts: 3
Inspects [rate] default   all    CA      unlimited
              gold      1      DA      unlimited
              silver   1      CA      10000    10000     N/A
              bronze  0      CA      5000     10000     N/A
              All Contexts: 3
Syslogs [rate] default   all    CA      unlimited
              gold      1      C       6000     6000      N/A
              silver   1      CA      3000     3000      N/A
              bronze  0      CA      1500     9000      N/A
              All Contexts: 3
Conns         default   all    CA      unlimited
              gold      1      C       200000   200000    20.00%
              silver   1      CA      100000   100000    10.00%
              bronze  0      CA      50000    300000    30.00%
              All Contexts: 3
Hosts        default   all    CA      unlimited
              gold      1      DA      unlimited
              silver   1      CA      26214    26214     N/A
              bronze  0      CA      13107    26214     N/A
              All Contexts: 3
SSH          default   all    C       5
              gold      1      D       5         5         5.00%
              silver   1      CA      10        10        10.00%
              bronze  0      CA      5         20        20.00%
              All Contexts: 3
Telnet       default   all    C       5
              gold      1      D       5         5         5.00%
              silver   1      CA      10        10        10.00%
              bronze  0      CA      5         20        20.00%
              All Contexts: 3
Xlates       default   all    CA      unlimited
              gold      1      DA      unlimited
              silver   1      CA      23040    23040     N/A
              bronze  0      CA      11520    23040     N/A
              All Contexts: 3
mac-addresses default   all    C       65535
              gold      1      D       65535    65535     100.00%
              silver   1      CA      6553     6553      9.99%
              bronze  0      CA      3276     137623    209.99%
              All Contexts: 3

```



Table 27-11 shows each field description.

**Table 27-11** *show resource allocation detail Fields*

Field	Description
Resource	The name of the resource that you can limit.
Class	The name of each class, including the default class. The All contexts field shows the total values across all classes.
Mmbrs	The number of contexts assigned to each class.
Origin	The origin of the resource limit, as follows: <ul style="list-style-type: none"> <li>• A—You set this limit with the <b>all</b> option, instead of as an individual resource.</li> <li>• C—This limit is derived from the member class.</li> <li>• D—This limit was not defined in the member class, but was derived from the default class. For a context assigned to the default class, the value will be “C” instead of “D.”</li> </ul> The security appliance can combine “A” with “C” or “D.”
Limit	The limit of the resource per context, as an absolute number. If you specified a percentage in the class definition, the security appliance converts the percentage to an absolute number for this display.
Total	The total amount of the resource that is allocated across all contexts in the class. The amount is an absolute number of concurrent instances or instances per second. If the resource is unlimited, this display is blank.
% of Avail	The percentage of the total system resources that is allocated across all contexts in the class, if available. If the resource is unlimited, this display is blank. If the resource does not have a system limit, this column shows N/A.

#### Related Commands

Command	Description
<b>class</b>	Creates a resource class.
<b>context</b>	Adds a security context.
<b>limit-resource</b>	Sets the resource limit for a class.
<b>show resource types</b>	Shows the resource types for which you can set limits.
<b>show resource usage</b>	Shows the resource usage of the security appliance.

# show resource types

To view the resource types for which the security appliance tracks usage, use the **show resource types** command in privileged EXEC mode.

## show resource types

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	7.0(1)(1)	This command was introduced.
	7.2(1)	This command shows additional resource types that you can manage for each context.

**Examples** The following sample display shows the resource types:

```
hostname# show resource types

Rate limited resource types:
  Conns           Connections/sec
  Inspects        Inspects/sec
  Syslogs         Syslogs/sec

Absolute limit types:
  Conns           Connections
  Hosts           Hosts
  Mac-addresses   MAC Address table entries
  ASDM           ASDM Connections
  SSH            SSH Sessions
  Telnet         Telnet Sessions
  Xlates         XLATE Objects
  All            All Resources
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>clear resource usage</b>	Clears the resource usage statistics
<b>context</b>	Adds a security context.
<b>show resource usage</b>	Shows the resource usage of the security appliance.

## show resource usage

To view the resource usage of the security appliance or for each context in multiple mode, use the **show resource usage** command in privileged EXEC mode.

```
show resource usage [context context_name | top n | all | summary | system | detail]
                    [resource {[rate] resource_name | all}] [counter counter_name [count_threshold]]
```

### Syntax Description

<b>context</b> <i>context_name</i>	(Multiple mode only) Specifies the context name for which you want to view statistics. Specify <b>all</b> for all contexts; the security appliance lists the context usage for each context.
<i>count_threshold</i>	Sets the number above which resources are shown. The default is 1. If the usage of the resource is below the number you set, then the resource is not shown. If you specify <b>all</b> for the counter name, then the <i>count_threshold</i> applies to the current usage. <b>Note</b> To show all resources, set the <i>count_threshold</i> to <b>0</b> .
<b>counter</b> <i>counter_name</i>	Shows counts for the following counter types: <ul style="list-style-type: none"> <li>• <b>current</b>—Shows the active concurrent instances or the current rate of the resource.</li> <li>• <b>peak</b>—Shows the peak concurrent instances, or the peak rate of the resource since the statistics were last cleared, either using the <b>clear resource usage</b> command or because the device rebooted.</li> <li>• <b>denied</b>—Shows the number of instances that were denied because they exceeded the resource limit shown in the Limit column.</li> <li>• <b>all</b>—(Default) Shows all statistics.</li> </ul>
<b>detail</b>	Shows the resource usage of all resources, including those you cannot manage. For example, you can view the number of TCP intercepts.

<b>resource</b> [ <b>rate</b> ] <i>resource_name</i>	Shows the usage of a specific resource. Specify <b>all</b> (the default) for all resources. Specify <b>rate</b> to show the rate of usage of a resource. Resources that are measured by rate include <b>conns</b> , <b>inspects</b> , and <b>syslogs</b> . You must specify the <b>rate</b> keyword with these resource types. The <b>conns</b> resource is also measured as concurrent connections; only use the <b>rate</b> keyword to view the connections per second.  Resources include the following types: <ul style="list-style-type: none"> <li>• <b>asdm</b>—ASDM management sessions.</li> <li>• <b>conns</b>—TCP or UDP connections between any two hosts, including connections between one host and multiple other hosts.</li> <li>• <b>inspects</b>—Application inspections.</li> <li>• <b>hosts</b>—Hosts that can connect through the security appliance.</li> <li>• <b>mac-addresses</b>—For transparent firewall mode, the number of MAC addresses allowed in the MAC address table.</li> <li>• <b>ssh</b>—SSH sessions.</li> <li>• <b>syslogs</b>—System log messages.</li> <li>• <b>telnet</b>—Telnet sessions.</li> <li>• <b>xlates</b>—NAT translations.</li> </ul>
<b>summary</b>	(Multiple mode only) Shows all context usage combined.
<b>system</b>	(Multiple mode only) Shows all context usage combined, but shows the system limits for resources instead of the combined context limits.
<b>top n</b>	(Multiple mode only) Shows the contexts that are the top <i>n</i> users of the specified resource. You must specify a single resource type, and not <b>resource all</b> , with this option.

### Defaults

For multiple context mode, the default context is **all**, which shows resource usage for every context. For single mode, the context name is ignored and the output shows the “context” as “System.”

The default resource name is **all**, which shows all resource types.

The default counter name is **all**, which shows all statistics.

The default count threshold is **1**.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

**Command History**

Release	Modification
7.0(1)	This command was introduced.
7.2(1)	This command now shows the denied resources, because you can now limit the resources for each context.

**Examples**

The following is sample output from the **show resource usage context** command, which shows the resource usage for the admin context:

```
hostname# show resource usage context admin
```

Resource	Current	Peak	Limit	Denied	Context
Telnet	1	1	5	0	admin
Conns	44	55	N/A	0	admin
Hosts	45	56	N/A	0	admin

The following is sample output from the **show resource usage summary** command, which shows the resource usage for all contexts and all resources. This sample shows the limits for 6 contexts.

```
hostname# show resource usage summary
```

Resource	Current	Peak	Limit	Denied	Context
Syslogs [rate]	1743	2132	12000 (U)	0	Summary
Conns	584	763	100000 (S)	0	Summary
Xlates	8526	8966	93400	0	Summary
Hosts	254	254	262144	0	Summary
Conns [rate]	270	535	42200	1704	Summary
Inspects [rate]	270	535	100000 (S)	0	Summary

U = Some contexts are unlimited and are not included in the total.

S = System: Combined context limits exceed the system limit; the system limit is shown.

The following is sample output from the **show resource usage system** command, which shows the resource usage for all contexts, but it shows the system limit instead of the combined context limits:

```
hostname# show resource usage system
```

Resource	Current	Peak	Limit	Denied	Context
Telnet	3	5	100	0	System
SSH	5	7	100	0	System
Conns	40	55	N/A	0	System
Hosts	44	56	N/A	0	System

The following is sample output from the **show resource usage detail counter all 0** command, which shows all resources, and not just those you can manage:

```
hostname# show resource usage detail counter all 0
```

Resource	Current	Peak	Limit	Denied	Context
memory	1012028	1538428	unlimited	0	admin
chunk:aaa	0	0	unlimited	0	admin
chunk:aaa_queue	0	0	unlimited	0	admin
chunk:acct	0	0	unlimited	0	admin
chunk:channels	25	39	unlimited	0	admin
chunk:CIFS	0	0	unlimited	0	admin
chunk:conn	0	0	unlimited	0	admin
chunk:crypto-conn	0	0	unlimited	0	admin
chunk:dbgtrace	1	2	unlimited	0	admin
chunk:dhcpd-radix	0	0	unlimited	0	admin
chunk:dhcp-relay-r	0	0	unlimited	0	admin
chunk:dhcp-lease-s	0	0	unlimited	0	admin
chunk:dnat	0	0	unlimited	0	admin

```

chunk:ether          0          0 unlimited          0 admin
chunk:est           0          0 unlimited          0 admin
...
Telnet              0          0          5          0 admin
SSH                 1          1          5          0 admin
ASDM                0          1          5          0 admin
Syslogs [rate]     0          68 unlimited          0 admin
aaa rate            0          0 unlimited          0 admin
url filter rate    0          0 unlimited          0 admin
Conns               1          6 unlimited          0 admin
Xlates              0          0 unlimited          0 admin
tcp conns           0          0 unlimited          0 admin
Hosts               2          3 unlimited          0 admin
udp conns           0          0 unlimited          0 admin
smtp-fixups         0          0 unlimited          0 admin
Conns [rate]       0          7 unlimited          0 admin
establisheds        0          0 unlimited          0 admin
pps                 0          0 unlimited          0 admin
syslog rate        0          0 unlimited          0 admin
bps                 0          0 unlimited          0 admin
Fixups [rate]      0          0 unlimited          0 admin
non tcp/udp conns  0          0 unlimited          0 admin
tcp-intercepts     0          0 unlimited          0 admin
globals            0          0 unlimited          0 admin
np-statics         0          0 unlimited          0 admin
statics             0          0 unlimited          0 admin
nats                0          0 unlimited          0 admin
ace-rules           0          0          N/A          0 admin
aaa-user-aces      0          0          N/A          0 admin
filter-rules       0          0          N/A          0 admin
est-rules          0          0          N/A          0 admin
aaa-rules           0          0          N/A          0 admin
console-access-rul 0          0          N/A          0 admin
policy-nat-rules   0          0          N/A          0 admin
fixup-rules        0          0          N/A          0 admin
aaa-uxlates        0          0 unlimited          0 admin
CP-Traffic:IP      0          0 unlimited          0 admin
CP-Traffic:ARP     0          0 unlimited          0 admin
CP-Traffic:Fixup   0          0 unlimited          0 admin
CP-Traffic:NPSP    0          0 unlimited          0 admin
CP-Traffic:Unknown 0          0 unlimited          0 admin

```

**Related Commands**

Command	Description
<b>class</b>	Creates a resource class.
<b>clear resource usage</b>	Clears the resource usage statistics
<b>context</b>	Adds a security context.
<b>limit-resource</b>	Sets the resource limit for a class.
<b>show resource types</b>	Shows a list of resource types.

# show rip database

To display the information contained in the RIP topological database, use the **show rip database** command in privileged EXEC mode.

```
show rip database [ip_addr [mask]]
```

## Syntax Description

<i>ip_addr</i>	(Optional) Limits the display routes for the specified network address.
<i>mask</i>	(Optional) Specifies the network mask for the optional network address.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The RIP routing-related **show** commands are available in privileged mode on the security appliance. You do not need to be in an RIP configuration mode to use the RIP-related **show** commands.

The RIP database contains all of the routes learned through RIP. Routes that appear in this database may not necessarily appear in the routing table. Refer to the *Cisco Security Appliance Command Line Configuration Guide* for information about how the routing table is populated from the routing protocol databases.

## Examples

The following is sample output from the **show rip database** command:

```
hostname# show rip database
10.0.0.0/8      auto-summary
10.11.11.0/24  directly connected, GigabitEthernet0/2
10.1.0.0/8     auto-summary
10.11.0.0/16   int-summary
10.11.10.0/24  directly connected, GigabitEthernet0/3
192.168.1.1/24
                [2] via 10.11.10.5, 00:00:14, GigabitEthernet0/3
```

The following is sample output from the **show rip database** command with a network address and mask:

```
Router# show rip database 172.19.86.0 255.255.255.0
```



```
172.19.86.0/24
  [1] via 172.19.67.38, 00:00:25, GigabitEthernet0/2
  [2] via 172.19.70.36, 00:00:14, GigabitEthernet0/3
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>router rip</b>	Enables RIP routing and configures global RIP routing parameters.

---

# show route

To display the routing table, use the **show route** command in privileged EXEC mode.

```
show route [interface_name [ip_address [netmask [static]]]]
```

Syntax Description	static	(Optional) Limits the display to static routes.
	<i>interface_name</i>	(Optional) Limits the display to route entries that use the specified interface.
	<i>ip_address</i>	(Optional) Limits the display to routes to the specified destination.
	<i>netmask</i>	(Optional) Network mask to apply to <i>ip_address</i> .

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** The following is sample output from the **show route** command:

```
hostname# show route

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is 10.86.194.1 to network 0.0.0.0

C    10.86.194.0 255.255.255.0 is directly connected, outside
C    10.40.10.0 255.255.255.0 is directly connected, inside
C    192.168.2.0 255.255.255.0 is directly connected, faillink
C    192.168.3.0 255.255.255.0 is directly connected, statelink
```

The following is sample output of the show route command on the ASA5505 adaptive security appliance. It displays the internal loopback address, which is used by the VPN Hardware Client for individual user authentication.

```
hostname(config)# show route
```

```
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route
```

```
Gateway of last resort is 10.86.194.1 to network 0.0.0.0
```

```
C    127.1.0.0 255.255.0.0 is directly connected, _internal_loopback
C    10.86.194.0 255.255.254.0 is directly connected, outside
S*   0.0.0.0 0.0.0.0 [1/0] via 10.86.194.1, outside
```

### Related Commands

Command	Description
<b>clear configure route</b>	Removes the <b>route</b> commands from the configuration that do not contain the <b>connect</b> keyword.
<b>route</b>	Creates a static or default route.
<b>show running-config route</b>	Displays the route commands in the running configuration.





## **show running-config through show running-config isakmp Commands**

---

# show running-config

To display the configuration that is running on the security appliance, use the **show running-config** command in privileged EXEC mode.

**show running-config** [**all**] [*command*]

## Syntax Description

<b>all</b>	Displays the entire operating configuration, including defaults.
<i>command</i>	Displays the configuration associated with a specific command.

## Defaults

If no arguments or keywords are specified, the entire non-default security appliance configuration displays.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was modified.

## Usage Guidelines

The **show running-config** command displays the current running configuration on the security appliance.

You can use the **running-config** keyword only in the **show running-config** command. You cannot use this keyword with **no** or **clear**, or as a standalone command, because the CLI treats it as a nonsupported command. When you enter the **?**, **no ?**, or **clear ?** keywords, a **running-config** keyword is not listed in the command list.



### Note

The device manager commands appear in the configuration after you use it to connect to or configure the security appliance.

## Examples

This example show how to display the configuration that is running on the security appliance:

```
hostname# show running-config
: Saved
:
XXX Version X.X(X)
names
!
```

```
interface Ethernet0
  nameif test
  security-level 10
  ip address 10.10.88.50 255.255.255.254
!
interface Ethernet1
  nameif inside
  security-level 100
  ip address 10.86.194.176 255.255.254.0
!
interface Ethernet2
  shutdown
  no nameif
  security-level 0
  no ip address
!
interface Ethernet3
  shutdown
  no nameif
  security-level 0
  no ip address
!
interface Ethernet4
  shutdown
  no nameif
  security-level 0
  no ip address
!
interface Ethernet5
  shutdown
  no nameif
  security-level 0
  no ip address
!
enable password 8Ry2YjIyt7RRXU24 encrypted
passwd 2KFQnbNIdI.2KYOU encrypted
hostname XXX
domain-name XXX.com
boot system flash:/cdisk.bin
ftp mode passive
pager lines 24
mtu test 1500
mtu inside 1500
monitor-interface test
monitor-interface inside
ASDM image flash:ASDM
no ASDM history enable
arp timeout 14400
route inside 0.0.0.0 0.0.0.0 10.86.194.1 1
timeout xlate 3:00:00
timeout conn 2:00:00 half-closed 1:00:00 udp 0:02:00 icmp 1:00:00 rpc 1:00:00 h3
23 0:05:00 h225 1:00:00 mgcp 0:05:00 mgcp-pat 0:05:00 sip 0:30:00 sip_media 0:02
:00
timeout uauth 0:00:00 absolute
http server enable
http 0.0.0.0 0.0.0.0 inside
no snmp-server location
no snmp-server contact
snmp-server enable traps snmp
fragment size 200 test
fragment chain 24 test
fragment timeout 5 test
fragment size 200 inside
fragment chain 24 inside
```

```

fragment timeout 5 inside
telnet 0.0.0.0 0.0.0.0 inside
telnet timeout 1440
ssh timeout 5
console timeout 0
group-policy todd internal
!
class-map inspection_default
  match default-inspection-traffic
!
!
policy-map xxx_global_fw_policy
class inspection_default
  inspect dns
  inspect ftp
  inspect h323 h225
  inspect h323 ras
  inspect http
  inspect ils
  inspect mgcp
  inspect netbios
  inspect rpc
  inspect rsh
  inspect rtsp
  inspect sip
  inspect skinny
  inspect sqlnet
  inspect tftp
  inspect xdmcp
  inspect ctiqbe
  inspect cuseeme
  inspect icmp
!
terminal width 80
service-policy xxx_global_fw_policy global
Cryptochecksum:bfe4b9d1b98b7e8d97434851f57e14
: end

```

**Related Commands**

Command	Description
<b>configure</b>	Configures the security appliance from the terminal.



# show running-config aaa

To show the AAA configuration in the running configuration, use the **show running-config aaa** command in privileged EXEC mode.

```
show running-config aaa [ accounting | authentication | authorization | mac-exempt |
proxy-limit ]
```

## Syntax Description

<b>accounting</b>	(Optional) Show accounting-related AAA configuration.
<b>authentication</b>	(Optional) Show authentication-related AAA configuration.
<b>authorization</b>	(Optional) Show authorization-related AAA configuration.
<b>mac-exempt</b>	(Optional) Show MAC address exemption AAA configuration.
<b>proxy-limit</b>	(Optional) Show the number of concurrent proxy connections allowed per user.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following is sample output from the **show running-config aaa** command:

```
hostname# show running-config aaa
aaa authentication match infrastructure_authentication_radiusvrs infrastructure radiusvrs
aaa accounting match infrastructure_authentication_radiusvrs infrastructure radiusvrs
aaa authentication secure-http-client
aaa local authentication attempts max-fail 16
hostname#
```

## Related Commands

Command	Description
<b>aaa authentication match</b>	Enables authentication for traffic that is identified by an access list.
<b>aaa authorization match</b>	Enables authorization for traffic that is identified by an access list.

Command	Description
<b>aaa accounting match</b>	Enables accounting for traffic that is identified by an access list.
<b>aaa max-exempt</b>	Specifies the use of a predefined list of MAC addresses to exempt from authentication and authorization.
<b>aaa proxy-limit</b>	Configure the uauth session limit by setting the maximum number of concurrent proxy connections allowed per user.

# show running-config aaa-server

To display AAA server configuration, use the **show running-config aaa-server** command in privileged EXEC mode.

```
show running-config [all] aaa-server [server-tag] [(interface-name)] [host hostname]
```

Syntax Description	all	(Optional) Shows the running configuration, including default configuration values.
	host <i>hostname</i>	(Optional) The symbolic name or IP address of the particular host for which you want to display AAA server statistics.
	( <b>interface-name</b> )	(Optional) The network interface where the AAA server resides.
	<i>server-tag</i>	(Optional) The symbolic name of the server group.

## Defaults

Omitting the *server-tag* value displays the configurations for all AAA servers.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was modified to adhere to CLI guidelines

## Usage Guidelines

Use this command to display the settings for a particular server group. Use the **all** parameter to display the default as well as the explicitly configured values.

## Examples

To display the running configuration for the default AAA server group, use the following command:

```
hostname(config)# show running-config default aaa-server

aaa-server group1 protocol tacacs+ accounting-mode simultaneous
reactivation-mode depletion deadtime 10
max-failed-attempts 4
hostname(config)#
```

## Related Commands

Command	Description
show aaa-server	Displays AAA server statistics.
clear configure aaa-server	Clears the AAA server configuration.

# show running-config aaa-server host

To display AAA server statistics for a particular server, use the **show running-config aaa-server** command in global configuration or privileged EXEC mode.

**show/clear aaa-server**

**show running-config [all] aaa-server server-tag [(interface-name)] host hostname**

## Syntax Description

<b>all</b>	(Optional) Shows the running configuration, including default configuration values.
<i>server-tag</i>	The symbolic name of the server group.

## Defaults

Omitting the default keyword displays only the explicitly configured configuration values, not the default values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	—	—	•
Global configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was modified to adhere to CLI guidelines.

## Usage Guidelines

Use this command to display the statistics for a particular server group. Use the default parameter to display the default as well as the explicitly configured values.

## Examples

To display the running configuration for the server group svrgrp1, use the following command:

```
hostname(config)# show running-config default aaa-server svrgrp1
hostname(config)#
```

## Related Commands

Command	Description
<b>show running-config aaa-server</b>	Displays AAA server settings for the indicated server, group, or protocol.
<b>clear configure aaa</b>	Removes the settings for all AAA servers across all groups.

# show running-config access-group

To display the access group information, use the **show running-config access-group** command in privileged EXEC mode.

**show running-config access-group**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** The following is sample output from the **show running-config access-group** command:

```
hostname# show running-config access-group
access-group 100 in interface outside
```

Related Commands	Command	Description
	<b>access-group</b>	Binds an access list to an interface.
	<b>clear configure access-group</b>	Removes access groups from all the interfaces.

# show running-config access-list

To display the access-list configuration that is running on the security appliance, use the **show running-config access-list** command in privileged EXEC mode.

```
show running-config [default] access-list [alert-interval | deny-flow-max]
```

```
show running-config [default] access-list id [saddr_ip]
```

## Syntax Description

<b>alert-interval</b>	Shows the alert interval for generating syslog message 106001, which alerts that the system has reached a deny flow maximum.
<b>deny-flow-max</b>	Shows the maximum number of concurrent deny flows that can be created.
<i>id</i>	Identifies the access list that is displayed.
<i>saddr_ip</i>	Shows the access list elements that contain the specified source IP address.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	Added keyword <b>running-config</b> .

## Usage Guidelines

The **show running-config access-list** command allows you to display the current running access list configuration on the security appliance.

## Examples

The following is sample output from the **show running-config access-list** command:

```
hostname# show running-config access-list
access-list allow-all extended permit ip any any
```

## Related Commands

Command	Description
access-list ethertype	Configures an access list that controls traffic based on its EtherType.
access-list extended	Adds an access list to the configuration and configures policy for IP traffic through the firewall.

<b>Command</b>	<b>Description</b>
access-list ethertype	Configures an access list that controls traffic based on its EtherType.
clear access-list	Clears an access list counter.
clear configure access-list	Clears an access list from the running configuration.



# show running-config alias

To display the overlapping addresses with dual NAT commands in the configuration, use the **show running-config alias** command in privileged EXEC mode.

```
show running-config alias {interface_name}
```

## Syntax Description

*interface\_name* Internal network interface name that the destination\_ip overwrites.

## Defaults

This command has no default settings.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	—	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

This example shows how to display alias information:

```
hostname# show running-config alias
```

## Related Commands

Command	Description
<b>alias</b>	Creates an alias.
<b>clear configure alias</b>	Deletes an alias.

# show running-config arp

To show static ARP entries created by the **arp** command in the running configuration, use the **show running-config arp** command in privileged EXEC mode.

**show running-config arp**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config arp** command:

```
hostname# show running-config arp
arp inside 10.86.195.11 0008.023b.9893
```

Related Commands	Command	Description
	<b>arp</b>	Adds a static ARP entry.
	<b>arp-inspection</b>	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
	<b>show arp</b>	Shows the ARP table.
	<b>show arp statistics</b>	Shows ARP statistics.

# show running-config arp timeout

To view the ARP timeout configuration in the running configuration, use the **show running-config arp timeout** command in privileged EXEC mode.

## show running-config arp timeout

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was changed from <b>show arp timeout</b> .

**Examples** The following is sample output from the **show running-config arp timeout** command:

```
hostname# show running-config arp timeout
arp timeout 20000 seconds
```

**Related Commands**

Command	Description
<b>arp</b>	Adds a static ARP entry.
<b>arp timeout</b>	Sets the time before the security appliance rebuilds the ARP table.
<b>arp-inspection</b>	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
<b>show arp statistics</b>	Shows ARP statistics.

# show running-config arp-inspection

To view the ARP inspection configuration in the running configuration, use the **show running-config arp-inspection** command in privileged EXEC mode.

**show running-config arp-inspection**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	—	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was changed from <b>show arp timeout</b> .

**Examples** The following is sample output from the **show running-config arp-inspection** command:

```
hostname# show running-config arp-inspection
arp-inspection inside1 enable no-flood
```

Related Commands	Command	Description
	<b>arp</b>	Adds a static ARP entry.
	<b>arp-inspection</b>	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
	<b>clear configure arp-inspection</b>	Clears the ARP inspection configuration.
	<b>firewall transparent</b>	Sets the firewall mode to transparent.
	<b>show arp statistics</b>	Shows ARP statistics.

# show running-config asdm

To display the **asdm** commands in the running configuration, use the **show running-config asdm** command in privileged EXEC mode.

```
show running-config asdm [group | location]
```

Syntax Description	group	(Optional) Limits the display to the <b>asdm group</b> commands in the running configuration.
	location	(Optional) Limits the display to the <b>asdm location</b> commands in the running configuration.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was changed from the <b>show running-config pdm</b> command to the <b>show running-config asdm</b> command.

**Usage Guidelines** To remove the **asdm** commands from the configuration, use the **clear configure asdm** command.



**Note**

On security appliances running in multiple context mode, the **show running-config asdm group** and **show running-config asdm location** commands are only available in the system execution space.

**Examples** The following is sample output from the **show running-configuration asdm** command:

```
hostname# show running-config asdm
asdm image flash:/ASDM
asdm history enable
hostname#
```

**Related Commands**

Command	Description
show asdm image	Displays the current ASDM image file.

# show running-config auth-prompt

To displays the current authentication prompt challenge text, use the `show running-config auth-prompt` command in global configuration mode.

**show running-config [default] auth-prompt**

## Syntax Description

**default** (Optional) Display the default authentication prompt challenge text.

## Defaults

Display the configured authentication prompt challenge text.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was modified for this release to conform to CLI guidelines.

## Usage Guidelines

After you configure the authentication prompt with the `auth-prompt` command, use the `show running-config auth-prompt` command to view the current prompt text.

## Examples

The following example shows the output of the `show running-config auth-prompt` command:

```
hostname(config)# show running-config auth-prompt
auth-prompt prompt Please login:
auth-prompt accept You're in!
auth-prompt reject Try again.
hostname(config)#
```

## Related Commands

<b>auth-prompt</b>	Set the user authorization prompts.
<b>clear configure auth-prompt</b>	Reset the user authorization prompts to the default value.

# show running-config banner

To display the specified banner and all the lines that are configured for it, use the **show running-config banner** command in privileged EXEC mode.

```
show running-config banner [exec | login | motd]
```

Syntax Description	exec	(Optional) Displays the banner before the enable prompt.
	<b>login</b>	(Optional) Displays the banner before the password login prompt when accessing the security appliance using Telnet.
	<b>motd</b>	(Optional) Displays the message-of-the-day banner.

**Defaults** This command has no default settings.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	The <b>running-config</b> keyword was added.

**Usage Guidelines** The **show running-config banner** command displays the specified banner keyword and all the lines configured for it. If a keyword is not specified, then all banners display.

**Examples** This example shows how to display the message-of-the-day (motd) banner:

```
hostname# show running-config banner motd
```

Related Commands	Command	Description
	<b>banner</b>	Creates a banner.
	<b>clear configure banner</b>	Deletes a banner.



# show running-config class

To show the resource class configuration, use the **show running-config class** command in privileged EXEC mode.

## show running-config class

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	—	•

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config class** command:

```
hostname# show running-config class
class default
  limit-resource All 0
  limit-resource Mac-addresses 65535
  limit-resource ASDM 5
  limit-resource SSH 5
  limit-resource Telnet 5
```

Related Commands	Command	Description
	<b>class</b>	Configures a resource class.
	<b>clear configure class</b>	Clears the class configuration.
	<b>context</b>	Configures a security context.
	<b>limit-resource</b>	Sets the resource limit for a class.
	<b>member</b>	Assigns a context to a resource class.

# show running-config class-map

To display the information about the class map configuration, use the **show running-config class-map** command in privileged EXEC mode.

```
show running-config [all] class-map [class_map_name | type {management | regex |
inspect [protocol]]]
```

Syntax	Description
<b>all</b>	(Optional) Shows all commands, including the commands you have not changed from the default.
<i>class_map_name</i>	(Optional) Shows the running configuration for a class map name.
<b>inspect</b>	(Optional) Shows inspection class maps.
<b>management</b>	(Optional) Shows management class maps.
<i>protocol</i>	(Optional) Specifies the type of application map you want to show. Available types include: <ul style="list-style-type: none"> <li>• <b>dns</b></li> <li>• <b>ftp</b></li> <li>• <b>h323</b></li> <li>• <b>http</b></li> <li>• <b>im</b></li> <li>• <b>p2p-donkey</b></li> <li>• <b>sip</b></li> </ul>
<b>regex</b>	(Optional) Shows regular expression class maps.
<b>type</b>	(Optional) Specifies the type of class map you want to show. To show Layer 3/4 class maps, to not specify the type.

## Defaults

The **class-map class-default** command, which contains a single **match any** command is the default class map.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	Added keyword <b>running-config</b> .

---

**Examples**

The following is sample output from the **show running-config class-map** command:

```
hostname# show running-config class-map
class-map tcp-port
  match port tcp eq ftp
hostname#
```

---

**Related Commands**

Command	Description
<b>class-map</b>	Applies a traffic class to an interface.
<b>clear configure class-map</b>	Removes all of the traffic map definitions.

---

# show running-config client-update

To display global client-update configuration information, use the **show running-config client-update** command in global configuration mode or in tunnel-group ipsec-attributes configuration mode.

## show running-config client-update

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	—	—	•
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Added tunnel-group ipsec-attributes configuration mode.

## Usage Guidelines

Use this command to display global client-update configuration information.

## Examples

This example shows a **show running-config client-update** command in global configuration mode and its output for a configuration with client-update enabled:

```
hostname(config)# show running-config client-update
hostname(config)# client-update enable
```

## Related Commands

Command	Description
<b>clear configure client-update</b>	Clears the entire client-update configuration.
<b>client-update</b>	Configures client-update.

# show running-config clock

To show the clock configuration in the running configuration, use the **show running-config clock** command in privileged EXEC mode.

**show running-config [all] clock**

<b>Syntax Description</b>	<b>all</b>	(Optional) Shows all <b>clock</b> commands, including the commands you have not changed from the default.
---------------------------	------------	---

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **all** keyword also displays the exact day and time for the **clock summer-time** command, as well as the default setting for the offset, if you did not originally set it.

**Examples** The following is sample output from the **show running-config clock** command. Only the **clock summer-time** command was set.

```
hostname# show running-config clock
clock summer-time EDT recurring
```

The following is sample output from the **show running-config all clock** command. The default setting for the unconfigured **clock timezone** command displays, and the detailed information for the **clock summer-time** command displays.

```
hostname# show running-config all clock
clock timezone UTC 0
clock summer-time EDT recurring 1 Sun Apr 2:00 last Sun Oct 2:00 60
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clock set</b>	Manually sets the clock on the security appliance.
<b>clock summer-time</b>	Sets the date range to show daylight saving time.
<b>clock timezone</b>	Sets the time zone.

# show running-config command-alias

To display the command aliases that are configured, use the **show running-config command-alias** command in privileged EXEC mode.

**show running-config [all] command-alias**

<b>Syntax Description</b>	<b>all</b> (Optional) Displays all command aliases configured, including defaults.
---------------------------	--

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** If you do not enter the **all** keyword, only non-default command aliases display.

**Examples** The following example displays all command aliases that are configured on the security appliance, *including* defaults:

```
hostname# show running-config all command-alias
command-alias exec h help
command-alias exec lo logout
command-alias exec p ping
command-alias exec s show
command-alias exec save copy running-config startup-config
```

The following example displays all command aliases that are configured on the security appliance, *excluding* defaults:

```
hostname# show running-config command-alias
command-alias exec save copy running-config startup-config
hostname#
```

**Related Commands**

Command	Description
<code>command-alias</code>	Creates a command alias.
<code>clear configure command-alias</code>	Deletes all non-default command aliases.



# show running-config compression

To display the compression configuration in the running configuration, use the **show running-config compression** command from privileged EXEC mode:

```
show running-config compression
```

## Defaults

There is no default behavior for this command.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.1.1	This command was introduced.

## Examples

The following example shows the compression configuration within the running configuration:

```
hostname# show running-config compression
compression svc http-comp
```

## Related Commands

Command	Description
<b>compression</b>	Enables compression for all SVC, WebVPN, and Port Forwarding connections.

# show running-config console timeout

To display the console connection timeout value, use the **show running-config console timeout** command in privileged EXEC mode.

**show running-config console timeout**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example shows how to display the console connection timeout setting:

```
hostname# show running-config console timeout
console timeout 0
```

Related Commands	Command	Description
	<b>console timeout</b>	Sets the idle timeout for a console connection to the security appliance.
	<b>clear configure console</b>	Resets the console connection settings to defaults.

# show running-config context

To show the context configuration in the system execution space, use the **show running-config context** command in privileged EXEC mode.

## show running-config context

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config context** command:

```
hostname# show running-config context

admin-context admin
context admin
  allocate-interface GigabitEthernet0/0
  config-url flash:/admin.cfg
!

context A
  allocate-interface GigabitEthernet0/1
  config-url flash:/A.cfg
!
```

Related Commands	Command	Description
	<b>admin-context</b>	Sets the admin context.
	<b>allocate-interface</b>	Assigns interfaces to a context.
	<b>changeto</b>	Changes between contexts or the system execution space.
	<b>config-url</b>	Specifies the location of the context configuration.
	<b>context</b>	Creates a security context in the system configuration and enters context configuration mode.

# show running-config crypto

To display the entire crypto configuration including IPsec, crypto maps, dynamic crypto maps, and ISAKMP, use the **show running-config crypto** command in global configuration or privileged EXEC mode.

## show running-config crypto

**Syntax Description** This command has no keywords or arguments.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following example entered in privileged EXEC mode, displays all crypto configuration information:

```
hostname# show running-config crypto map
crypto map abc 1 match address xyz
crypto map abc 1 set peer 209.165.200.225
crypto map abc 1 set transform-set ttt
crypto map abc interface test
isakmp enable inside
isakmp policy 1 authentication pre-share
isakmp policy 1 encryption 3des
isakmp policy 1 hash md5
isakmp policy 1 group 2
isakmp policy 1 lifetime 86400
hostname#
```

**Related Commands**

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.

Command	Description
<b>isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the security appliance.
<b>show isakmp sa</b>	Displays IKE runtime SA database with additional information.

# show running-config crypto dynamic-map

To view a dynamic crypto map, use the **show running-config crypto dynamic-map** command in global configuration or privileged EXEC mode.

## show running-config crypto dynamic-map

**Syntax Description** This command has no keywords or arguments.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following example entered in global configuration mode, displays all configuration information about crypto dynamic maps:

```
hostname(config)# show running-config crypto dynamic-map

Crypto Map Template "dyn1" 10

    access-list 152 permit ip host 172.21.114.67 any
    Current peer: 0.0.0.0
    Security association lifetime: 4608000 kilobytes/120 seconds
    PFS (Y/N): N
    Transform sets={ tauth, t1, }
hostname(config)#
```

**Related Commands**

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the security appliance.
<b>show isakmp sa</b>	Displays IKE runtime SA database with additional information.

# show running-config crypto ipsec

To display the complete IPsec configuration, use the **show running-config crypto ipsec** command in global configuration or privileged EXEC mode.

## show running-config crypto ipsec

### Syntax Description

This command has no default behavior or values.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Examples

The following example issued in global configuration mode, displays information about the IPsec configuration:

```
hostname(config)# show running-config crypto ipsec
crypto ipsec transform-set ttt esp-3des esp-md5-hmac
hostname(config)#
```

### Related Commands

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the security appliance.
<b>show isakmp sa</b>	Displays IKE runtime SA database with additional information.

# show running-config crypto isakmp

To display the complete ISAKMP configuration, use the **show running-config crypto isakmp** command in global configuration or privileged EXEC mode.

## show running-config crypto isakmp

**Syntax Description** This command has no default behavior or values.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	The <b>show running-config isakmp</b> command was introduced.
7.2(1)	This command was deprecated. The <b>show running-config crypto isakmp</b> command replaces it.

## Examples

The following example issued in global configuration mode, displays information about the ISKAKMP configuration:

```
hostname<config># show running-config crypto isakmp
crypto isakmp enable inside
crypto isakmp policy 1 authentication pre-share
crypto isakmp policy 1 encryption 3des
crypto isakmp policy 1 hash md5
crypto isakmp policy 1 group 2
crypto isakmp policy 1 lifetime 86400
hostname<config>#
```

## Related Commands

Command	Description
<b>clear configure crypto isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure crypto isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear crypto isakmp sa</b>	Clears the IKE runtime SA database.



Command	Description
<b>crypto isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the security appliance.
<b>show crypto isakmp sa</b>	Displays IKE runtime SA database with additional information.

# show running-config crypto map

To display all configuration for all crypto maps, use the **show running-config crypto map** command in global configuration or privileged EXEC mode.

## show running-config crypto map

**Syntax Description** This command has no keywords or arguments.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	—	—
Privileged EXEC	•	•	•	—	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following example entered in privileged EXEC mode, displays all configuration information for all crypto maps:

```
hostname# show running-config crypto map
crypto map abc 1 match address xyz
crypto map abc 1 set peer 209.165.200.225
crypto map abc 1 set transform-set ttt
crypto map abc interface test
hostname#
```

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.
<b>isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the security appliance.
<b>show isakmp sa</b>	Displays IKE runtime SA database with additional information.

# show running-config ddns

To display the DDNS update methods of the running configuration, use the **show running-config ddns** command in privileged EXEC mode.

**show running-config [all] ddns [update]**

## Syntax Description

<b>all</b>	(Optional) Shows the running configuration, including default configuration values.
<b>update</b>	(Optional) Specifies that DDNS update method information be displayed.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example displays the DDNS methods in the running configuration with test in the name:

```
hostname# show running-config all ddns | grep test
ddns update method test
hostname#
```

## Related Commands

Command	Description
<b>ddns (DDNS-update-method mode)</b>	Specifies a DDNS update method type for a created DDNS method.
<b>ddns update (interface config mode)</b>	Associates a security appliance interface with a DDNS update method or a DDNS update hostname.
<b>ddns update method (global config mode)</b>	Creates a method for dynamically updating DNS resource records.
<b>show ddns update interface</b>	Displays the interfaces associated with each configured DDNS method.
<b>show ddns update method</b>	Displays the type and interval for each configured DDNS method. a DHCP server to perform DDNS updates.

# show running-config dhcp-client

To display the DHCP client update parameters in the running configuration, use the **show running-config dhcp-client** command in privileged EXEC mode.

**show running-config [all] dhcp-client**

<b>Syntax Description</b>	<b>all</b>	(Optional) Shows the running configuration including default configuration values.
---------------------------	------------	--

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Examples** The following example displays DHCP client update parameters in the running configuration that specify updates for both A and PTR records:

```
hostname# show running-config all dhcp-client | grep both
dhcp-client update dns server both
hostname#
```

Related Commands	Command	Description
	<b>dhcp-client update dns</b>	Configures the update parameters that the DHCP client passes to the DHCP server.
	<b>dhcpd update dns</b>	Enables a DHCP server to perform DDNS updates.
	<b>clear configure dhcp-client</b>	Clears the DHCP client configuration.

# show running-config dhcpd

To show the DHCP configuration, use the **show running-config dhcpd** command in privileged EXEC or global configuration mode.

**show running-config dhcpd**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was changed from the <b>show dhcpd</b> command to the <b>show running-config dhcpd</b> command.

**Usage Guidelines** The **show running-config dhcpd** command displays the DHCP commands entered in the running configuration. To see DHCP binding, state, and statistical information, use the **show dhcpd** command.

**Examples** The following is sample output from the **show running-config dhcpd** command:

```
hostname# show running-config dhcpd

dhcpd address 10.0.1.100-10.0.1.108 inside
dhcpd lease 3600
dhcpd ping_timeout 750
dhcpd dns 209.165.201.2 209.165.202.129
dhcpd enable inside
```

Related Commands	Command	Description
	<b>clear configure dhcpd</b>	Removes all DHCP server settings.
	<b>debug dhcpd</b>	Displays debug information for the DHCP server.
	<b>show dhcpd</b>	Displays DHCP binding, statistic, or state information.

# show running-config dhcprelay

To view the current DHCP relay agent configuration, use the **show running-config dhcprelay** command in privileged EXEC mode.

**show running-config dhcprelay**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines** The **show running-config dhcprelay** command displays the current DHCP relay agent configuration. To show DHCP relay agent packet statistics, use the **show dhcprelay statistics** command.

**Examples** The following example shows output from the **show running-config dhcprelay** command:

```
hostname(config)# show running-config dhcprelay

dhcprelay server 10.1.1.1
dhcprelay enable inside
dhcprelay timeout 90
```

Command	Description
<b>clear configure dhcprelay</b>	Removes all DHCP relay agent settings.
<b>clear dhcprelay statistics</b>	Clears the DHCP relay agent statistic counters.
<b>debug dhcprelay</b>	Displays debug information for the DHCP relay agent.
<b>show dhcprelay statistics</b>	Displays DHCP relay agent statistic information.

# show running-config dns

To show the DNS configuration in the running configuration, use the **show running-config dns** command in privileged EXEC mode.

**show running-config dns**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config dns** command:

```
hostname# show running-config dns
dns domain-lookup inside
dns name-server
dns retries 2
dns timeout 15
dns name-server 10.1.1.1
```

Command	Description
<b>dns domain-lookup</b>	Enables the security appliance to perform a name lookup.
<b>dns name-server</b>	Configures a DNS server address.
<b>dns retries</b>	Specifies the number of times to retry the list of DNS servers when the security appliance does not receive a response.
<b>dns timeout</b>	Specifies the amount of time to wait before trying the next DNS server.
<b>show dns-hosts</b>	Shows the DNS cache.

# show running-config dns server-group

To show the DNS configuration in the running configuration, use the **show running-config dns** command in privileged EXEC mode.

```
show [all] running-config dns server-group [name]
```

Syntax	Description
<b>all</b>	Displays the default and explicitly configured configuration information for one or all dns-server-groups.
<i>name</i>	Specifies the name of the dns server group for which you want to show the configuration information.

## Defaults

If you omit the dns-server-group name, this command displays all the existing dns-server-group configurations.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.1	This command was introduced.

## Examples

The following is sample output from the **show running-config dns server-group** command:

```
hostname# show running-config dns server-group
dns domain-lookup inside
dns server-group DefaultDNS
  name-server 90.1.1.22
  domain-name frqa.cisco.com
dns server-group writers1
  retries 10
  timeout 3
  name-server 10.86.194.61
  domain-name doc-group
hostname#
```

## Related Commands



Command	Description
<code>clear configure dns</code>	Removes all DNS commands.
<code>dns server-group</code>	Enters DNS server group mode, in which you can configure a DNS server group.

# show running-config domain-name

To show the domain name configuration in the running configuration, use the **show running-config domain-name** command in privileged EXEC mode.

**show running-config domain-name**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was changed from <b>show domain-name</b> .

**Examples** The following is sample output from the **show running-config domain-name** command:

```
hostname# show running-config domain-name
example.com
```

Related Commands	Command	Description
	<b>domain-name</b>	Sets the default domain name.
	<b>hostname</b>	Sets the security appliance hostname.

# show running-config enable

To show the encrypted enable passwords, use the **show running-config enable** command in privileged EXEC mode.

## show running-config enable

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was changed from the <b>show enable</b> command.

**Usage Guidelines** The password is saved to the configuration in encrypted form, so you cannot view the original password after you enter it. The password displays with the **encrypted** keyword to indicate that the password is encrypted.

**Examples** The following is sample output from the **show running-config enable** command:

```
hostname# show running-config enable
enable password 2AfK9Kjr3BE2/J2r level 10 encrypted
enable password 8Ry2YjIyt7RRXU24 encrypted
```

Related Commands	Command	Description
	<b>disable</b>	Exits privileged EXEC mode.
	<b>enable</b>	Enters privileged EXEC mode.
	<b>enable password</b>	Sets the enable password.

# show running-config established

To display the allowed inbound connections that are based on established connections, use the **show running-config established** command in privileged EXEC mode.

## show running-config established

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	The keyword <b>running-config</b> was added.

**Usage Guidelines** This command has no usage guidelines.

**Examples** This example shows how to display inbound connections that are based on established connections:

```
hostname# show running-config established
```

Related Commands	Command	Description
	<b>established</b>	Permits return connections on ports that are based on an established connection.
	<b>clear configure established</b>	Removes all established commands.

# show running-config failover

To display the **failover** commands in the configuration, use the **show running-config failover** command in privileged EXEC mode.

**show running-config [all] failover**

## Syntax Description

**all** (Optional) Shows all failover commands, including the commands you have not changed from the default.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **show running-config failover** command displays the **failover** commands in the running configuration. It does not display the **monitor-interface** or **join-failover-group** commands.

## Examples

The following example shows the default failover configuration before failover has been configured:

```
hostname# show running-config all failover
no failover
failover lan unit secondary
failover polltime unit 15 holdtime 45
failover polltime interface 15
failover interface policy 1
hostname#
```

## Related Commands

Command	Description
<b>show failover</b>	Displays failover state and statistics.

# show running-config filter

To show the filtering configuration, use the **show running-config filter** command in privileged EXEC mode.

**show running-config filter**

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **show running-config filter** command displays the filtering configuration for the security appliance.

## Examples

The following is sample output from the **show running-config filter** command, and shows the filtering configuration for the security appliance:

```
hostname# show running-config filter
!
filter activex 80 10.86.194.170 255.255.255.255 10.1.1.0 255.255.255.224
!
```

This example shows ActiveX filtering is enabled on port80 for the address 10.86.194.170.

## Related Commands

Commands	Description
<b>filter activex</b>	Removes ActiveX objects from HTTP traffic passing through the security appliance.
<b>filter ftp</b>	Identifies the FTP traffic to be filtered by a URL filtering server.
<b>filter https</b>	Identifies the HTTPS traffic to be filtered by a Websense server.
<b>filter java</b>	Removes Java applets from HTTP traffic passing through the security appliance.
<b>filter url</b>	Directs traffic to a URL filtering server.

# show running-config fips

To display the FIPS configuration that is running on the security appliance, use the **show running-config fips** command.

**show running-config fips**

## Syntax Description

**fips** FIPS-2 compliance information

## Defaults

This command has no default settings.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(4)	This command was introduced.

## Usage Guidelines

The **show running-config fips** command allows you to display the current running fips configuration. You use the **running-config** keyword only in the **show running-config fips** command. You cannot use this keyword with **no** or **clear**, or as a standalone command as it is not supported. When you enter the **?**, **no ?**, or **clear ?** keywords, a **running-config** keyword is not listed in the command list.

## Examples

```
sw8-ASA(config)# show running-config fips
```

## Related Commands

Command	Description
<b>clear configure fips</b>	Clears the system or module FIPS configuration information stored in NVRAM.
<b>crashinfo console disable</b>	Disables the reading, writing and configuration of crash write info to flash.
<b>fips enable</b>	Enables or disables policy-checking to enforce FIPS compliance on the system or module.
<b>fips self-test poweron</b>	Executes power-on self-tests.
<b>show crashinfo console</b>	Reads, writes, and configures crash write to flash.

# show running-config fragment

To display the current configuration of the fragment databases, use the **show running-config fragment** command in privileged EXEC mode.

```
show running-config fragment [interface]
```

## Syntax Description

*interface* (Optional) Specifies the security appliance interface.

## Defaults

If an interface is not specified, the command applies to all interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **show running-config fragment** command displays the current configuration of the fragment databases. If you specify an interface name, only information for the database residing at the specified interface displays. If you do not specify an interface name, the command applies to all interfaces.

Use the **show running-config fragment** command to display this information:

- **Size**—Maximum number of packets set by the **size** keyword. This value is the maximum number of fragments that are allowed on the interface.
- **Chain**—Maximum number of fragments for a single packet set by the **chain** keyword.
- **Timeout**—Maximum number of seconds set by the **timeout** keyword. This is the maximum number of seconds to wait for an entire fragmented packet to arrive. The timer starts after the first fragment of a packet arrives. If all fragments of the packet do not arrive by the number of seconds specified, all fragments of the packet that were already received will be discarded.

## Examples

The following example shows how to display the states of the fragment databases on all interfaces:

```
hostname# show running-config fragment
fragment size 200 inside
fragment chain 24 inside
fragment timeout 5 inside
fragment size 200 outside1
fragment chain 24 outside1
fragment timeout 5 outside1
```



```
fragment size 200 outside2
fragment chain 24 outside2
fragment timeout 5 outside2
fragment size 200 outside3
fragment chain 24 outside3
fragment timeout 5 outside3
```

The following example shows how to display the states of the fragment databases on interfaces that start with the name “outside”:

**Note**

In this example, the interfaces named “outside1”, “outside2”, and “outside3” display.

```
hostname# show running-config fragment outside
fragment size 200 outside1
fragment chain 24 outside1
fragment timeout 5 outside1
fragment size 200 outside2
fragment chain 24 outside2
fragment timeout 5 outside2
fragment size 200 outside3
fragment chain 24 outside3
fragment timeout 5 outside3
```

The following example shows how to display the states of the fragment databases on the interfaces named “outside1” only:

```
hostname# show running-config fragment outside1
fragment size 200 outside1
fragment chain 24 outside1
fragment timeout 5 outside1
```

**Related Commands**

Command	Description
<b>clear configure fragment</b>	Resets all the IP fragment reassembly configurations to defaults.
<b>clear fragment</b>	Clears the operational data of the IP fragment reassembly module.
<b>fragment</b>	Provides additional management of packet fragmentation and improves compatibility with NFS.
<b>show fragment</b>	Displays the operational data of the IP fragment reassembly module.

# show running-config ftp mode

To show the client mode configured for FTP, use the **show running-config ftp mode** command in privileged EXEC mode.

## show running-config ftp mode

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

The **show running-config ftp mode** command displays the client mode that is used by the security appliance when accessing an FTP server.

### Examples

The following is sample output from the **show running-config ftp-mode** command:

```
hostname# show running-config ftp-mode
!
ftp-mode passive
!
```

### Related Commands

Commands	Description
<b>copy</b>	Uploads or downloads image files or configuration files to or from an FTP server.
<b>debug ftp client</b>	Displays detailed information about FTP client activity.
<b>ftp mode passive</b>	Sets the FTP client mode used by the security appliance when accessing an FTP server.

# show running-config global

To display the **global** commands in the configuration, use the **show running-config global** command in privileged EXEC mode.

## show running-config global

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	Added keyword <b>running-config</b> .

**Examples** The following is sample output from the **show running-config global** command:

```
hostname# show running-config global
global (outside1) 10 interface
```

Related Commands	Command	Description
	<b>clear configure global</b>	Removes <b>global</b> commands from the configuration.
	<b>global</b>	Creates entries from a pool of global addresses.

# show running-config group-delimiter

To display the current delimiter to be used when parsing group names from the user names that are received when tunnels are being negotiated, use the **show running-config group-delimiter** command in global configuration mode or in tunnel-group ipsec-attributes configuration mode.

## show running-config group-delimiter

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	—	—	•
Tunnel-group ipsec-attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Added tunnel-group ipsec-attributes configuration mode.

**Usage Guidelines** Use this command to display the currently configured group-delimiter.

## Examples

This example shows a **show running-config group-delimiter** command and its output:

```
hostname(config)# show running-config group-delimiter
group-delimiter @
```

## Related Commands

Command	Description
<b>group-delimiter</b>	Enables group-name parsing and specifies the delimiter to be used when parsing group names from the user names that are received when tunnels are being negotiated.

# show running-config group-policy

To display the running configuration for a particular group policy, use the **show running-config group-policy** command in privileged EXEC mode and append the name of the group policy. To display the running configuration for all group policies, use this command without naming a specific group policy. To have either display include the default configuration, use the **all** keyword.

**show running-config [all] group-policy [name]**

Syntax Description	all	(Optional) Displays the running configuration including default values.
	<i>name</i>	(Optional) Specifies the name of the group policy.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example shows how to display the running configuration, including default values, for the group policy named FirstGroup:

```
hostname# show running-config all group-policy FirstGroup
```

Related Commands	Command	Description
	<b>group-policy</b>	Creates, edits, or removes a group policy.
	<b>group-policy attributes</b>	Enters group-policy attributes mode, which lets you configure AVPs for a specified group policy.
	<b>clear config group-policy</b>	Removes the configuration for a particular group policy or for all group policies.

# show running-config http

To display the current set of configured http commands, use the **show running-config http** command in privileged EXEC mode.

```
show running-config http
```

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

## Examples

The following sample output shows how to use the **show running-config http** command:

```
hostname# show running-config http
http server enabled
0.0.0.0 0.0.0.0 inside
```

## Related Commands

Command	Description
<b>clear http</b>	Remove the HTTP configuration: disable the HTTP server and remove hosts that can access the HTTP server.
<b>http</b>	Specifies hosts that can access the HTTP server by IP address and subnet mask. Specifies the security appliance interface through which the host accesses the HTTP server.
http authentication-certificate	Requires authentication via certificate from users who are establishing HTTPS connections to the security appliance.
http redirect	Specifies that the security appliance redirect HTTP connections to HTTPS.
<b>http server enable</b>	Enables the HTTP server.

# show running-config icmp

To show the access rules configured for ICMP traffic, use the **show running-config icmp** command in privileged EXEC mode.

**show running-config icmp** *map\_name*

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **show running-config icmp** command displays the access rules configured for ICMP traffic.

## Examples

The following is sample output from the **show running-config icmp** command:

```
hostname# show running-config icmp
!
icmp permit host 172.16.2.15 echo-reply outside
icmp permit 172.22.1.0 255.255.0.0 echo-reply outside
icmp permit any unreachable outside
!
```

## Related Commands

Commands	Description
<b>clear configure icmp</b>	Clears the ICMP configuration.
<b>debug icmp</b>	Enables the display of debug information for ICMP.
<b>show icmp</b>	Displays ICMP configuration.
<b>timeout icmp</b>	Configures the idle timeout for ICMP.

# show running-config imap4s

To display the running configuration for IMAP4S, use the **show running-config imap4s** command in privileged EXEC mode.

**show running-config [all] imap4s**

## Syntax Description

**all** (Optional) Displays the running configuration including default values.

## Defaults

No default behavior or values.

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—
Webvpn	•	—	•	—	—

## Examples

The following is sample output from the **show running-config imap4s** command:

```
hostname# show running-config imap4s

imap4s
 server 10.160.105.2
 authentication-server-group KerbSvr
 authentication aaa

hostname# show running-config all imap4s

imap4s
 port 993
 server 10.160.105.2
 outstanding 20
 name-separator :
 server-separator @
 authentication-server-group KerbSvr
 no authorization-server-group
 no accounting-server-group
 no default-group-policy
 authentication aaa
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure imap4s</b>	Removes the IMAP4S configuration.
<b>imap4s</b>	Creates or edits an IMAP4S e-mail proxy configuration.

# show running-config interface

To show the interface configuration in the running configuration, use the **show running-config interface** command in privileged EXEC mode.

```
show running-config [all] interface [physical_interface[.subinterface] | mapped_name |
interface_name]
```

## Syntax Description

<b>all</b>	(Optional) Shows all <b>interface</b> commands, including the commands you have not changed from the default.
<i>interface_name</i>	(Optional) Identifies the interface name set with the <b>nameif</b> command.
<i>mapped_name</i>	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the <b>allocate-interface</b> command.
<i>physical_interface</i>	(Optional) Identifies the interface ID, such as <b>gigabitethernet0/1</b> . See the <b>interface</b> command for accepted values.
<i>subinterface</i>	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.

## Defaults

If you do not specify an interface, this command shows the configuration for all interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You cannot use the interface name in the system execution space, because the **nameif** command is only available within a context. Similarly, if you mapped the interface ID to a mapped name using the **allocate-interface** command, you can only use the mapped name in a context.

## Examples

The following is sample output from the **show running-config interface** command. The following example shows the running configuration for all interfaces. The GigabitEthernet0/2 and 0/3 interfaces have not been configured yet, and show the default configuration. The Management0/0 interface also shows the default settings.

```
hostname# show running-config interface
!
interface GigabitEthernet0/0
```

```

no shutdown
nameif inside
security-level 100
ip address 10.86.194.60 255.255.254.0
webvpn enable
!
interface GigabitEthernet0/1
no shutdown
nameif test
security-level 0
ip address 10.10.4.200 255.255.0.0
!
interface GigabitEthernet0/1.1
vlan 101
no shutdown
nameif dmz
security-level 50
ip address 10.50.1.1 255.255.255.0
mac-address 000C.F142.4CDE standby 020C.F142.4CDE
!
interface GigabitEthernet0/2
shutdown
no nameif
security-level 0
no ip address
!
interface GigabitEthernet0/3
shutdown
no nameif
security-level 0
no ip address
!
interface Management0/0
shutdown
no nameif
security-level 0
no ip address

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>allocate-interface</b>	Assigns interfaces and subinterfaces to a security context.
<b>clear configure interface</b>	Clears the interface configuration.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>nameif</b>	Sets the interface name.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.

# show running-config ip address

To show the IP address configuration in the running configuration, use the **show running-config ip address** command in privileged EXEC mode.

```
show running-config ip address [physical_interface[.subinterface] | mapped_name |
interface_name]
```

## Syntax Description

<i>interface_name</i>	(Optional) Identifies the interface name set with the <b>nameif</b> command.
<i>mapped_name</i>	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the <b>allocate-interface</b> command.
<i>physical_interface</i>	(Optional) Identifies the interface ID, such as <b>gigabitethernet0/1</b> . See the <b>interface</b> command for accepted values.
<i>subinterface</i>	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.

## Defaults

If you do not specify an interface, this command shows the IP address configuration for all interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

In multiple context mode, if you mapped the interface ID in the **allocate-interface** command, you can only specify the mapped name or the interface name in a context.

In transparent firewall mode, do not specify an interface because this command shows only the management IP address; the transparent firewall does not have IP addresses associated with interfaces.

This display also shows the **nameif** command and **security-level** command configuration.

## Examples

The following is sample output from the **show running-config ip address** command:

```
hostname# show running-config ip address
!
interface GigabitEthernet0/0
 nameif inside
 security-level 100
```

```
ip address 10.86.194.60 255.255.254.0
!  
interface GigabitEthernet0/1  
  nameif test  
  security-level 0  
  ip address 10.10.4.200 255.255.0.0  
!
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure interface</b>	Clears the interface configuration.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>ip address</b>	Sets the IP address for the interface or sets the management IP address for a transparent firewall.
<b>nameif</b>	Sets the interface name.
<b>security-level</b>	Sets the security level for the interface.

# show running-config ip audit attack

To show the **ip audit attack** configuration in the running configuration, use the **show running-config ip audit attack** command in privileged EXEC mode.

```
show running-config ip audit attack
```

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was changed from <b>show ip audit attack</b> .

**Examples** The following is sample output from the **show running-config ip audit attack** command:

```
hostname# show running-config ip audit attack
ip audit attack action drop
```

Related Commands	Command	Description
	<b>ip audit attack</b>	Sets the default actions for packets that match an attack signature.
	<b>ip audit info</b>	Sets the default actions for packets that match an informational signature.
	<b>ip audit interface</b>	Assigns an audit policy to an interface.
	<b>ip audit name</b>	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
	<b>ip audit signature</b>	Disables a signature.

# show running-config ip audit info

To show the **ip audit info** configuration in the running configuration, use the **show running-config ip audit info** command in privileged EXEC mode.

**show running-config ip audit info**

## Syntax Description

This command has no arguments or keywords.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was changed from <b>show ip audit info</b> .

## Examples

The following is sample output from the **show running-config ip audit info** command:

```
hostname# show running-config ip audit info
ip audit info action drop
```

## Related Commands

Command	Description
<b>ip audit attack</b>	Sets the default actions for packets that match an attack signature.
<b>ip audit info</b>	Sets the default actions for packets that match an informational signature.
<b>ip audit interface</b>	Assigns an audit policy to an interface.
<b>ip audit name</b>	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
<b>ip audit signature</b>	Disables a signature.

# show running-config ip audit interface

To show the **ip audit interface** configuration in the running configuration, use the **show running-config ip audit interface** command in privileged EXEC mode.

```
show running-config ip audit interface [interface_name]
```

## Syntax Description

*interface\_name* (Optional) Specifies the interface name.

## Defaults

If you do not specify an interface name, this command shows the configuration for all interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was changed from <b>show ip audit interface</b> .

## Examples

The following is sample output from the **show running-config ip audit interface** command:

```
hostname# show running-config ip audit interface
ip audit interface inside insidepolicy
ip audit interface outside outsidepolicy
```

## Related Commands

Command	Description
<b>ip audit attack</b>	Sets the default actions for packets that match an attack signature.
<b>ip audit info</b>	Sets the default actions for packets that match an informational signature.
<b>ip audit interface</b>	Assigns an audit policy to an interface.
<b>ip audit name</b>	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
<b>ip audit signature</b>	Disables a signature.



# show running-config ip audit name

To show the **ip audit name** configuration in the running configuration, use the **show running-config ip audit name** command in privileged EXEC mode.

```
show running-config ip audit name [name [info | attack]]
```

## Syntax Description

<b>attack</b>	(Optional) Shows the named audit policy configuration for attack signatures.
<b>info</b>	(Optional) Shows the named audit policy configuration for informational signatures.
<i>name</i>	(Optional) Shows the configuration for the audit policy name created using the <b>ip audit name</b> command.

## Defaults

If you do not specify a name, this command shows the configuration for all audit policies.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was changed from <b>show ip audit name</b> .

## Examples

The following is sample output from the **show running-config ip audit name** command:

```
hostname# show running-config ip audit name
ip audit name insidepolicy1 attack action alarm
ip audit name insidepolicy2 info action alarm
ip audit name outsidepolicy1 attack action reset
ip audit name outsidepolicy2 info action alarm
```

## Related Commands

Command	Description
<b>ip audit attack</b>	Sets the default actions for packets that match an attack signature.
<b>ip audit info</b>	Sets the default actions for packets that match an informational signature.
<b>ip audit interface</b>	Assigns an audit policy to an interface.
<b>ip audit name</b>	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
<b>ip audit signature</b>	Disables a signature.

# show running-config ip audit signature

To show the **ip audit signature** configuration in the running configuration, use the **show running-config ip audit signature** command in privileged EXEC mode.

```
show running-config ip audit signature [signature_number]
```

## Syntax Description

*signature\_number* (Optional) Shows the configuration for the signature number, if present. See the **ip audit signature** command for a list of supported signatures.

## Defaults

If you do not specify a number, this command shows the configuration for all signatures.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was changed from <b>show ip audit signature</b> .

## Examples

The following is sample output from the **show running-config ip audit signature** command:

```
hostname# show running-config ip audit signature
ip audit signature 1000 disable
```

## Related Commands

Command	Description
<b>ip audit attack</b>	Sets the default actions for packets that match an attack signature.
<b>ip audit info</b>	Sets the default actions for packets that match an informational signature.
<b>ip audit interface</b>	Assigns an audit policy to an interface.
<b>ip audit name</b>	Creates a named audit policy that identifies the actions to take when a packet matches an attack signature or an informational signature.
<b>ip audit signature</b>	Disables a signature.

# show running-config ip local pool

To display IP address pools, use the **show running-config ip local pool** command in privileged EXEC mode.

```
show running-config ip local pool [poolname]
```

## Syntax Description

*poolname* (Optional) Specifies the name of the IP address pool.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following is sample output from the **show running-config ip local pool** command:

```
hostname(config)# show running-config ip local pool firstpool

Pool          Begin          End            Mask          Free          In use
firstpool    10.20.30.40   10.20.30.50   255.255.255.0  11
0
Available Addresses:
10.20.30.40
10.20.30.41
10.20.30.42
10.20.30.43
10.20.30.44
10.20.30.45
10.20.30.46
10.20.30.47
10.20.30.48
10.20.30.49
10.20.30.50

hostname(config)#
```

**show running-config ip local pool****Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure ip local pool</b>	Removes all ip local pools
<b>ip local pool</b>	Configures an IP address pool.

# show running-config ip verify reverse-path

To show the **ip verify reverse-path** configuration in the running configuration, use the **show running-config ip verify reverse-path** command in privileged EXEC mode.

```
show running-config ip verify reverse-path [interface interface_name]
```

## Syntax Description

**interface** (Optional) Shows the configuration for the specified interface.  
*interface\_name*

## Defaults

This command shows the configuration for all interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

## Command History

Release	Modification
7.0(1)	This command was changed from <b>show ip verify reverse-path</b> .

## Examples

The following is sample output from the **show ip verify statistics** command:

```
hostname# show running-config ip verify reverse-path
ip verify reverse-path interface inside
ip verify reverse-path interface outside
ip verify reverse-path interface dmz
```

## Related Commands

Command	Description
<b>clear configure ip verify reverse-path</b>	Clears the <b>ip verify reverse-path</b> configuration.
<b>clear ip verify statistics</b>	Clears the Unicast RPF statistics.
<b>ip verify reverse-path</b>	Enables the Unicast Reverse Path Forwarding feature to prevent IP spoofing.
<b>show ip verify statistics</b>	Shows the Unicast RPF statistics.

# show running-config ipv6

To display the IPv6 commands in the running configuration, use the **show running-config ipv6** command in privileged EXEC mode.

**show running-config [all] ipv6**

<b>Syntax Description</b>	<b>all</b>	(Optional) Shows all <b>ipv6</b> commands, including the commands you have not changed from the default, in the running configuration.
---------------------------	------------	--

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config ipv6** command:

```
hostname# show running-config ipv6
ipv6 unicast-routing
ipv6 route vlan101 ::/0 fec0::65:0:0:a0a:6575
ipv6 access-list outside_inbound_ipv6 permit ip any any
ipv6 access-list vlan101_inbound_ipv6 permit ip any any
hostname#
```

Related Commands	Command	Description
	<b>debug ipv6</b>	Displays IPv6 debug messages.
	<b>show ipv6 access-list</b>	Displays the IPv6 access list.
	<b>show ipv6 interface</b>	Displays the status of the IPv6 interfaces.
	<b>show ipv6 route</b>	Displays the contents of the IPv6 routing table.
	<b>show ipv6 traffic</b>	Displays IPv6 traffic statistics.

# show running-config isakmp

To display the complete ISAKMP configuration, use the **show running-config isakmp** command in global configuration or privileged EXEC mode.

## show running-config isakmp

### Syntax Description

This command has no default behavior or values.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	The <b>show running-config isakmp</b> command was introduced.
7.2(1)	This command was deprecated. The <b>show running-config crypto isakmp</b> command replaces it.

### Examples

The following example issued in global configuration mode, displays information about the ISAKMP configuration:

```
hostname(config)# show running-config isakmp
isakmp enable inside
isakmp policy 1 authentication pre-share
isakmp policy 1 encryption 3des
isakmp policy 1 hash md5
isakmp policy 1 group 2
isakmp policy 1 lifetime 86400
hostname(config)#
```

### Related Commands

Command	Description
<b>clear configure isakmp</b>	Clears all the ISAKMP configuration.
<b>clear configure isakmp policy</b>	Clears all ISAKMP policy configuration.
<b>clear isakmp sa</b>	Clears the IKE runtime SA database.

Command	Description
<b>isakmp enable</b>	Enables ISAKMP negotiation on the interface on which the IPsec peer communicates with the security appliance.
<b>show isakmp sa</b>	Displays IKE runtime SA database with additional information.









## **show running-config ldap through show running-config wccp Commands**

---

# show running-config ldap

To display the LDAP attribute name and value mappings in running LDAP attribute maps, use the **show running-config ldap** command in privileged EXEC mode.

```
show running-config [all] ldap attribute-map name
```

## Syntax Description

<b>all</b>	Displays all LDAP attribute maps.
<i>name</i>	Specifies an individual LDAP attribute map for display.

## Defaults

By default, all attribute maps, mapped names, and mapped values display.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

Use this command to display the LDAP attribute name and value mappings contained in attribute maps running on your security appliance. You can display all the attribute maps using the **all** option, or you can display a single attribute map by specifying the map name. If you enter neither the **all** option nor an LDAP attribute map name, all attribute maps, mapped names, and mapped values display.

## Examples

The following example, entered in privileged EXEC mode, displays the attribute name and value mappings for a specific running attribute map, “myldapmap”:

```
hostname# show running-config ldap attribute-map myldapmap
map-name Hours cVPN3000-Access-Hours
map-value Hours workDay Daytime
```

The following command displays all attribute name and value mappings within all running attribute maps:

```
hostname# show running-config all ldap attribute-map
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>ldap attribute-map (global config mode)</b>	Creates and names an LDAP attribute map for mapping user-defined attribute names to Cisco LDAP attribute names.
<b>ldap-attribute-map (aaa-server host mode)</b>	Binds an LDAP attribute map to an LDAP server.
<b>map-name</b>	Maps a user-defined LDAP attribute name with a Cisco LDAP attribute name.
<b>map-value</b>	Maps a user-defined attribute value to a Cisco attribute.
<b>clear configure ldap attribute-map</b>	Removes all LDAP attribute maps.

# show running-config logging

To display all currently running logging configuration, use the **show running-config logging** command in privileged EXEC mode.

**show running-config [all] logging [level | disabled]**

Syntax Description	all	(Optional) Displays the logging configuration, including commands that you have not changed from the default.
	<b>disabled</b>	(Optional) Displays only the disabled system log message configuration.
	<b>level</b>	(Optional) Displays only the configuration for system log messages with a non-default severity level.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1) (1)	This command was changed from the <b>show logging</b> command.

**Examples** The following is an example of the **show running-config logging disabled** command:

```
hostname# show running-config logging disabled
no logging message 720067
```

Related Commands	Command	Description
	<b>logging message</b>	Configures logging.
	<b>show logging</b>	Shows the log buffer and other logging settings.

# show running-config mac-address

To show the **mac-address auto** configuration in the running configuration, use the **show running-config mac-address** command in privileged EXEC mode.

**show running-config mac-address**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	—	•

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config mac-address** command:

```
hostname# show running-config mac-address
no mac-address auto
```

Related Commands	Command	Description
	<b>failover mac address</b>	Sets the active and standby MAC address of a physical interface for Active/Standby failover.
	<b>mac address</b>	Sets the active and standby MAC address of a physical interface for Active/Active failover.
	<b>mac-address</b>	Manually sets the MAC address (active and standby) for a physical interface or subinterface. In multiple context mode, you can set different MAC addresses in each context for the same interface.
	<b>mac-address auto</b>	Auto-generates MAC addresses (active and standby) for shared interfaces in multiple context mode.
	<b>show interface</b>	Shows the interface characteristics, including the MAC address.

# show running-config mac-address-table

To view the **mac-address-table static** and **mac-address-table aging-time** configuration in the running configuration, use the **show running-config mac-address-table** command in privileged EXEC mode.

**show running-config mac-address-table**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	—	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config mac-learn** command:

```
hostname# show running-config mac-address-table
mac-address-table aging-time 50
mac-address-table static inside1 0010.7cbe.6101
```

Related Commands	Command	Description
	<b>firewall transparent</b>	Sets the firewall mode to transparent.
	<b>mac-address-table aging-time</b>	Sets the timeout for dynamic MAC address entries.
	<b>mac-address-table static</b>	Adds static MAC address entries to the MAC address table.
	<b>mac-learn</b>	Disables MAC address learning.
	<b>show mac-address-table</b>	Shows the MAC address table, including dynamic and static entries.



# show running-config mac-learn

To view the **mac-learn** configuration in the running configuration, use the **show running-config mac-learn** command in privileged EXEC mode.

**show running-config mac-learn**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	—	•	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config mac-learn** command:

```
hostname# show running-config mac-learn
mac-learn disable
```

**Related Commands**

Command	Description
<b>firewall transparent</b>	Sets the firewall mode to transparent.
<b>mac-address-table static</b>	Adds static MAC address entries to the MAC address table.
<b>mac-learn</b>	Disables MAC address learning.
<b>show mac-address-table</b>	Shows the MAC address table, including dynamic and static entries.

# show running-config mac-list

To display a list of MAC addresses previously specified in a **mac-list** command with the indicated MAC list number, use the **show running-config mac-list** command in privileged EXEC mode.

```
show running-config mac-list id
```

Syntax Description	<i>id</i>	A hexadecimal MAC address list number.
--------------------	-----------	--

Defaults	No default behaviors or values.
----------	---------------------------------

Command Modes	The following table shows the modes in which you can enter the command:
---------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	—	—	•

Command History	Release	Modification
	7.0(1)	This command was modified to conform to CLI guidelines.

Usage Guidelines	The <b>show running-config aaa</b> command displays the <b>mac-list</b> command statements as part of the AAA configuration.
------------------	--

Examples	The following example shows how to display a MAC address list with the <i>id</i> equal to adc:
----------	--

```
hostname(config)# show running-config mac-list adc
mac-list adc permit 00a0.cp5d.0282 ffff.ffff.ffff
mac-list adc deny 00a1.cp5d.0282 ffff.ffff.ffff
mac-list ac permit 0050.54ff.0000 ffff.ffff.0000
mac-list ac deny 0061.54ff.b440 ffff.ffff.ffff
mac-list ac deny 0072.54ff.b440 ffff.ffff.ffff
```

Related Commands	Command	Description
	<b>mac-list</b>	Add a list of MAC addresses using a first-match search.
	<b>clear configure mac-list</b>	Remove the indicated <b>mac-list</b> command statements.
	<b>show running-config aaa</b>	Display the running AAA configuration values.

# show running-config management-access

To display the name of the internal interface configured for management access, use the **show running-config management-access** command in privileged EXEC mode.

```
show running-config management-access
```

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **management-access** command lets you define an internal management interface using the IP address of the firewall interface specified in *mgmt\_if*. (The interface names are defined by the **nameif** command and displayed in quotes, “ ”, in the output of the **show interface** command.)

**Examples** The following example shows how to configure a firewall interface named “inside” as the management access interface and display the result:

```
hostname# management-access inside
hostname# show running-config management-access
management-access inside
```

Related Commands	Command	Description
	<b>clear configure management-access</b>	Removes the configuration of an internal interface for management access of the security appliance.
	<b>management-access</b>	Configures an internal interface for management access.

# show running-config monitor-interface

To display all **monitor-interface** commands in the running configuration, use the **show running-config monitor-interface** command in privileged EXEC mode.

```
show running-config [all] monitor-interface
```

<b>Syntax Description</b>	<b>all</b>	(Optional) Shows all <b>monitor-interface</b> commands, including the commands you have not changed from the default.
---------------------------	------------	---

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **monitor-interface** command is enabled on all physical interfaces by default. You need to use the **all** keyword with this command to view this default configuration.

**Examples** The following is sample output from the **show running-config monitor-interface** command. The first time the command is entered without the **all** keyword, so only the interface that has monitoring enabled appears in the output. The second time the command is entered with the **all** keyword, so the default **monitor-interface** configuration is also show.

```
hostname# show running-config monitor-interface
no monitor-interface outside
hostname#
hostname# show running-config all monitor-interface
monitor-interface inside
no monitor-interface outside
hostname#
```

## Related Commands

Command	Description
<b>monitor-interface</b>	Enables health monitoring of a designated interface for failover purposes.
<b>clear configure monitor-interface</b>	Removes the <b>no monitor-interface</b> commands in the running configuration and restores the default interface health monitoring stance.

# show running-config mroute

To display the static multicast route table in the configuration use the **show running-config mroute** command in privileged EXEC mode.

```
show running-config mroute [dst [src]]
```

## Syntax Description

<i>dst</i>	The Class D address of the multicast group.
<i>src</i>	The IP address of the multicast source.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	Added keyword <b>running-config</b> .

## Examples

The following is sample output from the **show running-config mroute** command:

```
hostname# show running-config mroute
```

## Related Commands

Command	Description
<b>mroute</b>	Configures a static multicast route.

## show running-config mtu

To display the current maximum transmission unit block size, use the **show running-config mtu** command in privileged EXEC mode.

```
show running-config mtu [interface_name]
```

### Syntax Description

*interface\_name* (Optional) Internal or external network interface name.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	—	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Examples

The following is sample output from the **show running-config mtu** command:

```
hostname# show running-config mtu
mtu outside 1500
mtu inside 1500
mtu dmz 1500
hostname# show running-config mtu outside
mtu outside 1500
```

### Related Commands

Command	Description
<b>clear configure mtu</b>	Clears the configured maximum transmission unit values on all interfaces.
<b>mtu</b>	Specifies the maximum transmission unit for an interface.

# show running-config multicast-routing

To display the **multicast-routing** command, if present, in the running configuration, use the **show running-config multicast-routing** command in privileged EXEC mode.

**show running-config multicast-routing**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **show running-config multicast-routing** command displays the **multicast-routing** command in the running configuration. Enter the **clear configure multicast-routing** command to remove the **multicast-routing** command from the running configuration.

**Examples** The following is sample output from the **show running-config multicast-routing** command:

```
hostname# show running-config multicast-routing
multicast-routing
```

Related Commands	Command	Description
	<b>clear configure multicast-routing</b>	Removes the <b>multicast-routing</b> command from the running configuration.
	<b>multicast-routing</b>	Enables multicast routing on the security appliance.



# show running-config name

To display a list of names associated with IP addresses (configured with the **name** command), use the **show running-config name** command in privileged EXEC mode.

## show running-config name

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** This example shows how to display a list of names associated with IP addresses:

```
hostname# show running-config name
name 192.168.42.3 sa_inside
name 209.165.201.3 sa_outside
```

Related Commands	Command	Description
	<b>clear configure name</b>	Clears the list of names from the configuration.
	<b>name</b>	Associates a name with an IP address.

# show running-config nameif

To show the interface name configuration in the running configuration, use the **show running-config nameif** command in privileged EXEC mode.

```
show running-config nameif [physical_interface[.subinterface] | mapped_name]
```

## Syntax Description

mapped_name	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the <b>allocate-interface</b> command.
physical_interface	(Optional) Identifies the interface ID, such as <b>gigabitethernet0/1</b> . See the <b>interface</b> command for accepted values.
subinterface	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.

## Defaults

If you do not specify an interface, this command shows the interface name configuration for all interfaces.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was changed from <b>show nameif</b> .

## Usage Guidelines

In multiple context mode, if you mapped the interface ID in the **allocate-interface** command, you can only specify the mapped name in a context.

This display also shows the **security-level** command configuration.

## Examples

The following is sample output from the **show running-config nameif** command:

```
hostname# show running-config nameif
!
interface GigabitEthernet0/0
  nameif inside
  security-level 100
!
interface GigabitEthernet0/1
  nameif test
  security-level 0
!
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>allocate-interface</b>	Assigns interfaces and subinterfaces to a security context.
<b>clear configure interface</b>	Clears the interface configuration.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>nameif</b>	Sets the interface name.
<b>security-level</b>	Sets the security level for the interface.

# show running-config names

To display the IP address-to-name conversions, use the **show running-config names** command in privileged EXEC mode.

**show running-config names**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** Use with the **names** command.

**Examples** The following example shows how to display the IP address-to-name conversion:

```
hostname# show running-config names
name 192.168.42.3 sa_inside
name 209.165.201.3 sa_outside
```

Related Commands	Command	Description
	<b>clear configure name</b>	Clears the list of names from the configuration.
	<b>name</b>	Associates a name with an IP address.
	<b>names</b>	Enables IP address-to-name conversions that you can configured with the <b>name</b> command.
	<b>show running-config name</b>	Displays a list of names associated with IP addresses.

# show running-config nat

To display a pool of global IP addresses that are associated with a network, use the **show running-config nat** command in privileged EXEC mode.

```
show running-config nat [interface_name] [nat_id]
```

## Syntax Description

<i>interface_name</i>	(Optional) Name of the network interface.
<i>nat_id</i>	(Optional) ID of the group of host or networks.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	Added keyword <b>running-config</b> .

## Usage Guidelines

This command displays the maximum connection value for the UDP protocol. Every time the UPD maximum connection value is not set, the value will be displayed as 0 by default and will not be applied.



### Note

In transparent mode, only NAT ID 0 is valid.

## Examples

This example shows how to display a pool of global IP addresses that are associated with a network:

```
hostname# show running-config nat
nat (inside) 1001 10.7.2.0 255.255.255.224 0 0
nat (inside) 1001 10.7.2.32 255.255.255.224 0 0
nat (inside) 1001 10.7.2.64 255.255.255.224 0 0
nat (inside) 1002 10.7.2.96 255.255.255.224 0 0
nat (inside) 1002 10.7.2.128 255.255.255.224 0 0
nat (inside) 1002 10.7.2.160 255.255.255.224 0 0
nat (inside) 1003 10.7.2.192 255.255.255.224 0 0
nat (inside) 1003 10.7.2.224 255.255.255.224 0 0
```

## Related Commands

Command	Description
<code>clear configure nat</code>	Removes the NAT configuration.
<code>nat</code>	Associates a network with a pool of global IP addresses.

# show running-config nat-control

To show the NAT configuration requirement, use the **show running-config nat-control** command in privileged EXEC mode.

**show running-config nat-control**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config nat-control** command:

```
hostname# show running-config nat-control
no nat-control
```

Related Commands	Command	Description
	<b>nat</b>	Defines an address on one interface that is translated to a global address on another interface.
	<b>nat-control</b>	Allows inside hosts to communicate with outside networks without configuring a NAT rule.

# show running-config ntp

To show the NTP configuration in the running configuration, use the **show running-config ntp** command in privileged EXEC mode.

**show running-config ntp**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config ntp** command:

```
hostname# show running-config ntp
ntp authentication-key 1 md5 test2
ntp authentication-key 2 md5 test
ntp trusted-key 1
ntp trusted-key 2
ntp server 10.1.1.1 key 1
ntp server 10.2.1.1 key 2 prefer
```

Related Commands	Command	Description
	<b>ntp authenticate</b>	Enables NTP authentication.
	<b>ntp authentication-key</b>	Sets an encrypted authentication key to synchronize with an NTP server.
	<b>ntp server</b>	Identifies an NTP server.
	<b>ntp trusted-key</b>	Provides a key ID for the security appliance to use in packets for authentication with an NTP server.
	<b>show ntp status</b>	Shows the status of the NTP association.



# show running-config object-group

To display the current object groups, use the **show running-config object-group** command in privileged EXEC mode.

```
show running-config [all] object-group [protocol | service | network | icmp-type | id obj_grp_id]
```

## Syntax Description

<b>icmp-type</b>	(Optional) Displays ICMP type object groups.
<b>id obj_grp_id</b>	(Optional) Displays the specified object group.
<b>network</b>	(Optional) Displays network object groups.
<b>protocol</b>	(Optional) Displays protocol object groups.
<b>service</b>	(Optional) Displays service object groups.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following is sample output from the **show running-config object-group** command:

```
hostname# show running-config object-group
object-group protocol proto_grp_1
  protocol-object udp
  protocol-object tcp
object-group service eng_service tcp
  port-object eq smtp
  port-object eq telnet
object-group icmp-type icmp-allowed
  icmp-object echo
  icmp-object time-exceeded
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>clear configure object-group</b>	Removes all the <b>object group</b> commands from the configuration.
<b>group-object</b>	Adds network object groups.
<b>network-object</b>	Adds a network object to a network object group.
<b>object-group</b>	Defines object groups to optimize your configuration.
<b>port-object</b>	Adds a port object to a service object group.

# show running-config passwd

To show the encrypted login passwords, use the **show running-config passwd** command in privileged EXEC mode.

```
show running-config {passwd | password}
```

<b>Syntax Description</b>	<b>passwd   password</b> You can enter either command; they are aliased to each other.
---------------------------	--

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.0(1)	This command was changed from the <b>show passwd</b> command.

<b>Usage Guidelines</b>	The password is saved to the configuration in encrypted form, so you cannot view the original password after you enter it. The password displays with the <b>encrypted</b> keyword to indicate that the password is encrypted.
-------------------------	--

<b>Examples</b>	The following is sample output from the <b>show running-config passwd</b> command:
-----------------	--

```
hostname# show running-config passwd
passwd 2AfK9Kjr3BE2/J2r encrypted
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>clear configure passwd</b>	Clears the login password.
	<b>enable</b>	Enters privileged EXEC mode.
	<b>enable password</b>	Sets the enable password.
	<b>passwd</b>	Sets the login password.
	<b>show curpriv</b>	Shows the currently logged in username and the user privilege level.

# show running-config pim

To display the PIM commands in the running configuration, use the **show running-config pim** command in privileged EXEC mode.

## show running-config pim

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **show running-config pim** command displays the **pim** commands entered in global configuration mode. It does not show the **pim** commands entered in interface configuration mode. To see the **pim** commands entered in interface configuration mode, enter the **show running-config interface** command.

**Examples** The following is sample output from the **show running-config pim** command:

```
hostname# show running-config pim

pim old-register-checksum
pim spt-threshold infinity
```

Related Commands	Command	Description
	<b>clear configure pim</b>	Removes the <b>pim</b> commands from the running configuration.
	<b>show running-config interface</b>	Displays interface configuration commands entered in interface configuration mode.

# show running-config policy-map

To display all the policy-map configurations or the default policy-map configuration, use the **show running-config policy-map** command in privileged EXEC mode.

```
show running-config [all] policy-map [policy_map_name | type inspect [protocol]]
```

Syntax Description		
<b>all</b>	(Optional) Shows all commands, including the commands you have not changed from the default.	
<i>policy_map_name</i>	(Optional) Shows the running configuration for a policy map name.	
<i>protocol</i>	(Optional) Specifies the type of inspection policy map you want to show. Available types include:	<ul style="list-style-type: none"> <li>• dcerpc</li> <li>• dns</li> <li>• esmtp</li> <li>• ftp</li> <li>• gtp</li> <li>• h323</li> <li>• http</li> <li>• im</li> <li>• mgcp</li> <li>• netbios</li> <li>• p2p</li> <li>• radius-accounting</li> <li>• sip</li> <li>• skinny</li> <li>• snmp</li> </ul>
<b>type inspect</b>	(Optional) Shows inspection policy maps.	

## Defaults

Omitting the **all** keyword displays only the explicitly configured policy-map configuration.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

Specifying the **all** keyword displays the default policy-map configuration as well as the explicitly configured policy-map configuration.

**Examples**

The following is sample output from the **show running-config policy-map** command:

```
hostname# show running-config policy-map
!
policy-map localmap1
  description this is a test.
  class firstclass
  priority
  ids promiscuous fail0close
  set connection random-seq# enable
  class class-default
!
```

**Related Commands**

Command	Description
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>clear configure policy-map</b>	Removes the entire policy configuration.

# show running-config pop3s

To display the running configuration for POP3S, use the **show running-config pop3s** command in privileged EXEC mode. To have the display include the default configuration, use the **all** keyword.

```
show running-config [all] pop3s
```

<b>Syntax Description</b>	<b>all</b>	Displays the running configuration including default values.
---------------------------	------------	--

**Defaults** No default behavior or values.

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.0(1)(1)	This command was introduced.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—
Webvpn	•	—	•	—	—

**Examples** The following is sample output from the **show running-config pop3s** command:

```
hostname# show running-config pop3s

pop3s
 server 10.160.102.188
 authentication-server-group KerbSvr
 authentication aaa

hostname# show running-config all pop3s

pop3s
 port 995
 server 10.160.102.188
 outstanding 20
 name-separator :
 server-separator @
 authentication-server-group KerbSvr
 no authorization-server-group
 no accounting-server-policy
 no default-group-policy
 authentication aaa
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure pop3s</b>	Removes the POP3S configuration.
<b>pop3s</b>	Creates or edits a POP3S e-mail proxy configuration.



# show running-config port-forward

To display the set(s) of applications that WebVPN users can access over forwarded TCP ports, use the **show running-config port-forward** command in privileged EXEC mode.

**show running-config [all] port-forward**

<b>Syntax Description</b>	<b>all</b> (Optional) Displays the running configuration including default values.
---------------------------	--

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config port-forward** command:

```
hostname# show running-config port-forward

port-forward Telnet 3500 10.148.1.5 23
port-forward Telnet 3501 10.148.1.81 23
port-forward Telnet 3502 10.148.1.82 23
port-forward SSH2 4976 10.148.1.81 22
port-forward SSH2 4977 10.148.1.85 22
port-forward Apps1 10143 flask.CompanyA.com 143
port-forward Apps1 10110 flask.CompanyA.com 110
port-forward Apps1 10025 flask.CompanyA.com 25
port-forward Apps1 11533 sametime-im.CompanyA.com 1533
port-forward Apps1 10022 dds.CompanyA.com 22
port-forward Apps1 54000 10.148.1.5 23
port-forward Apps1 58000 vpn3060-1 23
port-forward Apps1 58001 vpn3005-1 23
hostname#
```

Related Commands	Command	Description
	<b>clear configure port-forward</b>	Removes all port forwarding commands from the configuration. If you include the listname, the security appliance removes only the commands for that list.
	<b>port-forward</b>	Configures the set of applications that WebVPN users can access.
	<b>port-forward (webvpn)</b>	Enables WebVPN application access for a user or group policy.

# show running-config prefix-list

To display the **prefix-list** command in the running configuration, use the **show running-config prefix-list** command in privileged EXEC mode.

```
show running-config prefix-list
```

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

Release	Modification
7.0(1)	This command was changed from the <b>show prefix-list</b> command to the <b>show running-config prefix-list</b> command.

**Usage Guidelines** The **prefix-list description** commands always appear before their associated **prefix-list** commands in the running configuration. It does not matter what order you entered them.

**Examples** The following is sample output from the **show running-config prefix-list** command:

```
hostname# show running-config prefix-list

!
prefix-list abc description A sample prefix list
prefix-list abc seq 5 permit 192.168.0.0/8 le 24
prefix-list abc seq 10 deny 10.0.0.0/8 le 32
!
```

Command	Description
<b>clear configure prefix-list</b>	Clears the <b>prefix-list</b> commands from the running configuration.

# show running-config priority-queue

To display the priority queue configuration details for an interface, use the **show running-config priority-queue** command in privileged EXEC mode.

**show running-config priority-queue** *interface-name*

## Syntax Description

<i>interface-name</i>	Specifies the name of the interface for which you want to show the priority queue details
-----------------------	---

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

This example shows the use of the show running-config priority-queue command for the interface named test, and the command output:

```
hostname# show running-config priority-queue test
priority-queue test
  queue-limit 50
  tx-ring-limit 10
hostname#
```

## Related Commands

Command	Description
<b>clear configure priority-queue</b>	Removes the priority-queue configuration from the named interface.
<b>priority-queue</b>	Configures priority queueing on an interface.
<b>show priority-queue statistics</b>	Shows the statistics for the priority queue configured on the named interface.

# show running-config privilege

To display the privileges for a command or a set of commands, use the **show running-config privilege** command in privileged EXEC mode.

**show running-config [all] privilege [all | command *command* | level *level*]**

## Syntax Description

<b>all</b>	(Optional) First occurrence -- Displays the default privilege level.
<b>all</b>	(Optional) Second occurrence -- Displays the privilege level for all commands.
<b>command</b> <i>command</i>	(Optional) Displays the privilege level for a specific command.
<b>level</b> <i>level</i>	(Optional) Displays the commands that are configured with the specified level; valid values are from 0 to 15.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was modified for this release to conform to CLI guidelines.

## Usage Guidelines

Use the **show running-config privilege** command to view the current privilege level.

## Examples

```
hostname(config)# show running-config privilege level 0
privilege show level 0 command checksum
privilege show level 0 command curpriv
privilege configure level 0 mode enable command enable
privilege show level 0 command history
privilege configure level 0 command login
privilege configure level 0 command logout
privilege show level 0 command pager
privilege clear level 0 command pager
privilege configure level 0 command pager
privilege configure level 0 command quit
privilege show level 0 command version
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure privilege</b>	Remove privilege command statements from the configuration.
<b>privilege</b>	Configure the command privilege levels.
<b>show curpriv</b>	Display current privilege level.
<b>show running-config privilege</b>	Display privilege levels for commands.

# show running-config regex

To display all regular expressions configured with the **regex** command, use the **show running-config regex** command in privileged EXEC mode.

**show running-config regex**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behaviors or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output of the **show running-config regex** command, which shows all regular expressions:

```
hostname# show running-config regex
regex test "string"
```

Related Commands	Command	Description
	<b>class-map type regex</b>	Creates a regular expression class map.
	<b>clear configure regex</b>	Clears all regular expressions.
	<b>regex</b>	Creates a regular expression.
	<b>test regex</b>	Tests a regular expression.

# show running-config route

To display the route configuration that is running on the security appliance, use the **show running-config route** command in privileged EXEC mode.

**show running-config [all] route**

**Syntax Description** No default behavior or values.

**Defaults** This command has no arguments or keywords.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	Added keyword <b>running-config</b> .

**Examples** The following is sample output from the **show running-config route** command:

```
hostname# show running-config route
route outside 10.30.10.0 255.255.255.0 1
```

Related Commands	Command	Description
	<b>clear configure route</b>	Removes the <b>route</b> commands from the configuration that do not contain the <b>connect</b> keyword.
	<b>route</b>	Specifies a static or default route for the an interface.
	<b>show route</b>	Displays route information.

# show running-config route-map

To display the information about the route map configuration, use the **show running-config route-map** command in privileged EXEC mode.

```
show running-config route-map [map_tag]
```

<b>Syntax Description</b>	<i>map_tag</i> (Optional) Text for the route-map tag.
---------------------------	---

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	•	—

Command History	Release	Modification
	7.0(1)	Added keyword <b>running-config</b> .

<b>Usage Guidelines</b>	To show all route-maps defined in the configuration, use the <b>show running-config route-map</b> command. To show individual route-maps by name, use the <b>show running-config route-map map_tag</b> command, where <i>map_tag</i> is the name of the route-map. Multiple route maps may share the same map tag name.
-------------------------	---

<b>Examples</b>	The following is sample output from the <b>show running-config route-map</b> command:
-----------------	---

```
hostname# show running-config route-map
route-map maptag1 permit sequence 10
  set metric 5
  match metric 3
route-map maptag1 permit sequence 12
  set metric 5
  match interface backup
  match metric 3
route-map maptag2 deny sequence 10
  match interface dmz
```

<b>Related Commands</b>	
-------------------------	--



Command	Description
<b>clear configure route-map</b>	Removes the conditions for redistributing the routes from one routing protocol into another routing protocol.
<b>route-map</b>	Defines the conditions for redistributing routes from one routing protocol into another.

# show running-config router

To display the global configuration commands for the specified routing protocol, use the **show running-config router** command in privileged EXEC mode.

```
show running-config [all] router [ospf [process_id] | rip]
```

## Syntax Description

<i>all</i>	Shows all router commands, including the commands you have not changed from the default.
<b>ospf</b>	(Optional) Displays the global OSPF configuration commands.
<i>process_id</i>	(Optional) Displays the commands for the selected OSPF process.
<b>rip</b>	(Optional) Displays the global RIP configuration commands.

## Defaults

If a routing protocol is not specified, the configuration commands for all configured routing protocols are displayed.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was changed from the <b>show router</b> command to the <b>show running-config router</b> command.

## Examples

The following is sample output from the **show running-config router ospf** command:

```
hostname# show running-config router ospf 1

router ospf 1
  log-adj-changes detail
  ignore lsa mospf
  no compatible rfc1583
  distance ospf external 200
  timers spf 10 20
  timers lsa-group-pacing 60
```

The following is sample output from the **show running-config router rip** command:

```
router rip
  network 10.0.0.0
  version 2
  no auto-summary
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure router</b>	Clears all router commands from the running configuration.
<b>router ospf</b>	Enables an OSPF routing process and enters router configuration mode for that process.
<b>router rip</b>	Enables a RIP routing process and enters router configuration mode for that process.

# show running-config same-security-traffic

To display the same-security interface communication, use the **show running-config same-security-traffic** command in privileged EXEC mode.

```
show running-config same-security-traffic
```

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config same-security-traffic** command:

```
hostname# show running-config same-security-traffic
```

Related Commands	Command	Description
	<b>same-security-traffic</b>	Permits communication between interfaces with equal security levels.

# show running-config service

To display the system services, use the **show running-config service** command in privileged EXEC mode.

**show running-config service**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	The keyword <b>running-config</b> was added.

**Examples** This command shows how to display the system services:

```
hostname# show running-config service
service resetoutside
```

Related Commands	Command	Description
	<b>service</b>	Enables system services.

# show running-config service-policy

To display all currently running service policy configurations, use the **show running-config service-policy** command in privileged EXEC mode.

**show running-config [all] service-policy**

<b>Syntax Description</b>	<b>all</b>	(Optional) Shows all service policy commands, including the commands you have not changed from the default.
---------------------------	------------	---

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output of the **show running-config service-policy** command:

```
hostname# show running-config service-policy
```

Related Commands	Command	Description
	<b>show service-policy</b>	Displays the service policy.
	<b>service-policy</b>	Configures service policies.
	<b>clear service-policy</b>	Clears service policy configurations.
	<b>clear configure service-policy</b>	Clears service policy configurations.

# show running-config sla monitor

To display the SLA operation commands in the running configuration, use the **show running-config sla monitor** command in privileged EXEC mode.

```
show running-config sla monitor [sla-id]
```

## Syntax Description

<i>sla_id</i>	Specifies the SLA ID for the <b>sla monitor</b> commands being displayed. Valid values are from 1 to 2147483647.
---------------	--

## Defaults

If the *sla-id* is not specified, the **sla monitor** commands for all SLA operations are displayed.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command displays the **sla monitor** commands, associated SLA monitor configuration mode commands, and the associated **sla monitor** schedule command, if present. It does not display the **track rtr** commands in the configuration.

## Examples

The following is sample output from the **show running-config sla monitor 5** command. It displays the SLA monitor configuration for the SLA operation with the SLA ID of 5:

```
hostname# show running-config sla monitor 5

sla monitor 124
  type echo protocol ipIcmpEcho 10.1.1.1 interface outside
  timeout 1000
  frequency 3
sla monitor schedule 124 life forever start-time now
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>clear configure sla monitor</b>	Removes the <b>sla monitor</b> , and associated commands, from the running configuration.
<b>show sla monitor configuration</b>	Displays configuration values for the specified SLA operation.



# show running-config snmp-map

To show the SNMP maps that have been configured, use the **show running-config snmp-map** command in privileged EXEC mode.

```
show running-config snmp-map map_name
```

## Syntax Description.

*map\_name* Displays configuration for the specified SNMP map.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **show running-config snmp-map** command displays the SNMP maps that have been configured.

## Examples

The following is sample output from the **show running-config snmp-map** command:

```
hostname# show running-config snmp-map snmp-policy
!
snmp-map snmp-policy
deny version 1
!
```

## Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>deny version</b>	Disallows traffic using a specific version of SNMP.
<b>inspect snmp</b>	Enable SNMP application inspection.
<b>snmp-map</b>	Defines an SNMP map and enables SNMP map configuration mode.

# show running-config snmp-server

To display all currently running SNMP server configurations, use the **show running-config snmp-server** command in global configuration mode.

```
show running-config [default] snmp-server
```

## Syntax Description

<b>default</b>	Displays the default snmp server configuration.
----------------	---

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following is an example of the **show running-config snmp-server** command:

```
hostname# show running-config snmp-server
```

## Related Commands

Command	Description
<b>snmp-server</b>	Configures the SNMP server.
<b>clear snmp-server</b>	Clears the SNMP server configuration.
<b>show snmp-server statistics</b>	Displays SNMP server configuration.

# show running-config ssh

To show the SSH commands in the current configuration, use the **show running-config ssh** command in privileged EXEC mode.

```
show running-config [default] ssh [timeout | version]
```

```
show run [default] ssh [timeout]
```

## Syntax Description

<b>default</b>	(Optional) Displays the default SSH configuration values along with the configured values.
<b>timeout</b>	(Optional) Displays the current SSH session timeout value.
<b>version</b>	(Optional) Displays the version of SSH currently being supported.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	The command was changed from the <b>show ssh</b> command to the <b>show running-config ssh</b> command.

## Usage Guidelines

This command shows the current ssh configuration. To display only the SSH session timeout value, use the **timeout** option. To see a list of active SSH sessions, use the **show ssh sessions** command.

## Examples

The following example displays the SSH session timeout:

```
hostname# show running-config timeout
ssh timeout 5 minutes
hostname#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>clear configure ssh</b>	Clears all SSH commands from the running configuration.
<b>ssh</b>	Allows SSH connectivity to the security appliance from the specified client or network.
<b>ssh scopy enable</b>	Enables a secure copy server on the security appliance.
<b>ssh timeout</b>	Sets the timeout value for idle SSH sessions.
<b>ssh version</b>	Restricts the security appliance to using either SSH Version 1 or SSH Version 2.

# show running-config ssl

To display the current set of configured ssl commands, use the **show running-config ssl** command in privileged EXEC mode.

**show running-config ssl**

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Examples

The following is sample output from the **show running-config ssl** command:

```
hostname# show running-config ssl
ssl server-version tlsv1
ssl client-version tlsv1-only
ssl encryption 3des-sha1
ssl trust-point Firstcert
```

## Related Commands

Command	Description
<b>clear config ssl</b>	Removes all ssl commands from the configuration, reverting to the default values.
<b>ssl client-version</b>	Specifies the SSL/TLS protocol version the security appliance uses when acting as a client.
<b>ssl server-version</b>	Specifies the SSL/TLS protocol version the security appliance uses when acting as a server.
<b>ssl trust-point</b>	Specifies the certificate trust point that represents the SSL certificate for an interface.

# show running-config static

To display all **static** commands in the configuration, use the **show running-config static** command in privileged EXEC mode.

**show running-config static**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	The keyword <b>running-config</b> was added.

**Usage Guidelines** This command displays the maximum connections value for the UDP protocol. If the UDP maximum connections value is “0” or not set, the limit enforcement is disabled.

**Examples** This example shows how to display all static commands in the configuration:

```
hostname# show running-config static
static (inside,outside) 192.150.49.91 10.1.1.91 netmask 255.255.255.255
static (inside,outside) 192.150.49.200 10.1.1.200 netmask 255.255.255.255 tcp 255 0
```



**Note** No UDP value connection limit is shown.

Related Commands	Command	Description
	<b>clear configure static</b>	Removes all the <b>static</b> commands from the configuration.
	<b>static</b>	Configures a persistent one-to-one address translation rule by mapping a local IP address to a global IP address.

# show running-config sunrpc-server

To display the information about the SunRPC configuration, use the **show running-config sunrpc-server** command in privileged EXEC mode.

```
show running-config sunrpc-server interface_name ip_addr mask service service_type protocol
[TCP | UDP] port port [- port] timeout hh:mm:ss
```

Syntax Description		
<i>interface_name</i>		Server interface.
<i>ip_addr</i>		Server IP address.
<i>mask</i>		Network mask.
<b>port</b> <i>port - port</i>		SunRPC protocol port range and optionally, a second port.
<b>protocol</b>		SunRPC transport protocol.
<b>service</b>		Specifies a service.
<i>service_type</i>		Sets the SunRPC service program type.
<b>timeout</b> <i>hh:mm:ss</i>		Specifies the timeout idle time after which the access for the SunRPC service traffic is closed.
<b>TCP</b>		(Optional) Specifies TCP.
<b>UDP</b>		(Optional) Specifies UDP.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The *service\_type* is specified in the **sunrpcinfo** command.

## Examples

The following is sample output from the **show running-config sunrpc-server** command:

```
hostname# show running-config sunrpc-server
inside 30.26.0.23 255.255.0.0 service 2147483647 protocol TCP port 2222 timeout 0:03:00
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure sunrpc-server</b>	Clears the SunRPC services from the security appliance.
<b>debug sunrpc</b>	Enables debug information for SunRPC.
<b>show conn</b>	Displays the connection state for different connection types, including SunRPC.
<b>sunrpc-server</b>	Creates the SunRPC services table.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types, including SunRPC.



# show running-config sysopt

To show the **sysopt** command configuration in the running configuration, use the **show running-config sysopt** command in privileged EXEC mode.

## show running-config sysopt

### Syntax Description

This command has no arguments or keywords.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

### Command History

Release	Modification
7.0(1)	This command was changed from the <b>show sysopt</b> command.

### Examples

The following is sample output from the **show running-config sysopt** command:

```
hostname# show running-config sysopt
no sysopt connection timewait
sysopt connection tcpmss 1200
sysopt connection tcpmss minimum 400
no sysopt nodnsalias inbound
no sysopt nodnsalias outbound
no sysopt radius ignore-secret
sysopt connection permit-ipsec
```

### Related Commands

Command	Description
<b>clear configure sysopt</b>	Clears the <b>sysopt</b> command configuration.
<b>sysopt connection permit-ipsec</b>	Permits any packets that come from an IPSec tunnel without checking any ACLs for interfaces.
<b>sysopt connection tcpmss</b>	Overrides the maximum TCP segment size or ensures that the maximum is not less than a specified size.
<b>sysopt connection timewait</b>	Forces each TCP connection to linger in a shortened TIME_WAIT state after the final normal TCP close-down sequence.
<b>sysopt nodnsalias</b>	Disables alteration of the DNS A record address when you use the <b>alias</b> command.

# show running-config tcp-map

To display the information about the TCP map configuration, use the **show running-config tcp-map** command in privileged EXEC mode.

```
show running-config tcp-map [tcp_map_name]
```

<b>Syntax Description</b>	<i>tcp_map_name</i> (Optional) Text for the TCP map name; the text can be up to 58 characters in length.
---------------------------	--

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.0(1)	This command was introduced.

<b>Examples</b>	The following is sample output from the <b>show running-config tcp-map</b> command:
-----------------	---

```
hostname# show running-config tcp-map
tcp-map localmap
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>tcp-map</b>	Creates a TCP map and allows access to tcp-map configuration mode.
	<b>clear configure tcp-map</b>	Clears the TCP map configuration.

# show running-config telnet

To display the current list of IP addresses that are authorized to use Telnet connections to the security appliance, use the **show running-config telnet** command in privileged EXEC mode. You can also use this command to display the number of minutes that a Telnet session can remain idle before being closed by the security appliance.

**show running-config telnet [timeout]**

Syntax Description	timeout	(Optional) Displays the number of minutes that a Telnet session can be idle before being closed by the security appliance.
--------------------	---------	--

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	The keyword <b>running-config</b> was added.

**Examples** This example shows how to display the current list of IP addresses that are authorized for use by Telnet connections to the security appliance:

```
hostname# show running-config telnet
2003 Jul 15 14:49:36 %MGMT-5-LOGIN_FAIL:User failed to
log in from 128.107.183.22 through Telnet
2003 Jul 15 14:50:27 %MGMT-5-LOGIN_FAIL:User failed to log in from 128.107.183.
22 through Telnet
```

Related Commands	Command	Description
	<b>clear configure telnet</b>	Removes the Telnet connection from the configuration.
	<b>telnet</b>	Adds Telnet access to the console and sets the idle timeout.

# show running-config terminal

To display the current terminal settings, use the **show running-config terminal** command in privileged EXEC mode.

**show running-config terminal**

**Syntax Description** This command has no keywords or arguments.

**Defaults** The default display width is 80 columns.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example clears the page length setting:

```
hostname# show running-config terminal
```

```
Width = 80, no monitor
```

Related Commands	Command	Description
	<b>clear configure terminal</b>	Clears the terminal display width setting.
	<b>terminal</b>	Sets the terminal line parameters.
	<b>terminal width</b>	Sets the terminal display width.

## show running-config tftp-server

To display the default TFTP server address and directory, use the **show running-config tftp-server** command in global configuration mode.

**show running-config tftp-server**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

Command History	Release	Modification
	7.0(1)	The <b>running-config</b> keyword was added.

**Examples** This example shows how to display the IP/IPv6 address of the default TFTP server and the directory of the configuration file:

```
hostname(config)# show running-config tftp-server
tftp-server inside 10.1.1.42 /temp/config/test_config
```

Related Commands	Command	Description
	configure net	Loads the configuration from the TFTP server and path you specify.
	tftp-server	Configures the default TFTP server address and the directory of the configuration file.

# show running-config timeout

To display the timeout value of all protocols, or just a specific one, use the **show running-config timeout** command in privileged EXEC mode.

```
show running-config timeout protocol
```

<b>Syntax Description</b>	<i>protocol</i>	(Optional) Displays the timeout value of the specified protocol. Supported protocols are: <b>xlate</b> , <b>conn</b> , <b>udp</b> , <b>icmp</b> , <b>rpc</b> , <b>h323</b> , <b>h225</b> , <b>mgcp</b> , <b>mgcp-pat</b> , <b>sip</b> , <b>sip_media</b> , and <b>uauth</b> .
---------------------------	-----------------	---

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	The <b>running-config</b> and <b>mgcp-pat</b> keywords were added.

**Examples** This example shows how to display the timeout values for the system:

```
hostname(config)# show timeout
timeout xlate 3:00:00
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 icmp 0:00:02 rpc 0:10:00 h3
23 0:05:00 h225 1:00:00 mgcp 0:05:00 mgcp-pat 0:05:00 sip 0:30:00 sip_media 0:02
:00
timeout uauth 0:00:00 absolute
```

Related Commands	Command	Description
	<b>clear configure timeout</b>	Restores the default idle time durations.
	<b>timeout</b>	Sets the maximum idle time duration.

# show running-config track

To display **track rtr** commands in the running configuration, use the **show running-config track** command in privileged EXEC mode.

```
show running-config track [track-id]
```

Syntax	Description
<i>track-id</i>	(Optional) Limits the display to the <b>track rtr</b> command with the specified tracking object ID.

**Defaults** If the *track-id* is not specified, all **track rtr** commands in the running configuration are shown.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config track** command:

```
hostname# show running-config track 5
track 5 rtr 124 reachability
```

Related Commands	Command	Description
	<b>clear configure track</b>	Removes the <b>track rtr</b> commands from the running configuration.
	<b>show track</b>	Displays information about the objects being tracked.
	<b>track rtr</b>	Creates a tracking entry to poll the SLA.

# show running-config tunnel-group

To display tunnel group information about all or a specified tunnel group and tunnel-group attributes, use the **show running-config tunnel-group** command in global configuration or privileged EXEC mode.

```
show running-config [all] tunnel-group [name [general-attributes | ipsec-attributes |
ppp-attributes]]
```

Syntax Description	all	[Optional] Displays all tunnel-group commands, including the commands you have not changed from the default.
	<b>general-attributes</b>	Displays configuration information for general attributes.
	<b>ipsec-attributes</b>	Displays configuration information for IPSec attributes.
	<i>name</i>	Specifies the name of the tunnel group.
	<b>ppp-attributes</b>	Displays configuration information for PPP attributes.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•		•		
Privileged EXEC	•		•		

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following example entered in global configuration mode, displays the current configuration for all tunnel groups:

```
hostname<config># show running-config tunnel-group
tunnel-group 209.165.200.225 type IPSec_L2L
tunnel-group 209.165.200.225 ipsec-attributes
    pre-shared-key xyzx
hostname<config>#
```

**Related Commands**



Command	Description
<b>clear configure tunnel-group</b>	Removes tunnel-group configuration
<b>tunnel-group general-attributes</b>	Enters subconfiguration mode for specifying general attributes for specified tunnel group.
<b>tunnel-group ipsec-attributes</b>	Enters subconfiguration mode for specifying IPsec attributes for specified tunnel group.
<b>tunnel-group</b>	Enters tunnel-group subconfiguration mode for the specified type.

# show running-config url-block

To show the configuration for buffers and memory allocation used by URL filtering, use the **show running-config url-block** command in privileged EXEC mode.

```
show running-config url-block [ block | url-mempool | url-size ]
```

Syntax Description	block	Displays the configuration for the maximum number of blocks that will be buffered.
	url-mempool	Displays the configuration for the maximum allow URL size (in KB).
	url-size	Displays the configuration for the memory resource (in KB) allocated for the long URL buffer.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	Preexisting	This command was previously existing.

**Usage Guidelines** The **show running-config url-block** command displays the configuration for buffers and memory allocation used by URL filtering.

**Examples** The following is sample output from the **show running-config url-block** command:

```
hostname# show running-config url-block
!
url-block block 56
!
```

## Related Commands

Commands	Description
<b>clear url-block block statistics</b>	Clears the block buffer usage counters.
<b>show url-block</b>	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
<b>url-block</b>	Manage the URL buffers used for web server responses.
<b>url-cache</b>	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# show running-config url-cache

To show the cache configuration used by URL filtering, use the **show running-config url-cache** command in privileged EXEC mode.

**show running-config url-cache**

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was previously existing.

## Usage Guidelines

The **show running-config url-cache** command displays the cache configuration used by URL filtering.

## Examples

The following is sample output from the **show running-config url-cache** command:

```
hostname# show running-config url-cache
!
url-cache src_dst 128
!
```

## Related Commands

Commands	Description
<b>clear url-cache statistics</b>	Removes <b>url-cache</b> command statements from the configuration.
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>show url-cache statistics</b>	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
<b>url-cache</b>	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# show running-configuration url-list

To display the set(s) of URLs that WebVPN users can access, use the **show running-configuration url-list** command in privileged EXEC mode.

**show running-configuration url-list**

## Syntax Description

This command has no arguments or keywords.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—
Webvpn	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Examples

The following is sample output from the **show running-configuration url-list** command:

```
hostname# show running-configuration url-list
url-list userURL "SW Engineering" http://10.1.1.2
url-list userURL "My Company" http://www.mycompany.com
url-list userURL "401K Program" https://401k.com
url-list userURL "Exchange5.5 Mail" http://10.1.1.11/exchange
url-list URLlist2 "OWA-2000" http://10.1.1.7/exchange
```

## Related Commands

Command	Description
<b>clear configuration url-list</b>	Removes all url-list commands from the configuration. If you include the listname, the security appliance removes only the commands for that list.
<b>url-list</b>	Configures the set of URLs that WebVPN users can access.
<b>url-list</b>	Enables WebVPN URL access for a specific group policy or user.

# show running-config url-server

To show the URL filtering server configuration, use the **show running-config url-server** command in privileged EXEC mode.

```
show running-config url-server
```

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was previously existing.

## Usage Guidelines

The **show running-config url-server** command displays the URL filtering server configuration.

## Examples

The following is sample output from the **show running-config url-server** command:

```
hostname# show running-config url-server
!
url-server (perimeter) vendor websense host 10.0.1.1
!
```

## Related Commands

Commands	Description
<b>clear url-server</b>	Clears the URL filtering server statistics.
<b>show url-server</b>	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
<b>url-block</b>	Manages the URL buffers used for web server responses while waiting for a filtering decision from the filtering server.
<b>url-cache</b>	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

## show running-config username

To display the running configuration for a particular user, use the **show running-config username** command in privileged EXEC mode with the username appended. To display the running configuration for all users, use this command without a username.

```
show running-config [all] username [name] [attributes]
```

### Syntax Description

<b>attributes</b>	Displays the specific AVPs for the user(s)
<b>all</b>	(Optional) Displays all username commands, including the commands you have not changed from the default.
<i>name</i>	Provides the name of the user.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—
Username	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Examples

The following is sample output from the show the running-config username for a user named anyuser:

```
hostname# show running-config username anyuser
username anyuser password .8T1d6ik58/lzXS5 encrypted privilege 3
username anyuser attributes
vpn-group-policy DefaultGroupPolicy
vpn-idle-timeout 10
vpn-session-timeout 120
vpn-tunnel-protocol IPSec
```

### Related Commands

Command	Description
<b>clear config username</b>	Clears the username database.
<b>username</b>	Adds a user to the security appliance database.
<b>username attributes</b>	Lets you configure attributes for specific users.

# show running-config virtual

To display the IP address of the security appliance virtual server, use the **show running-config virtual** command in privileged EXEC mode.

**show running-config [all] virtual**

Syntax Description	all	Display the virtual server IP address of all virtual servers.
--------------------	-----	---

Defaults	Omitting the <b>all</b> keyword displays the explicitly configured IP address of the current virtual server or servers.
----------	---

Command Modes	The following table shows the modes in which you can enter the command:
---------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	—	—	•

Command History	Release	Modification
	7.0(1)	This command was modified to conform to CLI guidelines.

Usage Guidelines	You must be in privileged EXEC mode to use this command.
------------------	--

Examples	This example displays the <b>show running-config virtual</b> command output for a situation in which there is a previously configured HTTP virtual server:
----------	--

```
hostname(config)# show running-config virtual
virtual http 192.168.201.1
```

Related Commands	Command	Description
	<b>clear configure virtual</b>	Removes <b>virtual</b> command statements from the configuration.
	<b>virtual</b>	Displays the address for authentication virtual servers.



# show running-config vpn load-balancing

To display the current VPN load-balancing virtual cluster configuration, use the **show running-config vpn load-balancing** command in global configuration, privileged EXEC, or VPN load-balancing mode.

**show running-config [all] vpn load-balancing**

## Syntax Description

**all** Display both the default and the explicitly configured VPN load-balancing configuration.

## Defaults

Omitting the **all** keyword displays the explicitly configured VPN load-balancing configuration.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—
vpn load-balancing	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **show running-config vpn load-balancing** command also displays configuration information for the following related commands: **cluster encryption**, **cluster ip address**, **cluster key**, **cluster port**, **nat**, **participate**, and **priority**.

## Examples

This example displays **show running-config vpn load-balancing** command and its output, with the **all** option enabled:

```
hostname(config)# show running-config all vpn load-balancing
vpn load-balancing
  no nat
  priority 9
  interface lbpublic test
  interface lbprivate inside
  no cluster ip address
  no cluster encryption
  cluster port 9023
  no participate
```

Related Commands	Command	Description
	clear configure vpn load-balancing	Removes <b>vpn load-balancing</b> command statements from the configuration.
	show vpn load-balancing	Displays the VPN load-balancing runtime statistics.
	vpn load-balancing	Enters vpn load-balancing mode.

# show running-config webvpn

To display the running configuration for webvpn, use the **show running-config webvpn** command in privileged EXEC mode. To have the display include the default configuration, use the **all** keyword.

```
show running-config [all] webvpn [apcf | auto-signon | cache | proxy-bypass | rewrite |
sso-server | url-list]
```

## Syntax Description

<b>all</b>	(Optional) Displays the running configuration including default values.
<b>apcf</b>	(Optional) Displays the running configuration for WebVPN APCF.
<b>auto-signon</b>	(Optional) Displays the running configuration for WebVPN auto sign-on.
<b>cache</b>	(Optional) Displays the running configuration for WebVPN caching.
<b>proxy-bypass</b>	(Optional) Displays the running configuration for WebVPN proxy bypass.
<b>rewrite</b>	(Optional) Displays the running configuration for WebVPN content transformation.
<b>sso-server</b>	(Optional) Displays the running configuration for single sign-on.
<b>url-list</b>	(Optional) Displays the running configuration for WebVPN access to URLs.

## Defaults

No default behavior or values.

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.
7.1(1)	This command was revised.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—
WebVPN	•	—	•	—	—

## Examples

The following is sample output from the **show running-config webvpn** command:

```
hostname# show running-configuration webvpn
webvpn
title WebVPN Services for ASA-4
title-color green
default-idle-timeout 0
```

```
nbns-server 10.148.1.28 master timeout 2 retry 2
accounting-server-group RadiusACS1
authentication-server-group RadiusACS2
authorization-dn-attributes CN
```

The following is sample output from the **show running-config all webvpn** command:

```
hostname#(config-webvpn)# show running-config all webvpn

webvpn
title WebVPN Services for ASA-4
username-prompt Username
password-prompt Password
login-message Please enter your username and password
logout-message Goodbye
no logo
title-color green
secondary-color #CCCCFF
text-color white
secondary-text-color black
default-idle-timeout 0
no http-proxy
no https-proxy
nbns-server 10.148.1.28 master timeout 2 retry 2
accounting-server-group RadiusACS1
authentication-server-group RadiusACS2
no authorization-server-group
default-group-policy DfltGrpPolicy
authentication aaa
no authorization-required
authorization-dn-attributes CN
hostname#
```

The following is sample output from the **show running-config webvpn sso-server** command:

```
hostname#(config-webvpn)# show running-config webvpn sso-server

sso-server
sso-server bxbsvr type siteminder
web-agent-url http://bxb-netegrity.demo.com/vpnauth/
policy-server-secret cisco1234
sso-server policysvr type siteminder
web-agent-url http://webagent1.mysiteminder.com/ciscoauth/
policy-server-secret Cisco1234
max-retry-attempts 4
request-timeout 10
hostname#(config-webvpn)#
```

#### Related Commands

Command	Description
<b>clear configure webvpn</b>	Removes all nondefault WebVPN configuration attributes.
<b>debug webvpn</b>	Displays debug information about WebVPN sessions.
<b>show webvpn</b>	Displays statistics about WebVPN sessions.

# show running-config webvpn auto-signon

To display all WebVPN auto-signon assignments in the running configuration, use the **show running-config webvpn auto-signon** command in global configuration mode.

**show running-config webvpn auto-signon**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.1(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config webvpn auto-signon**:

```
hostname(config)# webvpn
hostname(config-webvpn)# auto-signon allow ip 10.1.1.0 255.255.255.0 auth-type ntlm
hostname(config-webvpn)# auto-signon allow uri *.example.com/* auth-type basic
hostname(config-webvpn)# show running-config webvpn auto-signon
auto-signon allow ip 10.1.1.0 255.255.255.0 auth-type ntlm
auto-signon allow uri *.example.com/* auth-type basic
```

Related Commands	auto-signon	Configures the security appliance to automatically pass WebVPN login credentials to internal servers.
------------------	-------------	---

# show running-config zonelabs-integrity

To display the Zone Labs Integrity Server configuration, use the **show running-config zonelabs-integrity** command in privileged EXEC mode.

**show running-config [all] zonelabs-integrity**

<b>Syntax Description</b>	<b>all</b>	(Optional) Shows the running configuration including default configuration values.
---------------------------	------------	--

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	—	—	•

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** Use this command to display the addresses of all Zone Labs Integrity Servers and the configured values for the active Zone Labs Integrity Server. Use the **all** parameter to display the default as well as the explicitly configured values.

**Examples** The following is sample output from the **show running-config zonelabs-integrity** command:

```
hostname# show running-config zonelabs-integrity
zonelabs-integrity server-address 10.0.9.1 10.0.9.2
zonelabs-integrity port 300
hostname#
```

The following is sample output from the **show running-config all zonelabs-integrity** command:

```
hostname# show running-config all zonelabs-integrity
zonelabs-integrity server-address 10.0.9.1 10.0.9.2
zonelabs-integrity port 300
zonelabs-integrity interface none
zonelabs-integrity fail-open
zonelabs-integrity fail-timeout 10
zonelabs-integrity ssl-client-authentication disable
zonelabs-integrity ssl-certificate-port 80
hostname#
```

**Related Commands**

Command	Description
clear configure zonelabs-integrity	Clears the Zone Labs Integrity Server configuration.

# show running-config smtps

To display the running configuration for smtps, use the **show running-config smtps** command in privileged EXEC mode. To have the display include the default configuration, use the **all** keyword.

**show running-config [all] smtps**

Syntax Description	all	Displays the running configuration including default values.
--------------------	-----	--

Defaults	No default behavior or values.
----------	--------------------------------

Command Modes	The following table shows the modes in which you can enter the command:
---------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.0(1)(1)	This command was introduced.

The following is sample output from the **show running-config smtps** command:

```
hostname# show running-config smtps

smtps
server 10.1.1.21
 authentication-server-group KerbSvr
 authentication aaa

hostname# show running-config all smtps

smtps
port 995
server 10.1.1.21
outstanding 20
name-separator :
server-separator @
authentication-server-group KerbSvr
no authorization-server-group
no accounting-server-group
no default-group-policy
authentication aaa
hostname#
```

ASA-4#

## Related Commands



<b>Command</b>	<b>Description</b>
<b>clear configure smtps</b>	Removes the SMTPS configuration.
<b>smtps</b>	Creates or edits an SMTPS e-mail proxy configuration

# show running-config vpdn

To display the VPDN configuration used for PPPoE connections, use the **show running-config vpdn** command in privileged EXEC mode:

```
show running-config vpdn
```

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command has no default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Examples** This example shows the use of the show running-config vpdn command and the command output:

```
hostname# show running-config vpdn
vpdn group telecommuters ppp authentication mschap
vpdn username tomm password ***** store-local
```

Related Commands	Command	Description
	<b>show running-config vpdn group</b>	Shows the current configuration for vpdn group.
	<b>show running-config vpdn username</b>	Shows the current configuration for vpdn usernames.

# show running-configuration vpn-sessiondb

To display the current set of configured vpn-sessiondb commands, use the **show running-configuration vpn-sessiondb** command in privileged EXEC mode.

**show running-configuration [all] vpn-sessiondb**

## Syntax Description

**all** (Optional) Displays all **vpn-sessiondb** commands, including the commands you have not changed from the default

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

As of Release 7.0, this command displays only the VPN maximum sessions limit, if configured.

## Examples

The following is sample output for the **show running-configuration vpn-sessiondb** command:

```
hostname# show running-configuration vpn-sessiondb
```

## Related Commands

Command	Description
<b>show vpn-sessiondb</b>	Displays sessions with or without extended details, optionally filtered and sorted by criteria you specify.
<b>show vpn-sessiondb summary</b>	Displays a session summary, including total current session, current sessions of each type, peak and total cumulative, maximum concurrent sessions

# show running-config wccp

To show the WCCP configuration in the running configuration, use the **show running-config wccp** command in privileged EXEC mode.

```
show [all] running-config wccp
```

Syntax	Description
<b>all</b>	Displays the default and explicitly configured configuration information for one or all WCCP commands.

**Defaults** This command has no arguments or keywords.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Examples** The following is sample output from the **show running-config wccp** command:

```
hostname# show running-config wccp
wccp web-cache redirect-list wooster group-list jeeves password whatho
hostname#
```

Related Commands	Command	Description
	<b>wccp</b>	Enables support of WCCP.
	<b>wccp redirect</b>	Enters support of WCCP redirection.







## **show service-policy through show webvpn svc Commands**

---

# show service-policy

To display the configured service policies, use the **service-policy** command in global configuration mode.

```
show service-policy [global | interface intf] [csc | inspect | ips | police | priority]
```

```
show service-policy [global | interface intf] [set connection [details]]
```

```
show service-policy [global | interface intf] [flow protocol {host src_host | src_ip src_mask}
[eq src_port] {host dest_host | dest_ip dest_mask} [eq dest_port] [icmp_number |
icmp_control_message]]
```

## Syntax Description

<b>csc</b>	(Optional) Limits the output to policies that include the <b>csc</b> command.
<i>dest_ip</i>	The destination IP address of the traffic flow.
<i>dest_mask</i>	The subnet mask of the traffic flow destination IP address.
<i>dest_port</i>	(Optional) The destination port used in the traffic flow.
<b>details</b>	(Optional) Displays per-client connection information, if a per-client connection limit is enabled.
<b>eq</b>	(Optional) The equals operator, requiring the source or destination port, as applicable, to match the port number that follows.
<b>flow</b>	(Optional) Specifies a traffic flow for which you want to see the policies that the security appliance would apply to the flow. The arguments and keywords following the <b>flow</b> keyword specify the flow in ip-5-tuple format.
<b>global</b>	(Optional) Limits output to the global policy, which applies to all interfaces.
<b>host <i>dest_host</i></b>	The host destination IP address of the traffic flow.
<b>host <i>src_host</i></b>	The host source IP address of the traffic flow.
<i>icmp_control_message</i>	(Optional) Specifies an ICMP control message of the traffic flow. Valid values for the <i>icmp_control_message</i> argument are listed in the “Usage Guidelines” section, below.
<i>icmp_number</i>	(Optional) Specifies the ICMP protocol number of the traffic flow.
<b>inspect</b>	(Optional) Limits the output to policies that include an <b>inspect</b> command.
<b>interface <i>intf</i></b>	(Optional) Displays policies applied to the interface specified by the <i>intf</i> argument, where <i>intf</i> is the interface name given by the <b>nameif</b> command.
<b>ips</b>	Limits output to policies that include the <b>ips</b> command.
<b>police</b>	Limits output to policies that include the <b>police</b> command.
<b>priority</b>	Limits output to policies that include the <b>priority</b> command.
<b>set connection</b>	Limits output to policies that include the <b>set connection</b> command.
<i>protocol</i>	The protocol used in the traffic flow. Valid values for the <i>protocol</i> argument are listed in the “Usage Guidelines” section, below.
<i>src_ip</i>	The source IP address used in the traffic flow.
<i>src_mask</i>	The source IP netmask used in the traffic flow.
<i>src_port</i>	The source port used in the traffic flow.

## Defaults

No default behavior or values.



**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

**Command History**

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	This command was modified to add the <b>csc</b> keyword.

**Usage Guidelines**

The **flow** keyword lets you determine, for any flow that you can describe, the policies that the security appliance would apply to that flow. You can use this to check that your service policy configuration will provide the services you want for specific connections. The arguments and keywords following the **flow** keyword specifies the flow in ip-5-tuple format with no object grouping.

Because the flow is described in ip-5-tuple format, not all match criteria are supported. Following are the list of match criteria that are supported for flow match:

- **match access-list**
- **match port**
- **match rtp**
- **match default-inspection-traffic**

The **priority** keyword is used to display the aggregate counter values of packets transmitted through an interface.

The number of embryonic connections displayed in the **show service-policy** command output indicates the current number of embryonic connections to an interface for traffic matching that defined by the **class-map** command. The `embryonic-conn-max` field shows the maximum embryonic limit configured for the traffic class using the Modular Policy Framework. If the current embryonic connections displayed equals or exceeds the maximum, TCP intercept is applied to new TCP connections that match the traffic type defined by the **class-map** command.

**protocol Argument Values**

The following are valid values for the *protocol* argument:

- *number*—The protocol number (0 - 255).
- **ah**
- **eigrp**
- **esp**
- **gre**
- **icmp**
- **icmp6**
- **igmp**
- **igrp**

- ip
- ipinip
- ipsec
- nos
- ospf
- pcp
- pim
- pptp
- snp
- tcp
- udp

#### icmp\_control\_message Argument Values

The following are valid values for the *icmp\_control\_message* argument:

- alternate-address
- conversion-error
- echo
- echo-reply
- information-reply
- information-request
- mask-reply
- mask-request
- mobile-redirect
- parameter-problem
- redirect
- router-advertisement
- router-solicitation
- source-quench
- time-exceeded
- timestamp-reply
- timestamp-request
- traceroute
- unreachable

---

#### Examples

The following example shows the syntax of the **show service-policy** command:

```
hostname# show service-policy global
```

```
Global policy:  
Service-policy: inbound_policy
```

```

Class-map: ftp-port
  Inspect: ftp strict inbound_ftp, packet 0, drop 0, reset-drop 0
hostname# show service-policy priority

Interface outside:

Global policy:
  Service-policy: sa_global_fw_policy

Interface outside:
  Service-policy: ramap
  Class-map: clientmap
  Priority:
    Interface outside: aggregate drop 0, aggregate transmit 5207048
  Class-map: udpmap
  Priority:
    Interface outside: aggregate drop 0, aggregate transmit 5207048
  Class-map: cmap

hostname# show service-policy flow udp host 209.165.200.229 host 209.165.202.158 eq 5060

Global policy:
  Service-policy: fl_global_fw_policy
  Class-map: inspection_default
  Match: default-inspection-traffic
  Action:
    Input flow: inspect sip

Interface outside:
  Service-policy: test
  Class-map: test
  Match: access-list test
    Access rule: permit ip 209.165.200.229 255.255.255.224 209.165.202.158
255.255.255.224
  Action:
    Input flow: ids inline
    Input flow: set connection conn-max 10 embryonic-conn-max 20

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure service-policy</b>	Clears service policy configurations.
<b>clear service-policy service-policy</b>	Clears all service policy configurations.
<b>service-policy</b>	Configures the service policy.
<b>show running-config service-policy</b>	Displays the service policies configured in the running configuration.

# show service-policy inspect gtp

To display the GTP configuration, use the **show service-policy inspect gtp** command in privileged EXEC mode.

```
show service-policy [interface int] inspect gtp {pdp-context [apn ap_name | detail | imsi
  IMSI_value | ms-addr IP_address | tid tunnel_ID | version version_num ] | pdpmcb | requests
  | statistics [gsn IP_address] }
```

## Syntax Description.

<b>apn</b>	(Optional) Displays the detailed output of the PDP contexts based on the APN specified.
<i>ap_name</i>	Identifies the specific access point name for which statistics are displayed.
<b>detail</b>	(Optional) Displays the detailed output of the PDP contexts.
<b>imsi</b>	Displays the detailed output of the PDP contexts based on the IMSI specified.
<i>IMSI_value</i>	Hexadecimal value that identifies the specific IMSI for which statistics are displayed.
<b>interface</b>	(Optional) Identifies a specific interface.
<i>int</i>	Identifies the interface for which information will be displayed.
<b>gsn</b>	(Optional) Identifies the GPRS support node, which is interface between the GPRS wireless data network and other networks.
<b>gtp</b>	(Optional) Displays the service policy for GTP.
<i>IP_address</i>	IP address for which statistics are displayed.
<b>ms-addr</b>	(Optional) Displays the detailed output of the PDP contexts based on the MS Address specified.
<b>pdp-context</b>	(Optional) Identifies the Packet Data Protocol context
<b>pdpmcb</b>	(Optional) Displays the status of the PDP master control block.
<b>requests</b>	(Optional) Displays status of GTP requests.
<b>statistics</b>	(Optional) Displays GTP statistics.
<b>tid</b>	(Optional) Displays the detailed output of the PDP contexts based on the TID specified.
<i>tunnel_ID</i>	Hexadecimal value that identifies the specific tunnel for which statistics are displayed.
<b>version</b>	(Optional) Displays the detailed output of the PDP contexts based on the GTP version.
<i>version_num</i>	Specifies the version of the PDP context for which statistics are displayed. The valid range is 0 to 255.

## Defaults

No default behavior or values.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

You can use the vertical bar | to filter the display. Type | for more display filtering options.

The **show pdp-context** command displays PDP context-related information.

The Packet Data Protocol context is identified by the tunnel ID, which is a combination of IMSI and NSAPI. A GTP tunnel is defined by two associated PDP Contexts in different GSN nodes and is identified with a Tunnel ID. A GTP tunnel is necessary to forward packets between an external packet data network and a mobile station user.

The **show gtp requests** command displays current requests in the request queue.

**Examples**

The following is sample output from the **show gtp requests** command:

```
hostname# show gtp requests
0 in use, 0 most used, 200 maximum allowed
```

You can use the vertical bar | to filter the display, as in the following example:

```
hostname# show service-policy gtp statistics | grep gsn
```

This example shows the GTP statistics with the word gsn in the output.

The following command shows the statistics for GTP inspection:

```
hostname# show service-policy inspect gtp statistics
GPRS GTP Statistics:
  version_not_support | 0 | msg_too_short | 0
  unknown_msg | 0 | unexpected_sig_msg | 0
  unexpected_data_msg | 0 | ie_duplicated | 0
  mandatory_ie_missing | 0 | mandatory_ie_incorrect | 0
  optional_ie_incorrect | 0 | ie_unknown | 0
  ie_out_of_order | 0 | ie_unexpected | 0
  total_forwarded | 0 | total_dropped | 0
  signalling_msg_dropped | 0 | data_msg_dropped | 0
  signalling_msg_forwarded | 0 | data_msg_forwarded | 0
  total_created_pdp | 0 | total_deleted_pdp | 0
  total_created_pdpmb | 0 | total_deleted_pdpmb | 0
  pdp_non_existent | 0
```

The following command displays information about the PDP contexts:

```
hostname# show service-policy inspect gtp pdp-context
1 in use, 1 most used, timeout 0:00:00

Version TID | MS Addr | SGSN Addr | Idle | APN
```

```

v1 | 1234567890123425 | 1.1.1.1 | 11.0.0.2 0:00:13 gprs.cisco.com

| user_name (IMSI): 214365870921435 | MS address: | 1.1.1.1
| primary pdp: Y | nsapi: 2
| sgsn_addr_signal: | 11.0.0.2 | sgsn_addr_data: | 11.0.0.2
| ggsn_addr_signal: | 9.9.9.9 | ggsn_addr_data: | 9.9.9.9
| sgsn control teid: | 0x000001d1 | sgsn data teid: | 0x000001d3
| ggsn control teid: | 0x6306ffa0 | ggsn data teid: | 0x6305f9fc
| seq_tpdu_up: | 0 | seq_tpdu_down: | 0
| signal_sequence: | 0
| upstream_signal_flow: | 0 | upstream_data_flow: | 0
| downstream_signal_flow: | 0 | downstream_data_flow: | 0
| RAupdate_flow: | 0

```

Table 30-1 describes each column the output from the **show service-policy inspect gtp pdp-context** command.

**Table 30-1** PDP Contexts

Column Heading	Description
Version	Displays the version of GTP.
TID	Displays the tunnel identifier.
MS Addr	Displays the mobile station address.
SGSN Addr	Displays the serving gateway service node.
Idle	Displays the time for which the PDP context has not been in use.
APN	Displays the access point name.

#### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>clear service-policy inspect gtp</b>	Clears global GTP statistics.
<b>debug gtp</b>	Displays detailed information about GTP inspection.
<b>gtp-map</b>	Defines a GTP map and enables GTP map configuration mode.
<b>inspect gtp</b>	Applies a specific GTP map to use for application inspection.

# show service-policy inspect radius-accounting

To display the GTP configuration, use the **show service-policy inspect radius-accounting** command in privileged EXEC mode.

**show service-policy [interface *int*] inspect radius-accounting**

## Syntax Description

**interface *int*** (Optional) Identifies a specific interface.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

## Examples

The following is sample output from the **show gtp requests** command:

```
hostname# show gtp requests
0 in use, 0 most used, 200 maximum allowed
```

You can use the vertical bar | to filter the display, as in the following example:

```
hostname# show service-policy gtp statistics | grep gsn
```

This example shows the GTP statistics with the word gsn in the output.

The following command shows the statistics for GTP inspection:

```
hostname# show service-policy inspect gtp statistics
GPRS GTP Statistics:
  version_not_support | 0 | msg_too_short | 0
  unknown_msg | 0 | unexpected_sig_msg | 0
  unexpected_data_msg | 0 | ie_duplicated | 0
  mandatory_ie_missing | 0 | mandatory_ie_incorrect | 0
  optional_ie_incorrect | 0 | ie_unknown | 0
  ie_out_of_order | 0 | ie_unexpected | 0
  total_forwarded | 0 | total_dropped | 0
  signalling_msg_dropped | 0 | data_msg_dropped | 0
```

```

signalling_msg_forwarded | 0 | data_msg_forwarded | 0
total_created_pdp | 0 | total_deleted_pdp | 0
total_created_pdpmb | 0 | total_deleted_pdpmb | 0
pdp_non_existent | 0

```

The following command displays information about the PDP contexts:

```

hostname# show service-policy inspect gtp pdp-context
1 in use, 1 most used, timeout 0:00:00

```

```

Version TID | MS Addr | SGSN Addr | Idle | APN
v1 | 1234567890123425 | 1.1.1.1 | 11.0.0.2 0:00:13 | gprs.cisco.com

```

```

| user_name (IMSI): 214365870921435 | MS address: | 1.1.1.1
| primary pdp: Y | nsapi: 2
| sgsn_addr_signal: | 11.0.0.2 | sgsn_addr_data: | 11.0.0.2
| ggsn_addr_signal: | 9.9.9.9 | ggsn_addr_data: | 9.9.9.9
| sgsn control teid: | 0x000001d1 | sgsn data teid: | 0x000001d3
| ggsn control teid: | 0x6306ffa0 | ggsn data teid: | 0x6305f9fc
| seq_tpdu_up: | 0 | seq_tpdu_down: | 0
| signal_sequence: | 0
| upstream_signal_flow: | 0 | upstream_data_flow: | 0
| downstream_signal_flow: | 0 | downstream_data_flow: | 0
| RAupdate_flow: | 0

```

Table 30-1 describes each column the output from the **show service-policy inspect gtp pdp-context** command.

**Table 30-2 PDP Contexts**

Column Heading	Description
Version	Displays the version of GTP.
TID	Displays the tunnel identifier.
MS Addr	Displays the mobile station address.
SGSN Addr	Displays the serving gateway service node.
Idle	Displays the time for which the PDP context has not been in use.
APN	Displays the access point name.

#### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.



# show shun

To display shun information, use the **show shun** command in privileged EXEC mode.

```
show shun [src_ip | statistics]
```

Syntax Description		
<i>src_ip</i>	(Optional)	Displays the information for that address.
<i>statistics</i>	(Optional)	Displays the interface counters only.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** The following is sample output from the **show shun** command:

```
hostname# show shun
shun (outside) 10.1.1.27 10.2.2.89 555 666 6
shun (inside1) 10.1.1.27 10.2.2.89 555 666 6
```

Related Commands	Command	Description
	<b>clear shun</b>	Disables all the shuns that are currently enabled and clears the shun statistics.
	<b>shun</b>	Enables a dynamic response to an attacking host by preventing new connections and disallowing packets from any existing connection.

# show sip

To display SIP sessions, use the **show sip** command in privileged EXEC mode.

**show sip**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines** The **show sip** command assists in troubleshooting SIP inspection engine issues and is described with the **inspect protocol sip udp 5060** command. The **show timeout sip** command displays the timeout value of the designated protocol.

The **show sip** command displays information for SIP sessions established across the security appliance. Along with the **debug sip** and **show local-host** commands, this command is used for troubleshooting SIP inspection engine issues.



**Note**

We recommend that you configure the **pager** command before using the **show sip** command. If there are a lot of SIP session records and the **pager** command is not configured, it will take a while for the **show sip** command output to reach its end.

**Examples** The following is sample output from the **show sip** command:

```
hostname# show sip
Total: 2
call-id c3943000-960ca-2e43-228f@10.130.56.44
|state Call init, idle 0:00:01
call-id c3943000-860ca-7e1f-11f7@10.130.56.45
|state Active, idle 0:00:06
```

This sample shows two active SIP sessions on the security appliance (as shown in the `Total` field). Each `call-id` represents a call.

The first session, with the `call-id c3943000-960ca-2e43-228f@10.130.56.44`, is in the state `Call Init`, which means the session is still in call setup. Call setup is complete only when the ACK is seen. This session has been idle for 1 second.

The second session is in the state `Active`, in which call setup is complete and the endpoints are exchanging media. This session has been idle for 6 seconds.

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug sip</b>	Enables debug information for SIP.
<b>inspect sip</b>	Enables SIP application inspection.
<b>show conn</b>	Displays the connection state for different connection types.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types.

# show skinny

To troubleshoot SCCP (Skinny) inspection engine issues, use the **show skinny** command in privileged EXEC mode.

**show skinny**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines** The **show skinny** command assists in troubleshooting SCCP (Skinny) inspection engine issues.

**Examples** The following is sample output from the **show skinny** command under the following conditions. There are two active Skinny sessions set up across the security appliance. The first one is established between an internal Cisco IP Phone at local address 10.0.0.11 and an external Cisco CallManager at 172.18.1.33. TCP port 2000 is the CallManager. The second one is established between another internal Cisco IP Phone at local address 10.0.0.22 and the same Cisco CallManager.

```
hostname# show skinny
```

```

          LOCAL                FOREIGN                STATE
-----
1      10.0.0.11/52238         172.18.1.33/2000          1
      MEDIA 10.0.0.11/22948         172.18.1.22/20798
2      10.0.0.22/52232         172.18.1.33/2000          1
      MEDIA 10.0.0.22/20798         172.18.1.11/22948

```

The output indicates a call has been established between both internal Cisco IP Phones. The RTP listening ports of the first and second phones are UDP 22948 and 20798 respectively.

The following is the xlate information for these Skinny connections:

```
hostname# show xlate debug
2 in use, 2 most used
Flags: D|DNS, d|dump, I|identity, i|inside, n|no random,
|o|outside, r|portmap, s|static
NAT from inside:10.0.0.11 to outside:172.18.1.11 flags si idle 0:00:16 timeout 0:05:00
NAT from inside:10.0.0.22 to outside:172.18.1.22 flags si idle 0:00:14 timeout 0:05:00
```

#### Related Commands

Commands	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug skinny</b>	Enables SCCP debug information.
<b>inspect skinny</b>	Enables SCCP application inspection.
<b>show conn</b>	Displays the connection state for different connection types.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types.

# show sla monitor configuration

To display the configuration values, including the defaults, for SLA operations, use the **show sla monitor configuration** command in user EXEC mode.

```
show sla monitor configuration [sla-id]
```

## Syntax Description

*sla-id* (Optional) The ID number of the SLA operation. Valid values are from 1 to 2147483647.

## Defaults

If the *sla-id* is not specified, the configuration values for all SLA operations are shown.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Use the **show running config sla monitor** command to see the SLA operation commands in the running configuration.

## Examples

The following is sample output from the **show sla monitor** command. It displays the configuration values for SLA operation 123. Following the output of the **show sla monitor** command is the output of the **show running-config sla monitor** command for the same SLA operation.

```
hostname> show sla monitor 124

SA Agent, Infrastructure Engine-II
Entry number: 124
Owner:
Tag:
Type of operation to perform: echo
Target address: 10.1.1.1
Interface: outside
Number of packets: 1
Request size (ARR data portion): 28
Operation timeout (milliseconds): 1000
Type Of Service parameters: 0x0
Verify data: No
Operation frequency (seconds): 3
Next Scheduled Start Time: Start Time already passed
```

```
Group Scheduled : FALSE
Life (seconds): Forever
Entry Ageout (seconds): never
Recurring (Starting Everyday): FALSE
Status of entry (SNMP RowStatus): Active
Enhanced History:

hostname# show running-config sla monitor 124

sla monitor 124
  type echo protocol ipIcmpEcho 10.1.1.1 interface outside
  timeout 1000
  frequency 3
sla monitor schedule 124 life forever start-time now
```

**Related Commands**

Command	Description
<b>show running-config sla monitor</b>	Displays the SLA operation configuration commands in the running configuration.
<b>sla monitor</b>	Defines an SLA monitoring operation.

# show sla monitor operational-state

To display the operational state of SLA operations, use the **show sla monitor operational-state** command in user EXEC mode.

```
show sla monitor operational-state [sla-id]
```

<b>Syntax Description</b>	<i>sla-id</i>	(Optional) The ID number of the SLA operation. Valid values are from 1 to 2147483647.
---------------------------	---------------	---

**Defaults** If the *sla-id* is not specified, statistics for all SLA operations are displayed.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
User EXEC	•	•	•	•	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** Use the **show running-config sla monitor** command to display the SLA operation commands in the running configuration.

**Examples** The following is sample output from the **show sla monitor operational-state** command:

```
hostname> show sla monitor operational-state

Entry number: 124
Modification time: 14:42:23.607 EST Wed Mar 22 2006
Number of Octets Used by this Entry: 1480
Number of operations attempted: 4043
Number of operations skipped: 0
Current seconds left in Life: Forever
Operational state of entry: Active
Last time this entry was reset: Never
Connection loss occurred: FALSE
Timeout occurred: TRUE
Over thresholds occurred: FALSE
Latest RTT (milliseconds): NoConnection/Busy/Timeout
Latest operation start time: 18:04:26.609 EST Wed Mar 22 2006
Latest operation return code: Timeout
RTT Values:
RTTAvg: 0          RTTMin: 0          RTTMax: 0
```



NumOfRTT: 0      RTTSum: 0      RTTSum2: 0

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show running-config sla monitor</b>	Displays the SLA operation configuration commands in the running configuration.
<b>sla monitor</b>	Defines an SLA monitoring operation.

# show snmp-server statistics

To display information about the SNMP server statistics, use the **show snmp-server statistics** command in privileged EXEC mode.

**show snmp-server statistics**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command has no default settings.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** This example shows how to display the SNMP server statistics:

```
hostname# show snmp-server statistics
0 SNMP packets input
  0 Bad SNMP version errors
  0 Unknown community name
  0 Illegal operation for community name supplied
  0 Encoding errors
  0 Number of requested variables
  0 Number of altered variables
  0 Get-request PDUs
  0 Get-next PDUs
  0 Get-bulk PDUs
  0 Set-request PDUs (Not supported)
0 SNMP packets output
  0 Too big errors (Maximum packet size 512)
  0 No such name errors
  0 Bad values errors
  0 General errors
  0 Response PDUs
  0 Trap PDUs
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>snmp-server</b>	Provides the security appliance event information through SNMP.
<b>clear configure snmp-server</b>	Disables the Simple Network Management Protocol (SNMP) server.
<b>show running-config snmp-server</b>	Displays the SNMP server configuration.

# show ssh sessions

To display information about the active SSH session on the security appliance, use the **show ssh sessions** command in privileged EXEC mode.

```
show ssh sessions [ip_address]
```

<b>Syntax Description</b>	<i>ip_address</i> (Optional) Displays session information for only the specified IP address.
---------------------------	--

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Preexisting	This command was preexisting.

<b>Usage Guidelines</b>	The SID is a unique number that identifies the SSH session. The Client IP is the IP address of the system running an SSH client. The Version is the protocol version number that the SSH client supports. If the SSH only supports SSH version 1, then the Version column displays 1.5. If the SSH client supports both SSH version 1 and SSH version 2, then the Version column displays 1.99. If the SSH client only supports SSH version 2, then the Version column displays 2.0. The Encryption column shows the type of encryption that the SSH client is using. The State column shows the progress that the client is making as it interacts with the security appliance. The Username column lists the login username that has been authenticated for the session.
-------------------------	--

<b>Examples</b>	The following example demonstrates the output of the <b>show ssh sessions</b> command:
-----------------	--

```
hostname# show ssh sessions
SID Client IP      Version Mode Encryption Hmac      State      Username
0  172.69.39.39    1.99  IN   aes128-cbc md5      SessionStarted pat
                                OUT  aes128-cbc md5      SessionStarted pat
1  172.23.56.236   1.5   -    3DES     -        SessionStarted pat
2  172.69.39.29    1.99  IN   3des-cbc sha1     SessionStarted pat
                                OUT  3des-cbc sha1     SessionStarted pat
```

<b>Related Commands</b>
-------------------------

<b>Command</b>	<b>Description</b>
<b>ssh disconnect</b>	Disconnects an active SSH session.
<b>ssh timeout</b>	Sets the timeout value for idle SSH sessions.

# show startup-config

To show the startup configuration or to show any errors when the startup configuration loaded, use the **show startup-config** command in privileged EXEC mode.

**show startup-config [errors]**

## Syntax Description

**errors** (Optional) Shows any errors that were generated when the security appliance loaded the startup configuration.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System <sup>1</sup>
Privileged EXEC	•	•	•	•	•

1. The **errors** keyword is only available in single mode and the system execution space.

## Command History

Release	Modification
7.0(1)	The <b>errors</b> keyword was added.

## Usage Guidelines

In multiple context mode, this command shows the startup configuration for your current execution space: the system configuration or the security context.

To clear the startup errors from memory, use the **clear startup-config errors** command.

## Examples

The following is sample output from the **show startup-config** command:

```
hostname# show startup-config
: Saved
: Written by enable_15 at 01:44:55.598 UTC Thu Apr 17 2003

Version 7.0(0)28
!
interface GigabitEthernet0/0
 nameif inside
 security-level 100
 ip address 10.86.194.60 255.255.254.0
 webvpn enable
!
interface GigabitEthernet0/1
 shutdown
 nameif test
```

```

security-level 0
ip address 10.10.4.200 255.255.0.0
!
...
!
enable password 8Ry2YjIyt7RRXU24 encrypted
passwd 2KFQnbNIdI.2KYOU encrypted
hostname firewall1
domain-name example.com
boot system disk0:/cdisk.bin
ftp mode passive
names
name 10.10.4.200 outside
access-list xyz extended permit ip host 192.168.0.4 host 150.150.0.3
!
ftp-map ftp_map
!
ftp-map inbound_ftp
deny-request-cmd appe stor stou
!
...
Cryptochecksum:4edf97923899e712ed0da8c338e07e63

```

The following is sample output from the **show startup-config errors** command:

```

hostname# show startup-config errors

ERROR: 'Mac-addresses': invalid resource name
*** Output from config line 18, " limit-resource Mac-add..."
INFO: Admin context is required to get the interfaces
*** Output from config line 30, "arp timeout 14400"
Creating context 'admin'... WARNING: Invoked the stub function ibm_4gs3_context_
set_max_mgmt_sess
WARNING: Invoked the stub function ibm_4gs3_context_set_max_mgmt_sess
Done. (1)
*** Output from config line 33, "admin-context admin"
WARNING: VLAN *24* is not configured.
*** Output from config line 12, context 'admin', " nameif inside"
.....
*** Output from config line 37, " config-url disk:/admin..."

```

#### Related Commands

Command	Description
<b>clear startup-config errors</b>	Clears the startup errors from memory.
<b>show running-config</b>	Shows the running configuration.

# show sunrpc-server active

To display the pinholes open for Sun RPC services, use the **show sunrpc-server active** command in privileged EXEC mode.

**show sunrpc-server active**

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Use the **show sunrpc-server active** command to display the pinholes open for Sun RPC services, such as NFS and NIS.

## Examples

To display the pinholes open for Sun RPC services, enter the **show sunrpc-server active** command. The following is sample output from the **show sunrpc-server active** command:

```
hostname# show sunrpc-server active
      LOCAL          FOREIGN          SERVICE TIMEOUT
-----
192.168.100.2/0 209.165.200.5/32780 100005 00:10:00
```

## Related Commands

Command	Description
<b>clear configure sunrpc-server</b>	Clears the Sun remote processor call services from the security appliance.
<b>clear sunrpc-server active</b>	Clears the pinholes opened for Sun RPC services, such as NFS or NIS.
<b>inspect sunrpc</b>	Enables or disables Sun RPC application inspection and configures the port used.
<b>show running-config sunrpc-server</b>	Displays information about the SunRPC services configuration.



# show switch mac-address-table

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **show switch mac-address-table** command in privileged EXEC mode to view the switch MAC address table.

## show switch mac-address-table

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** This command is for models with built-in switches only. The switch MAC address table maintains the MAC address-to-switch port mapping for traffic within each VLAN in the switch hardware. If you are in transparent firewall mode, use the **show mac-address-table** command to view the bridge MAC address table in the ASA software. The bridge MAC address table maintains the MAC address-to-VLAN interface mapping for traffic that passes between VLANs.

MAC address entries age out in 5 minutes.

**Examples** The following is sample output from the **show switch mac-address-table** command.

```
hostname# show switch mac-address-table
Legend: Age - entry expiration time in seconds

  Mac Address | VLAN |      Type      | Age | Port
-----|-----|-----|-----|-----
000e.0c4e.2aa4 | 0001 |    dynamic    | 287 | Et0/0
0012.d927.fb03 | 0001 |    dynamic    | 287 | Et0/0
0013.c4ca.8a8c | 0001 |    dynamic    | 287 | Et0/0
00b0.6486.0c14 | 0001 |    dynamic    | 287 | Et0/0
00d0.2bff.449f | 0001 |    static     | -   | In0/1
0100.5e00.000d | 0001 | static multicast | -   | In0/1,Et0/0-7
Total Entries: 6
```

Table 30-3 shows each field description:

**Table 30-3** show switch mac-address-table Fields

Field	Description
Mac Address	Shows the MAC address.
VLAN	Shows the VLAN associated with the MAC address.
Type	Shows if the MAC address was learned dynamically, as a static multicast address, or statically. The only static entry is for the internal backplane interface.
Age	Shows the age of a dynamic entry in the MAC address table.
Port	Shows the switch port through which the host with the MAC address can be reached.

**Related Commands**

Command	Description
<b>show mac-address-table</b>	Shows the MAC address table for models that do not have a built-in switch.
<b>show switch vlan</b>	Shows the VLAN and physical MAC address association.

# show switch vlan

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **show switch vlan** command in privileged EXEC mode to view the VLANs and the associated switch ports.

## show switch vlan

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** This command is for models with built-in switches only. For other models, use the **show vlan** command.

**Examples** The following is sample output from the **show switch vlan** command.

```
hostname# show switch vlan

VLAN Name                Status    Ports
-----
100  inside                  up       Et0/0, Et0/1
200  outside                 up       Et0/7
300  -                       down     Et0/1, Et0/2
400  backup                  down     Et0/3
```

Table 30-3 shows each field description:

**Table 30-4** show switch vlan Fields

Field	Description
VLAN	Shows the VLAN number.
Name	Shows the name of the VLAN interface. If no name is set using the <b>nameif</b> command, or if there is no <b>interface vlan</b> command, the display shows a dash (-).

**Table 30-4** show switch vlan Fields

Field	Description
Status	Shows the status, up or down, to receive and send traffic to and from the VLAN in the switch. At least one switch port in the VLAN needs to be in an up state for the VLAN state to be up.
Ports	Shows the switch ports assigned to each VLAN. If a switch port is listed for multiple VLANs, it is a trunk port. The above sample output shows Ethernet 0/1 is a trunk port that carries VLAN 100 and 300.

**Related Commands**

Command	Description
<b>clear interface</b>	Clears counters for the <b>show interface</b> command.
<b>interface vlan</b>	Creates a VLAN interface and enters interface configuration mode.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.
<b>show vlan</b>	Shows the VLANs for models that do not have built-in switches.
<b>switchport mode</b>	Sets the mode of the switch port to access or trunk mode.

# show tcpstat

To display the status of the security appliance TCP stack and the TCP connections that are terminated on the security appliance (for debugging), use the **show tcpstat** command in privileged EXEC mode. This command supports IPv4 and IPv6 addresses.

## show tcpstat

### Syntax Description

This command has no arguments or keywords.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

The **show tcpstat** command allows you to display the status of the TCP stack and TCP connections that are terminated on the security appliance. The TCP statistics displayed are described in Table 28.

**Table 30-5 TCP Statistics in the show tcpstat Command**

Statistic	Description
tcb_cnt	Number of TCP users.
proxy_cnt	Number of TCP proxies. TCP proxies are used by user authorization.
tcp_xmt pkts	Number of packets that were transmitted by the TCP stack.
tcp_rcv good pkts	Number of good packets that were received by the TCP stack.
tcp_rcv drop pkts	Number of received packets that the TCP stack dropped.
tcp bad chksum	Number of received packets that had a bad checksum.
tcp user hash add	Number of TCP users that were added to the hash table.
tcp user hash add dup	Number of times a TCP user was already in the hash table when trying to add a new user.
tcp user srch hash hit	Number of times a TCP user was found in the hash table when searching.

**Table 30-5 TCP Statistics in the show tcpstat Command (continued)**

Statistic	Description
tcp user srch hash miss	Number of times a TCP user was not found in the hash table when searching.
tcp user hash delete	Number of times that a TCP user was deleted from the hash table.
tcp user hash delete miss	Number of times that a TCP user was not found in the hash table when trying to delete the user.
lip	Local IP address of the TCP user.
fip	Foreign IP address of the TCP user.
lp	Local port of the TCP user.
fp	Foreign port of the TCP user.
st	State (see RFC 793) of the TCP user. The possible values are as follows: 1 CLOSED 2 LISTEN 3 SYN_SENT 4 SYN_RCVD 5 ESTABLISHED 6 FIN_WAIT_1 7 FIN_WAIT_2 8 CLOSE_WAIT 9 CLOSING 10 LAST_ACK 11 TIME_WAIT
rexqlen	Length of the retransmit queue of the TCP user.
inqlen	Length of the input queue of the TCP user.
tw_timer	Value of the time_wait timer (in milliseconds) of the TCP user.
to_timer	Value of the inactivity timeout timer (in milliseconds) of the TCP user.
cl_timer	Value of the close request timer (in milliseconds) of the TCP user.
per_timer	Value of the persist timer (in milliseconds) of the TCP user.
rt_timer	Value of the retransmit timer (in milliseconds) of the TCP user.
tries	Retransmit count of the TCP user.

**Examples**

This example shows how to display the status of the TCP stack on the security appliance:

```
hostname# show tcpstat
                CURRENT MAX    TOTAL
tcb_cnt         2      12     320
proxy_cnt       0       0     160

tcp_xmt pkts = 540591
tcp_rcv good pkts = 6583
tcp_rcv drop pkts = 2
```

```
tcp bad chksum = 0
tcp user hash add = 2028
tcp user hash add dup = 0
tcp user srch hash hit = 316753
tcp user srch hash miss = 6663
tcp user hash delete = 2027
tcp user hash delete miss = 0

lip = 172.23.59.230 fip = 10.21.96.254 lp = 443 fp = 2567 st = 4 rexqlen = 0
in0
  tw_timer = 0 to_timer = 179000 cl_timer = 0 per_timer = 0
rt_timer = 0
tries 0
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show conn</b>	Displays the connections used and those that are available.

---

# show tech-support

To display the information that is used for diagnosis by technical support analysts, use the **show tech-support** command in privileged EXEC mode.

**show tech-support** [**detail** | **file** | **no-config**]

## Syntax Description

<b>detail</b>	(Optional) Lists detailed information.
<b>file</b>	(Optional) Writes the output of the command to a file.
<b>no-config</b>	(Optional) Excludes the output of the running configuration.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	The <b>detail</b> and <b>file</b> keywords were added.
7.2(1)	The output display was enhanced to display more detailed information about processes that hog the CPU.

## Usage Guidelines

The **show tech-support** command lets you list information that technical support analysts need to help you diagnose problems. This command combines the output from the **show** commands that provide the most information to a technical support analyst.

## Examples

The following example shows how to display information that is used for technical support analysis, excluding the output of the running configuration:

```
hostname# show tech-support no-config

Cisco XXX Firewall Version X.X(X)
Cisco Device Manager Version X.X(X)

Compiled on Fri 15-Apr-05 14:35 by root

XXX up 2 days 8 hours

Hardware:   XXX, 64 MB RAM, CPU Pentium 200 MHz
Flash i28F640J5 @ 0x300, 16MB
```



```

BIOS Flash AT29C257 @ 0xffffd8000, 32KB

0: ethernet0: address is 0003.e300.73fd, irq 10
1: ethernet1: address is 0003.e300.73fe, irq 7
2: ethernet2: address is 00d0.b7c8.139e, irq 9
Licensed Features:
Failover:           Disabled
VPN-DES:            Enabled
VPN-3DES-AES:      Disabled
Maximum Interfaces: 3
Cut-through Proxy: Enabled
Guards:            Enabled
URL-filtering:     Enabled
Inside Hosts:      Unlimited
Throughput:        Unlimited
IKE peers:         Unlimited

This XXX has a Restricted (R) license.

Serial Number: 480430455 (0x1ca2c977)
Running Activation Key: 0xc2e94182 0xc21d8206 0x15353200 0x633f6734
Configuration last modified by enable_15 at 23:05:24.264 UTC Sat Nov 16 2002

----- show clock -----
00:08:14.911 UTC Sun Apr 17 2005

----- show memory -----
Free memory:      50708168 bytes
Used memory:      16400696 bytes
-----
Total memory:     67108864 bytes

----- show conn count -----
0 in use, 0 most used

----- show xlate count -----
0 in use, 0 most used

----- show blocks -----

```

SIZE	MAX	LOW	CNT
4	1600	1600	1600
80	400	400	400
256	500	499	500
1550	1188	795	919

```

----- show interface -----
interface ethernet0 "outside" is up, line protocol is up
Hardware is i82559 ethernet, address is 0003.e300.73fd
IP address 172.23.59.232, subnet mask 255.255.0.0
MTU 1500 bytes, BW 10000 Kbit half duplex
  1267 packets input, 185042 bytes, 0 no buffer
  Received 1248 broadcasts, 0 runts, 0 giants
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
  20 packets output, 1352 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 babbles, 0 late collisions, 9 deferred
  0 lost carrier, 0 no carrier
  input queue (curr/max blocks): hardware (13/128) software (0/2)

```

```

output queue (curr/max blocks): hardware (0/1) software (0/1)
interface ethernet1 "inside" is up, line protocol is down
  Hardware is i82559 ethernet, address is 0003.e300.73fe
  IP address 10.1.1.1, subnet mask 255.255.255.0
  MTU 1500 bytes, BW 10000 Kbit half duplex
    0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    1 packets output, 60 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
    0 babbles, 0 late collisions, 0 deferred
    1 lost carrier, 0 no carrier
  input queue (curr/max blocks): hardware (128/128) software (0/0)
  output queue (curr/max blocks): hardware (0/1) software (0/1)
interface ethernet2 "intf2" is administratively down, line protocol is down
  Hardware is i82559 ethernet, address is 00d0.b7c8.139e
  IP address 127.0.0.1, subnet mask 255.255.255.255
  MTU 1500 bytes, BW 10000 Kbit half duplex
    0 packets input, 0 bytes, 0 no buffer
    Received 0 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    0 packets output, 0 bytes, 0 underruns
    0 output errors, 0 collisions, 0 interface resets
    0 babbles, 0 late collisions, 0 deferred
    0 lost carrier, 0 no carrier
  input queue (curr/max blocks): hardware (128/128) software (0/0)
  output queue (curr/max blocks): hardware (0/0) software (0/0)

```

```
----- show cpu usage -----
```

```
CPU utilization for 5 seconds = 0%; 1 minute: 0%; 5 minutes: 0%
```

```
----- show cpu hogging process -----
```

```

Process:      fover_parse, NUMHOG: 2, MAXHOG: 280, LASTHOG: 140
LASTHOG At:  02:08:24 UTC Jul 24 2005
PC:          11a4d5
Traceback:   12135e 121893 121822 a10d8b 9fd061 114de6 113e56f
              777135 7a3858 7a3f59 700b7f 701fbf 14b984

```

```
----- show process -----
```

	PC	SP	STATE	Runtime	SBASE	Stack	Process
Hsi	001e3329	00763e7c	0053e5c8	0	00762ef4	3784/4096	arp_timer
Lsi	001e80e9	00807074	0053e5c8	0	008060fc	3832/4096	FragDBGc
Lwe	00117e3a	009dc2e4	00541d18	0	009db46c	3704/4096	dbgtrace
Lwe	003cee95	009de464	00537718	0	009dc51c	8008/8192	Logger
Hwe	003d2d18	009e155c	005379c8	0	009df5e4	8008/8192	tcp_fast
Hwe	003d2c91	009e360c	005379c8	0	009e1694	8008/8192	tcp_slow
Lsi	002ec97d	00b1a464	0053e5c8	0	00b194dc	3928/4096	xlate clean
Lsi	002ec88b	00b1b504	0053e5c8	0	00b1a58c	3888/4096	uxlate clean
Mwe	002e3a17	00c8f8d4	0053e5c8	0	00c8d93c	7908/8192	tcp_intercept_times
Lsi	00423dd5	00d3a22c	0053e5c8	0	00d392a4	3900/4096	route_process
Hsi	002d59fc	00d3b2bc	0053e5c8	0	00d3a354	3780/4096	XXX Garbage Collec
Hwe	0020e301	00d5957c	0053e5c8	0	00d55614	16048/16384	isakmp_time_keep
Lsi	002d377c	00d7292c	0053e5c8	0	00d719a4	3928/4096	perfmon
Hwe	0020bd07	00d9c12c	0050bb90	0	00d9b1c4	3944/4096	IPSec
Mwe	00205e25	00d9e1ec	0053e5c8	0	00d9c274	7860/8192	IPsec timer handler
Hwe	003864e3	00db26bc	00557920	0	00db0764	6952/8192	qos_metric_daemon
Mwe	00255a65	00dc9244	0053e5c8	0	00dc8adc	1436/2048	IP Background
Lwe	002e450e	00e7bb94	00552c30	0	00e7ad1c	3704/4096	XXX/trace
Lwe	002e471e	00e7cc44	00553368	0	00e7bdcc	3704/4096	XXX/tconsole
Hwe	001e5368	00e7ed44	00730674	0	00e7ce9c	7228/8192	XXX/intf0

```

Hwe 001e5368 00e80e14 007305d4          0 00e7ef6c 7228/8192 XXX/intf1
Hwe 001e5368 00e82ee4 00730534        2470 00e8103c 4892/8192 XXX/intf2
H*  0011d7f7 0009ff2c 0053e5b0          780 00e8511c 13004/16384 ci/console
Csi 002dd8ab 00e8a124 0053e5c8          0 00e891cc 3396/4096 update_cpu_usage
Hwe 002cb4d1 00f2bfbc 0051e360          0 00f2a134 7692/8192 uauth_in
Hwe 003d17d1 00f2e0bc 00828cf0          0 00f2c1e4 7896/8192 uauth_thread
Hwe 003e71d4 00f2f20c 00537d20          0 00f2e294 3960/4096 udp_timer
Hsi 001db3ca 00f30fc4 0053e5c8          0 00f3004c 3784/4096 557mcfix
Crd 001db37f 00f32084 0053ea40    121094970 00f310fc 3744/4096 557poll
Lsi 001db435 00f33124 0053e5c8          0 00f321ac 3700/4096 557timer
Hwe 001e5398 00f441dc 008121e0          0 00f43294 3912/4096 fover_ip0
Cwe 001dcdad 00f4523c 00872b48          20 00f44344 3528/4096 ip/0:0
Hwe 001e5398 00f4633c 008121bc          0 00f453f4 3532/4096 icmp0
Hwe 001e5398 00f47404 00812198          0 00f464cc 3896/4096 udp_thread/0
Hwe 001e5398 00f4849c 00812174          0 00f475a4 3832/4096 tcp_thread/0
Hwe 001e5398 00f495bc 00812150          0 00f48674 3912/4096 fover_ip1
Cwe 001dcdad 00f4a61c 008ea850          0 00f49724 3832/4096 ip/1:1
Hwe 001e5398 00f4b71c 0081212c          0 00f4a7d4 3912/4096 icmp1
Hwe 001e5398 00f4c7e4 00812108          0 00f4b8ac 3896/4096 udp_thread/1
Hwe 001e5398 00f4d87c 008120e4          0 00f4c984 3832/4096 tcp_thread/1
Hwe 001e5398 00f4e99c 008120c0          0 00f4da54 3912/4096 fover_ip2
Cwe 001e542d 00f4fa6c 00730534          0 00f4eb04 3944/4096 ip/2:2
Hwe 001e5398 00f50afc 0081209c          0 00f4fbb4 3912/4096 icmp2
Hwe 001e5398 00f51bc4 00812078          0 00f50c8c 3896/4096 udp_thread/2
Hwe 001e5398 00f52c5c 00812054          0 00f51d64 3832/4096 tcp_thread/2
Hwe 003d1a65 00f78284 008140f8          0 00f77fdc 300/1024 listen/http1
Mwe 0035cafa 00f7a63c 0053e5c8          0 00f786c4 7640/8192 Crypto CA

```

----- show failover -----

No license for Failover

----- show traffic -----

```

outside:
  received (in 205213.390 secs):
    1267 packets    185042 bytes
    0 pkts/sec      0 bytes/sec
  transmitted (in 205213.390 secs):
    20 packets      1352 bytes
    0 pkts/sec      0 bytes/sec
inside:
  received (in 205215.800 secs):
    0 packets       0 bytes
    0 pkts/sec      0 bytes/sec
  transmitted (in 205215.800 secs):
    1 packets       60 bytes
    0 pkts/sec      0 bytes/sec
intf2:
  received (in 205215.810 secs):
    0 packets       0 bytes
    0 pkts/sec      0 bytes/sec
  transmitted (in 205215.810 secs):
    0 packets       0 bytes
    0 pkts/sec      0 bytes/sec

```

----- show perfmon -----

```

PERFMON STATS:      Current      Average
Xlates              0/s         0/s
Connections         0/s         0/s
TCP Conns           0/s         0/s
UDP Conns           0/s         0/s

```

URL Access	0/s	0/s
URL Server Req	0/s	0/s
TCP Fixup	0/s	0/s
TCPIntercept	0/s	0/s
HTTP Fixup	0/s	0/s
FTP Fixup	0/s	0/s
AAA Authen	0/s	0/s
AAA Author	0/s	0/s
AAA Account	0/s	0/s

**Related Commands**

Command	Description
<b>show clock</b>	Displays the clock for use with the Syslog Server (PFSS) and the Public Key Infrastructure (PKI) protocol.
<b>show conn count</b>	Displays the connections used and available.
<b>show cpu</b>	Display the CPU utilization information.
<b>show failover</b>	Displays the status of a connection and which security appliance is active
<b>show memory</b>	Displays a summary of the maximum physical memory and current free memory that is available to the operating system.
<b>show perfmon</b>	Displays information about the performance of the security appliance
<b>show processes</b>	Displays a list of the processes that are running.
<b>show running-config</b>	Displays the configuration that is currently running on the security appliance.
<b>show xlate</b>	Displays information about the translation slot.

# show track

To display information about object tracked by the tracking process, use the **show track** command in user EXEC mode.

```
show track [track-id]
```

## Syntax Description

*track-id* A tracking entry object ID. Valid values are from 1 to 500.

## Defaults

If the *track-id* is not provided, then information about all tracking objects is displayed.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following is sample output from the **show track** command:

```
hostname(config)# show track

Track 5
  Response Time Reporter 124 reachability
  Reachability is UP
  2 changes, last change 03:41:16
  Latest operation return code: OK
  Tracked by:
    STATIC-IP-ROUTING 0
```

## Related Commands

Command	Description
<b>show running-config track</b>	Displays the <b>track rtr</b> commands in the running configuration.
<b>track rtr</b>	Creates a tracking entry to poll the SLA.

# show traffic

To display interface transmit and receive activity, use the **show traffic** command in privileged EXEC mode.

## show traffic

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	7.2(1)	Special display for the ASA 5550 adaptive security appliance was added.

**Usage Guidelines** The **show traffic** command lists the number of packets and bytes moving through each interface since the last show traffic command was entered or since the security appliance came online. The number of seconds is the duration the security appliance has been online since the last reboot, unless the **clear traffic** command was entered since the last reboot. If this is the case, then the number of seconds is the duration since that command was entered.

For the ASA 5550 adaptive security appliance, the **show traffic** command also shows the aggregated throughput per slot. Because the ASA 5550 adaptive security appliance requires traffic to be evenly distributed across slots for maximum throughput, this display helps you determine if the traffic is distributed evenly.

**Examples** The following example shows output from the **show traffic** command:

```
hostname# show traffic
outside:
  received (in 102.080 secs):
    2048 packets 204295 bytes
    20 pkts/sec 2001 bytes/sec
  transmitted (in 102.080 secs):
    2048 packets 204056 bytes
    20 pkts/sec 1998 bytes/sec

Ethernet0:
  received (in 102.080 secs):
```

```

                2049 packets 233027 bytes
                20 pkts/sec 2282 bytes/sec
transmitted (in 102.080 secs):
                2048 packets 232750 bytes
                20 pkts/sec 2280 bytes/sec

```

For the ASA 5550 adaptive security appliance, the following text is displayed at the end:

```

-----
                Per Slot Throughput Profile
-----
Packets-per-second profile:
Slot 0:          3148  50%|*****
Slot 1:          3149  50%|*****

Bytes-per-second profile:
Slot 0:         427044 50%|*****
Slot 1:         427094 50%|*****

```

#### Related Commands

Command	Description
<b>clear traffic</b>	Resets the counters for transmit and receive activity.

# show uauth

To display one or all currently authenticated users, the host IP to which they are bound, and any cached IP and port authorization information, use the **show uauth** command in privileged EXEC mode.

```
show uauth [username]
```

## Syntax Description

*username* (Optional) Specifies, by username, the user authentication and authorization information to display.

## Defaults

Omitting username displays the authorization information for all users.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	—	—	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **show uauth** command displays the AAA authorization and authentication caches for one user or for all users.

This command is used with the **timeout** command.

Each user host IP address has an authorization cache attached to it. The cache allows up to 16 address and service pairs for each user host. If the user attempts to access a service that has been cached from the correct host, the security appliance considers it preauthorized and immediately proxies the connection. Once you are authorized to access a website, for example, the authorization server is not contacted for each image as it is loaded (assuming the images come from the same IP address). This process significantly increases performance and reduces the load on the authorization server.

The output from the **show uauth** command displays the username that is provided to the authorization server for authentication and authorization purposes, the IP address to which the username is bound, and whether the user is authenticated only or has cached services.



### Note

When you enable Xauth, an entry is added to the uauth table (as shown by the **show uauth** command) for the IP address that is assigned to the client. However, when using Xauth with the Easy VPN Remote feature in Network Extension Mode, the IPSec tunnel is created from network to network, so that the users behind the firewall cannot be associated with a single IP address. For this reason, a uauth entry



cannot be created upon completion of Xauth. If AAA authorization or accounting services are required, you can enable the AAA authentication proxy to authenticate users behind the firewall. For more information on AAA authentication proxies, see to the **aaa** commands.

Use the **timeout uauth** command to specify how long the cache should be kept after the user connections become idle. Use the **clear uauth** command to delete all the authorization caches for all the users, which will cause them to have to reauthenticate the next time that they create a connection.

### Examples

This example shows sample output from the **show uauth** command when no users are authenticated and one user authentication is in progress:

```
hostname(config)# show uauth
Authenticated Users      Current      Most Seen
Authen In Progress      0            1
```

This example shows sample output from the **show uauth** command when three users are authenticated and authorized to use services through the security appliance:

```
hostname(config)# show uauth
user 'pat' from 209.165.201.2 authenticated
user 'robin' from 209.165.201.4 authorized to:
  port 192.168.67.34/telnet    192.168.67.11/http    192.168.67.33/tcp/8001
    192.168.67.56/tcp/25     192.168.67.42/ftp
user 'terry' from 209.165.201.7 authorized to:
  port 192.168.1.50/http     209.165.201.8/http
```

### Related Commands

Command	Description
<b>clear uauth</b>	Remove current user authentication and authorization information.
<b>timeout</b>	Set the maximum idle time duration.

# show url-block

To display the number of packets held in the url-block buffer and the number (if any) dropped due to exceeding the buffer limit or retransmission, use the **show url-block** command in privileged EXEC mode.

**show url-block [block statistics]**

## Syntax Description

**block statistics** (Optional) Displays block buffer usage statistics.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **show url-block block statistics** command displays the number of packets held in the url block buffer and the number (if any) dropped due to exceeding the buffer limit or retransmission.

## Examples

The following is sample output from the **show url-block** command:

```
hostname# show url-block
|url-block url-mempool 128 |url-block url-size 4 |url-block block 128
```

This shows the configuration of the URL block buffer.

The following is sample output from the **show url-block block statistics** command:

```
hostname# show url-block block statistics

URL Pending Packet Buffer Stats with max block 128 |
Cumulative number of packets held: | 896
Maximum number of packets held (per URL): | 3
Current number of packets held (global): | 38
Packets dropped due to
|exceeding url-block buffer limit: | 7546
|HTTP server retransmission: | 10
Number of packets released back to client: | 0
```

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>clear url-block block statistics</b>	Clears the block buffer usage counters.
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>url-block</b>	Manage the URL buffers used for web server responses.
<b>url-cache</b>	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# show url-cache statistics

To display information about the url-cache, which is used for URL responses received from an N2H2 or Websense filtering server, use the **show url-cache statistics** command in privileged EXEC mode.

## show url-cache statistics

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **show url-cache statistics** command displays the following entries:

- Size—The size of the cache in kilobytes, set with the **url-cache size** option.
- Entries—The maximum number of cache entries based on the cache size.
- In Use—The current number of entries in the cache.
- Lookups—The number of times the security appliance has looked for a cache entry.
- Hits—The number of times the security appliance has found an entry in the cache.

You can view additional information about N2H2 Sentian or Websense filtering activity with the **show perfmon** command.

**Examples** The following is sample output from the **show url-cache statistics** command:

```
hostname# show url-cache statistics

URL Filter Cache Stats
-----
| Size :      1KB
  Entries :      36
    In Use :      30
  Lookups :     300
| Hits :      290
```

Related Commands	Commands	Description
	<b>clear url-cache statistics</b>	Removes <b>url-cache</b> command statements from the configuration.
	<b>filter url</b>	Directs traffic to a URL filtering server.
	<b>url-block</b>	Manage the URL buffers used for web server responses.
	<b>url-cache</b>	Enables URL caching for responses received from an N2H2 or Websense server and sets the size of the cache.
	<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# show url-server

To display information about the URL filtering server, use the **show url-server** command in privileged EXEC mode.

## show url-server statistics

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** The **show url-server statistics** command displays the URL server vendor; number of URLs total, allowed, and denied; number of HTTPS connections total, allowed, and denied; number of TCP connections total, allowed, and denied; and the URL server status.

The **show url-server** command displays the following information:

- For N2H2, **url-server (if\_name) vendor n2h2 host local\_ip port number timeout seconds protocol** **[[TCP | UDP]{version 1 | 4}]**
- For Websense, **url-server (if\_name) vendor websense host local\_ip timeout seconds protocol** **[[TCP | UDP]]**

**Examples** The following is sample output from the **show url-server statistics** command:

```
hostname## show url-server statistics
Global Statistics:
-----
URLs total/allowed/denied          994387/155648/838739
URLs allowed by cache/server       70483/85165
URLs denied by cache/server        801920/36819
HTTPSs total/allowed/denied        994387/155648/838739
HTTPSs allowed by cache/server     70483/85165
HTTPSs denied by cache/server      801920/36819
FTPs total/allowed/denied          994387/155648/838739
FTPs allowed by cache/server       70483/85165
```

```

FTPs denied by cache/server      801920/36819
Requests dropped                  28715
Server timeouts/retries         567/1350
Processed rate average 60s/300s 1524/1344 requests/second
Denied rate average 60s/300s   35648/33022 requests/second
Dropped rate average 60s/300s  156/189 requests/second

```

## URL Server Statistics:

```

-----
192.168.0.1                      UP
Vendor                           websense
Port                             17035
Requests total/allowed/denied    366519/255495/110457
Server timeouts/retries         567/1350
Responses received              365952
Response time average 60s/300s  2/1 seconds/request
192.168.0.2                      DOWN
Vendor                           websense
Port                             17035
Requests total/allowed/denied    0/0/0
Server timeouts/retries         0/0
Responses received               0
Response time average 60s/300s  0/0 seconds/request
. . .

```

## URL Packets Sent and Received Stats:

```

-----
Message          Sent      Received
STATUS_REQUEST  411      0
LOOKUP_REQUEST  366519   365952
LOG_REQUEST      0        NA

```

## Errors:

```

-----
RFC noncompliant GET method      0
URL buffer update failure        0

```

## Semantics:

This command allows the operator to display url-server statistics organized on a global and per-server basis. The output is reformatted to provide: more-detailed information and per-server organization.

## Supported Modes:

```

privileged
router || transparent
single  || multi/context

```

## Privilege:

```

ATTR_ES_CHECK_CONTEXT

```

## Debug support:

```

N/A

```

## Migration Strategy (if any):

```

N/A

```

**Related Commands**

Commands	Description
<b>clear url-server</b>	Clears the URL filtering server statistics.
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>url-block</b>	Manage the URL buffers used for web server responses.

---

<b>url-cache</b>	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

---



# show version

To display the software version, hardware configuration, license key, and related uptime data, use the **show version** command in user EXEC mode.

**show version**

## Syntax Description

This command has no arguments or keywords.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
User EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.
7.2(1)	In stateful failover mode, an additional line showing cluster uptime is displayed.

## Usage Guidelines

The **show version** command allows you to display the software version, operating time since the last reboot, processor type, Flash partition type, interface boards, serial number (BIOS ID), activation key value, license type (R or UR), and time stamp for when the configuration was last modified.

The serial number listed with the **show version** command is for the Flash partition BIOS. This number is different from the serial number on the chassis. When you get a software upgrade, you will need the serial number that appears in the **show version** command, not the chassis number.



### Note

The uptime value indicates how long a failover set has been running. If one unit stops running, the uptime value will continue to increase as long as the other unit continues to operate.

## Examples

The following example shows how to display the software version, hardware configuration, license key, and related uptime information. Note that in an environment where stateful failover is configured an additional line showing the failover cluster uptime is displayed. If failover is not configured the line is not displayed:

```
hostname# show version
```

```

Cisco PIX Security Appliance Software Version 7.0(4)
Device Manager Version 5.0(4)

Compiled on Tue 27-Sep-05 10:41 by root
System image file is "flash:/cdisk.bin"
Config file at boot was "startup-config"

pix2 up 7 days 7 hours
failover cluster up 2 mins 44 secs

Hardware:   PIX-515E, 128 MB RAM, CPU Pentium II 433 MHz
Flash E28F128J3 @ 0xffff00000, 16MB
BIOS Flash AM29F400B @ 0xfffd8000, 32KB

  0: Ext: Ethernet0      : address is 0011.2094.1d2b, irq 10
  1: Ext: Ethernet1      : address is 0011.2094.1d2c, irq 11

Licensed features for this platform:
Maximum Physical Interfaces : 6
Maximum VLANs               : 25
Inside Hosts                 : Unlimited
Failover                     : Active/Active
VPN-DES                      : Enabled
VPN-3DES-AES                 : Enabled
Cut-through Proxy           : Enabled
Guards                      : Enabled
URL Filtering                 : Enabled
Security Contexts           : 5
GTP/GPRS                    : Enabled
VPN Peers                    : Unlimited

This platform has an Unrestricted (UR) license.

Serial Number: 808184143
Running Activation Key: 0xcf22f25d 0xec1c3174 0x8cb138a0 0xaad8b878 0x4f32fd90
Configuration last modified by enable_15 at 14:18:26.103 UTC Thu Oct 6 2005
hostname#

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show hardware</b>	Displays detail hardware information.
<b>show serial</b>	Displays the hardware serial information.
<b>show uptime</b>	Displays how long the security appliance has been up.

# show vlan

To display all VLANs configured on the security appliance, use the **show vlan** command in privileged EXEC mode.

## show vlan

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Examples

The following example displays the configured VLANs:

```
hostname# show vlan
10-11, 30, 40, 300
```

### Related Commands

Command	Description
<b>clear interface</b>	Clears counters for the <b>show interface</b> command.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.

# show vpn load-balancing

To display the runtime statistics for the VPN load-balancing virtual cluster configuration, use the **show vpn-load-balancing** command in global configuration, privileged EXEC, or VPN load-balancing mode.

**show vpn load-balancing**

**Syntax Description** This command has no variables or arguments.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—
Privileged EXEC	•	—	•	—	—
vpn load-balancing	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.
7.1(1)	Added separate IPsec and SSL columns for both Load (%) display and Session display in the output example.

## Usage Guidelines

The **show vpn load-balancing** command displays statistical information for the virtual VPN load-balancing cluster. If the local device is not participating in the VPN load-balancing cluster, this command indicates that VPN load balancing has not been configured for this device.

The asterisk (\*) in the output indicates the IP address of the security appliance to which you are connected.

## Examples

This example displays **show vpn load-balancing** command and its output for a situation in which the local device is participating in the VPN load-balancing cluster:

```
hostname(config-load-balancing)# show vpn load-balancing

Status: enabled
Role: Master
Failover: n/a
Encryption: enabled
Cluster IP: 192.168.1.100
Peers: 1
```

```

Public IP          Role  Pri   Model          Load (%)          Sessions
                  IPsec SSL          IPsec  SSL
-----
* 192.168.1.40    Master 10     PIX-515         0      0           0      0
  192.168.1.110  Backup 5     PIX-515         0      0           0      0
hostname(config-load-balancing)#

```

If the local device is not participating in the VPN load-balancing cluster, the **show vpn load-balancing** command shows a different result:

```

hostname(config)# show vpn load-balancing
VPN Load Balancing has not been configured.

```

#### Related Commands

Command	Description
<b>clear configure vpn load-balancing</b>	Removes <b>vpn load-balancing</b> command statements from the configuration.
<b>show running-config vpn load-balancing</b>	Displays the the current VPN load-balancing virtual cluster configuration.
<b>vpn load-balancing</b>	Enters vpn load-balancing mode.

# show vpn-sessiondb

To display information about VPN sessions, use the show **vpn-sessiondb** command in privileged EXEC mode. The command includes options for displaying information in full or in detail, lets you specify type of sessions to display, and provides options to filter and sort the information. The syntax table and usage notes organize the choices accordingly.

```
show vpn-sessiondb [detail] [full] {remote | l2l | index indexnumber | webvpn | email-proxy}
[filter {name username | ipaddress IPaddr | a-ipaddress IPaddr | p-ipaddress IPaddr |
tunnel-group groupname | protocol protocol-name | encryption encryption-algo}]
[sort {name | ipaddress | a-ipaddress | p-ip address | tunnel-group | protocol | encryption}]
```

## Syntax Descriptions

### Granularity of Display

<b>detail</b>	Displays extended details about a session. For example, using the <b>detail</b> option for an IPSec session displays additional details such as the IKE hashing algorithm, authentication mode, and rekey interval.  If you choose <b>detail</b> , and the <b>full</b> option, the security appliance displays the detailed output in a machine-readable format.
<b>filter</b>	Filters the output to display only the information you specify by using one or more of the filter options. For more information, see usage notes.
<b>full</b>	Displays streamed, untruncated output. Output is delineated by   characters and a    string between records.
<b>sort</b>	Sorts the output according to the sort option you specify. For more information, see usage notes.

### Session Type to Display

<b>email-proxy</b>	Displays email-proxy sessions. You can display this information for e-mail proxy sessions, or you can filter it by using the following filter and sort options: <b>name</b> (connection name), <b>ipaddress</b> (client), <b>encryption</b> .
<b>index <i>indexnumber</i></b>	Displays a single session by index number. Specify the index number for the session, 1 - 750. Filter and sort options do not apply.
<b>l2l</b>	Displays VPN LAN-to-LAN session information. You can display this information for all groups or you can filter it by using the following filter and sort options: <b>name</b> , <b>ipaddress</b> , <b>protocol</b> , <b>encryption</b> .
<b>remote</b>	Displays remote-access sessions. You can display this information for all groups or you can filter it by using the following filter options: <b>name</b> , <b>a-ipaddress</b> , <b>p-ipaddress</b> , <b>tunnel-group</b> , <b>protocol</b> , <b>encryption</b> .
<b>webvpn</b>	Displays information about WebVPN sessions. You can display this information for all groups or you can filter it by using the following filter and sort options: <b>name</b> , <b>ipaddress</b> , <b>encryption</b> .

## Defaults

No default behavior or values.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	—	—	•

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Usage Guidelines**

You can use the following options to filter and to sort the session display:

Filter/Sort Option	Meaning
<b>filter a-ipaddress</b> <i>IPaddr</i>	Filters the output to display information for the specified assigned IP address or addresses only.
sort a-ipaddress	Sorts the display by assigned IP addresses.
<b>filter encryption</b> <i>encryption-algo</i>	Filters the output to display information for sessions using the specified encryption algorithm(s) only.
sort encryption	Sorts the display by encryption algorithm. Encryption algorithms include: aes128, aes192, aes256, des, 3des, rc4
<b>filter ipaddress</b> <i>IPaddr</i>	Filters the output to display information for the specified inside IP address or addresses only.
sort ipaddress	Sorts the display by inside IP addresses.
<b>filter name</b> <i>username</i>	Filters the output to display sessions for the specified username(s).
sort name	Sorts the display by usernames in alphabetical order.
<b>filter p-address</b> <i>IPaddr</i>	Filters the output to display information for the specified outside IP address only.
sort p-address	Sorts the display by the specified outside IP address or addresses.
<b>filter protocol</b> <i>protocol-name</i>	Filters the output to display information for sessions using the specified protocol(s) only.
sort protocol	Sorts the display by protocol. Protocols include: IKE, IMAP4S, IPsec, IPsecLAN2LAN, IPsecLAN2LANOverNatT, IPsecOverNatT, IPsecoverTCP, IPsecOverUDP, SMTPS, userHTTPS, vcaLAN2LAN
<b>filter tunnel-group</b> <i>groupname</i>	Filters the output to display information for the specified tunnel group(s) only.
sort tunnel-group	Sorts the display by tunnel group.
character	Modifies the output, using the following arguments: {begin   include   exclude   grep   [-v]} {reg_exp}
<cr>	Sends the output to the console.

The following example, entered in privileged EXEC mode, shows detailed information about LAN-to-LAN sessions:

```

hostname# show vpn-sessiondb detail 121
Session Type: LAN-to-LAN Detailed
Connection : 172.16.0.1
Index      : 1                      IP Addr    : 172.16.0.1
Protocol   : IPSecLAN2LAN           Encryption : AES256
Bytes Tx   : 48484156               Bytes Rx   : 875049248
Login Time : 09:32:03 est Mon Aug 2 2004
Duration   : 6:16:26
Filter Name :

IKE Sessions: 1 IPSec Sessions: 2

IKE:
  Session ID : 1
  UDP Src Port : 500                UDP Dst Port : 500
  IKE Neg Mode : Main               Auth Mode    : preSharedKeys
  Encryption   : AES256             Hashing      : SHA1
  Rekey Int (T): 86400 Seconds      Rekey Left(T): 63814 Seconds
  D/H Group    : 5

IPSec:
  Session ID : 2
  Local Addr  : 10.0.0.0/255.255.255.0
  Remote Addr : 209.165.201.30/255.255.255.0
  Encryption  : AES256               Hashing      : SHA1
  Encapsulation: Tunnel              PFS Group   : 5
  Rekey Int (T): 28800 Seconds       Rekey Left(T): 10903 Seconds
  Bytes Tx    : 46865224             Bytes Rx    : 2639672
  Pkts Tx     : 1635314              Pkts Rx    : 37526

IPSec:
  Session ID : 3
  Local Addr  : 10.0.0.1/255.255.255.0
  Remote Addr : 209.165.201.30/255.255.255.0
  Encryption  : AES256               Hashing      : SHA1
  Encapsulation: Tunnel              PFS Group   : 5
  Rekey Int (T): 28800 Seconds       Rekey Left(T): 6282 Seconds
  Bytes Tx    : 1619268              Bytes Rx    : 872409912
  Pkts Tx     : 19277                Pkts Rx    : 1596809

hostname#

```

The following example shows the details of single session:

```

AsaNacDev# show vpn-sessiondb detail full index 4
Session Type: Remote Detailed |

Index: 1 | Username: dbrownhi | Tunnel Group: bxbvplab | IP Addr: 192.168.2.70 | Public
IP: 10.86.5.114 | Protocol: IPSec | Encryption: AES128 | Login Time: 15:22:46 EDT Tue May
10 2005 | Duration: 6h:57m:40s | Bytes Tx: 0 | Bytes Rx: 598357 | Client Type: WinNT |
Client Ver: 4.6.00.0049 | Filter Name: | NAC Result: Accepted | Posture Token: Healthy ||

IKE Sessions: 1 | IPSec Sessions: 1 | NAC Sessions: 1 |

Type: IKE | Session ID: 1 | Authentication Mode: preSharedKeysXauth | UDP Source Port: 500
| UDP Destination Port: 500 | IKE Negotiation Mode: Aggressive | Encryption: 3DES |
Hashing: MD5 | Diffie-Hellman Group: 2 | Rekey Time Interval: 86400 Seconds | Rekey
Left(T): 61341 Seconds ||

```



```
Type: IPSec | Session ID: 2 | Local IP Addr: 0.0.0.0 | Remote IP Addr: 192.168.2.70 |
Encryption: AES128 | Hashing: SHA1 | Encapsulation: Tunnel | Rekey Time Interval: 28800
Seconds | Rekey Left(T): 26794 Seconds | Bytes Tx: 0 | Bytes Rx: 598357 | Packets Tx: 0 |
Packets Rx: 8044 | ||
```

```
Type: NAC | Revalidation Time Interval: 3000 Seconds | Time Until Next Revalidation: 286
Seconds | Status Query Time Interval: 600 Seconds | EAPoUDP Session Age: 2714 Seconds |
Hold-Off Time Remaining: 0 Seconds | Posture Token: Healthy | Redirect URL: www.cisco.com
||
```

```
AsaNacDev# show vpn-sessiondb detail index 1
```

```
Session Type: Remote Detailed
```

```
Username      : dbrownhi
Index         : 1
Assigned IP   : 192.168.2.70          Public IP    : 10.86.5.114
Protocol      : IPSec                 Encryption   : AES128
Hashing       : SHA1
Bytes Tx      : 0                     Bytes Rx     : 604533
Client Type   : WinNT                 Client Ver   : 4.6.00.0049
Tunnel Group  : bxbvvpnlab
Login Time    : 15:22:46 EDT Tue May 10 2005
Duration      : 7h:02m:03s
Filter Name   :
NAC Result    : Accepted
Posture Token : Healthy
```

```
IKE Sessions: 1 IPSec Sessions: 1 NAC Sessions: 1
```

```
IKE:
```

```
Session ID    : 1
UDP Src Port  : 500                    UDP Dst Port : 500
IKE Neg Mode  : Aggressive              Auth Mode    : preSharedKeysXauth
Encryption    : 3DES                   Hashing      : MD5
Rekey Int (T): 86400 Seconds            Rekey Left(T): 61078 Seconds
D/H Group     : 2
```

```
IPSec:
```

```
Session ID    : 2
Local Addr    : 0.0.0.0
Remote Addr   : 192.168.2.70
Encryption    : AES128                  Hashing      : SHA1
Encapsulation: Tunnel
Rekey Int (T): 28800 Seconds            Rekey Left(T): 26531 Seconds
Bytes Tx      : 0                       Bytes Rx     : 604533
Pkts Tx       : 0                       Pkts Rx     : 8126
```

```
NAC:
```

```
Reval Int (T): 3000 Seconds              Reval Left(T): 286 Seconds
SQ Int (T)    : 600 Seconds              EoU Age (T)  : 2714 Seconds
Hold Left (T): 0 Seconds                 Posture Token: Healthy
Redirect URL  : www.cisco.com
```

As shown in the examples, the fields displayed in response to the **show vpn-sessiondb** command vary, depending on the keywords you enter. Table 30-6 explains these fields.

**Table 30-6** show vpn-sessiondb Command Fields

Field	Description
Auth Mode	Protocol or mode used to authenticate this session.
Bytes Rx	Total number of bytes received from the remote peer or client by the security appliance.
Bytes Tx	Number of bytes transmitted to the remote peer or client by the security appliance.
Client Type	Client software running on the remote peer, if available.
Client Ver	Version of the client software running on the remote peer.
Connection	Name of the connection or the private IP address.
D/H Group	Diffie-Hellman Group. The algorithm and key size used to generate IPSec SA encryption keys.
Duration	Elapsed time (HH:MM:SS) between the session login time and the last screen refresh.
EAPoUDP Session Age	Number of seconds since the last successful posture validation.
Encapsulation	Mode used to apply IPSec ESP (Encapsulation Security Payload protocol) encryption and authentication (that is, the part of the original IP packet that has ESP applied).
Encryption	Data encryption algorithm this session is using, if any.
Encryption	Data encryption algorithm this session is using.
EoU Age (T)	EAPoUDP Session Age. Number of seconds since the last successful posture validation.
Filter Name	Username specified to restrict the display of session information.
Hashing	Algorithm used to create a hash of the packet, which is used for IPSec data authentication.
Hold Left (T)	Hold-Off Time Remaining. 0 seconds if the last posture validation was successful. Otherwise, the number of seconds remaining before the next posture validation attempt.
Hold-Off Time Remaining	0 seconds if the last posture validation was successful. Otherwise, the number of seconds remaining before the next posture validation attempt.
IKE Neg Mode	IKE (IPSec Phase 1) mode for exchanging key information and setting up SAs: Aggressive or Main.
IKE Sessions	Number of IKE (IPSec Phase 1) sessions; usually 1. These sessions establish the tunnel for IPSec traffic.
Index	Unique identifier for this record.
IP Addr	Private IP address assigned to the remote client for this session. This is also known as the “inner” or “virtual” IP address. It lets the client appear to be a host on the private network.
IPSec Sessions	Number of IPSec (Phase 2) sessions, which are data traffic sessions through the tunnel. Each IPSec remote-access session can have two IPSec sessions: one consisting of the tunnel endpoints, and one consisting of the private networks reachable through the tunnel.

**Table 30-6** show vpn-sessiondb Command Fields

Field	Description
Local IP Addr	IP address assigned to the local endpoint of the tunnel (that is the interface on the security appliance).
Login Time	Date and time (MMM DD HH:MM:SS) that the session logged in. Time is displayed in 24-hour notation.
NAC Result	State of Network Admission Control Posture Validation. It can be one of the following: <ul style="list-style-type: none"> <li>Accepted—The ACS successfully validated the posture of the remote host.</li> <li>Rejected—The ACS could not successfully validate the posture of the remote host.</li> <li>Exempted—The remote host is exempt from posture validation according to the Posture Validation Exception list configured on the security appliance.</li> <li>Non-Responsive—The remote host did not respond to the EAPoUDP Hello message.</li> <li>Hold-off—The security appliance lost EAPoUDP communication with the remote host after successful posture validation.</li> <li>N/A—NAC is disabled for the remote host according to the VPN NAC group policy.</li> <li>Unknown—Posture validation is in progress.</li> </ul>
NAC Sessions	Number of Network Admission Control (EAPoUDP) sessions.
Packets Rx	Number of packets received from the remote peer by the security appliance.
Packets Tx	Number of packets transmitted to the remote peer by the security appliance.
PFS Group	Perfect Forward Secrecy group number.
Posture Token	Informational text string configurable on the Access Control Server. The ACS downloads the posture token to the security appliance for informational purposes to aid in system monitoring, reporting, debugging, and logging. A typical posture token is Healthy, Checkup, Quarantine, Infected, or Unknown.
Protocol	Protocol the session is using.
Public IP	Publicly routable IP address assigned to the client.
Redirect URL	Following posture validation or clientless authentication, the ACS downloads the access policy for the session to the security appliance. The Redirect URL is an optional part of the access policy payload. The security appliance redirects all HTTP (port 80) and HTTPS (port 443) requests for the remote host to the Redirect URL if it is present. If the access policy does not contain a Redirect URL, the security appliance does not redirect HTTP and HTTPS requests from the remote host.  Redirect URLs remain in force until either the IPSec session ends or until posture revalidation, for which the ACS downloads a new access policy that can contain a different redirect URL or no redirect URL.
Rekey Int (T)	Lifetime of the IPSec (IKE) SA encryption keys.
Rekey Left (T)	Lifetime remaining of the IPSec (IKE) SA encryption keys.

**Table 30-6** show vpn-sessiondb Command Fields

Field	Description
Rekey Time Interval	Lifetime of the IPSec (IKE) SA encryption keys.
Remote IP Addr	IP address assigned to the remote endpoint of the tunnel (that is the interface on the remote peer).
Reval Int (T)	Revalidation Time Interval. Interval in seconds required between each successful posture validation.
Reval Left (T)	Time Until Next Revalidation. 0 if the last posture validation attempt was unsuccessful. Otherwise, the difference between the Revalidation Time Interval and the number of seconds since the last successful posture validation.
Revalidation Time Interval	Interval in seconds required between each successful posture validation.
Session ID	Identifier for the session component (subsession). Each SA has its own identifier.
Session Type	Type of session: LAN-to-LAN or Remote
SQ Int (T)	Status Query Time Interval. Time in seconds allowed between each successful posture validation or status query response and the next status query response. A status query is a request made by the security appliance to the remote host to indicate whether the host has experienced any changes in posture since the last posture validation.
Status Query Time Interval	Time in seconds allowed between each successful posture validation or status query response and the next status query response. A status query is a request made by the security appliance to the remote host to indicate whether the host has experienced any changes in posture since the last posture validation.
Time Until Next Revalidation	0 if the last posture validation attempt was unsuccessful. Otherwise, the difference between the Revalidation Time Interval and the number of seconds since the last successful posture validation.
Tunnel Group	Name of the tunnel group referenced by this tunnel for attribute values.
UDP Dst Port or UDP Destination Port	Port number used by the remote peer for UDP.
UDP Src Port or UDP Source Port	Port number used by the security appliance for UDP.
Username	User login name with which the session is established.

**Related Commands**

Command	Description
show running-configuration vpn-sessiondb	Displays the VPN session database running configuration.
show vpn-sessiondb ratio	Displays VPN session encryption or protocol ratios.
show vpn-sessiondb summary	Displays a summary of all VPN sessions.

# show vpn-sessiondb ratio

To display the ratio of current sessions as a percentage by protocol or encryption algorithm, use the **show vpn-sessiondb ratio** command in privileged EXEC mode.

```
show vpn-sessiondb ratio {protocol | encryption} [filter groupname]
```

Syntax Description	encryption																
	Identifies the encryption protocols you want to display. Refers to phase 2 encryption. Encryption algorithms include:																
	<table border="0"> <tr> <td>aes128</td> <td>des</td> </tr> <tr> <td>aes192</td> <td>3des</td> </tr> <tr> <td>aes256</td> <td>rc4</td> </tr> </table>	aes128	des	aes192	3des	aes256	rc4										
aes128	des																
aes192	3des																
aes256	rc4																
	filter <i>groupname</i>																
	Filters the output to include session ratios only for the tunnel group you specify.																
	protocol																
	Identifies the protocols you want to display. Protocols include:																
	<table border="0"> <tr> <td>IKE</td> <td>SMTSPS</td> </tr> <tr> <td>IMAP4S</td> <td>userHTTPS</td> </tr> <tr> <td>IPSec</td> <td>vcaLAN2LAN</td> </tr> <tr> <td>IPSecLAN2LAN</td> <td></td> </tr> <tr> <td>IPSecLAN2LANOverNatT</td> <td></td> </tr> <tr> <td>IPSecOverNatT</td> <td></td> </tr> <tr> <td>IPSecoverTCP</td> <td></td> </tr> <tr> <td>IPSecOverUDP</td> <td></td> </tr> </table>	IKE	SMTSPS	IMAP4S	userHTTPS	IPSec	vcaLAN2LAN	IPSecLAN2LAN		IPSecLAN2LANOverNatT		IPSecOverNatT		IPSecoverTCP		IPSecOverUDP	
IKE	SMTSPS																
IMAP4S	userHTTPS																
IPSec	vcaLAN2LAN																
IPSecLAN2LAN																	
IPSecLAN2LANOverNatT																	
IPSecOverNatT																	
IPSecoverTCP																	
IPSecOverUDP																	

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	—	—	•

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Examples** The following is sample output for the **show vpn-sessiondb ratio** command, with **encryption** as the argument:

## show vpn-sessiondb ratio

```

hostname# show vpn-sessiondb ratio enc
Filter Group      : All
Total Active Sessions: 5
Cumulative Sessions : 9

Encryption      Sessions      Percent
none            0            0%
DES             1            20%
3DES           0            0%
AES128         4            80%
AES192         0            0%
AES256         0            0%

```

The following is sample output for the **show vpn-sessiondb ratio** command with **protocol** as the argument:

```

hostname# show vpn-sessiondb ratio protocol
Filter Group      : All
Total Active Sessions: 6
Cumulative Sessions : 10

Protocol          Sessions      Percent
IKE               0            0%
IPSec            1            20%
IPSecLAN2LAN     0            0%
IPSecLAN2LANOverNatT 0            0%
IPSecOverNatT   0            0%
IPSecOverTCP     1 20%
IPSecOverUDP     0            0%
L2TP             0            0%
L2TPOverIPSec   0            0%
L2TPOverIPSecOverNatT 0            0%
PPPoE           0            0%
vpnLoadBalanceMgmt 0            0%
userHTTPS        0            0%
IMAP4S          3 30%
POP3S           0            0%
SMTPS           3 30%

```

## Related Commandss

Command	Description
<b>show vpn-sessiondb</b>	Displays sessions with or without extended details, optionally filtered and sorted by criteria you specify.
<b>show vpn-sessiondb summary</b>	Displays a session summary, including total current session, current sessions of each type, peak and total cumulative, maximum concurrent sessions

# show vpn-sessiondb summary

To display the number IPsec, WebVPN, and Network Admission Control sessions, use the **show vpn-sessiondb summary** command in privileged EXEC mode.

## show vpn-sessiondb summary

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	—	—	•

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Examples

The following is sample output for the **show vpn-sessiondb summary** command:

```
hostname# show vpn-sessiondb summary

Active Sessions:
  IPSec LAN-to-LAN      : 0
  IPSec Remote Access  : 0
  WebVPN                : 0
  SSL VPN Client (SVC) : 0
  Email Proxy          : 0
  Total Active Sessions : 0

Session Information:
  Peak Concurrent      : 0
  IPSec Limit          : 750
  WebVPN Limit         : 500
  Cumulative Sessions  : 0
  Percent Session Load : 0%
  VPN LB Mgmt Sessions : 0

Active NAC Sessions:
  Accepted      : 0
  Rejected     : 0
  Exempted     : 0
  Non-responsive : 0
  Hold-off     : 0
  N/A          : 0

Cumulative NAC Sessions:
  Accepted      : 0
  Rejected     : 0
  Exempted     : 0
  Non-responsive : 0
  Hold-off     : 0
  N/A          : 0

F1-asa1#
```

A session is a VPN tunnel established with a specific peer. An IPsec LAN-to-LAN tunnel counts as one session, and it allows many host-to-host connections through the tunnel. An IPsec remote access session is one remote access tunnel that supports one user connection.

Table 30-7 explains the fields in the Active Sessions and Session Information tables.

**Table 30-7** *show vpn-sessiondb summary Command: Active Sessions and Session Information Fields*

Field	Description
Concurrent Limit	Maximum number of concurrently active sessions permitted on this security appliance.
Cumulative Sessions	Number of sessions of all types since the security appliance was last booted or reset.
LAN-to-LAN	Number of IPsec LAN-to-LAN sessions that are currently active.
Peak Concurrent	Highest number of sessions of all types that were concurrently active since the security appliance was last booted or reset.
Percent Session Load	Percentage the vpn session allocation in use. This value equals the Total Active Sessions divided by the maximum number of sessions available, displayed as a percentage. The maximum number of sessions available can be either of the following: <ul style="list-style-type: none"> <li>• Maximum number of IPsec and WebVPN sessions licensed.</li> <li>• Maximum number of sessions configured using the following commands: <ul style="list-style-type: none"> <li>– <b>vpn-sessiondb max-session-limit</b></li> <li>– <b>vpn-sessiondb max-webvpn-session-limit</b></li> </ul> </li> </ul>
Remote Access	Number of PPTP, L2TP, IPsec remote-access user, L2TP over IPsec, and IPsec through NAT sessions that are currently active.
Total Active Sessions	Number of sessions of all types that are currently active.

The Active NAC Sessions table shows general statistics about remote peers that are subject to posture validation.

The Cumulative NAC Sessions table shows general statistics about remote peers that are or have been subject to posture validation.

Table 30-6 explains the fields in the Active NAC Sessions and Total Cumulative NAC Sessions tables.

**Table 30-8** *show vpn-sessiondb summary Command: Active NAC Sessions and Total Cumulative NAC Sessions Fields*

Field	Description
Accepted	Number of peers that passed posture validation and have been granted an access policy by an Access Control Server.
Exempted	Number of peers that are not subject to posture validation because they match an entry in the Posture Validation Exception list configured on the security appliance.
Hold-off	Number of peers for which the security appliance lost EAPoUDP communications after a successful posture validation. The NAC Hold Timer attribute (Configuration > VPN > NAC) determines the delay between this type of event and the next posture validation attempt for each peer.
N/A	Number of peers for which NAC is disabled according to the VPN NAC group policy.



**Table 30-8** *show vpn-sessiondb summary Command: Active NAC Sessions and Total Cumulative NAC Sessions Fields*

Field	Description
Non-responsive	Number of peers not responsive to Extensible Authentication Protocol (EAP) over UDP requests for posture validation. Peers on which no CTA is running do not respond to these requests. If the security appliance configuration supports clientless hosts, the Access Control Server downloads the access policy associated with clientless hosts to the security appliance for these peers. Otherwise, the security appliance assigns the NAC default policy.
Rejected	Number of peers that failed posture validation or were not granted an access policy by an Access Control Server.

**Related Commands**

Command	Description
<b>show vpn-sessiondb</b>	Displays sessions with or without extended details, optionally filtered and sorted by criteria you specify.
<b>show vpn-sessiondb ratio</b>	Displays VPN session encryption or protocol ratios.

# show wccp

To display global statistics related to Web Cache Communication Protocol (WCCP), use the **show wccp** command in privileged EXEC mode.

```
show wccp { web-cache | service-number } [ detail | view ]
```

Syntax Description	web-cache	Specifies statistics for the web-cache service.
	<i>service-number</i>	(Optional) Identification number of the web-cache service group being controlled by the cache. The number can be from 0 to 256. For web caches using Cisco Cache Engines, the reverse proxy service is indicated by a value of 99.
	<i>detail</i>	(Optional) Displays information about the router and all web caches.
	<i>view</i>	(Optional) Displays other members of a particular service group have or have not been detected.

**Defaults** This command is disabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Examples** The following example shows how to display WCCP information:

```
hostname(config)# show wccp
Global WCCP information:
  Router information:
    Router Identifier:          -not yet determined-
    Protocol Version:          2.0

  Service Identifier: web-cache
    Number of Cache Engines:   0
    Number of routers:         0
    Total Packets Redirected:   0
    Redirect access-list:      foo
    Total Connections Denied Redirect: 0
    Total Packets Unassigned:   0
    Group access-list:         foobar
    Total Messages Denied to Group: 0
```

```
Total Authentication failures:      0
Total Bypassed Packets Received:    0
asa1(config)#
```

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>wccp</b>	Enables support of WCCP with service groups.
<b>wccp redirect</b>	Enables support of WCCP redirection.

# show webvpn csd

To determine whether CSD is enabled and, if so, display the CSD version in the running configuration, or test a file to see if it is a valid CSD distribution package, use the **show webvpn csd** command in privileged EXEC mode.

```
show webvpn csd [image filename]
```

<b>Syntax Description</b>	<i>filename</i>	Specifies the name of a file to test for validity as a CSD distribution package. It must take the form securedesktop_asa_<n>_<n>*.pkg.
---------------------------	-----------------	--

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
privileged EXEC mode	•	—	•	—	—

Command History	Release	Modification
	7.1(1)	This command was introduced.

**Usage Guidelines** Use the **show webvpn csd** command to check the operational status of CSD. The CLI responds with one of the following messages when you enter this command:

- Secure Desktop is not enabled.  
CSD is in the running configuration, but it is disabled. Go to webvpn configuration mode and enter the **csd enable** command to enable CSD.
- Secure Desktop version *n.n.n.n* is currently installed and enabled.  
CSD is enabled. The distribution package read from the flash device determines the version number. You can access Cisco Secure Desktop Manager through the ASDM Configuration > CSD menu path. CSD is accessible to users only if the CSD configuration contains a location.

Use the **show webvpn csd image** command to test a file to see if it is a valid CSD distribution package. Similarly, the **csd image** command, when entered in webvpn configuration mode, installs CSD only if the file you name in the command is a valid CSD distribution package. Otherwise, it displays an “ERROR: Unable to use CSD image” message.

The **show webvpn csd image** command tests a file to see if it is a valid CSD distribution package without installing CSD automatically if the file is valid. The CLI responds with one of the following messages when you enter this command:

- ERROR: This is not a valid Secure Desktop image file.

Make sure the filename is in the form the form `securedesktop_asa_<n>_<n>*.pkg`. If it is, replace the file with a fresh one obtained from the following website:

<http://www.cisco.com/cgi-bin/tablebuild.pl/securedesktop>

Then reenter the **show webvpn csd image** command. If the image is valid, use the **csd image** and **csd enable** commands in webvpn configuration mode to install and enable CSD.

- This is a valid Cisco Secure Desktop image:  
Version : 3.1.0.25  
Built on : Wed 10/19/2005 14:51:23.82

Note that the CLI provides both the version and date stamp if the file is valid.

### Examples

The following example indicates CSD is installed in the running configuration and enabled:

```
hostname# show webvpn csd
Secure Desktop version 3.1.0.25 is currently installed and enabled.
hostname#
```

The following example shows the file specified is a valid CSD image:

```
hostname#show webvpn csd image securedesktop_asa_3_1_0_25.pkg
```

```
This is a valid Cisco Secure Desktop image:
Version : 3.1.0.25
Built on : Wed 10/19/2005 14:51:23.82
```

```
hostname#
```

### Related Commands

Command	Description
<b>csd enable</b>	Enables CSD for management and remote user access.
<b>csd image</b>	Copies the CSD image named in the command, from the flash drive specified in the path to the running configuration.

# show webvpn group-alias

To display the aliases for a specific tunnel-group or for all tunnel groups, use the **group-alias** command in privileged EXEC mode.

```
show webvpn group-alias [tunnel-group]
```

## Syntax Description

*tunnel-group* (Optional) Specifies a particular tunnel group for which to show the group aliases.

## Defaults

If you do not enter a tunnel-group name, this command displays all the aliases for all the tunnel groups.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.1	This command was introduced.

## Usage Guidelines

WebVPN must be running when you enter the **show webvpn group-alias** command.

**Reviewers: Is this still true?**

Each tunnel group can have multiple aliases or no alias.

## Examples

The following example shows the **show webvpn group-alias** command that displays the aliases for the tunnel group “devtest” and the output of that command:

```
hostname# show webvpn group-alias devtest
QA
Fra-QA
```

## Related Commands

Command	Description
<b>group-alias</b>	Specifies one or more URLs for the group.
<b>tunnel-group</b>	Enters the config-webvpn mode for configuring WebVPN tunnel-group attributes.
<b>webvpn-attributes</b>	

# show webvpn group-url

To display the URLs for a specific tunnel-group or for all tunnel groups, use the **group-url** command in privileged EXEC mode.

```
show webvpn group-url [tunnel-group]
```

<b>Syntax Description</b>	<i>tunnel-group</i> (Optional) Specifies a particular tunnel group for which to show the URLs.
---------------------------	--

<b>Defaults</b>	If you do not enter a tunnel-group name, this command displays all the URLs for all the tunnel groups.
-----------------	--

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	7.1(1)	This command was introduced.

<b>Usage Guidelines</b>	WebVPN must be running when you enter the <b>show webvpn group-url</b> command. Each group can have multiple URLs or no URL.
-------------------------	--

<b>Examples</b>	The following example shows the <b>show webvpn group-url</b> command that displays the URLs for the tunnel group “frn-eng1” and the output of that command:
-----------------	---

```
hostname# show webvpn group-url
http://www.cisco.com
https://fra1.vpn.com
https://fra2.vpn.com
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>group-url</b>	Specifies one or more URLs for the group.
	<b>tunnel-group</b>	Enters the config-webvpn mode for configuring WebVPN tunnel-group attributes.
	<b>webvpn-attributes</b>	

# show webvpn sso-server

To display the operating statistics for a single sign-on server, use the **show webvpn sso-server** command in privileged EXEC mode. This is an SSO with CA SiteMinder command.

**show webvpn sso-server** *name*

## Syntax Description

<i>name</i>	Specifies the name of the SSO server. Minimum of 4 characters and maximum of 32 characters.
-------------	---

## Defaults

No default values or behavior.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without reentering a username and password more than once. The **show webvpn sso-server** command displays operating statistics for any or all SSO servers configured.

If no SSO server name argument is entered, statistics on all SSO servers display.

## Examples

The following example, entered in privileged EXEC mode, displays statistics for an SSO server named example:

```
hostname# show webvpn sso-server example
Name: example
Type: SiteMinder
Authentication Scheme Version: 1.0
Web Agent URL: http://www.example.com/webvpn
Number of pending requests:      0
Number of auth requests:        0
Number of retransmissions:      0
Number of accepts:              0
Number of rejects:              0
Number of timeouts:             0
Number of unrecognized responses: 0
hostname(config-webvpn-sso-siteminder)#
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>max-retry-attempts</b>	Configures the number of times the security appliance retries a failed SSO authentication attempt.
<b>policy-server-secret</b>	Creates a secret key used to encrypt authentication requests to an SSO server.
<b>request-timeout</b>	Specifies the number of seconds before a failed SSO authentication attempt times out.
<b>sso-server</b>	Creates a single sign-on server.
<b>web-agent-url</b>	Specifies the SSO server URL to which the security appliance makes SSO authentication requests.

# show webvpn svc

To view the SVC installation, or to test a file to see if it is a valid SVC file, use the **show webvpn svc** command from privileged EXEC mode.

```
show webvpn svc [image filename]
```

## Syntax Description

**image filename** Specifies the name of a file to test for validity as an SVC image file.

## Defaults

This command has no default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.1.1	This command was introduced.

## Usage Guidelines

Use the **show webvpn svc** command to view information about the existing SVC images that are configured for use.

Use the **image filename** option to test a file to see if it is a valid SVC image. If the file is not a valid SVC image, the following message appears:

```
ERROR: This is not a valid SSL VPN Client image file.
```

## Examples

The following example shows the output of the **show webvpn svc** command for currently installed SVC images:

```
hostname# show webvpn svc
1. windows.pkg 1
SSL VPN Client
CISCO STC win2k+ 1.1.0
1,1,0,107
Thu 04/14/2005 09:27:54.43
2. window2.pkg 15
CISCO STC win2k+ 1.1.0
1,1,0,107
Thu 04/14/2005 09:27:54.43
```

The following example shows the output of the **show webvpn svc image *filename*** command for a valid SVC image:

```
F1(config-webvpn)# show webvpn svc image sslclient-win-1.0.2.127.pkg
```

```
This is a valid SSL VPN Client image:
```

```
CISCO STC win2k+ 1.0.0  
1,0,2,127  
Fri 07/22/2005 12:14:45.43
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>svc</b>	Enables or requires the SVC for a specific group or user.
<b>svc enable</b>	Enables the security appliance to download SVC files to remote computers.
<b>svc image</b>	Causes the security appliance to load SVC files from flash memory to RAM, and specifies the order in which the security appliance downloads SVC files to the remote computer.

---





## shun through sysopt radius ignore-secret Commands

---

# shun

To enable a dynamic response to an attacking host by preventing new connections and disallowing packets from any existing connection, use the **shun** command in privileged EXEC mode. To disable a shun that is based on the *src\_ip*, the actual address that is used by the security appliance for shun lookups, use the **no** form of this command.

```
shun src_ip [dst_ip src_port dest_port [protocol]] [vlan vlan_id]
```

```
no shun src_ip [vlan vlan_id]
```

## Syntax Description

<i>dest_port</i>	(Optional) Destination port of the connection causing the shun.
<i>dst_ip</i>	(Optional) Address of the target host.
<i>protocol</i>	(Optional) IP protocol, such as UDP or TCP. Not optional if <i>dst_ip</i> is specified.
<i>src_ip</i>	Address of the attacking host.
<i>src_port</i>	(Optional) Source port of the connection causing the shun.
<i>vlan_id</i>	(Optional) Specifies the VLAN ID.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **shun** command allows you to apply a blocking function to the interface receiving the attack. Packets containing the IP source address of the attacking host are dropped and logged until the blocking function is removed manually or by the Cisco IPS master module. No traffic from the IP source address is allowed to traverse the security appliance. Any remaining connections time out as part of the normal architecture. The blocking function of the **shun** command is applied whether or not a connection with the specified host address is currently active.

If you use the **shun** command only with the source IP address of the host, then the default is 0. No further traffic from the offending host is allowed.

Because the **shun** command is used to block attacks dynamically, it is not displayed in the security appliance configuration.

Whenever an interface is removed, all shuns that are attached to that interface are also removed. If you add a new interface or replace the same interface (same name), then you must add that interface to the IPS Sensor if you want the IPS Sensor to monitor that interface.

---

**Examples**

The following example shows that the offending host (10.1.1.27) makes a connection with the victim (10.2.2.89) with TCP. The connection in the security appliance connection table reads as follows:

```
10.1.1.27, 555-> 10.2.2.89, 666 PROT TCP
```

If you applied the **shun** command in the following way:

```
hostname# shun 10.1.1.27 10.2.2.89 555 666 tcp
```

the preceding command deletes the connection from the security appliance connection table and also prevents packets from 10.1.1.27 from going through the security appliance. The offending host can be inside or outside of the security appliance.

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear shun</b>	Disables all the shuns that are currently enabled and clears the shun statistics.
<b>show shun</b>	Displays the shun information.

# shutdown

To disable an interface, use the **shutdown** command in interface configuration mode. To enable an interface, use the **no** form of this command.

**shutdown**

**no shutdown**

## Syntax Description

This command has no arguments or keywords.

## Defaults

All physical interfaces are shut down by default. Allocated interfaces in security contexts are not shut down in the configuration.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was moved from a keyword of the <b>interface</b> command to an interface configuration mode command.

## Usage Guidelines

By default, all physical interfaces are shut down. You must enable the physical interface before any traffic can pass through an enabled subinterface. For multiple context mode, if you allocate a physical interface or subinterface to a context, the interfaces are enabled by default in the context. However, before traffic can pass through the context interface, you must also enable the interface in the system configuration. If you shut down an interface in the system execution space, then that interface is down in all contexts that share it.

## Examples

The following example enables a main interface:

```
hostname(config)# interface gigabitethernet0/2
hostname(config-if)# speed 1000
hostname(config-if)# duplex full
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown
```

The following example enables a subinterface:



```

hostname(config)# interface gigabitethernet0/2.1
hostname(config-subif)# vlan 101
hostname(config-subif)# nameif dmz1
hostname(config-subif)# security-level 50
hostname(config-subif)# ip address 10.1.2.1 255.255.255.0
hostname(config-subif)# no shutdown

```

The following example shuts down the subinterface:

```

hostname(config)# interface gigabitethernet0/2.1
hostname(config-subif)# vlan 101
hostname(config-subif)# nameif dmz1
hostname(config-subif)# security-level 50
hostname(config-subif)# ip address 10.1.2.1 255.255.255.0
hostname(config-subif)# shutdown

```

### Related Commands

Command	Description
<b>clear xlate</b>	Resets all translations for existing connections, causing the connections to be reset.
<b>interface</b>	Configures an interface and enters interface configuration mode.

# sla monitor

To create an SLA operation, use the **sla monitor** command in global configuration mode. To remove the SLA operation, use the **no** form of this command.

**sla monitor** *sla\_id*

**no sla monitor** *sla\_id*

<b>Syntax Description</b>	<i>sla_id</i>	Specifies the ID of the SLA being configured. If the SLA does not already exist, it is created. Valid values are from 1 to 2147483647.
---------------------------	---------------	--

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** The **sla monitor** command creates SLA operations and enters SLA Monitor configuration mode. Once you enter this command, the command prompt changes to `hostname(config-sla-monitor)#` to indicate that you are in SLA Monitor configuration mode. If the SLA operation already exists, and a type has already been defined for it, then the prompt appears as `hostname(config-sla-monitor-echo)#`. You can create a maximum of 2000 SLA operations. Only 32 SLA operations may be debugged at any time.

The **no sla monitor** command removes the specified SLA operation and the commands used to configure that operation.

After you configure an SLA operation, you must schedule the operation with the **sla monitor schedule** command. You cannot modify the configuration of the SLA operation after scheduling it. To modify the configuration of a scheduled SLA operation, you must use the **no sla monitor** command to remove the selected SLA operation completely. Removing an SLA operation also removes the associated **sla monitor schedule** command. Then you can reenter the SLA operation configuration.

To display the current configuration settings of the operation, use the **show sla monitor configuration** command. To display operational statistics of the SLA operation, use the **show sla monitor operation-state** command. To see the SLA commands in the configuration, use the **show running-config sla monitor** command.

**Examples**

The following example configures an SLA operation with an ID of 123 and creates a tracking entry with the ID of 1 to track the reachability of the SLA:

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>frequency</b>	Specifies the rate at which the SLA operation repeats.
<b>show sla monitor configuration</b>	Displays the SLA configuration settings.
<b>sla monitor schedule</b>	Schedules the SLA operation.
<b>timeout</b>	Sets the amount of time the SLA operation waits for a response.
<b>track rtr</b>	Creates a tracking entry to poll the SLA.

# sla monitor schedule

To schedule an SLA operation, use the **sla monitor schedule** command in global configuration mode. To remove SLA operation schedule, and place the operation in the pending state, use the **no** form of this command.

```
sla monitor schedule sla-id [life {forever | seconds}] [start-time {hh:mm[:ss] [month day | day month] | pending | now | after hh:mm:ss}] [ageout seconds] [recurring]
```

```
no sla monitor schedule sla-id
```

Syntax Description		
<b>after</b> <i>hh:mm:ss</i>		Indicates that the operation should start the specified number of hours, minutes, and seconds after the command was entered.
<b>ageout</b> <i>seconds</i>		(Optional) Specifies the number of seconds to keep the operation in memory when it is not actively collecting information. After an SLA operation ages out, it is removed from the running configuration.
<i>day</i>		Number of the day to start the operation on. Valid values are from 1 to 31. If a day is not specified, then the current day is used. If you specify a day you must also specify a month.
<i>hh:mm[:ss]</i>		Specifies an absolute start time in 24-hour notation. Seconds are optional. The next time the specified time occurs is implied unless you specify a <i>month</i> and a <i>day</i> .
<b>life forever</b>		(Optional) Schedules the operation to run indefinitely.
<b>life</b> <i>seconds</i>		(Optional) Sets the number of seconds the operation actively collects information.
<i>month</i>		(Optional) Name of the month to start the operation in. If a month is not specified, then the current month is used. If you specify a month you must also specify a day.  You can enter the full English name of the month or just the first three letters.
<b>now</b>		Indicates that the operation should start as soon as the command is entered.
<b>pending</b>		Indicates that no information is collected. This is the default state.
<b>recurring</b>		(Optional) Indicates that the operation will start automatically at the specified time and for the specified duration every day.
<i>sla-id</i>		The ID of the SLA operation being scheduled.
<b>start-time</b>		Sets the time when the SLA operation starts.

## Defaults

The defaults are as follows:

- SLA operations are in the **pending** state until the scheduled time is met. This means that the operation is enabled but not actively collecting data.
- The default **ageout** time is 0 seconds (never ages out).
- The default **life** is 3600 seconds (one hour).

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Usage Guidelines**

When an SLA operation is in an active state, it immediately begins collecting information. The following time line shows the age-out process of the operation:

W-----X-----Y-----Z

- W is the time the SLA operation was configured with the **sla monitor** command.
- X is the start time of the SLA operation. This is when the operation became “active”.
- Y is the end of life as configured with the **sla monitor schedule** command (the **life** seconds have counted down to zero).
- Z is the age out of the operation.

The age out process, if used, starts counting down at W, is suspended between X and Y, and is reset to its configured size and starts counting down again at Y. When an SLA operation ages out, the SLA operation configuration is removed from the running configuration. It is possible for the operation to age out before it executes (that is, Z can occur before X). To ensure that this does not happen, the difference between the operation configuration time and start time (X and W) must be less than the age-out seconds.

The **recurring** keyword is only supported for scheduling single SLA operations. You cannot schedule multiple SLA operations using a single **sla monitor schedule** command. The **life** value for a recurring SLA operation should be less than one day. The **ageout** value for a recurring operation must be “never” (which is specified with the value 0), or the sum of the **life** and **ageout** values must be more than one day. If the recurring option is not specified, the operations are started in the existing normal scheduling mode.

You cannot modify the configuration of the SLA operation after scheduling it. To modify the configuration of a scheduled SLA operation, you must use the **no sla monitor** command to remove the selected SLA operation completely. Removing an SLA operation also removes the associated **sla monitor schedule** command. Then you can reenter the SLA operation configuration.

**Examples**

The following example shows SLA operation 25 scheduled to begin actively collecting data at 3:00 p.m. on April 5. This operation will age out after 12 hours of inactivity. When this SLA operation ages out, all configuration information for the SLA operation is removed from the running configuration.

```
hostname(config)# sla monitor schedule 25 life 43200 start-time 15:00 apr 5 ageout 43200
```

The following example shows SLA operation 1 scheduled to begin collecting data after a 5-minute delay. The default life of one hour applies.

```
hostname(config)# sla monitor schedule 1 start after 00:05:00
```

The following example shows SLA operation 3 scheduled to begin collecting data immediately and is scheduled to run indefinitely:

```
hostname(config)# sla monitor schedule 3 life forever start-time now
```

The following example shows SLA operation 15 scheduled to begin automatically collecting data every day at 1:30 a.m.:

```
hostname(config)# sla monitor schedule 15 start-time 01:30:00 recurring
```

---

**Related Commands**

Command	Description
<b>show sla monitor configuration</b>	Displays the SLA configuration settings.
<b>sla monitor</b>	Defines an SLA monitoring operation.

# smtps

To enter SMTPS configuration mode, use the **smtps** command in global configuration mode. To remove any commands entered in SMTPS command mode, use the **no** version of this command. SMTPS is a TCP/IP protocol that lets you to send e-mail over an SSL connection.

**smtps**

**no smtps**

## Syntax Description

This command has no arguments or keywords.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example shows how to enter SMTPS configuration mode:

```
hostname(config)# smtps
hostname(config-smtps)#
```

## Related Commands

Command	Description
<b>clear configure smtps</b>	Removes the SMTPS configuration.
<b>show running-config smtps</b>	Displays the running configuration for SMTPS.

# smtp-server

To configure an SMTP server, use the **smtp-server** command in global configuration mode. To remove the attribute from the configuration, use the **no** version of this command.

The security appliance includes an internal SMTP client that the Events system can use to notify external entities that a certain event has occurred. You can configure SMTP servers to receive these event notices, and then forward them to specified e-mail addresses. The SMTP facility is active only when you enable E-mail events on the security appliance.

```
smtp-server {primary_server} [backup_server]
```

```
no smtp-server
```

## Syntax Description

<i>primary_server</i>	Identifies the primary SMTP server. Use either an IP address or DNS name
<i>backup_server</i>	Identifies a backup SMTP server to relay event messages in the event the primary SMTP server is unavailable. Use either an IP address or DNS name.

## Defaults

No SMTP server is configured by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	—	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

## Examples

The following example shows how to set an SMTP server with an IP address of 10.1.1.24, and a backup SMTP server with an IP address of 10.1.1.34:

```
hostname(config)# smtp-server 10.1.1.24 10.1.1.34
```

## Related Commands

Command	Description



# snmp-map

To identify a specific map for defining the parameters for SNMP inspection, use the **snmp-map** command in global configuration mode. To remove the map, use the **no** form of this command.

```
snmp-map map_name
```

```
no snmp-map map_name
```

## Syntax Description

<i>map_name</i>	The name of the SNMP map.
-----------------	---------------------------

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use the **snmp-map** command to identify a specific map to use for defining the parameters for SNMP inspection. When you enter this command, the system enters the SNMP map configuration mode, which lets you enter the different commands used for defining the specific map. After defining the SNMP map, you use the **inspect snmp** command to enable the map. Then you use the **class-map**, **policy-map**, and **service-policy** commands to define a class of traffic, to apply the **inspect** command to the class, and to apply the policy to one or more interfaces.

## Examples

The following example shows how to identify SNMP traffic, define a SNMP map, define a policy, and apply the policy to the outside interface.

```
hostname(config)# access-list snmp-acl permit tcp any any eq 161
hostname(config)# access-list snmp-acl permit tcp any any eq 162
hostname(config)# class-map snmp-port
hostname(config-cmap)# match access-list snmp-acl
hostname(config-cmap)# exit
hostname(config)# snmp-map inbound_snmp
hostname(config-snmpp-map)# deny version 1
hostname(config-snmpp-map)# exit
hostname(config)# policy-map inbound_policy
hostname(config-pmap)# class snmp-port
hostname(config-pmap-c)# inspect snmp inbound_snmp
```

```
hostname(config-pmap-c)#
```

---

**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>deny version</b>	Disallows traffic using a specific version of SNMP.
<b>inspect snmp</b>	Enable SNMP application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.

# snmp-server community

To set the SNMP community string, use the **snmp-server community** command in global configuration mode. To remove the community string, use the **no** form of this command.

**snmp-server community** *text*

**no snmp-server community** [*text*]

## Syntax Description

*text* Sets the community string.

## Defaults

By default, the community string is **public**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The SNMP community string is a shared secret among the SNMP management station and the network nodes being managed. The security appliance uses the key to determine if the incoming SNMP request is valid. For example, you could designate a site with a community string and then configure the routers, security appliance, and the management station with this same string. The security appliance uses this string and does not respond to requests with an invalid community string.

## Examples

The following example sets the community string to wallawallabingbang:

```
hostname(config)# snmp-server community wallawallabingbang
```

## Related Commands

Command	Description
<b>snmp-server contact</b>	Sets the SNMP contact name.
<b>snmp-server enable</b>	Enables SNMP on the security appliance.
<b>snmp-server enable traps</b>	Enables SNMP traps.
<b>snmp-server host</b>	Sets the SNMP host address.
<b>snmp-server location</b>	Sets the SNMP server location string.

## snmp-server contact

To set the SNMP contact name, use the **snmp-server contact** command in global configuration mode. To remove the contact name, use the **no** form of this command.

**snmp-server contact** *text*

**no snmp-server contact** [*text*]

<b>Syntax Description</b>	<i>text</i>	Specifies the name of the contact person or the security appliance system administrator. The name is case sensitive and can be up to 127 characters. Spaces are accepted, but multiple spaces are shortened to a single space.
---------------------------	-------------	--

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Examples** The following example sets the contact as Pat Johnson:

```
hostname(config)# snmp-server contact Pat Johnson
```

Related Commands	Command	Description
	<b>snmp-server community</b>	Sets the SNMP community string.
	<b>snmp-server enable</b>	Enables SNMP on the security appliance.
	<b>snmp-server enable traps</b>	Enables SNMP traps.
	<b>snmp-server host</b>	Sets the SNMP host address.
	<b>snmp-server location</b>	Sets the SNMP server location string.

# snmp-server enable

To enable the SNMP server on the security appliance, use the **snmp-server enable** command in global configuration mode. To disable SNMP, use the **no** form of this command.

**snmp-server enable**

**no snmp-server enable**

## Syntax Description

This command has no arguments or keywords.

## Defaults

By default, the SNMP server is enabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command lets you enable and disable SNMP easily, without having to configure and reconfigure the SNMP traps or other configuration.

## Examples

The following example enables SNMP, configures the SNMP host and traps, and then sends traps as system messages.

```
hostname(config)# snmp-server enable
hostname(config)# snmp-server community wallawallabingbang
hostname(config)# snmp-server location Building 42, Sector 54
hostname(config)# snmp-server contact Sherlock Holmes
hostname(config)# snmp-server host perimeter 10.1.2.42
hostname(config)# snmp-server enable traps all
hostname(config)# logging history 7
hostname(config)# logging enable
```

## Related Commands

Command	Description
<b>snmp-server community</b>	Sets the SNMP community string.
<b>snmp-server contact</b>	Sets the SNMP contact name.

Command	Description
<b>snmp-server enable traps</b>	Enables SNMP traps.
<b>snmp-server host</b>	Sets the SNMP host address.
<b>snmp-server location</b>	Sets the SNMP server location string.

## snmp-server enable traps

To enable the security appliance to send traps to the NMS, use the **snmp-server enable traps** command in global configuration mode. To disable traps, use the **no** form of this command.

```
snmp-server enable traps [all | syslog | snmp [trap] [...] | entity [trap] [...] | ipsec [trap] [...] |
remote-access [trap]]
```

```
no snmp-server enable traps [all | syslog | snmp [trap] [...] | entity [trap] [...] | ipsec [trap] [...] |
remote-access [trap]]
```

### Syntax Description

<b>all</b>	Enables all traps.
<b>entity</b> [trap]	Enables entity traps. Traps for <b>entity</b> include: <ul style="list-style-type: none"> <li>• <b>config-change</b></li> <li>• <b>fru-insert</b></li> <li>• <b>fru-remove</b></li> </ul>
<b>ipsec</b> [trap]	Enables IPsec traps. Traps for <b>ipsec</b> include: <ul style="list-style-type: none"> <li>• <b>start</b></li> <li>• <b>stop</b></li> </ul>
<b>remote-access</b> [trap]	Enables remote access traps. Traps for remote-access include: <ul style="list-style-type: none"> <li>• <b>session-threshold-exceeded</b></li> </ul>
<b>snmp</b> [trap]	Enables SNMP traps. By default, all SNMP traps are enabled. Traps for <b>snmp</b> include: <ul style="list-style-type: none"> <li>• <b>authentication</b></li> <li>• <b>linkup</b></li> <li>• <b>linkdown</b></li> <li>• <b>coldstart</b></li> </ul>
<b>syslog</b>	Enables syslog traps.

### Defaults

The default configuration has all **snmp** traps enabled (**snmp-server enable traps snmp authentication linkup linkdown coldstart**). You can disable these traps using the **no** form of this command with the **snmp** keyword. However, the **clear configure snmp-server** command restores the default enabling of SNMP traps.

If you enter this command and do not specify a trap type, then the default is **syslog**. (The default **snmp** traps continue to be enabled along with the **syslog** trap.)

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

Enter this command for each feature type to enable individual traps or sets of traps, or enter the **all** keyword to enable all traps.

To send traps to the NMS, enter the **logging history** command, and enable logging using the **logging enable** command.

**Examples**

The following example enables SNMP, configures the SNMP host and traps, and then sends traps as system messages.

```
hostname(config)# snmp-server enable
hostname(config)# snmp-server community wallawallabingbang
hostname(config)# snmp-server location Building 42, Sector 54
hostname(config)# snmp-server contact Sherlock Holmes
hostname(config)# snmp-server host perimeter 10.1.2.42
hostname(config)# snmp-server enable traps all
hostname(config)# logging history 7
hostname(config)# logging enable
```

**Related Commands**

Command	Description
<b>snmp-server community</b>	Sets the SNMP community string.
<b>snmp-server contact</b>	Sets the SNMP contact name.
<b>snmp-server enable</b>	Enables SNMP on the security appliance.
<b>snmp-server host</b>	Sets the SNMP host address.
<b>snmp-server location</b>	Sets the SNMP server location string.



# snmp-server host

To specify the NMS that can use SNMP on the security appliance, use the **snmp-server host** command in global configuration mode. To disable the NSM, use the **no** form of this command.

```
snmp-server host interface_name ip_address [trap | poll] [community text] [version {1 | 2c}]
[udp-port port]
```

```
no snmp-server host interface_name ip_address [trap | poll] [community text] [version {1 | 2c}]
[udp-port port]
```

## Syntax Description

<b>community</b> <i>text</i>	Sets the community string for this NMS.
<b>host</b>	Specifies an IP address of the NMS to which traps should be sent or from which SNMP requests come.
<i>interface_name</i>	Specifies the interface name through which the NMS communicates with the security appliance.
<i>ip_address</i>	Specifies the IP address of an NMS to which SNMP traps should be sent or from which the SNMP requests come.
<b>trap</b>	(Optional) Specifies that only traps are sent, and that this host is not allowed to browse (poll).
<b>poll</b>	(Optional) Specifies that this host is allowed to browse (poll), but no traps are sent.
<b>udp-port</b> <i>udp_port</i>	(Optional) Sets the UDP port to which notifications are sent. SNMP traps are sent on UDP port 162 by default.
<b>version</b> { <b>1</b>   <b>2c</b> }	(Optional) Sets the SNMP notification version to version 1 or 2c.

## Defaults

The default UDP port is 162.

The default version is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

You can specify up to 32 NMSs.

**Examples**

The following example sets the host to 10.1.2.42 attached to the perimeter interface:

```
hostname(config)# snmp-server host perimeter 10.1.2.42
```

**Related Commands**

Command	Description
<b>snmp-server community</b>	Sets the SNMP community string.
<b>snmp-server contact</b>	Sets the SNMP contact name.
<b>snmp-server enable</b>	Enables SNMP on the security appliance.
<b>snmp-server enable traps</b>	Enables SNMP traps.
<b>snmp-server location</b>	Sets the SNMP server location string.

# snmp-server listen-port

To set the listen port for SNMP requests, use the **snmp-server listen-port** command in global configuration mode. To restore the default port, use the **no** form of the command.

```
snmp-server listen-port lport
```

```
no snmp-server listen-port lport
```

<b>Syntax Description</b>	<i>lport</i>	The port on which incoming requests will be accepted. The default port is 161.
---------------------------	--------------	--

<b>Defaults</b>	The default port is 161.
-----------------	--------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Preexisting	This command was preexisting.

<b>Examples</b>	The following example sets the listen port to 192:
-----------------	--

```
hostname(config)# snmp-server listen-port 192
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>snmp-server community</b>	Sets the SNMP community string.
	<b>snmp-server contact</b>	Sets the SNMP contact name.
	<b>snmp-server enable</b>	Enables SNMP on the security appliance.
	<b>snmp-server enable traps</b>	Enables SNMP traps.
	<b>snmp-server location</b>	Sets the SNMP server location string.

# snmp-server location

To set the security appliance location for SNMP, use the **snmp-server location** command in global configuration mode. To remove the location, use the **no** form of this command.

**snmp-server location** *text*

**no snmp-server location** [*text*]

## Syntax Description

**location** *text* Specifies the security appliance location. The **location** *text* is case sensitive and can be up to 127 characters. Spaces are accepted, but multiple spaces are shortened to a single space.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

The following example sets the location as Building 42, Sector 54:

```
hostname(config)# snmp-server location Building 42, Sector 54
```

## Related Commands

Command	Description
<b>snmp-server community</b>	Sets the SNMP community string.
<b>snmp-server contact</b>	Sets the SNMP contact name.
<b>snmp-server enable</b>	Enables SNMP on the security appliance.
<b>snmp-server enable traps</b>	Enables SNMP traps.
<b>snmp-server host</b>	Sets the SNMP host address.

# software-version

To identify the Server and User-Agent header fields, which expose the software version of either a server or an endpoint, use the **software-version** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

**software-version action {mask | log} [log]**

**no software-version action {mask | log} [log]**

## Syntax Description

<b>mask</b>	Masks the software version in the SIP message.
<b>log</b>	Specifies standalone or additional log in case of violation.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to identify the software version in a SIP inspection policy map:

```
hostname(config)# policy-map type inspect sip sip_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# software-version action log
```

## Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# speed

To set the speed of a copper (RJ-45) Ethernet interface, use the **speed** command in interface configuration mode. To restore the speed setting to the default, use the **no** form of this command.

**speed** {**auto** | **10** | **100** | **1000** | **nonegotiate**}

**no speed** [**auto** | **10** | **100** | **1000** | **nonegotiate**]

## Syntax Description

<b>10</b>	Sets the speed to 10BASE-T.
<b>100</b>	Sets the speed to 100BASE-T.
<b>1000</b>	Sets the speed to 1000BASE-T. For copper Gigabit Ethernet only.
<b>auto</b>	Auto detects the speed.
<b>nonegotiate</b>	For fiber interfaces, sets the speed to 1000 Mbps and does not negotiate link parameters. This command and the <b>no</b> form of this command are the only settings available for fiber interfaces. When you set the value to <b>no speed nonegotiate</b> (the default), the interface enables link negotiation, which exchanges flow-control parameters and remote fault information.

## Defaults

For copper interfaces, the default is **speed auto**.

For fiber interfaces, the default is **no speed nonegotiate**.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was moved from a keyword of the <b>interface</b> command to an interface configuration mode command.

## Usage Guidelines

Set the speed on the physical interface only.

If your network does not support auto detection, set the speed to a specific value.

For RJ-45 interfaces on the ASA 5500 series adaptive security appliance, the default auto-negotiation setting also includes the Auto-MDI/MDIX feature. Auto-MDI/MDIX eliminates the need for crossover cabling by performing an internal crossover when a straight cable is detected during the auto-negotiation phase. Either the speed or duplex must be set to auto-negotiate to enable Auto-MDI/MDIX for the interface. If you explicitly set both the speed and duplex to a fixed value, thus disabling auto-negotiation for both settings, then Auto-MDI/MDIX is also disabled.

If you set the speed to anything other than **auto** on PoE ports, if available, then Cisco IP phones and Cisco wireless access points that do not support IEEE 802.3af will not be detected and supplied with power.

### Examples

The following example sets the speed to 1000BASE-T:

```
hostname(config)# interface gigabitethernet0/1
hostname(config-if)# speed 1000
hostname(config-if)# duplex full
hostname(config-if)# nameif inside
hostname(config-if)# security-level 100
hostname(config-if)# ip address 10.1.1.1 255.255.255.0
hostname(config-if)# no shutdown
```

### Related Commands

Command	Description
<b>clear configure interface</b>	Clears all configuration for an interface.
<b>duplex</b>	Sets the duplex mode.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show interface</b>	Displays the runtime status and statistics of interfaces.
<b>show running-config interface</b>	Shows the interface configuration.

# split-dns

To enter a list of domains to be resolved through the split tunnel, use the **split-dns** command in group-policy configuration mode. To delete a list, use the **no** form of this command.

To delete all split tunneling domain lists, use the **no split-dns** command without arguments. This deletes all configured split tunneling domain lists, including a null list created by issuing the **split-dns none** command.

When there are no split tunneling domain lists, users inherit any that exist in the default group policy. To prevent users from inheriting such split tunneling domain lists, use the **split-dns none** command.

**split-dns** { **value** *domain-name1 domain-name2 domain-nameN* | **none** }

**no split-dns** [*domain-name domain-name2 domain-nameN*]

## Syntax Description

<b>value</b> <i>domain-name</i>	Provides a domain name that the security appliance resolves through the split tunnel.
<b>none</b>	Indicates that there is no split DNS list. Sets a split DNS list with a null value, thereby disallowing a split DNS list. Prevents inheriting a split DNS list from a default or specified group policy.

## Defaults

Split DNS is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group policy	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Use a single space to separate each entry in the list of domains. There is no limit on the number of entries, but the entire string can be no longer than 255 characters. You can use only alphanumeric characters, hyphens (-), and periods (.).

The **no split-dns** command, when used without arguments, deletes all current values, including a null value created by issuing the **split-dns none** command.

## Examples

The following example shows how to configure the domains Domain1, Domain2, Domain3 and Domain4 to be resolved through split tunneling for the group policy named FirstGroup:



```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# split-dns value Domain1 Domain2 Domain3 Domain4
```

Related Commands	Command	Description
	<b>default-domain</b>	Specifies a default domain name that the IPsec client uses for DNS queries that omit the domain field.
	split-dns	Provides a list of domains to be resolved through the split tunnel.
	split-tunnel-network-list	Identifies the access list the security appliance uses to distinguish networks that require tunneling and those that do not.
	<b>split-tunnel-policy</b>	Lets an IPsec client conditionally direct packets over an IPsec tunnel in encrypted form, or to a network interface in cleartext form

# split-tunnel-network-list

To create a network list for split tunneling, use the **split-tunnel-network-list** command in group-policy configuration mode. To delete a network list, use the **no** form of this command.

To delete all split tunneling network lists, use the **no split-tunnel-network-list** command without arguments. This deletes all configured network lists, including a null list created by issuing the **split-tunnel-network-list none** command.

When there are no split tunneling network lists, users inherit any network lists that exist in the default or specified group policy. To prevent users from inheriting such network lists, use the **split-tunnel-network-list none** command.

Split tunneling network lists distinguish networks that require traffic to travel across the tunnel from those that do not require tunneling.

**split-tunnel-network-list** {value *access-list name* | none}

**no split-tunnel-network-list** value [*access-list name*]

Syntax Description	value <i>access-list name</i>	Identifies an access list that enumerates the networks to tunnel or not tunnel.
	<b>none</b>	Indicates that there is no network list for split tunneling; the security appliance tunnels all traffic.
		Sets a split tunneling network list with a null value, thereby disallowing split tunneling. Prevents inheriting a default split tunneling network list from a default or specified group policy.

**Defaults** By default, there are no split tunneling network lists.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The security appliance makes split tunneling decisions on the basis of a network list, which is a standard ACL that consists of a list of addresses on the private network.

The **no split-tunnel-network-list** command, when used without arguments, deletes all current network lists, including a null value created by issuing the **split-tunnel-network-list none** command.

### Examples

The following example shows how to set a network list called FirstList for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# split-tunnel-network-list FirstList
```

### Related Commands

Command	Description
access-list	Creates an access list, or uses a downloadable access list.
default-domain	Specifies a default domain name that the IPsec client uses for DNS queries that omit the domain field.
split-dns	Provides a list of domains to be resolved through the split tunnel.
<b>split-tunnel-policy</b>	Lets an IPsec client conditionally direct packets over an IPsec tunnel in encrypted form, or to a network interface in cleartext form.

# split-tunnel-policy

To set a split tunneling policy, use the **split-tunnel-policy** command in group-policy configuration mode. To remove the split-tunnel-policy attribute from the running configuration, use the **no** form of this command. This enables inheritance of a value for split tunneling from another group policy.

Split tunneling lets a remote-access IPSec client conditionally direct packets over an IPSec tunnel in encrypted form, or to a network interface in cleartext form. With split-tunneling enabled, packets not bound for destinations on the other side of the IPSec tunnel do not have to be encrypted, sent across the tunnel, decrypted, and then routed to a final destination.

This command applies this split tunneling policy to a specific network.

**split-tunnel-policy {tunnelall | tunnelspecified | excludespecified}**

**no split-tunnel-policy**

## Syntax Description

<b>excludespecified</b>	Defines a list of networks to which traffic goes in the clear. This feature is useful for remote users who want to access devices on their local network, such as printers, while they are connected to the corporate network through a tunnel. This option applies only to the Cisco VPN Client.
<b>split-tunnel-policy</b>	Indicates that you are setting rules for tunneling traffic.
<b>tunnelall</b>	Specifies that no traffic goes in the clear or to any other destination than the security appliance. Remote users reach internet networks through the corporate network and do not have access to local networks.
<b>tunnelspecified</b>	Tunnels all traffic from or to the specified networks. This option enables split tunneling. It lets you create a network list of addresses to tunnel. Data to all other addresses travels in the clear, and is routed by the remote user's internet service provider.

## Defaults

Split tunneling is disabled by default, which is tunnelall.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Split tunneling is primarily a traffic management feature, not a security feature. In fact, for optimum security, we recommend that you not enable split tunneling.

**Examples**

The following example shows how to set a split tunneling policy of tunneling only specified networks for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes  
hostname(config-group-policy)# split-tunnel-policy tunnelspecified
```

**Related Commands**

<b>Command</b>	<b>Description</b>
default-domain	Specifies a default domain name that the IPSec client uses for DNS queries that omit the domain field.
split-dns	Provides a list of domains to be resolved through the split tunnel.
split-tunnel-network-list none	Indicates that no access list exists for split tunneling. All traffic travels across the tunnel.
split-tunnel-network-list value	Identifies the access list the security appliance uses to distinguish networks that require tunneling and those that do not.

# spoofer-server

To substitute a string for the server header field for HTTP protocol inspection, use the **spoofer-server** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

**spoofer-server** *string*

**no spoofer-server** *string*

## Syntax Description

*string* String to substitute for the server header field. 82 characters maximum.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

WebVPN streams are not subject to the **spoofer-server** command.

## Examples

The following example shows how to substitute a string for the server header field in an HTTP inspection policy map:

```
hostname(config-pmap-p)# spoofer-server string
```

## Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# ssh

To add SSH access to the security appliance, use the **ssh** command in global configuration mode. To disable SSH access to the security appliance, use the **no** form of this command. This command supports IPv4 and IPv6 addresses.

```
ssh {ip_address mask | ipv6_address/prefix} interface
```

```
no ssh {ip_address mask | ipv6_address/prefix} interface
```

## Syntax Description

<i>interface</i>	The security appliance interface on which SSH is enabled. If not specified, SSH is enabled on all interfaces except the outside interface.
<i>ip_address</i>	IPv4 address of the host or network authorized to initiate an SSH connection to the security appliance. For hosts, you can also enter a host name.
<i>ipv6_address/prefix</i>	The IPv6 address and prefix of the host or network authorized to initiate an SSH connection to the security appliance.
<i>mask</i>	Network mask for <i>ip_address</i> .

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **ssh ip\_address** command specifies hosts or networks that are authorized to initiate an SSH connection to the security appliance. You can have multiple **ssh** commands in the configuration. The **no** form of the command removes a specific SSH command from the configuration. Use the **clear configure ssh** command to remove all SSH commands.

Before you can begin using SSH to the security appliance, you must generate a default RSA key using the **crypto key generate rsa** command.

The following security algorithms and ciphers are supported on the security appliance:

- 3DES and AES ciphers for data encryption
- HMAC-SHA and HMAC-MD5 algorithms for packet integrity

- RSA public key algorithm for host authentication
- Diffie-Hellman Group 1 algorithm for key exchange

The following SSH Version 2 features are not supported on the security appliance:

- X11 forwarding
- Port forwarding
- SFTP support
- Kerberos and AFS ticket passing
- Data compression

### Examples

The following example shows how to configure the inside interface to accept SSH version 2 connections from a management console with the IP address 10.1.1.1. The idle session timeout is set to 60 minutes and SCP is enabled.

```
hostname(config)# ssh 10.1.1.1 255.255.255.0 inside
hostname(config)# ssh version 2
hostname(config)# ssh copy enable
hostname(config)# ssh timeout 60
```

### Related Commands

Command	Description
<b>clear configure ssh</b>	Clears all SSH commands from the running configuration.
<b>crypto key generate rsa</b>	Generates RSA key pairs for identity certificates.
<b>debug ssh</b>	Displays debug information and error messages for SSH commands.
<b>show running-config ssh</b>	Displays the current SSH commands in the running configuration.
<b>ssh scopy enable</b>	Enables a secure copy server on the security appliance.
<b>ssh version</b>	Restricts the security appliance to using either SSH Version 1 or SSH Version 2.



# ssh disconnect

To disconnect an active SSH session, use the **ssh disconnect** command in privileged EXEC mode.

```
ssh disconnect session_id
```

<b>Syntax Description</b>	<i>session_id</i>	Disconnects the SSH session specified by the ID number.
---------------------------	-------------------	---

<b>Defaults</b>	No default behavior or values.
-----------------	--------------------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	Preexisting	This command was preexisting.

<b>Usage Guidelines</b>	You must specify a session ID. Use the <b>show ssh sessions</b> command to obtain the ID of the SSH session you want to disconnect.
-------------------------	---

<b>Examples</b>	The following example shows an SSH session being disconnected:
-----------------	--

```
hostname# show ssh sessions
SID Client IP      Version Mode Encryption Hmac      State      Username
0  172.69.39.39    1.99  IN  aes128-cbc md5      SessionStarted pat
                                OUT  aes128-cbc md5      SessionStarted pat
1  172.23.56.236  1.5   -   3DES      -       SessionStarted pat
2  172.69.39.29   1.99  IN  3des-cbc  sha1    SessionStarted pat
                                OUT  3des-cbc  sha1    SessionStarted pat

hostname# ssh disconnect 2
hostname# show ssh sessions
SID Client IP      Version Mode Encryption Hmac      State      Username
0  172.69.39.29    1.99  IN  aes128-cbc md5      SessionStarted pat
                                OUT  aes128-cbc md5      SessionStarted pat
1  172.23.56.236  1.5   -   3DES      -       SessionStarted pat
```

<b>Related Commands</b>
-------------------------

Command	Description
<b>show ssh sessions</b>	Displays information about active SSH sessions to the security appliance.
<b>ssh timeout</b>	Sets the timeout value for idle SSH sessions.

# ssh scopy enable

To enable Secure Copy (SCP) on the security appliance, use the **ssh scopy enable** command in global configuration mode. To disable SCP, use the **no** form of this command.

**ssh scopy enable**

**no ssh scopy enable**

## Syntax Description

This command has no keywords or arguments.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

SCP is a server-only implementation; it will be able to accept and terminate connections for SCP but can not initiate them. The security appliance has the following restrictions:

- There is no directory support in this implementation of SCP, limiting remote client access to the security appliance internal files.
- There is no banner support when using SCP.
- SCP does not support wildcards.
- The security appliance license must have the VPN-3DES-AES feature to support SSH version 2 connections.

## Examples

The following example shows how to configure the inside interface to accept SSH Version 2 connections from a management console with the IP address 10.1.1.1. The idle session timeout is set to 60 minutes and SCP is enabled.

```
hostname(config)# ssh 10.1.1.1 255.255.255.0 inside
hostname(config)# ssh version 2
hostname(config)# ssh scopy enable
hostname(config)# ssh timeout 60
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure ssh</b>	Clears all SSH commands from the running configuration.
<b>debug ssh</b>	Displays debug information and error messages for SSH commands.
<b>show running-config ssh</b>	Displays the current SSH commands in the running configuration.
<b>ssh</b>	Allows SSH connectivity to the security appliance from the specified client or network.
<b>ssh version</b>	Restricts the security appliance to using either SSH Version 1 or SSH Version 2.

# ssh timeout

To change the default SSH session idle timeout value, use the **ssh timeout** command in global configuration mode. To restore the default timeout value, use the **no** form of this command.

**ssh timeout** *number*

**no ssh timeout**

## Syntax Description

<i>number</i>	Specifies the duration in minutes that an SSH session can remain inactive before being disconnected. Valid values are from 1 to 60 minutes.
---------------	---

## Defaults

The default session timeout value is 5 minutes.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **ssh timeout** command specifies the duration in minutes that a session can be idle before being disconnected. The default duration is 5 minutes.

## Examples

The following example shows how to configure the inside interface to accept only SSH version 2 connections from a management console with the IP address 10.1.1.1. The idle session timeout is set to 60 minutes and SCP is enabled.

```
hostname(config)# ssh 10.1.1.1 255.255.255.0 inside
hostname(config)# ssh version 2
hostname(config)# ssh copy enable
hostname(config)# ssh timeout 60
```

## Related Commands

Command	Description
<b>clear configure ssh</b>	Clears all SSH commands from the running configuration.
<b>show running-config ssh</b>	Displays the current SSH commands in the running configuration.

Command	Description
<b>show ssh sessions</b>	Displays information about active SSH sessions to the security appliance.
<b>ssh disconnect</b>	Disconnects an active SSH session.

# ssh version

To restrict the version of SSH accepted by the security appliance, use the **ssh version** command in global configuration mode. To restore the default value, use the **no** form of this command. The default values permits SSH Version 1 and SSH Version 2 connections to the security appliance.

```
ssh version {1 | 2}
```

```
no ssh version [1 | 2]
```

## Syntax Description

<b>1</b>	Specifies that only SSH Version 1 connections are supported.
<b>2</b>	Specifies that only SSH Version 2 connections are supported.

## Defaults

By default, both SSH Version 1 and SSH Version 2 are supported.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

1 and 2 specify which version of SSH the security appliance is restricted to using. The **no** form of the command returns the security appliance to the default stance, which is compatible mode (both version can be used).

## Examples

The following example shows how to configure the inside interface to accept SSH Version 2 connections from a management console with the IP address 10.1.1.1. The idle session timeout is set to 60 minutes and SCP is enabled.

```
hostname(config)# ssh 10.1.1.1 255.255.255.0 inside
hostname(config)# ssh version 2
hostname(config)# ssh copy enable
hostname(config)# ssh timeout 60
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>clear configure ssh</b>	Clears all SSH commands from the running configuration.
<b>debug ssh</b>	Displays debug information and error messages for SSH commands.
<b>show running-config ssh</b>	Displays the current SSH commands in the running configuration.
<b>ssh</b>	Allows SSH connectivity to the security appliance from the specified client or network.



## ssl client-version

To specify the SSL/TLS protocol version the security appliance uses when acting as a client, use the **ssl client-version** command in global configuration mode. To revert to the default, **any**, use the **no** version of this command. This command lets you restrict the versions of SSL/TLS that the security appliance sends.

```
ssl client-version [any | sslv3-only | tlsv1-only]
```

```
no ssl client-version
```

### Syntax Description

any	The security appliance sends SSL version3 hellos, and negotiates either SSL version 3 or TLS version 1.
sslv3-only	The security appliance sends SSL version 3 hellos, and accepts only SSL version 3.
tlsv1-only	The security appliance sends TLSv1 client hellos, and accepts only TLS version 1.

### Defaults

The default value is **any**.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

### Command History

Release	Modification
7.0(1)(1)	This command was introduced.

### Usage Guidelines

TCP Port Forwarding does not work when a WebVPN user connects with some SSL versions, as follows:

Negotiate SSLv3	Java downloads
Negotiate SSLv3/TLSv1	Java downloads
Negotiate TLSv1	Java does NOT download
TLSv1Only	Java does NOT download
SSLv3Only	Java does NOT download

The issue is that JAVA only negotiates SSLv3 in the client Hello packet when you launch the Port Forwarding application.

**Examples**

The following example shows how to configure the security appliance to communicate using only TLSv 1 when acting as an SSL client:

```
hostname(config)# ssl client-version tlsv1-only
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear config ssl</b>	Removes all SSL commands from the configuration, reverting to the default values.
<b>ssl encryption</b>	Specifies the encryption algorithms that the SSL/TLS protocol uses.
<b>show running-config ssl</b>	Displays the current set of configured SSL commands.
<b>ssl server-version</b>	Specifies the SSL/TLS protocol version the security appliance uses when acting as a server.
<b>ssl trust-point</b>	Specifies the certificate trust point that represents the SSL certificate for an interface.

# ssl encryption

To specify the encryption algorithms that the SSL/TLS protocol uses, use the **ssl encryption** command in global configuration mode. Issuing the command again overwrites the previous setting. The ordering of the algorithms determines preference for their use. You can add or remove algorithms to meet the needs of your environment. To restore the default, which is the complete set of encryption algorithms, use the **no** version of the command.

```
ssl encryption [3des-sha1] [des-sha1] [rc4-md5] [aes128-sha1] [aes256-sha1] [possibly others]
```

```
no ssl encryption
```

## Syntax Description

<i>3des-sha1</i>	Specifies triple DES encryption with Secure Hash Algorithm 1.
<i>des-sha1</i>	Specifies DES encryption with Secure Hash Algorithm 1.
<i>rc4-md5</i>	Specifies RC4 encryption with an MD5 hash function.
<i>aes128-sha1</i>	Specifies triple AES 128-bit encryption with Secure Hash Algorithm 1.
<i>aes256-sha1</i>	Specifies triple AES 256-bit encryption with Secure Hash Algorithm 1.
<i>possibly others</i>	Indicates that more encryption algorithms may be added in future releases.

## Defaults

The default is to have all algorithms available in the following order:

```
[3des-sha1] [des-sha1] [rc4-md5] [possibly others]
```

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

The ASDM License tab reflects the maximum encryption the license supports, not the value you configure.

## Examples

The following example shows how to configure the security appliance to use the 3des-sha1 and des-sha1 encryption algorithms:

```
hostname(config)# ssl encryption 3des-sha1 des-sha1
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear config ssl</b>	Removes all SSL commands from the configuration, reverting to the default values.
<b>show running-config ssl</b>	Displays the current set of configured SSL commands.
<b>ssl client-version</b>	Specifies the SSL/TLS protocol version the security appliance uses when acting as a client.
<b>ssl server-version</b>	Specifies the SSL/TLS protocol version the security appliance uses when acting as a server.
<b>ssl trust-point</b>	Specifies the certificate trust point that represents the SSL certificate for an interface.

## ssl server-version

To specify the SSL/TLS protocol version the security appliance uses when acting as a server, use the **ssl server-version** command in global configuration mode. To revert to the default, any, use the **no** version of this command. This command lets you restrict the versions of SSL/TSL that the security appliance accepts.

```
ssl server-version [any | sslv3 | tlsv1 | sslv3-only | tlsv1-only]
```

```
no ssl server-version
```

### Syntax Description

any	The security appliance accepts SSL version 2 client hellos, and negotiates either SSL version 3 or TLS version 1.
sslv3	The security appliance accepts SSL version 2 client hellos, and negotiates to SSL version 3.
sslv3-only	The security appliance accepts only SSL version 3 client hellos, and uses only SSL version 3.
tlsv1	The security appliance accepts SSL version 2 client hellos, and negotiates to TLS version 1.
tlsv1-only	The security appliance accepts only TLSv1 client hellos, and uses only TLS version 1.

### Defaults

The default value is **any**.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

### Command History

Release	Modification
7.0(1)(1)	This command was introduced.

### Usage Guidelines

TCP Port Forwarding does not work when a WebVPN user connects with some SSL versions, as follows:

Negotiate SSLv3	Java downloads
Negotiate SSLv3/TLSv1	Java downloads
Negotiate TLSv1	Java does NOT download
TLSv1Only	Java does NOT download
SSLv3Only	Java does NOT download

If you configure e-mail proxy, do not set the SSL version to TLSv1 Only. Outlook and Outlook Express do not support TLS.

---

**Examples**

The following example shows how to configure the security appliance to communicate using only TLSv1 when acting as an SSL server:

```
hostname(config)# ssl server-version tlsv1-only
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear config ssl</b>	Removes all ssl commands from the configuration, reverting to the default values.
<b>show running-config ssl</b>	Displays the current set of configured ssl commands.
<b>ssl client-version</b>	Specifies the SSL/TLS protocol version the security appliance uses when acting as a client.
<b>ssl encryption</b>	Specifies the encryption algorithms that the SSL/TLS protocol uses.
<b>ssl trust-point</b>	Specifies the certificate trust point that represents the SSL certificate for an interface.

# ssl trust-point

To specify the certificate trustpoint that represents the SSL certificate for an interface, use the **ssl trust-point** command with the *interface* argument in global configuration mode. If you do not specify an interface, this command creates the fallback trustpoint for all interfaces that do not have a trustpoint configured. To remove an SSL trustpoint from the configuration that does not specify an interface, use the **no** version of this command. To remove an entry that does specify an interface, use the **no ssl trust-point {trustpoint [interface]}** version of the command.

```
ssl trust-point {trustpoint [interface]}
```

```
no ssl trust-point
```

## Syntax Description

<i>interface</i>	The name for the interface to which the trustpoint applies. The <b>nameif</b> command specifies the name of the interface.
trustpoint	The <i>name</i> of the CA trustpoint as configured in the <b>crypto ca trustpoint {name}</b> command.

## Defaults

The default is no trustpoint association. The security appliance uses the default self-generated RSA key-pair certificate.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

Observe these guidelines when using this command:

- The value for *trustpoint* must be the name of the CA trustpoint as configured in the **crypto ca trustpoint {name}** command.
- The value for *interface* must be the *nameif* name of a previously configured interface.
- Removing a trustpoint also removes any **ssl trust-point** entries that reference that trustpoint.
- You can have one **ssl trustpoint** entry for each interface and one that specifies no interfaces.
- You can reuse the same trustpoint for multiple entries.

The following example explains how to use the **no** versions of this command:

The configuration includes these SSL trustpoints:

```
ssl trust-point tp1
ssl trust-point tp2 outside
```

Issue the command:

```
no ssl trust-point
```

Then show run ssl will have:

```
ssl trust-point tp2 outside
```

## Examples

The following example shows how to configure an ssl trustpoint called FirstTrust for the inside interface, and a trustpoint called DefaultTrust with no associated interface.

```
hostname(config)# ssl trust-point FirstTrust inside
hostname(config)# ssl trust-point DefaultTrust
```

The next example shows how to use the **no** version of the command to delete a trustpoint that has no associated interface:

```
hostname(config)# show running-configuration ssl
ssl trust-point FirstTrust inside
ssl trust-point DefaultTrust
hostname(config)# no ssl trust-point
hostname(config)# show running-configuration ssl
ssl trust-point FirstTrust inside
```

The next example shows how to delete a trustpoint that does have an associated interface:

```
hostname(config)# show running-configuration ssl
ssl trust-point FirstTrust inside
ssl trust-point DefaultTrust
hostname(config)# no ssl trust-point FirstTrust inside
hostname(config)# show running-configuration ssl
ssl trust-point DefaultTrust
```

Command	Description
<b>clear config ssl</b>	Removes all SSL commands from the configuration, reverting to the default values.
<b>show running-config ssl</b>	Displays the current set of configured SSL commands.
<b>ssl client-version</b>	Specifies the SSL/TLS protocol version the security appliance uses when acting as a client.
<b>ssl encryption</b>	Specifies the encryption algorithms that the SSL/TLS protocol uses.
<b>ssl server-version</b>	Specifies the SSL/TLS protocol version the security appliance uses when acting as a server.



## sso-server

To create a single sign-on server for security appliance user authentication, use the **sso-server** command in webvpn configuration mode. This is an SSO with CA SiteMinder command.

To remove an SSO server, use the **no** form of this command.

```
sso-server name type siteminder
```

```
no sso-server name type siteminder
```



### Note

This command is required for SSO authentication.

### Syntax Description

<i>name</i>	Specifies the name of the SSO server. Minimum of 4 characters and maximum of 31 characters.
<i>siteminder</i>	The security appliance is compatible with CA SiteMinder so <i>siteminder</i> is only argument available.
<b>type</b>	Specifies the type of SSO server. SiteMinder is the only type available.

### Defaults

There is no default value or behavior.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn configuration	•	—	•	—	—

### Command History

Release	Modification
7.1.1	This command was introduced.

### Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without reentering a username and password more than once. The **sso-server** command lets you create an SSO server. Once you have created the SSO server, then, in any order, you must configure the authentication URL (see the **web-agent-url** command) and the secret key for securing communications with the server (see the **policy-server-secret** command).

In the authentication, the security appliance acts as a proxy for the WebVPN user to the SSO server. The security appliance currently supports the Computer Associates eTrust SiteMinder SSO server (formerly Netegrity SiteMinder). Thus, the available argument for the type option is *siteminder*.

**Examples**

The following example, entered in webvpn configuration mode, creates an SSO server named “example”:

```
hostname(config)# webvpn
hostname(config-webvpn)# sso-server example type siteminder
hostname(config-webvpn-sso-siteminder)#
```

**Related Commands**

Command	Description
<b>max-retry-attempts</b>	Configures the number of times the security appliance retries a failed SSO authentication attempt.
<b>policy-server-secret</b>	Creates a secret key used to encrypt authentication requests to an SSO server.
<b>request-timeout</b>	Specifies the number of seconds before a failed SSO authentication attempt times out.
<b>show webvpn sso-server</b>	Displays the operating statistics for an SSO server.
<b>test sso-server</b>	Tests an SSO server with a trial authentication request.
<b>web-agent-url</b>	Specifies the SSO server URL to which the security appliance makes SSO authentication requests.

## sso-server value (config-group-webvpn)

To assign an SSO server to a group policy, use the **sso-server value** command in group-policy-webvpn configuration mode. This is an SSO with CA SiteMinder command.

To remove the assignment and use the default policy, use the **no** form of this command.

To prevent inheriting the default policy, use the **sso-server none** command.

```
sso-server { value name | none }
```

```
[no] sso-server value name
```

### Syntax Description

<i>name</i>	Specifies the name of the SSO server being assigned to the group policy.
-------------	--

### Defaults

The default policy assigned to the group is DfltGrpPolicy.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group webvpn configuration	•	—	•	—	—

### Command History

Release	Modification
7.1(1)	This command was introduced.

### Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without reentering a username and password more than once. The **sso-server value** command, when entered in group-policy-webvpn mode, lets you assign an SSO server to a group policy.



#### Note

Enter the same command, **sso-server value**, in username-webvpn configuration mode to assign SSO servers to user policies.

### Examples

The following example commands create the group policy my-sso-grp-pol and assigns it to the SSO server named example:

```
hostname(config)# group-policy my-sso-grp-pol internal
hostname(config)# group-policy my-sso-grp-pol attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# sso-server value example
hostname(config-group-webvpn)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>policy-server-secret</b>	Creates a secret key used to encrypt authentication requests to an SSO server.
<b>show webvpn sso-server</b>	Displays the operating statistics for an SSO server.
<b>sso-server</b>	Creates a single sign-on server.
<b>sso-server value (config-username-webvpn)</b>	Assigns an SSO server to a user policy.
<b>web-agent-url</b>	Specifies the SSO server URL to which the security appliance makes SSO authentication requests.

## sso-server value (config-username-webvpn)

To assign an SSO server to a user policy, use the **sso-server value** command in username-webvpn configuration mode. This is an SSO with CA SiteMinder command.

To remove an SSO server assignment for a user, use the **no** form of this command.

When a user policy inherits an unwanted SSO server assignment from a group policy, use the **sso-server none** command to remove the assignment.

```
sso-server { value name | none }
```

```
[no] sso-server value name
```

### Syntax Description

<i>name</i>	Specifies the name of the SSO server being assigned to the user policy.
-------------	---

### Defaults

The default is for the user policy to use the SSO server assignment in the group policy.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Username webvpn configuration	•	—	•	—	—

### Command History

Release	Modification
7.1(1)	This command was introduced.

### Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without reentering a username and password more than once. The **sso-server value** command lets you assign an SSO server to a user policy.



#### Note

Enter the same command, **sso-server value**, in group-webvpn configuration mode to assign SSO servers to group policies.

### Examples

The following example commands assign the SSO server named my-sso-server to the user policy for a WebVPN user named Anyuser:

```
hostname(config)# username Anyuser attributes
hostname(config-username)# webvpn
hostname(config-username-webvpn)# sso-server value my-sso-server
hostname(config-username-webvpn)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>policy-server-secret</b>	Creates a secret key used to encrypt authentication requests to an SSO server.
<b>show webvpn sso-server</b>	Displays the operating statistics for an SSO server.
<b>sso-server</b>	Creates a single sign-on server.
<b>sso-server value (config-group-webvpn)</b>	Assigns an SSO server to a group policy.
<b>web-agent-url</b>	Specifies the SSO server URL to which the security appliance makes SSO authentication requests.

# start-url

To enter the URL at which to retrieve an optional pre-login cookie, use the **start-url** command in aaa-server- host configuration mode. This is an SSO with HTTP Forms command.

**start-url** *string*



## Note

To configure SSO with the HTTP protocol correctly, you must have a thorough working knowledge of authentication and HTTP protocol exchanges.

## Syntax Description

*string* The URL for an SSO server. The maximum URL length is 1024 characters.

## Defaults

There is no default value or behavior.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Aaa-server-host configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The WebVPN server of the security appliance can use an HTTP POST request to submit a single sign-on authentication request to an authenticating web server. The authenticating web server may execute a pre-login sequence by sending a Set-Cookie header along with the login page content. You can discover this by connecting directly to the authenticating web server's login page with your browser. If the web server sets a cookie when the login page loads and if this cookie is relevant for the following login session, you must use the **start-url** command to enter the URL at which the cookie is retrieved. The actual login sequence starts after the pre-login cookie sequence with the form submission to the authenticating web server.



## Note

The **start-url** command is only required in the presence of the pre-login cookie exchange.

## Examples

The following example, entered in aaa-server-host configuration mode, specifies a URL for retrieving the pre-login cookie of https://example.com/east/Area.do?Page=Grp1:

```
hostname(config)# aaa-server testgrp1 (inside) host example.com
hostname(config-aaa-server-host)# start-url https://example.com/east/Area.do?Page=Grp1
```

```
hostname(config-aaa-server-host)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>action-uri</b>	Specifies a web server URI to receive a username and password for single sign-on authentication.
<b>auth-cookie-name</b>	Specifies a name for the authentication cookie.
<b>hidden-parameter</b>	Creates hidden parameters for exchange with the authenticating web server.
<b>password-parameter</b>	Specifies the name of the HTTP POST request parameter in which a user password must be submitted for SSO authentication.
<b>user-parameter</b>	Specifies the name of the HTTP POST request parameter in which a username must be submitted for SSO authentication.



# state-checking

To enforce state checking for H.323, use the **state-checking** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

```
state-checking [h225 | ras]
```

```
no state-checking [h225 | ras]
```

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Parameters configuration	•	•	•	•	—

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Examples** The following example...

**Related Commands**

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# static

To configure a persistent one-to-one address translation rule by mapping a real IP address to a mapped IP address, use the **static** command in global configuration mode. To restore the default settings, use the **no** form of this command.

For static NAT:

```
static (real_ifc,mapped_ifc) mapped_ip {real_ip [netmask mask] | access-list access_list_name |
interface} [dns] [[tcp] max_conns [emb_lim]] [udp udp_max_conns] [norandomseq [nailed]]
```

```
no static (real_ifc,mapped_ifc) mapped_ip {real_ip [netmask mask] | access-list access_list_name
| interface} [dns] [[tcp] max_conns [emb_lim]] [udp udp_max_conns] [norandomseq
[nailed]]
```

For static PAT:

```
static (real_ifc,mapped_ifc) {tcp | udp} mapped_ip mapped_port {real_ip real_port
[netmask mask] | access-list access_list_name | interface} [dns] [[tcp] max_conns
[emb_lim]] [udp udp_max_conns] [norandomseq [nailed]]
```

```
no static (real_ifc,mapped_ifc) {tcp | udp} mapped_ip mapped_port {real_ip real_port
[netmask mask] | access-list access_list_name | interface} [dns] [[tcp] max_conns [emb_lim]]
[udp udp_max_conns] [norandomseq [nailed]]
```

## Syntax Description

<b>access-list</b> <i>access_list_name</i>	Lets you identify real addresses for NAT by specifying the real and destination addresses (or ports). This feature is known as policy NAT.  The subnet mask used in the access list is also used for the <i>mapped_ip</i> .  You can only include <b>permit</b> statements in the access list. You can also specify the real and destination ports in the access list using the <b>eq</b> operator. Policy NAT does not consider the <b>inactive</b> or <b>time-range</b> keywords; all ACEs are considered to be active for policy NAT configuration.
<b>dns</b>	(Optional) Rewrites the A record, or address record, in DNS replies that match this static. For DNS replies traversing from a mapped interface to a real interface, the A record is rewritten from the mapped value to the real value. Inversely, for DNS replies traversing from a real interface to a mapped interface, the A record is rewritten from the real value to the mapped value.
<i>emb_lim</i>	(Optional) Specifies the maximum number of embryonic connections per host. The default is 0, which means unlimited embryonic connections.  Limiting the number of embryonic connections protects you from a DoS attack. The security appliance uses the embryonic limit to trigger TCP Intercept, which protects inside systems from a DoS attack perpetrated by flooding an interface with TCP SYN packets. An embryonic connection is a connection request that has not finished the necessary handshake between source and destination.
<b>interface</b>	Uses the interface IP address as the mapped address. Use this keyword if you want to use the interface address, but the address is dynamically assigned using DHCP.  <b>Note</b> You must use the interface keyword instead of specifying the actual IP address when you want to include the IP address of an interface in a static PAT entry.

<i>mapped_ifc</i>	Specifies the name of the interface connected to the mapped IP address network.
<i>mapped_ip</i>	Specifies the address to which the real address is translated.
<i>mapped_port</i>	Specifies the mapped TCP or UDP port. You can specify ports by either a literal name or a number in the range of 0 to 65535.  You can view valid port numbers online at the following website:  <a href="http://www.iana.org/assignments/port-numbers">http://www.iana.org/assignments/port-numbers</a>
<b>nailed</b>	(Optional) Allows TCP sessions for asymmetrically routed traffic. This option allows inbound traffic to traverse the security appliance without a corresponding outbound connection to establish the state. This command is used in conjunction with the <b>failover timeout</b> command. The <b>failover timeout</b> command specifies the amount of time after a system boots or becomes active that the nailed sessions are accepted. If not configured, the connections cannot be reestablished.  <b>Note</b> Adding the <b>nailed</b> option to the <b>static</b> command causes TCP state tracking and sequence checking to be skipped for the connection. Using the <b>asr-group</b> command to configure asymmetric routing support is more secure than using the <b>static</b> command with the <b>nailed</b> option and is the recommended method for configuring asymmetric routing support.
<b>netmask</b> <i>mask</i>	Specifies the subnet mask for the real and mapped addresses. For single hosts, use 255.255.255.255. If you do not enter a mask, then the default mask for the IP address class is used, with one exception. If a host-bit is non-zero after masking, a host mask of 255.255.255.255 is used. If you use the <b>access-list</b> keyword instead of the <i>real_ip</i> , then the subnet mask used in the access list is also used for the <i>mapped_ip</i> .
<b>norandomseq</b>	(Optional) Disables TCP ISN randomization protection. TCP sequence randomization should only be disabled if another in-line firewall is also randomizing sequence numbers and the result is scrambling the data. Each TCP connection has two ISNs: one generated by the client and one generated by the server. The security appliance randomizes the ISN that is generated by the host/server. At least one of the ISNs must be randomly generated so that attackers cannot predict the next ISN and potentially hijack the session.  The <b>norandomseq</b> keyword does not apply to outside NAT. The firewall randomizes only the ISN that is generated by the host/server on the higher security interface. If you set <b>norandomseq</b> for outside NAT, the <b>norandomseq</b> keyword is ignored.
<i>real_ifc</i>	Specifies the name of the interface connected to the real IP address network.
<i>real_ip</i>	Specifies the real address that you want to translate.
<i>real_port</i>	Specifies the real TCP or UDP port. You can specify ports by either a literal name or a number in the range of 0 to 65535.  You can view valid port numbers online at the following website:  <a href="http://www.iana.org/assignments/port-numbers">http://www.iana.org/assignments/port-numbers</a>
<b>tcp</b>	For static PAT, specifies the protocol as TCP.
<b>tcp</b> <i>max_conns</i>	Specifies the maximum number of simultaneous TCP connections for the entire subnet. The default is 0, which means unlimited connections. (Idle connections are closed after the idle timeout specified by the <b>timeout conn</b> command.)

<b>udp</b>	For static PAT, specifies the protocol as UDP.
<b>udp</b> <i>udp_max_conns</i>	(Optional) Specifies the maximum number of simultaneous UDP connections for the entire subnet. The default is 0, which means unlimited connections. (Idle connections are closed after the idle timeout specified by the <b>timeout conn</b> command.)

**Defaults**

The default value for *tcp\_max\_conns*, *emb\_limit*, and *udp\_max\_conns* is 0 (unlimited), which is the maximum available.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

Static NAT creates a fixed translation of real address(es) to mapped address(es). With dynamic NAT and PAT, each host uses a different address or port for each subsequent translation. Because the mapped address is the same for each consecutive connection with static NAT, and a persistent translation rule exists, static NAT allows hosts on the destination network to initiate traffic to a translated host (if there is an access list that allows it).

The main difference between dynamic NAT and a range of addresses for static NAT is that static NAT allows a remote host to initiate a connection to a translated host (if there is an access list that allows it), while dynamic NAT does not. You also need an equal number of mapped addresses as real addresses with static NAT.

Static PAT is the same as static NAT, except it lets you specify the protocol (TCP or UDP) and port for the real and mapped addresses.

This feature lets you identify the same mapped address across many different static statements, so long as the port is different for each statement (you cannot use the same mapped address for multiple static NAT statements).

You cannot use the same real or mapped address in multiple **static** commands between the same two interfaces. Do not use a mapped address in the **static** command that is also defined in a **global** command for the same mapped interface.

When you specify the ports in policy NAT for applications that require application inspection for secondary channels (FTP, VoIP, etc.), the security appliance automatically translates the secondary ports.

NAT, in the conventional sense, is not available in transparent firewall mode. In transparent firewall mode, you can use the **static** command to configure maximum connections, maximum embryonic connections, and TCP sequence randomization. In this case, both the real and mapped IP addresses are the same.

You can alternatively configure maximum connections, maximum embryonic connections, and TCP sequence randomization using the **set connection** commands. If you configure these settings for the same traffic using both methods, then the security appliance uses the lower limit. For TCP sequence randomization, if it is disabled using either method, then the security appliance disables TCP sequence randomization.

If you specify a network for translation (for example, 10.1.1.0 255.255.255.0), then the security appliance translates the .0 and .255 addresses. If you want to prevent access to these addresses, be sure to configure an access list to deny access.

After changing or removing a static command statement, use the **clear xlate** command to clear the translations.

## Examples

### Static NAT Examples

For example, the following policy static NAT example shows a single real address that is translated to two mapped addresses depending on the destination address:

```
hostname(config)# access-list NET1 permit ip host 10.1.2.27 209.165.201.0 255.255.255.224
hostname(config)# access-list NET2 permit ip host 10.1.2.27 209.165.200.224
255.255.255.224
hostname(config)# static (inside,outside) 209.165.202.129 access-list NET1
hostname(config)# static (inside,outside) 209.165.202.130 access-list NET2
```

The following command maps an inside IP address (10.1.1.3) to an outside IP address (209.165.201.12):

```
hostname(config)# static (inside,outside) 209.165.201.12 10.1.1.3 netmask 255.255.255.255
```

The following command maps the outside address (209.165.201.15) to an inside address (10.1.1.6):

```
hostname(config)# static (outside,inside) 10.1.1.6 209.165.201.15 netmask 255.255.255.255
```

The following command statically maps an entire subnet:

```
hostname(config)# static (inside,dmz) 10.1.1.0 10.1.2.0 netmask 255.255.255.0
```

This example shows how to permit a finite number of users to call in through H.323 using Intel Internet Phone, CU-SeeMe, CU-SeeMe Pro, MeetingPoint, or Microsoft NetMeeting. The **static** command maps addresses 209.165.201.0 through 209.165.201.30 to local addresses 10.1.1.0 through 10.1.1.30 (209.165.201.1 maps to 10.1.1.1, 209.165.201.10 maps to 10.1.1.10, and so on).

```
hostname(config)# static (inside, outside) 209.165.201.0 10.1.1.0 netmask 255.255.255.224
hostname(config)# access-list acl_out permit tcp any 209.165.201.0 255.255.255.224 eq h323
hostname(config)# access-group acl_out in interface outside
```

This example shows the commands that are used to disable Mail Guard:

```
hostname(config)# static (dmz1,outside) 209.165.201.1 10.1.1.1 netmask 255.255.255.255
hostname(config)# access-list acl_out permit tcp any host 209.165.201.1 eq smtp
hostname(config)# access-group acl_out in interface outside
hostname(config)# no fixup protocol smtp 25
```

In the example, the **static** command allows you to set up a global address to permit outside hosts access to the 10.1.1.1 mail server host on the dmz1 interface. You should set the MX record for DNS to point to the 209.165.201.1 address so that mail is sent to this address. The **access-list** command allows the outside users to access the global address through the SMTP port (25). The **no fixup protocol** command disables Mail Guard.

### Static PAT Examples

For example, for Telnet traffic initiated from hosts on the 10.1.3.0 network to the security appliance outside interface (10.1.2.14), you can redirect the traffic to the inside host at 10.1.1.15 by entering the following commands:

```
hostname(config)# access-list TELNET permit tcp host 10.1.1.15 eq telnet 10.1.3.0
255.255.255.0 eq telnet
hostname(config)# static (inside,outside) tcp 10.1.2.14 telnet access-list TELNET
```

For HTTP traffic initiated from hosts on the 10.1.3.0 network to the security appliance outside interface (10.1.2.14), you can redirect the traffic to the inside host at 10.1.1.15 by entering:

```
hostname(config)# access-list HTTP permit tcp host 10.1.1.15 eq http 10.1.3.0
255.255.255.0 eq http
hostname(config)# static (inside,outside) tcp 10.1.2.14 http access-list HTTP
```

To redirect Telnet traffic from the security appliance outside interface (10.1.2.14) to the inside host at 10.1.1.15, enter the following command:

```
hostname(config)# static (inside,outside) tcp 10.1.2.14 telnet 10.1.1.15 telnet netmask
255.255.255.255
```

If you want to allow the preceding real Telnet server to initiate connections, though, then you need to provide additional translation. For example, to translate all other types of traffic, enter the following commands. The original **static** command provides translation for Telnet to the server, while the **nat** and **global** commands provide PAT for outbound connections from the server.

```
hostname(config)# static (inside,outside) tcp 10.1.2.14 telnet 10.1.1.15 telnet netmask
255.255.255.255
hostname(config)# nat (inside) 1 10.1.1.15 255.255.255.255
hostname(config)# global (outside) 1 10.1.2.14
```

If you also have a separate translation for all inside traffic, and the inside hosts use a different mapped address from the Telnet server, you can still configure traffic initiated from the Telnet server to use the same mapped address as the **static** statement that allows Telnet traffic to the server. You need to create a more exclusive **nat** statement just for the Telnet server. Because **nat** statements are read for the best match, more exclusive **nat** statements are matched before general statements. The following example shows the Telnet **static** statement, the more exclusive **nat** statement for initiated traffic from the Telnet server, and the statement for other inside hosts, which uses a different mapped address.

```
hostname(config)# static (inside,outside) tcp 10.1.2.14 telnet 10.1.1.15 telnet netmask
255.255.255.255
hostname(config)# nat (inside) 1 10.1.1.15 255.255.255.255
hostname(config)# global (outside) 1 10.1.2.14
hostname(config)# nat (inside) 2 10.1.1.0 255.255.255.0
hostname(config)# global (outside) 2 10.1.2.78
```

To translate a well-known port (80) to another port (8080), enter the following command:

```
hostname(config)# static (inside,outside) tcp 10.1.2.45 80 10.1.1.16 8080 netmask
255.255.255.255
```

#### Related Commands

Command	Description
<b>clear configure static</b>	Removes <b>static</b> commands from the configuration.
<b>clear xlate</b>	Clears all translations.
<b>nat</b>	Configures dynamic NAT.

Command	Description
<code>show running-config static</code>	Displays all <b>static</b> commands in the configuration.
<code>timeout conn</code>	Sets the timeout for connections.

# strict-header-validation

To enable strict validation of the header fields in the SIP messages according to RFC 3261, use the **strict-header-validation** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

```
strict-header-validation action { drop | drop-connection | reset | log } [log]
```

```
no strict-header-validation action { drop | drop-connection | reset | log } [log]
```

## Syntax Description

<b>drop</b>	Drops the packet if validation occurs.
<b>drop-connection</b>	Drops the connection of a violation occurs.
<b>reset</b>	Resets the connection of a violation occurs.
<b>log</b>	Specifies standalone or additional log in case of violation. It can be associated to any of the actions.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to enable strict validation of SIP header fields in a SIP inspection policy map:

```
hostname(config)# policy-map type inspect sip sip_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# strict-header-validation action log
```

## Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.



<b>Command</b>	<b>Description</b>
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# strict-http

To allow forwarding of non-compliant HTTP traffic, use the **strict-http** command in HTTP map configuration mode, which is accessible using the **http-map** command. To reset this feature to its default behavior, use the **no** form of the command.

```
strict-http action {allow | reset | drop} [log]
```

```
no strict-http action {allow | reset | drop} [log]
```

## Syntax Description

<b>action</b>	The action taken when a message fails this command inspection.
<b>allow</b>	Allows the message.
<b>drop</b>	Closes the connection.
<b>log</b>	(Optional) Generate a syslog.
<b>reset</b>	Closes the connection with a TCP reset message to client and server.

## Defaults

This command is enabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
HTTP map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Although strict HTTP inspection cannot be disabled, the **strict-http action allow** command causes the security appliance to allow forwarding of non-compliant HTTP traffic. This command overrides the default behavior, which is to deny forwarding of non-compliant HTTP traffic.

## Examples

The following example allows forwarding of non-compliant HTTP traffic:

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# strict-http allow
hostname(config-http-map)#
```

## Related Commands

<b>Commands</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug appfw</b>	Displays detailed information about traffic associated with enhanced HTTP inspection.
<b>http-map</b>	Defines an HTTP map for configuring enhanced HTTP inspection.
<b>inspect http</b>	Applies a specific HTTP map to use for application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.

# strip-group

This command applies only to usernames received in the form `user@realm`. A realm is an administrative domain appended to a username with the `@` delimiter (`juser@abc`).

To enable or disable strip-group processing, use the **strip-group** command in tunnel-group general-attributes mode. The security appliance selects the tunnel group for IPSec connections by obtaining the group name from the username presented by the VPN client. When strip-group processing is enabled, the security appliance sends only the user part of the username for authorization/authentication. Otherwise (if disabled), the security appliance sends the entire username including the realm.

To disable strip-group processing, use the **no** form of this command.

**strip-group**

**no strip-group**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default setting for this command is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group general attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.0.1	This command was introduced.

## Usage Guidelines

You can apply this attribute only to the IPSec remote access tunnel-type.

## Examples

The following example configures a remote access tunnel group named “remotegrp” for type IPSec remote access, then enters general configuration mode, sets the tunnel group named “remotegrp” as the default group policy, and then enables strip group for that tunnel group:

```
hostname(config)# tunnel-group remotegrp type IPSec_ra
hostname(config)# tunnel-group remotegrp general
hostname(config-tunnel-general)# default-group-policy remotegrp
hostname(config-tunnel-general)# strip-group
hostname(config-tunnel-general)
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear-configure tunnel-group</b>	Clears all configured tunnel groups.
<b>group-delimiter</b>	Enables group-name parsing and specifies the delimiter to be used when parsing group names from the user names that are received when tunnels are being negotiated.
<b>show running-config tunnel group</b>	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
<b>tunnel-group general-attributes</b>	Specifies the general attributes for the named tunnel-group.

# strip-realm

To enable or disable strip-realm processing, use the **strip-realm** command in tunnel-group general-attributes configuration mode. Strip-realm processing removes the realm from the username when sending the username to the authentication or authorization server. A realm is an administrative domain appended to a username with the @ delimiter (username@realm). If the command is enabled, the security appliance sends only the user part of the username authorization/authentication. Otherwise, the security appliance sends the entire username.

To disable strip-realm processing, use the **no** form of this command.

**strip-realm**

**no strip-realm**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default setting for this command is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group general attributes configuration	•	—	•	—	—

## Command History

Release	Modification
7.0.1	This command was introduced.

## Usage Guidelines

You can apply this attribute only to the IPsec remote access tunnel-type.

## Examples

The following example configures a remote access tunnel group named “remotegrp” for type IPsec remote access, then enters general configuration mode, sets the tunnel group named “remotegrp” as the default group policy, and then enables strip realm for that tunnel group:

```
hostname(config)# tunnel-group remotegrp type IPsec_ra
hostname(config)# tunnel-group remotegrp general
hostname(config-tunnel-general)# default-group-policy remotegrp
hostname(config-tunnel-general)# strip-realm
```

```
neral)
```

```
ostname(config-ge
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>clear configure tunnel-group</b>	Clears all configured tunnel groups or the specified tunnel-group.
<b>show running-config tunnel-group</b>	Shows the current tunnel-group configuration.
<b>tunnel-group general-attributes</b>	Specifies the general attributes for the named tunnel-group.

## subject-name (crypto ca certificate map)

To indicate that rule entry is applied to the subject DN of the IPsec peer certificate, use the **subject-name** command in CA certificate map configuration mode. To remove an subject-name, use the **no** form of the command.

```
subject-name [attr tag] eq | ne lco | nc string
```

```
no subject-name [attr tag] eq | ne lco | nc string
```

Syntax Description	attr tag	Indicates that only the specified attribute value from the certificate DN will be compared to the rule entry string. The tag values are as follows:
		DNQ = DN qualifier GENQ = Generational qualifier I = Initials GN = Given name N = Name SN = Surname IP = IP address SER = Serial number UNAME = Unstructured name EA = Email address T = Title O = Organization Name L = Locality SP = State/Province C = Country OU = Organizational unit CN = Common name
	<b>co</b>	Specifies that the rule entry string must be a substring in the DN string or indicated attribute.
	<b>eq</b>	Specifies that the DN string or indicated attribute must match the entire rule string.
	<b>nc</b>	Specifies that the rule entry string must not be a substring in the DN string or indicated attribute.
	<b>ne</b>	Specifies that the DN string or indicated attribute must not match the entire rule string.
	string	Specifies the value to be matched.

**Defaults** No default behavior or values.



**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto ca certificate map configuration	•	•	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Examples**

The following example enters the CA certificate map mode for certificate map 1 and creates a rule entry indicating that the Organization attribute of the certificate subject name must be equal to Central.

```
hostname(config)# crypto ca certificate map 1
hostname(ca-certificate-map)# subject-name attr o eq central
hostname(ca-certificate-map)# exit
```

**Related Commands**

Command	Description
<b>crypto ca certificate map</b>	Enters CA certificate map mode.
<b>issuer-name</b>	Identifies the DN from the CA certificate that is to be compared to the rule entry string.
<b>tunnel-group-map</b>	Associates the certificate map entries created using the <b>crypto ca certificate map</b> command with tunnel groups.

## subject-name (crypto ca trustpoint)

To include the indicated subject DN in the certificate during enrollment, use the **subject-name** command in crypto ca trustpoint configuration mode. This is the person or system that uses the certificate. To restore the default setting, use the **no** form of the command.

**subject-name** *X.500\_name*

**no subject-name**

### Syntax Description

*X.500\_name* Defines the X.500 distinguished name, for example: cn=crl,ou=certs,o=CAName,c=US. The maximum length is 1K characters (effectively unbounded).

### Defaults

The default setting is not to include the subject name.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Crypto ca trustpoint configuration	•	•	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and sets up automatic enrollment at the URL https://frog.phoobin.com and includes the subject DN OU tiedye.com in the the enrollment request for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# enrollment url http://frog.phoobin.com/
hostname(ca-trustpoint)# subject-name ou=tiedye.com
hostname(ca-trustpoint)#
```

### Related Commands

Command	Description
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.
<b>default enrollment</b>	Returns enrollment parameters to their defaults.
<b>enrollment url</b>	Specifies the URL for enrolling with a CA.

# summary-address

To create aggregate addresses for OSPF, use the **summary-address** command in router configuration mode. To remove the summary address or specific summary address options, use the **no** form of this command.

```
summary-address addr mask [not-advertise] [tag tag_value]
```

```
no summary-address addr mask [not-advertise] [tag tag_value]
```

## Syntax Description

<i>addr</i>	Value of the summary address that is designated for a range of addresses.
<i>mask</i>	IP subnet mask that is used for the summary route.
<b>not-advertise</b>	(Optional) Suppresses routes that match the specified prefix/mask pair.
<b>tag</b> <i>tag_value</i>	(Optional) A 32-bit decimal value attached to each external route. This value is not used by OSPF itself. It may be used to communicate information between ASBRs. If none is specified, then the remote autonomous system number is used for routes from BGP and EGP; for other protocols, zero (0) is used. Valid values range from 0 to 4294967295.

## Defaults

The defaults are as follows:

- *tag\_value* is 0.
- Routes that match the specified prefix/mask pair are not suppressed.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Routes learned from other routing protocols can be summarized. Using this command for OSPF causes an OSPF Autonomous System Boundary Router (ASBR) to advertise one external route as an aggregate for all redistributed routes that are covered by the address. This command summarizes only routes from other routing protocols that are being redistributed into OSPF. Use the **area range** command for route summarization between OSPF areas.

To remove a **summary-address** command from the configuration, use the **no** form of the command without specifying any of the optional keywords or arguments. To remove an option from a summary command in the configuration, use the **no** form of the command with the options that you want removed. See the “Examples” section for more information.

### Examples

The following example configures route summarization with a **tag** set to 3:

```
hostname(config-router)# summary-address 1.1.0.0 255.255.0.0 tag 3
hostname(config-router)#
```

The following example shows how to use the **no** form of the **summary-address** command with an option to set that option back to the default value. In this example, the **tag** value, set to 3 in the previous example, is removed from the **summary-address** command.

```
hostname(config-router)# no summary-address 1.1.0.0 255.255.0.0 tag 3
hostname(config-router)#
```

The following example removes the **summary-address** command from the configuration:

```
hostname(config-router)# no summary-address 1.1.0.0 255.255.0.0
hostname(config-router)#
```

### Related Commands

Command	Description
<b>area range</b>	Consolidates and summarizes routes at an area boundary.
<b>router ospf</b>	Enters router configuration mode.
<b>show ospf</b>	Displays the summary address settings for each OSPF routing process.
<b>summary-address</b>	

# sunrpc-server

To create entries in the SunRPC services table, use the **sunrpc-server** command in global configuration mode. To remove SunRPC services table entries from the configuration, use the **no** form of this command.

```
sunrpc-server ifc_name ip_addr mask service service_type protocol [tcp | udp] port port [- port ] timeout hh:mm:ss
```

```
no sunrpc-server ifc_name ip_addr mask service service_type protocol [tcp | udp] port port [- port] timeout hh:mm:ss
```

```
no sunrpc-server active service service_type server ip_addr
```

## Syntax Description

<i>ifc_name</i>	Server interface name.
<i>ip_addr</i>	SunRPC server IP address.
<i>mask</i>	Network mask.
<b>port port [- port ]</b>	Specifies the SunRPC protocol port range.
<b>port- port</b>	(Optional) Specifies the SunRPC protocol port range.
<b>protocol tcp</b>	Specifies the SunRPC transport protocol.
<b>protocol udp</b>	Specifies the SunRPC transport protocol.
<i>service</i>	Specifies a service.
<i>service_type</i>	Sets the SunRPC service program number as specified in the <b>sunrpcinfo</b> command.
<b>timeout hh:mm:ss</b>	Specifies the timeout idle time after which the access for the SunRPC service traffic is closed.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The SunRPC services table is used to allow SunRPC traffic through the security appliance based on an established SunRPC session for the duration specified by the timeout.

**Examples**

The following example shows how to create an SunRPC services table:

```
hostname(config)# sunrpc-server outside 10.0.0.1 255.0.0.0 service 100003 protocol TCP
port 111 timeout 0:11:00
hostname(config)# sunrpc-server outside 10.0.0.1 255.0.0.0 service 100005 protocol TCP
port 111 timeout 0:11:00
```

**Related Commands**

Command	Description
<b>clear configure sunrpc-server</b>	Clears the Sun remote processor call services from the security appliance.
<b>show running-config sunrpc-server</b>	Displays the information about the SunRPC configuration.

# support-user-cert-validation

To validate a remote user certificate based on the current trustpoint, provided that this trustpoint is authenticated to the CA that issued the remote certificate, use the **support-user-cert-validation** command in crypto ca trustpoint configuration mode. To restore the default setting, use the **no** form of the command.

**support-user-cert-validation**

**no support-user-cert-validation**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default setting is to support user certificate validation.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Crypto ca trustpoint configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The security appliance can have two trustpoints with the same CA resulting in two different identity certificates from the same CA. This option is automatically disabled if the trustpoint is authenticated to a CA that is already associated with another trustpoint that has enabled this feature. This prevents ambiguity in the choice of path-validation parameters. If the user attempts to activate this feature on a trustpoint that has been authenticated to a CA already associated with another trustpoint that has enabled this feature, the action is not permitted. No two trustpoints can have this setting enabled and be authenticated to the same CA.

## Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and enables the trustpoint central to accept user validation:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# support-user-cert-validation
hostname(ca-trustpoint)#
```

## Related Commands

Command	Description
<code>crypto ca trustpoint</code>	Enters trustpoint configuration mode.
<code>default enrollment</code>	Returns enrollment parameters to their defaults.



## SVC

To enable or require the SVC for a specific group or user, use the **svc** command in the group-policy and username webvpn modes.

To remove the **svc** command from the configuration, use the **no** form of the command:

```
svc {none | enable | required}
```

```
no svc
```

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

### Syntax Description

<b>none</b>	Disables the SVC for this group or user.
<b>enable</b>	Enables the SVC for this group or user.
<b>required</b>	SVC is required for this group or user.

### Defaults

The default is **none**. SVC is disabled in the group policy or user policy.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
group-policy webvpn	•	—	•	—	—
username webvpn	•	—	•	—	—

### Command History

Release	Modification
7.1.1	This command was introduced.

### Examples

In the following example, the user configures the existing group-policy *sales* to require the SVC:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# svc required
```

### Related Commands

Command	Description
<b>show webvpn svc</b>	Displays information about the SVC installation.

---

<b>svc enable</b>	Enables the security appliance to download SVC files to remote computers.
<b>svc image</b>	Causes the security appliance to load SVC files from flash memory to RAM, and specifies the order in which the security appliance downloads SVC files to the remote computer.

---

## svc compression

To enable compression of http data over an SVC connection for a specific group or user, use the **svc compression** command in the group policy and username webvpn modes.

To remove the **svc compression** command from the configuration and cause the value to be inherited, use the **no** form of the command:

```
svc compression { deflate | none }
```

```
no svc compression { deflate | none }
```

### Syntax Description

<b>deflate</b>	Specifies compression is enabled for the group or user.
<b>none</b>	Specifies compression is disabled for the group or user.

### Defaults

By default, SVC compression is set to *deflate* (enabled).

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
group-policy webvpn	•	—	•	—	—
username webvpn	•	—	•	—	—

### Command History

Release	Modification
7.1(1)	This command was introduced.

### Usage Guidelines

For SVC connections, the **compression** command configured from global configuration mode overrides the **svc compression** command configured in group policy and username webvpn modes.

### Examples

In the following example, SVC compression is disabled for the group-policy sales:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# svc compression none
```

### Related Commands

Command	Description
<b>compression</b>	Enables compression for all SVC, WebVPN, and IPSec VPN connections.
<b>show webvpn svc</b>	Displays information about the SVC installation.

# svc dpd-interval

To enable DPD on the security appliance and to set the frequency that either the SVC or the security appliance performs DPD, use the **svc dpd-interval** command from group policy or username webvpn mode:

```
svc dpd-interval {[gateway {seconds | none}] | [client {seconds | none}]}
```

```
no svc dpd-interval {[gateway {seconds | none}] | [client {seconds | none}]}
```

Use the **no** form of the command to remove the command from the configuration and cause the value to be inherited.

## Syntax Description

<b>gateway</b> <i>seconds</i>	Specifies the frequency, from 30 to 3600 seconds, that the security appliance performs DPD.
<b>gateway</b> <b>none</b>	Disables DPD that the security appliance performs.
<b>client</b> <i>seconds</i>	Specifies the frequency, from 30 to 3600 seconds, that the SVC performs DPD.
<b>client</b> <b>none</b>	Disables DPD that the SVC performs.

## Defaults

The default is none. DPD is disabled for both the SVC and the security appliance.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
WebVPN Group Policy	•	—	•	—	—
WebVPN Username	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Examples

In the following example, the user configures the DPD frequency performed by the security appliance (gateway) to 3000 seconds, and the DPD frequency performed by the client to 1000 seconds, for the existing group policy named Sales:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# svc dpd-interval gateway 3000
hostname(config-group-webvpn)# svc dpd-interval client 1000
```

## Related Commands

Command	Description
<b>svc</b>	Enables or requires the SVC for a specific group or user.

<b>svc keepalive</b>	Specifies the frequency at which an SVC on a remote computer sends keepalive messages to the security appliance.
<b>svc keep-installer</b>	Enables the permanent installation of an SVC onto a remote computer.
<b>svc rekey</b>	Enables the SVC to perform a rekey on an SVC session.

# svc enable

To enable the security appliance to download SVC files to remote computers, use the **svc enable** command from webvpn mode.

To remove the **svc enable** command from the configuration, use the **no** form of this command:

**svc enable**

**no svc enable**

## Defaults

The default for this command is disabled. The security appliance does not download SVC files.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
webvpn	•	—	•	—	—

## Command History

Release	Modification
7.1.1	This command was introduced.

## Usage Guidelines

Entering the **no svc enable** command does not terminate active SVC sessions.

## Examples

In the following example, the user enables the security appliance to download SVC files:

```
(config)# webvpn
(config-webvpn)# svc enable
```

## Related Commands

Command	Description
<b>show webvpn svc</b>	Displays information about the SVC installation.
<b>svc</b>	Enables or requires the SVC for a specific group or user.
<b>svc image</b>	Causes the security appliance to load SVC files from flash memory into RAM, and specifies the order in which the security appliance downloads SVC files to the remote computer.

# svc image

To cause the security appliance to load SVC files from flash memory into RAM, and to specify the order in which the security appliance downloads SVC files to the remote computer, use the **svc image** command from webvpn mode.

To remove the **svc image** command from the configuration, use the **no** form of the command:

```
svc image filename order
no svc image filename order
```

## Syntax Description

<i>filename</i>	Specifies the filename of the SVC file, up to 255 characters.
<i>order</i>	Specifies a number indicating the relative position of the files to each other, from 1 to 65535.

## Defaults

The default order is 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
webvpn mode	•	—	•	—	—

## Command History

Release	Modification
7.1.1	This command was introduced.

## Usage Guidelines

Numbering of the SVC files establishes the order in which the security appliance downloads them to the remote computer. It downloads the SVC file with the lowest number first. Therefore, you should assign the lowest number to the file that the most commonly-encountered operating system uses.

You can configure the files in any order. For example, you can configure 2 before 1.

## Examples

In the following example, the output of the **show webvpn svc** command indicates that the windows.pkg file has an order number of 1, and the windows2.pkg file has an order number of 15. When a remote computer attempts to establish an SVC connection, the windows.pkg file downloads first. If the file does not match the operating system, the windows2.pkg file downloads:

```
hostname(config-webvpn)# show webvpn svc
1. disk0:/windows.pkg 1
   CISCO STC win2k+ 1.0.0
   1,0,2,132
   Thu 08/25/2005 21:51:30.43
```

```
2. disk0:/windows2.pkg 15
   CISCO STC win2k+ 1.0.0
   1,0,0,164
   Thu 02/17/2005 20:09:22.43
```

```
2 SSL VPN Client(s) installed
```

The user then reorders the SVC archive files using the **svc image** command, with the windows2.pkg file as the first file downloaded to the remote PC, and the windows.pkg file downloaded second:

```
hostname(config-webvpn)# svc image windows2.pkg 10
hostname(config-webvpn)# svc image windows.pkg 20
```

Reentering the **show webvpn svc** command shows the new order of the files.

```
hostname(config-webvpn)# show webvpn svc
1. disk0:/windows2.pkg 10
   CISCO STC win2k+ 1.0.0
   1,0,2,132
   Thu 08/25/2005 21:51:30.43

2. disk0:/windows.pkg 20
   CISCO STC win2k+ 1.0.0
   1,0,0,164
   Thu 02/17/2005 20:09:22.43

2 SSL VPN Client(s) installed
```

#### Related Commands

Command	Description
<b>show webvpn svc</b>	Displays information about the SVC installation.
<b>svc</b>	Enables or requires the SVC for a specific group or user.
<b>svc enable</b>	Enables the security appliance to download the SVC files to remote computers.



# svc keepalive

To configure the frequency which an SVC on a remote computer sends keepalive messages to the security appliance, use the **svc keepalive** command.

Use the **no** form of the command to remove the command from the configuration and cause the value to be inherited:

```
svc keepalive {none | seconds}
no svc keepalive {none | seconds}
```

## Syntax Description

<b>none</b>	Disables SVC keepalive messages.
<i>seconds</i>	Enables the SVC to send keepalive messages, and specifies the frequency of the messages in a range of 15 to 600 seconds.

## Defaults

The default is none (disabled).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
WebVPN Group Policy	•	—	•	—	—
WebVPN Username	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

You can adjust the frequency of keepalive messages (specified by *seconds*), to ensure that an SVC connection through a proxy, firewall, or NAT device remains open, even if the device limits the time that the connection can be idle.

Adjusting the frequency also ensures that the SVC does not disconnect and reconnect when the remote user is not actively running a socket-based application, such as Microsoft Outlook or Microsoft Internet Explorer.

## Examples

In the following example, the user configures the security appliance to enable the SVC to send keepalive messages, with a frequency of 300 seconds (5 minutes), for the existing group policy named Sales:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# svc keepalive 300
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>svc</b>	Enables or requires the SVC for a specific group or user.
<b>svc dpd-interval</b>	Enables Dead Peer Detection (DPD) on the security appliance, and sets the frequency that either the SVC or the security appliance performs DPD.
<b>svc keep-installer</b>	Enables the permanent installation of an SVC onto a remote computer.
<b>svc rekey</b>	Enables the SVC to perform a rekey on an SVC session.

# svc keep-installer

To enable the permanent installation of an SVC onto a remote computer, use the **svc keep-installer** command from group-policy or username webvpn modes.

Use the **no** form of the command to remove the command from the configuration and cause the value to be inherited:

```
svc keep-installer {installed | none}
```

```
no svc keep-installer {installed | none}
```

## Syntax Description

<b>installed</b>	Specifies that the SVC is installed permanently on the remote computer.
<b>none</b>	Specifies that the SVC uninstalls from the remote computer after the active SVC connection terminates.

## Defaults

The default is permanent installation of the SVC is disabled. The SVC uninstalls from the remote computer at the end of the SVC session.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
WebVPN Group Policy	•	—	•	—	—
WebVPN Username	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Examples

In the following example, the user configures the group policy to keep the SVC installed on the remote computer:

```
hostname(config-group-policy)# svc keep-installer installed
hostname(config-group-policy)#
```

## Related Commands

Command	Description
<b>show webvpn svc</b>	Displays information about the SVC installation.
<b>svc</b>	Enables or requires the SVC for a specific group or user.

---

<b>svc enable</b>	Causes the security appliance to download SVC files from flash memory to RAM.
<b>svc image</b>	Specifies the order in which the security appliance downloads SVC files to the remote computer.

---

# svc rekey

To enable the SVC to perform a rekey on an SVC session, use the **svc rekey** command from group-policy and username webvpn modes.

Use the **no** form of the command to remove the command from the configuration and cause the value to be inherited:

```
svc rekey {method {ssl | new-tunnel} | time minutes | none}
```

```
no svc rekey {method {ssl | new-tunnel} | time minutes | none}
```

## Syntax Description

<b>method ssl</b>	Specifies that SSL renegotiation takes place during SVC rekey.
<b>method new-tunnel</b>	Specifies that the SVC establishes a new tunnel during SVC rekey.
<b>time minutes</b>	Specifies the number of minutes from the start of the session until the re-key takes place, from 4 to 10080 (1 week).
<b>method none</b>	Disables SVC rekey.

## Defaults

The default is none (disabled).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
WebVPN Group Policy	•	—	•	—	—
WebVPN Username	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

We recommend that you configure SSL as the rekey method.

## Examples

In the following example, the user configures the SVC to renegotiate with SSL during rekey and configures the rekey to occur 30 minutes after the session begins, for the existing group policy named Sales:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# svc rekey method ssl
hostname(config-group-webvpn)# svc rekey time 30
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>svc</b>	Enables or requires the SVC for a specific group or user.
<b>svc dpd-interval</b>	Enables Dead Peer Detection (DPD) on the security appliance, and sets the frequency that either the SVC or the security appliance performs DPD.
<b>svc keepalive</b>	Specifies the frequency at which an SVC on a remote computer sends keepalive messages to the security appliance.
<b>svc keep-installer</b>	Enables the permanent installation of an SVC onto a remote computer.

# switchport access vlan

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **switchport access vlan** command in interface configuration mode to assign a switch port to a VLAN.

**switchport access vlan** *number*

**no switchport access vlan** *number*

## Syntax Description

**vlan** *number* Specifies the VLAN ID to which you want to assign this switch port. The VLAN ID is between 1 and 1001.

## Defaults

By default, all switch ports are assigned to VLAN 1.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	•	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

In transparent firewall mode, you can configure two active VLANs in the ASA 5505 adaptive security appliance Base license and three active VLANs in the Security Plus license, one of which must be for failover.

In routed mode, you can configure up to three active VLANs in the ASA 5505 adaptive security appliance Base license, and up to 20 active VLANs with the Security Plus license.

An active VLAN is a VLAN with a **nameif** command configured.

You can assign one or more physical interfaces to each VLAN using the **switchport access vlan** command. By default, the VLAN mode of the interface is to be an access port (one VLAN associated with the interface). If you want to create a trunk port to pass multiple VLANs on the interface, use the **switchport mode access trunk** command to change the mode to trunk mode, and then use the **switchport trunk allowed vlan** command.

## Examples

The following example assigns five physical interfaces to three VLAN interfaces:

```
hostname(config-if)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown
```

```

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/2
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/3
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/4
hostname(config-if)# switchport access vlan 300
hostname(config-if)# no shutdown

...

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show running-config interface</b>	Shows the interface configuration in the running configuration.
<b>switchport mode</b>	Sets the VLAN mode to be access or trunk.
<b>switchport protected</b>	Prevents a switch port from communicating with other switch ports on the same VLAN for extra security.
<b>switchport trunk allowed vlan</b>	Assigns VLANs to a trunk port.



# switchport mode

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **switchport mode** command in interface configuration mode to set the VLAN mode to either access (the default) or trunk.

```
switchport mode { access | trunk }
```

```
no switchport mode { access | trunk }
```

## Syntax Description

<b>access</b>	Sets the switch port to access mode, which allows the switch port to pass traffic for only one VLAN. Packets exit the switch port without an 802.1Q VLAN tag. If a packet enters the switch port with a tag, the packet is dropped.
<b>trunk</b>	Sets the switch port to trunk mode, so it can pass traffic for multiple VLANs. Packets exit the switch port with an 802.1Q VLAN tag. If a packet enters the switch port without a tag, the packet is dropped.

## Defaults

By default, the mode is access.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	•	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.
7.2(2)	You can now configure multiple trunk ports, rather than being limited to one trunk.

## Usage Guidelines

By default, the VLAN mode of the switch port is to be an access port (one VLAN associated with the switch port). In access mode, assign a switch port to a VLAN using the **switchport access vlan** command. If you want to create a trunk port to pass multiple VLANs on the switch port, set the mode to trunk mode, and then use the **switchport trunk allowed vlan** command to assign multiple VLANs to the trunk. If you set the mode to trunk mode, and you have not yet configured the **switchport trunk allowed vlan** command, the switch port remains in “line protocol down” state and cannot participate in traffic forwarding. Trunk mode is available only with the Security Plus license.

The **switchport vlan access** command does not take effect unless the mode is set to access mode. The **switchport trunk allowed vlan** command does not take effect unless the mode is set to trunk mode.

**Examples**

The following example configures an access mode switch port assigned to VLAN 100, and a trunk mode switch port assigned to VLANs 200 and 300:

```
hostname(config-if)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport mode trunk
hostname(config-if)# switchport trunk allowed vlan 200,300
hostname(config-if)# no shutdown

...
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show running-config interface</b>	Shows the interface configuration in the running configuration.
<b>switchport access vlan</b>	Assigns the switch port to a VLAN.
<b>switchport protected</b>	Prevents a switch port from communicating with other switch port on the same VLAN for extra security.
<b>switchport trunk allowed vlan</b>	Assigns VLANs to a trunk port.

# switchport protected

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **switchport protected** command in interface configuration mode to prevent the switch port from communicating with other protected switch ports on the same VLAN. This feature provides extra security to the other switch ports on a VLAN if one switch port becomes compromised.

**switchport protected**

**no switchport protected**

**Syntax Description** This command has no arguments or keywords.

**Defaults** By default, the interfaces are not protected.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	•	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** You might want to prevent switch ports from communicating with each other if the devices on those switch ports are primarily accessed from other VLANs, you do not need to allow intra-VLAN access, and you want to isolate the devices from each other in case of infection or other security breach. For example, if you have a DMZ that hosts three web servers, you can isolate the web servers from each other if you apply the **switchport protected** command to each switch port. The inside and outside networks can both communicate with all three web servers, and vice versa, but the web servers cannot communicate with each other.

Communication to and from unprotected ports is not restricted by this command.

**Examples** The following example configures seven switch ports. The Ethernet 0/4, 0/5, and 0/6 are assigned to the DMZ network and are protected from each other.

```
hostname(config)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport access vlan 200
```

## switchport protected

```

hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/2
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/3
hostname(config-if)# switchport access vlan 200
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/4
hostname(config-if)# switchport access vlan 300
hostname(config-if)# switchport protected
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/5
hostname(config-if)# switchport access vlan 300
hostname(config-if)# switchport protected
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/6
hostname(config-if)# switchport access vlan 300
hostname(config-if)# switchport protected
hostname(config-if)# no shutdown

...

```

### Related Commands

Command	Description
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show running-config interface</b>	Shows the interface configuration in the running configuration.
<b>switchport access vlan</b>	Assigns the switch port to a VLAN.
<b>switchport mode</b>	Sets the VLAN mode to be access or trunk.
<b>switchport trunk allowed vlan</b>	Assigns VLANs to a trunk port.

# switchport trunk allowed vlans

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, use the **switchport trunk allowed vlans** command in interface configuration mode to assign VLANs to the trunk port. To remove one or more VLANs from the trunk, use the **no** form of this command.

**switchport trunk allowed vlans** *vlan\_range*

**no switchport trunk allowed vlans** *vlan\_range*

## Syntax Description

<i>vlan_range</i>	Identifies one or more VLANs that you can assign to the trunk port. The VLAN ID is between 1 and 1001.
	The <i>vlan_range</i> can be identified in one of the following ways: <ul style="list-style-type: none"> <li>• A single number (n)</li> <li>• A range (n-x)</li> </ul>
	Separate numbers and ranges by commas, for example: 5,7-10,13,45-100
	You can enter spaces instead of commas, but the command is saved to the configuration with commas.

## Defaults

By default, no VLANs are assigned to the trunk.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Interface configuration	•	•	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.
7.2(2)	This command was modified to allow more than 3 VLANs per switch port. Also, you can now configure multiple trunk ports, instead of being limited to only one. This command also uses commas instead of spaces to separate VLAN IDs.

## Usage Guidelines

If you want to create a trunk port to pass multiple VLANs on the switch port, set the mode to trunk mode, and then use the **switchport trunk allowed vlan** command to assign multiple VLANs to the trunk. This switch port cannot pass traffic until you assign at least one VLAN to it. If you set the mode to trunk

mode, and you have not yet configured the **switchport trunk allowed vlan** command, the switch port remains in “line protocol down” state and cannot participate in traffic forwarding. Trunk mode is available only with the Security Plus license.

The **switchport trunk allowed vlan** command does not take effect unless the mode is set to trunk mode.

Trunk ports do not support untagged packets; there is no native VLAN support, and the security appliance drops all packets that do not contain a tag specified in this command.

If you use the **no switchport trunk allowed vlan** command, you can remove all VLANs or a subset of VLANs from the trunk.

**Note**

This command is not downgrade-compatible to Version 7.2(1); the commas separating the VLANs are not recognized in 7.2(1). If you downgrade, be sure to separate the VLANs with spaces, and do not exceed the 3 VLAN limit.

**Examples**

The following example configures an access mode switch port assigned to VLAN 100, a trunk mode switch port assigned to VLANs 200, 201, and 202, and another trunk mode switch port assigned to VLANs 300, 301, and 305:

```
hostname(config-if)# interface ethernet 0/0
hostname(config-if)# switchport access vlan 100
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/1
hostname(config-if)# switchport mode trunk
hostname(config-if)# switchport trunk allowed vlan 200-202
hostname(config-if)# no shutdown

hostname(config-if)# interface ethernet 0/2
hostname(config-if)# switchport mode trunk
hostname(config-if)# switchport trunk allowed vlan 300,301,305
hostname(config-if)# no shutdown

...
```

**Related Commands**

Command	Description
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show running-config interface</b>	Shows the interface configuration in the running configuration.
<b>switchport access vlan</b>	Assigns the switch port to a VLAN.
<b>switchport mode</b>	Sets the VLAN mode to be access or trunk.
<b>switchport protected</b>	Prevents a switch port from communicating with other switch ports on the same VLAN for extra security.

# syn-data

To allow or drop SYN packets with data, use the **syn-data** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

```
syn-data {allow | drop}
```

```
no syn-data {allow | drop}
```

## Syntax Description

<b>allow</b>	Allows SYN packets that contain data.
<b>drop</b>	Drops SYN packets that contain data.

## Defaults

Packets with SYN data are allowed by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tcp-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **syn-data** command in tcp-map configuration mode to drop packets with data in SYN packets.

According to the TCP specification, TCP implementations are required to accept data contained in a SYN packet. Because this is a subtle and obscure point, some implementations may not handle this correctly. To avoid any vulnerabilities to insertion attacks involving incorrect end-system implementations, you may choose to drop packets with data in SYN packets.

## Examples

The following example shows how to drop SYN packets with data on all TCP flows:

```
hostname(config)# access-list TCP extended permit tcp any any
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# syn-data drop
hostname(config)# class-map cmap
hostname(config-cmap)# match access-list TCP
```

```

hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
hostname(config)#

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class</b>	Specifies a class map to use for traffic classification.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>set connection</b>	Configures connection values.
<b>tcp-map</b>	Creates a TCP map and allows access to tcp-map configuration mode.



## sysopt connection permit-vpn

For traffic that enters the security appliance through a VPN tunnel and is then decrypted, use the **sysopt connection permit-vpn** command in global configuration mode to allow the traffic to bypass interface access lists. Group policy and per-user authorization access lists still apply to the traffic. To disable this feature, use the **no** form of this command.

**sysopt connection permit-vpn**

**no sysopt connection permit-vpn**

### Syntax Description

This command has no arguments or keywords.

### Defaults

This feature is enabled by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

### Command History

Release	Modification
7.0(1)(1)	This command is now enabled by default. Also, only interface access lists are bypassed; group policy or per-user access lists remain in force.
7.1(1)	This command was changed from <b>sysopt connection permit-ipsec</b> .

### Usage Guidelines

By default, the security appliance allows VPN traffic to terminate on a security appliance interface; you do not need to allow IKE or ESP (or other types of VPN packets) in an interface access list. By default, you also do not need an interface access list for local IP addresses of decrypted VPN packets. Because the VPN tunnel was terminated successfully using VPN security mechanisms, this feature simplifies configuration and maximizes the security appliance performance without any security risks. (Group policy and per-user authorization access lists still apply to the traffic.)

You can require an interface access list to apply to the local IP addresses by entering the **no sysopt connection permit-vpn** command. See the **access-list** and **access-group** commands to create an access list and apply it to an interface. The access list applies to the local IP address, and not to the original client IP address used before the VPN packet was decrypted.

### Examples

The following example requires decrypted VPN traffic to comply with interface access lists:

```
hostname(config)# no sysopt connection permit-vpn
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure sysopt</b>	Clears the <b>sysopt</b> command configuration.
<b>show running-config sysopt</b>	Shows the <b>sysopt</b> command configuration.
<b>sysopt connection tcpmss</b>	Overrides the maximum TCP segment size or ensures that the maximum is not less than a specified size.
<b>sysopt connection timewait</b>	Forces each TCP connection to linger in a shortened TIME_WAIT state after the final normal TCP close-down sequence.

## sysopt connection tcpmss

To ensure that the maximum TCP segment size does not exceed the value you set and that the maximum is not less than a specified size, use the **sysopt connection tcpmss** command in global configuration mode. To restore the default setting, use the **no** form of this command.

**sysopt connection tcpmss** [**minimum**] *bytes*

**no sysopt connection tcpmss** [**minimum**] [*bytes*]

### Syntax Description

<i>bytes</i>	Sets the maximum TCP segment size in bytes, between 48 and any maximum number. The default value is 1380 bytes. You can disable this feature by setting <i>bytes</i> to 0.  For the <b>minimum</b> keyword, the <i>bytes</i> represent the smallest maximum value allowed.
<b>minimum</b>	Overrides the maximum segment size to be no less than <i>bytes</i> , between 48 and 65535 bytes. This feature is disabled by default (set to 0).

### Defaults

The default maximum value is 1380 bytes. The minimum feature is disabled by default (set to 0).

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

Both the host and the server can set the maximum segment size when they first establish a connection. If either maximum exceeds the value you set with the **sysopt connection tcpmss** command, then the security appliance overrides the maximum and inserts the value you set. If either maximum is less than the value you set with the **sysopt connection tcpmss minimum** command, then the security appliance overrides the maximum and inserts the “minimum” value you set (the minimum value is actually the smallest maximum allowed). For example, if you set a maximum size of 1200 bytes and a minimum size of 400 bytes, when a host requests a maximum size of 1300 bytes, then the security appliance alters the packet to request 1200 bytes (the maximum). If another host requests a maximum value of 300 bytes, then the security appliance alters the packet to request 400 bytes (the minimum).

The default of 1380 bytes allows room for header information so that the total packet size does not exceed 1500 bytes, which is the default MTU for Ethernet. See the following calculation:

1380 data + 20 TCP + 20 IP + 24 AH + 24 ESP\_CIPHER + 12 ESP\_AUTH + 20 IP = 1500 bytes

If the host or server does not request a maximum segment size, the security appliance assumes that the RFC 793 default value of 536 bytes is in effect.

If you set the maximum size to be greater than 1380, packets might become fragmented, depending on the MTU size (which is 1500 by default). Large numbers of fragments can impact the performance of the security appliance when it uses the Frag Guard feature. Setting the minimum size prevents the TCP server from sending many small TCP data packets to the client and impacting the performance of the server and the network.

**Note**

Although not advised for normal use of this feature, if you encounter the syslog IPFRAG messages 209001 and 209002, you can raise the *bytes* value.

**Examples**

The following example sets the maximum size to 1200 and the minimum to 400:

```
hostname(config)# sysopt connection tcpmss 1200
hostname(config)# sysopt connection tcpmss minimum 400
```

**Related Commands**

Command	Description
<b>clear configure sysopt</b>	Clears the <b>sysopt</b> command configuration.
<b>show running-config sysopt</b>	Shows the <b>sysopt</b> command configuration.
<b>sysopt connection permit-ipsec</b>	Permits any packets that come from an IPsec tunnel without checking any ACLs for interfaces.
<b>sysopt connection timewait</b>	Forces each TCP connection to linger in a shortened TIME_WAIT state after the final normal TCP close-down sequence.

# sysopt connection timewait

To force each TCP connection to linger in a shortened TIME\_WAIT state of at least 15 seconds after the final normal TCP close-down sequence, use the **sysopt connection timewait** command in global configuration mode. To disable this feature, use the **no** form of this command. You might want to use this feature if an end host application default TCP terminating sequence is a simultaneous close.

## sysopt connection timewait

### Syntax Description

This command has no arguments or keywords.

### Defaults

This feature is disabled by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

The default behavior of the security appliance is to track the shutdown sequence and release the connection after two FINs and the ACK of the last FIN segment. This quick release heuristic enables the security appliance to sustain a high connection rate, based on the most common closing sequence, known as the normal close sequence. However, in a simultaneous close, both ends of the transaction initiate the closing sequence, as opposed to the normal close sequence where one end closes and the other end acknowledges prior to initiating its own closing sequence (see RFC 793). Thus, in a simultaneous close, the quick release forces one side of the connection to linger in the CLOSING state. Having many sockets in the CLOSING state can degrade the performance of an end host. For example, some WinSock mainframe clients are known to exhibit this behavior and degrade the performance of the mainframe server. Using the **sysopt connection timewait** command creates a window for the simultaneous close down sequence to complete.

### Examples

The following example enables the timewait feature:

```
hostname(config)# sysopt connection timewait
```

### Related Commands

Command	Description
<b>clear configure sysopt</b>	Clears the <b>sysopt</b> command configuration.
<b>show running-config sysopt</b>	Shows the <b>sysopt</b> command configuration.
<b>sysopt connection permit-ipsec</b>	Permits any packets that come from an IPSec tunnel without checking any ACLs for interfaces.
<b>sysopt connection tcpmss</b>	Overrides the maximum TCP segment size or ensures that the maximum is not less than a specified size.

# sysopt nodnsalias

To disable DNS inspection that alters the DNS A record address when you use the **alias** command, use the **sysopt nodnsalias** command in global configuration mode. To disable this feature, use the **no** form of this command. You might want to disable DNS application inspection if you want the **alias** command to perform only NAT, and DNS packet alteration is undesirable.

```
sysopt nodnsalias {inbound | outbound}
```

```
no sysopt nodnsalias {inbound | outbound}
```

## Syntax Description

<b>inbound</b>	Disables DNS record alteration for packets from lower security interfaces to higher security interfaces specified by an <b>alias</b> command.
<b>outbound</b>	Disables DNS record alteration for packets from higher security interfaces specified by an <b>alias</b> command to lower security interfaces.

## Defaults

This feature is disabled by default (DNS record address alteration is enabled).

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **alias** command performs NAT and DNS A record address alteration. In some cases, you might want to disable the DNS record alteration.

## Examples

The following example disables the DNS address alteration for inbound packets:

```
hostname(config)# sysopt nodnsalias inbound
```

## Related Commands

Command	Description
<b>alias</b>	Translates an outside address and alters the DNS records to accommodate the translation.
<b>clear configure sysopt</b>	Clears the <b>sysopt</b> command configuration.

Command	Description
<code>show running-config sysopt</code>	Shows the <code>sysopt</code> command configuration.
<code>sysopt noproxyarp</code>	Disables proxy ARP on an interface.



# sysopt noproxyarp

To disable proxy ARP for NAT global addresses on an interface, use the **sysopt noproxyarp** command in global configuration mode. To reenable proxy ARP for global addresses, use the **no** form of this command.

```
sysopt noproxyarp interface_name
```

```
no sysopt noproxyarp interface_name
```

## Syntax Description

*interface\_name* The interface name for which you want to disable proxy ARP.

## Defaults

Proxy ARP for global addresses is enabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

In rare circumstances, you might want to disable proxy ARP for global addresses.

When a host sends IP traffic to another device on the same Ethernet network, the host needs to know the MAC address of the device. ARP is a Layer 2 protocol that resolves an IP address to a MAC address. A host sends an ARP request asking “Who is this IP address?” The device owning the IP address replies, “I own that IP address; here is my MAC address.”

Proxy ARP is when a device responds to an ARP request with its own MAC address, even though the device does not own the IP address. The security appliance uses proxy ARP when you configure NAT and specify a global address that is on the same network as the security appliance interface. The only way traffic can reach the hosts is if the security appliance uses proxy ARP to claim that the security appliance MAC address is assigned to destination global addresses.

## Examples

The following example disables proxy ARP on the inside interface:

```
hostname(config)# sysopt noproxyarp inside
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>alias</b>	Translates an outside address and alters the DNS records to accommodate the translation.
<b>clear configure sysopt</b>	Clears the <b>sysopt</b> command configuration.
<b>show running-config sysopt</b>	Shows the <b>sysopt</b> command configuration.
<b>sysopt nodnsalias</b>	Disables alteration of the DNS A record address when you use the <b>alias</b> command.

# sysopt radius ignore-secret

To ignore the authentication key in RADIUS accounting responses, use the **sysopt radius ignore-secret** command in global configuration mode. To disable this feature, use the **no** form of this command. You might need to ignore the key for compatibility with some RADIUS servers.

**sysopt radius ignore-secret**

**no sysopt radius ignore-secret**

## Syntax Description

This command has no arguments or keywords.

## Defaults

This feature is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Some RADIUS servers, such as Livingston Version 1.16, have a usage caveat where they do not include the key in the authenticator hash in the accounting acknowledgment response. This situation can cause the security appliance to continually retransmit the accounting request. Use the **sysopt radius ignore-secret** command to ignore the key in the authenticator of accounting acknowledgments thus avoiding the retransmit problem. (The key described here is the key you set with the **aaa-server host** command.)

## Examples

The following example ignores the authentication key in accounting responses:

```
hostname(config)# sysopt radius ignore-secret
```

## Related Commands

Command	Description
<b>aaa-server host</b>	Identifies a AAA server.

Command	Description
<b>clear configure sysopt</b>	Clears the <b>sysopt</b> command configuration.
<b>show running-config sysopt</b>	Shows the <b>sysopt</b> command configuration.







## **tcp-map through type echo Commands**

---

# tcp-map

To customize inspection on TCP flows, use the **tcp-map** command in global configuration mode. To remove the TCP map specification, use the **no** form of this command.

**tcp-map** *map\_name*

**no tcp-map** *map\_name*

## Syntax Description

<i>map_name</i>	Specifies a TCP map name to use to apply a TCP map in Modular Policy CLI mode.
-----------------	--

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **tcp-map** command is used with the Modular Policy Framework infrastructure to configure advanced TCP connection settings. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. The following commands are available in tcp-map configuration mode:

<b>check-retransmission</b>	Enables and disables the retransmit data checks.
<b>checksum-verification</b>	Enables and disable checksum verification.
<b>exceed-mss</b>	Allows or drops packets that exceed MSS set by peer.
<b>queue-limit</b>	Configures the maximum number of out-of-order packets that can be queued for a TCP connection. This command is only available on the ASA 5500 series adaptive security appliance. On the PIX 500 series security appliance, the queue limit is 3 and cannot be changed.
<b>reserved-bits</b>	Sets the reserved flags policy in the security appliance.
<b>syn-data</b>	Allows or drops SYN packets with data.



<b>tcp-options</b>	Allows or clears the selective-ack, timestamps, or window-scale TCP options.
<b>tll-evasion-protection</b>	Enables or disables the TTL evasion protection offered by the security appliance.
<b>urgent-flag</b>	Allows or clears the URG pointer through the security appliance.
<b>window-variation</b>	Drops a connection that has changed its window size unexpectedly.

### Examples

The following example shows the use of the **tcp-map** command to specify the use of a TCP map named localmap:

```
hostname(config)# access-list http-server permit tcp any host 10.1.1.1
hostname(config)# class-map http-server
hostname(config-cmap)# match access-list http-server
hostname(config-cmap)# exit

hostname(config)# tcp-map localmap

hostname(config)# policy-map global_policy global
hostname(config-pmap)# description This policy map defines a policy concerning connection
to http server.
hostname(config-pmap)# class http-server
hostname(config-pmap-c)# set connection advanced-options localmap
hostname(config-pmap-c)#
```

### Related Commands

Command	Description
<b>class (policy-map)</b>	Specifies a class map to use for traffic classification.
<b>clear configure tcp-map</b>	Clears the TCP map configuration.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>show running-config tcp-map</b>	Displays the information about the TCP map configuration.
<b>tcp-options</b>	Allows or clears the selective-ack, timestamps, or window-scale TCP options.

# tcp-options

To allow or clear the TCP options through the security appliance, use the **tcp-options** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

**tcp-options** {selective-ack | timestamp | window-scale} {allow | clear}

**no tcp-options** {selective-ack | timestamp | window-scale} {allow | clear}

**tcp-options range** lower upper {allow | clear | drop}

**no tcp-options range** lower upper {allow | clear | drop}

## Syntax Description

<b>allow</b>	Allows the TCP options through the TCP normalizer.
<b>clear</b>	Clears the TCP options through the TCP normalizer and allows the packet.
<b>drop</b>	Drops the packet.
<i>lower</i>	Lower bound ranges (6-7) and (9-255).
<b>selective-ack</b>	Sets the selective acknowledgement mechanism (SACK) option. The default is to allow the SACK option.
<b>timestamp</b>	Sets the timestamp option. Clearing the timestamp option will disable PAWS and RTT. The default is to allow the timestamp option.
<i>upper</i>	Upper bound range (6-7) and (9-255).
<b>window-scale</b>	Sets the window scale mechanism option. The default is to allow the window scale mechanism option.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tcp-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **tcp-options** command in tcp-map configuration mode to clear selective-acknowledgement, window-scale, and timestamp TCP options. You can also clear or drop packets with options that are not very well defined.

### Examples

The following example shows how to drop all packets with TCP options in the ranges of 6-7 and 9-255:

```
hostname(config)# access-list TCP extended permit tcp any any
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# tcp-options range 6 7 drop
hostname(config-tcp-map)# tcp-options range 9 255 drop
hostname(config)# class-map cmap
hostname(config-cmap)# match access-list TCP
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
hostname(config)#
```

### Related Commands

Command	Description
<b>class</b>	Specifies a class map to use for traffic classification.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>set connection</b>	Configures connection values.
<b>tcp-map</b>	Creates a TCP map and allows access to tcp-map configuration mode.

# telnet

To add Telnet access to the console and set the idle timeout, use the **telnet** command in global configuration mode. To remove Telnet access from a previously set IP address, use the **no** form of this command.

```
telnet {{hostname | IP_address mask interface_name} | {IPv6_address interface_name} |
  {timeout number}}
```

```
no telnet {{hostname | IP_address mask interface_name} | {IPv6_address interface_name} |
  {timeout number}}
```

## Syntax Description

<i>hostname</i>	Specifies the name of a host that can access the Telnet console of the security appliance.
<i>interface_name</i>	Specifies the name of the network interface to Telnet to.
<i>IP_address</i>	Specifies the IP address of a host or network authorized to log in to the security appliance.
<i>IPv6_address</i>	Specifies the IPv6 address/prefix authorized to log in to the security appliance.
<i>mask</i>	Specifies the netmask associated with the IP address.
<b>timeout number</b>	Number of minutes that a Telnet session can be idle before being closed by the security appliance; valid values are from 1 to 1440 minutes.

## Defaults

By default, Telnet sessions left idle for five minutes are closed by the security appliance.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	The variable <i>IPv6_address</i> was added. The <b>no telnet timeout</b> command was added too.

## Usage Guidelines

The **telnet** command lets you specify which hosts can access the security appliance console with Telnet. You can enable Telnet to the security appliance on all interfaces. However, the security appliance enforces that all Telnet traffic to the outside interface be protected by IPSec. To enable a Telnet session to the outside interface, configure IPSec on the outside interface to include IP traffic that is generated by the security appliance and enable Telnet on the outside interface.

Use the **no telnet** command to remove Telnet access from a previously set IP address. Use the **telnet timeout** command to set the maximum time that a console Telnet session can be idle before being logged off by the security appliance. You cannot use the **no telnet** command with the **telnet timeout** command.

If you enter an IP address, you must also enter a netmask. There is no default netmask. Do not use the subnet mask of the internal network. The *netmask* is only a bit mask for the IP address. To limit access to a single IP address, use 255 in each octet; for example, 255.255.255.255.

If IPSec is operating, you can specify an unsecure interface name, which is typically, the outside interface. At a minimum, you might configure the **crypto map** command to specify an interface name with the **telnet** command.

Use the **passwd** command to set a password for Telnet access to the console. The default is **cisco**. Use the **who** command to view which IP addresses are currently accessing the security appliance console. Use the **kill** command to terminate an active Telnet console session.

If you use the **aaa** command with the **console** keyword, Telnet console access must be authenticated with an authentication server.



#### Note

If you have configured the **aaa** command to require authentication for security appliance Telnet console access and the console login request times out, you can gain access to the security appliance from the serial console by entering the security appliance username and the password that was set with the **enable password** command.

#### Examples

This example shows how to permit hosts 192.168.1.3 and 192.168.1.4 to access the security appliance console through Telnet. In addition, all the hosts on the 192.168.2.0 network are given access.

```
hostname(config)# telnet 192.168.1.3 255.255.255.255 inside
hostname(config)# telnet 192.168.1.4 255.255.255.255 inside
hostname(config)# telnet 192.168.2.0 255.255.255.0 inside
hostname(config)# show running-config telnet
192.168.1.3 255.255.255.255 inside
192.168.1.4 255.255.255.255 inside
192.168.2.0 255.255.255.0 inside
```

This example shows how to change the maximum session idle duration:

```
hostname(config)# telnet timeout 10
hostname(config)# show running-config telnet timeout
telnet timeout 10 minutes
```

This example shows a Telnet console login session (the password does not display when entered):

```
hostname# passwd: cisco

Welcome to the XXX
...
Type help or '?' for a list of available commands.
hostname>
```

You can remove individual entries with the **no telnet** command or all telnet command statements with the **clear configure telnet** command:

```
hostname(config)# no telnet 192.168.1.3 255.255.255.255 inside
hostname(config)# show running-config telnet
192.168.1.4 255.255.255.255 inside
192.168.2.0 255.255.255.0 inside
```

```
hostname(config)# clear configure telnet
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure telnet</b>	Removes a Telnet connection from the configuration.
kill	Terminates a Telnet session.
<b>show running-config telnet</b>	Displays the current list of IP addresses that are authorized to use Telnet connections to the security appliance.
who	Displays active Telnet administration sessions on the security appliance.

# terminal

To allow system log messages to show in the current Telnet session, use the **terminal monitor** command in privileged EXEC mode. To disable system log messages, use the **terminal no monitor** command.

**terminal {monitor | no monitor}**

## Syntax Description

<b>monitor</b>	Enables the display of system log messages on the current Telnet session.
<b>no monitor</b>	Disables the display of system log messages on the current Telnet session.

## Defaults

System log messages are disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

This example shows how to enable logging and then disable logging only in the current session:

```
hostname# terminal monitor
hostname# terminal no monitor
```

## Related Commands

Command	Description
<b>clear configure terminal</b>	Clears the terminal display width setting.
<b>pager</b>	Sets the number of lines to display in a Telnet session before the “---more---” prompt. This command is saved to the configuration.
<b>show running-config terminal</b>	Displays the current terminal settings.
<b>terminal pager</b>	Sets the number of lines to display in a Telnet session before the “---more---” prompt. This command is not saved to the configuration.
<b>terminal width</b>	Sets the terminal display width in global configuration mode.

# terminal pager

To set the number of lines on a page before the “---more---” prompt appears for Telnet sessions, use the **terminal pager** command in privileged EXEC mode.

**terminal pager** [*lines*] *lines*

## Syntax Description

[*lines*] *lines* Sets the number of lines on a page before the “---more---” prompt appears. The default is 24 lines; 0 means no page limit. The range is 0 through 2147483647 lines. The **lines** keyword is optional and the command is the same with or without it.

## Defaults

The default is 24 lines.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command changes the pager line setting only for the current Telnet session. To save a new default pager setting to the configuration, use the **pager** command.

If you Telnet to the admin context, then the pager line setting follows your session when you change to other contexts, even if the **pager** command in a given context has a different setting. To change the current pager setting, enter the **terminal pager** command with a new setting, or you can enter the **pager** command in the current context. In addition to saving a new pager setting to the context configuration, the **pager** command applies the new setting to the current Telnet session.

## Examples

The following example changes the number of lines displayed to 20:

```
hostname# terminal pager 20
```

## Related Commands

Command	Description
<b>clear configure terminal</b>	Clears the terminal display width setting.
<b>pager</b>	Sets the number of lines to display in a Telnet session before the “---more---” prompt. This command is saved to the configuration.



<b>Command</b>	<b>Description</b>
<b>show running-config terminal</b>	Displays the current terminal settings.
<b>terminal</b>	Allows system log messages to display on the Telnet session.
<b>terminal width</b>	Sets the terminal display width in global configuration mode.

# terminal width

To set the width for displaying information during console sessions, use the **terminal width** command in global configuration mode. To disable, use the **no** form of this command.

**terminal width** *columns*

**no terminal width** *columns*

## Syntax Description

*columns* Specifies the terminal width in columns. The default is 80. The range is 40 to 511.

## Defaults

The default display width is 80 columns.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Examples

This example shows how to terminal display width to 100 columns:

```
hostname# terminal width 100
```

## Related Commands

Command	Description
<b>clear configure terminal</b>	Clears the terminal display width setting.
<b>show running-config terminal</b>	Displays the current terminal settings.
<b>terminal</b>	Sets the terminal line parameters in privileged EXEC mode.

## test aaa-server

Use the **test aaa-server** command to check whether the security appliance can authenticate or authorize users with a particular AAA server. Failure to reach the AAA server may be due to incorrect configuration on the security appliance, or the AAA server may be unreachable for other reasons, such as restrictive network configurations or server downtime.

```
test aaa-server {authentication | authorization} server-tag [host server-ip] [username username]
[password password]
```

### Syntax Description

<b>authentication</b>	Specifies that the security appliance should send a test authentication request.
<b>authorization</b>	Specifies that the security appliance should send a test authorization request.
<b>host</b> <i>server-ip</i>	Specifies The IP address of the AAA server.
<b>password</b> <i>password</i>	Specifies the password for the username given. The <b>password</b> argument is available only for authentication tests. Make sure the password is correct for the username entered; otherwise, the authentication test will fail.
<i>server-tag</i>	Specifies the symbolic name of the server group, as defined by the <b>aaa-server protocol</b> command.
<b>username</b> <i>username</i>	Specifies the username of the account used to test the AAA server settings. Make sure the username exists on the AAA server; otherwise, the test will fail.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
7.0(4)	This command was introduced.

### Usage Guidelines

The **test aaa-server** command enables you to verify that the security appliance can authenticate and authorize users with a particular AAA server. Using this command simplifies verification of the configuration on the security appliance by removing the necessity of testing with a real supplicant. It also helps you isolate whether authentication and authorization failures are due to misconfiguration of AAA server parameters, a connection problem to the AAA server, or other configuration errors on the security appliance.

When you enter the command, you can omit the **host** and **password** keyword and argument pairs. The security appliance will prompt you for their values. If you are performing an authentication test, you can also omit the **password** keyword and argument pair and provide the password when the security appliance prompts you.

### Examples

The following example configures a RADIUS AAA server named `svrgrp1` on host 192.168.3.4, sets a timeout of 9 seconds, sets a retry-interval of 7 seconds, and configures authentication port 1650. The **test aaa-server** command following the setup of the AAA server parameters indicates that the authentication test failed to reach the server.

```
hostname(config)# aaa-server svrgrp1 protocol radius
hostname(config-aaa-server-group)# aaa-server svrgrp1 host 192.168.3.4
hostname(config-aaa-server-host)# timeout 9
hostname(config-aaa-server-host)# retry-interval 7
hostname(config-aaa-server-host)# authentication-port 1650
hostname(config-aaa-server-host)# exit
hostname(config)# test aaa-server authentication svrgrp1
Server IP Address or name: 192.168.3.4
Username: bogus
Password: *****
INFO: Attempting Authentication test to IP address <192.168.3.4> (timeout: 10 seconds)
ERROR: Authentication Server not responding: No error
```

### Related Commands

Command	Description
<b>aaa-server host</b>	Specifies parameters for a specific AAA server.
<b>show running-config aaa-server</b>	Displays AAA server statistics for all AAA servers, for a particular server group, for a particular server within a particular group, or for a particular protocol.

# test regex

To test a regular expression, use the **test regex** command in privileged EXEC mode.

```
test regex input_text regular_expression
```

## Syntax Description

<i>input_text</i>	Specifies the text that you want to match with the regular expression.
<i>regular_expression</i>	Specifies the regular expression up to 100 characters in length. See the <b>regex</b> command for a list of metacharacters you can use in the regular expression.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **test regex** command tests a regular expression to make sure it matches what you think it will match. If the regular expression matches the input text, you see the following message:

```
INFO: Regular expression match succeeded.
```

If the regular expression does not match the input text, you see the following message:

```
INFO: Regular expression match failed.
```

## Examples

The following example tests input text against a regular expression:

```
hostname# test regex farscape scape  
INFO: Regular expression match succeeded.
```

```
hostname# test regex farscape scaper  
INFO: Regular expression match failed.
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a policy map by associating the traffic class with one or more actions.
<b>policy-map type inspect</b>	Defines special actions for application inspection.
<b>class-map type regex</b>	Creates a regular expression class map.
<b>regex</b>	Creates a regular expression.

## test sso-server

To test an SSO server with a trial authentication request, use the **test sso-server** command in privileged EXEC mode. This is an SSO with CA SiteMinder command.

```
test sso-server server-name username user-name
```

### Syntax Description

<i>server-name</i>	Specifies the name of the SSO server being tested.
<i>user-name</i>	Specifies the name of a user on the SSO server being tested.

### Defaults

No default values or behavior.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	—	•	—	—

### Command History

Release	Modification
7.1(1)	This command was introduced.

### Usage Guidelines

Single sign-on support, available only for WebVPN, lets users access different secure services on different servers without reentering a username and password more than once. The **test sso-server** command tests whether an SSO server is recognized and responding to authentication requests.

If the SSO server specified by the *server-name* argument is not found, the following error appears:

```
ERROR: sso-server server-name does not exist
```

If the SSO server is found but the user specified by the *user-name* argument is not found, the authentication is rejected.

### Examples

The following example, entered in privileged EXEC mode, successfully tests an SSO server named my-sso-server using a username of Anyuser:

```
hostname# test sso-server my-sso-server username Anyuser
INFO: Attempting authentication request to sso-server my-sso-server for user Anyuser
INFO: STATUS: Success
hostname#
```

The following example shows a test of the same server, but the user Anyuser is not recognized and the authentication fails:

```
hostname# test sso-server my-sso-server username Anyuser
INFO: Attempting authentication request to sso-server my-sso-server for user Anyuser
```

test sso-server

```
INFO: STATUS: Failed
hostname#
```

Related Commands	Command	Description
	<b>max-retry-attempts</b>	Configures the number of times the security appliance retries a failed SSO authentication attempt.
	<b>policy-server-secret</b>	Creates a secret key used to encrypt authentication requests to an SSO server.
	<b>request-timeout</b>	Specifies the number of seconds before a failed SSO authentication attempt times out.
	<b>show webvpn sso-server</b>	Displays the operating statistics for an SSO server.
	<b>sso-server</b>	Creates a single sign-on server.
	<b>web-agent-url</b>	Specifies the SSO server URL to which the security appliance makes SSO authentication requests.



# text-color

To set a color for text in the WebVPN title bar on the login, home page, and file access page, use the **text-color** command in webvpn mode. To remove a text color from the configuration and reset the default, use the no form of this command.

**text-color** [*black | white | auto*]

**no text-color**

## Syntax Description

auto	Chooses black or white based on the settings for the secondary-color command. That is, if the secondary color is black, this value is white.
black	The default text color for title bars is white.
white	You can change the color to black.

## Defaults

The default text color for the title bars is white.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Examples

The following example shows how to set the text color for title bars to black:

```
hostname(config)# webvpn
hostname(config-webvpn)# text-color black
```

## Related Commands

Command	Description
<b>secondary-text-color</b>	Sets the secondary text color for the WebVPN login, home page, and file access page.

# tftp-server

To specify the default TFTP server and path and filename for use with **configure net** or **write net** commands, use the **tftp-server** command in global configuration mode. To remove the server configuration, use the **no** form of this command. This command supports IPv4 and IPv6 addresses.

**tftp-server** *interface\_name* *server* *filename*

**no tftp-server** [*interface\_name* *server* *filename*]

## Syntax Description

<i>interface_name</i>	Specifies the gateway interface name. If you specify an interface other than the highest security interface, a warning message informs you that the interface is unsecure.
<i>server</i>	Sets the TFTP server IP address or name. You can enter an IPv4 or IPv6 address.
<i>filename</i>	Specifies the path and filename.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	The gateway interface is now required.

## Usage Guidelines

The **tftp-server** command simplifies entering the **configure net** and **write net** commands. When you enter the **configure net** or **write net** commands, you can either inherit the TFTP server specified by the **tftp-server** command, or provide your own value. You can also inherit the path in the **tftp-server** command as is, add a path and filename to the end of the **tftp-server** command value, or override the **tftp-server** command value.

The security appliance supports only one **tftp-server** command.

## Examples

This example shows how to specify a TFTP server and then read the configuration from the `/temp/config/test_config` directory:

```
hostname(config)# tftp-server inside 10.1.1.42 /temp/config/test_config
hostname(config)# configure net
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>configure net</b>	Loads the configuration from the TFTP server and path you specify.
<b>show running-config tftp-server</b>	Displays the default TFTP server address and the directory of the configuration file.

# threshold

To set the threshold value for over threshold events in SLA monitoring operations, use the **threshold** command in SLA monitor configuration mode. To restore the default value, use the **no** form of this command.

**threshold** *milliseconds*

**no threshold**

<b>Syntax Description</b>	<i>milliseconds</i>	Specifies the number of milliseconds for a rising threshold to be declared. Valid values are from 0 to 2147483647. This value should not be larger than the value set for the timeout.
---------------------------	---------------------	--

**Defaults** The default threshold is 5000 milliseconds.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
SLA monitor configuration	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** The threshold value is only used to indicate over threshold events, which do not affect reachability but may be used to evaluate the proper settings for the **timeout** command.

**Examples** The following example configures an SLA operation with an ID of 123 and creates a tracking entry with the ID of 1 to track the reachability of the SLA. The frequency of the SLA operation is set to 10 seconds, the threshold to 2500 milliseconds, and the timeout value us set to 4000 milliseconds.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# threshold 2500
hostname(config-sla-monitor-echo)# timeout 4000
hostname(config-sla-monitor-echo)# frequency 10
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>sla monitor</b>	Defines an SLA monitoring operation.
<b>timeout</b>	Defines the amount of time the SLA operation waits for a response.


# timeout

To set the maximum idle time duration, use the **timeout** command in global configuration mode.

```
timeout {xlate | conn | udp | icmp | rpc | h225 | h323 | mgcp | mgcp-pat | sip | sip_media}
        hh:mm:ss
```

```
timeout uauth hh:mm:ss [absolute | inactivity]
```

## Syntax Description

<b>absolute</b>	(Optional) Requires an unconditional reauthentication after the timeout expires.
<b>conn</b>	(Optional) Specifies the idle time after which a connection closes; the minimum duration is five minutes.
<i>hh:mm:ss</i>	Specifies the timeout.
<b>h225</b> <i>hh:mm:ss</i>	(Optional) Specifies the idle time after which an H.225 signaling connection closes.
<b>h323</b>	(Optional) Specifies the idle time after which H.245 (TCP) and H.323 (UDP) media connections close. The default is five minutes.
	
<b>Note</b>	Because the same connection flag is set on both H.245 and H.323 media connections, the H.245 (TCP) connection shares the idle timeout with the H.323 (RTP and RTCP) media connection.
<b>half-closed</b>	(Optional) Specifies the idle time after which a TCP half-closed connection will be freed.
<b>icmp</b>	(Optional) Specifies the idle time for ICMP.
<b>inactivity</b>	(Optional) Requires reauthentication after the inactivity timeout expires.
<b>mgcp</b> <i>hh:mm:ss</i>	(Optional) Sets the idle time after which an MGCP media connection is removed.
<b>mgcp-pat</b> <i>hh:mm:ss</i>	(Optional) Sets the absolute interval after which an MGCP PAT translation is removed.
<b>rpc</b>	(Optional) Specifies the idle time until an RPC slot is freed; the minimum duration is one minute.
<b>sip</b>	(Optional) Modifies the SIP timer.
<b>sip_media</b>	(Optional) Modifies the SIP media timer, which is used for SIP RTP/RTCP with SIP UDP media packets, instead of the UDP inactivity timeout.
<b>sunrpc</b>	(Optional) Specifies the idle time after which a SUNRPC slot will be closed.
<b>uauth</b>	(Optional) Sets the duration before the authentication and authorization cache times out and the user has to reauthenticate the next connection.
<b>udp</b>	(Optional) Specifies the idle time until a UDP slot is freed; the minimum duration is one minute.
<b>xlate</b>	(Optional) Specifies the idle time until a translation slot is freed; the minimum value is one minute.

## Defaults

The defaults are as follows:

- **conn** *hh:mm:ss* is 1 hour (**01:00:00**).
- **h225** *hh:mm:ss* is 1 hour (**01:00:00**).
- **h323** *hh:mm:ss* is 5 minutes (**00:05:00**).
- **half-closed** *hh:mm:ss* is 10 minutes (**00:10:00**).
- **icmp** *hh:mm:ss* is 2 minutes (**00:00:02**).
- **mgcp** *hh:mm:ss* is 5 minutes (**00:05:00**).
- **mgcp-pat** *hh:mm:ss* is 5 minutes (**00:05:00**).
- **rpc** *hh:mm:ss* is 10 minutes (**00:10:00**).
- **sip** *hh:mm:ss* is 30 minutes (**00:30:00**).
- **sip\_media** *hh:mm:ss* is 2 minutes (**00:02:00**).
- **sunrpc** *hh:mm:ss* is 10 minutes (**00:10:00**).
- **uauth** *hh:mm:ss* is 5 minutes (**00:5:00**) **absolute**.
- **udp** *hh:mm:ss* is 2 minutes (**00:02:00**).
- **xlite** *hh:mm:ss* is 3 hours (**03:00:00**).

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration mode	•	•	•	•	—

### Command History

Release	Modification
7.2(1)	The keyword <b>mgcp-pat</b> was added.

### Usage Guidelines

The **timeout** command lets you set the idle time for connection, translation UDP, and RPC slots. If the slot has not been used for the idle time specified, the resource is returned to the free pool. TCP connection slots are freed approximately 60 seconds after a normal connection close sequence.



#### Note

Do not use the **timeout uauth 0:0:0** command if passive FTP is used for the connection or if the **virtual** command is used for web authentication.

You can enter multiple keywords and values after the **timeout** command.

The connection timer takes precedence over the translation timer; the translation timer works only after all connections have timed out.

When setting the **conn** *hh:mm:ss*, use **0:0:0** to never time out a connection.

When setting the **half-closed** *hh:mm:ss*, use **0:0:0** to never time out a half-closed connection.

When setting the **h255** *hh:mm:ss*, **h225 00:00:00** means to never tear down an H.225 signaling connection. A timeout value of **h225 00:00:01** disables the timer and closes the TCP connection immediately after all calls are cleared.

The **uauth** *hh:mm:ss* duration must be shorter than the **xlate** keyword. Set to **0** to disable caching. Do not set to zero if passive FTP is used on the connections.

To disable the **absolute** keyword, set the uauth timer to 0 (zero).

---

### Examples

The following example shows how to configure the maximum idle time durations:

```
hostname(config)# timeout uauth 0:5:00 absolute uauth 0:4:00 inactivity
hostname(config)# show running-config timeout
timeout xlate 3:00:00
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 rpc 0:10:00 h323 0:05:00
sip 0:30:00 sip_media 0:02:00
timeout uauth 0:05:00 absolute uauth 0:04:00 inactivity
```

---

### Related Commands

Command	Description
<b>show running-config</b>	Displays the timeout value of the designated protocol.
<b>timeout</b>	



## timeout (aaa-server host)

To configure the host-specific maximum response time, in seconds, allowed before giving up on establishing a connection with the AAA server, use the **timeout** command in aaa-server host mode. To remove the timeout value and reset the timeout to the default value of 10 seconds, use the **no** form of this command.

**timeout** *seconds*

**no timeout**

### Syntax Description

*seconds* Specifies the timeout interval (1-60 seconds) for the request. This is the time after which the security appliance gives up on the request to the primary AAA server. If there is a standby AAA server, the security appliance sends the request to the backup server.

### Defaults

The default timeout value is 10 seconds.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
aaa-server host configuration	•	•	•	•	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

This command is valid for all AAA server protocol types.

Use the **timeout** command to specify the length of time during which the security appliance attempts to make a connection to a AAA server. Use the **retry-interval** command to specify the amount of time the security appliance waits between connection attempts.

The timeout is the total amount of time that the security appliance spends trying to complete a transaction with a server. The retry interval determines how often the communication is retried during the timeout period. Thus, if the retry interval is greater than or equal to the timeout value, you will see no retries. If you want to see retries, the retry interval must be less than the timeout value.

### Examples

The following example configures a RADIUS AAA server named “svrgrp1” on host 1.2.3.4 to use a timeout value of 30 seconds, with a retry interval of 10 seconds. Thus, the security appliance tries the communication attempt three times before giving up after 30 seconds.

```
hostname(config)# aaa-server svrgrp1 protocol radius
```

## ■ timeout (aaa-server host)

```

hostname(config-aaa-server-group)# aaa-server svrgrp1 host 1.2.3.4
hostname(config-aaa-server-host)# timeout 30
hostname(config-aaa-server-host)# retry-interval 10
hostname(config-aaa-server-host)#

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>aaa-server host</b>	Enters aaa server host configuration mode so you can configure AAA server parameters that are host specific.
<b>clear configure aaa-server</b>	Removes all AAA command statements from the configuration.
<b>show running-config aaa</b>	Displays the current AAA configuration values.

## timeout (dns-server-group configuration mode)

To specify the amount of time to wait before trying the next DNS server, use the **timeout** command in dns-server-group configuration mode. To restore the default timeout, use the **no** form of this command.

**timeout** *seconds*

**no timeout** [*seconds*]

### Syntax Description

*seconds* Specifies the timeout in seconds between 1 and 30. The default is 2 seconds. Each time the security appliance retries the list of servers, this timeout doubles. Use the **retries** command in dns-server-group configuration mode to configure the number of retries.

### Defaults

The default timeout is 2 seconds.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

### Command History

Release	Modification
7.1	This command was introduced.

### Examples

The following example sets the timeout to 1 second for the DNS server group “dnsgroup1”:

```
hostname(config)# dns server-group dnsgroup1
hostname(config-dns-server-group)# dns timeout 1
```

### Related Commands

Command	Description
<b>clear configure dns</b>	Removes all user-created DNS server-groups and resets the default server group’s attributes to the default values.
<b>domain-name</b>	Sets the default domain name.
<b>retries</b>	Specifies the number of times to retry the list of DNS servers when the security appliance does not receive a response.
<b>show running-config dns server-group</b>	Shows the current running DNS server-group configuration.

## timeout (gtp-map)

To change the inactivity timers for a GTP session, use the **timeout** command in GTP map configuration mode, which is accessed by using the **gtp-map** command. Use the **no** form of this command to set these intervals to their default values.

```
timeout { gsn | pdp-context | request | signaling | t3-response | tunnel } hh:mm:ss
```

```
no timeout { gsn | pdp-context | request | signaling | t3-response | tunnel } hh:mm:ss
```

### Syntax Description

<i>hh:mm:ss</i>	This is the timeout where <i>hh</i> specifies the hour, <i>mm</i> specifies the minutes, <i>ss</i> specifies the seconds, and a colon ( : ) separates these three components. The value 0 means never tear down immediately.
<b>gsn</b>	Specifies the period of inactivity after which a GSN will be removed.
<b>pdp-context</b>	Specifies the maximum period of time allowed before beginning to receive the PDP context.
<b>request</b>	Specifies the the maximum period of time allowed before beginning to receive the GTP message.
<b>signaling</b>	Specifies the period of inactivity after which the GTP signaling will be removed.
<b>t3-response</b>	Specifies the maximum wait time for a response before a GTP connection is removed.
<b>tunnel</b>	Specifies the period of inactivity after which the GTP tunnel will be torn down.

### Defaults

The default is 30 minutes for **gsn**, **pdp-context**, and **signaling**.

The default for **request** is 1 minute.

The default for **tunnel** is 1 hour (in the case where a Delete PDP Context Request is not received).

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
GTP map configuration	•	•	•	•	No

### Command History

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

The Packet Data Protocol (PDP) context is identified by the Tunnel Identifier (TID), which is a combination of IMSI and NSAPI. Each MS can have up to 15 NSAPIs, allowing it to create multiple PDP contexts each with a different NSAPI, based on application requirements for varied QoS levels.

A GTP tunnel is defined by two associated PDP Contexts in different GSN nodes and is identified with a Tunnel ID. A GTP tunnel is necessary to forward packets between an external packet data network and a mobile station user.

**Examples**

The following example sets a timeout value for the request queue of 2 minutes:

```
hostname(config)# gtp-map gtp-policy
hostname(config-gtpmap)# timeout request 00:02:00
```

**Related Commands**

Commands	Description
<b>clear service-policy inspect gtp</b>	Clears global GTP statistics.
<b>debug gtp</b>	Displays detailed information about GTP inspection.
<b>gtp-map</b>	Defines a GTP map and enables GTP map configuration mode.
<b>inspect gtp</b>	Applies a specific GTP map to use for application inspection.
<b>show service-policy inspect gtp</b>	Displays the GTP configuration.

# timeout (radius-accounting)

To change the inactivity timers for RADIUS accounting users, use the **timeout** command in radius-accounting parameter configuration mode, which is accessed by using the **inspect radius-accounting** command. Use the **no** form of this command to set these intervals to their default values.

**timeout users** *hh:mm:ss*

**no timeout users** *hh:mm:ss*

<b>Syntax Description</b>	<i>hh:mm:ss</i>	This is the timeout where <i>hh</i> specifies the hour, <i>mm</i> specifies the minutes, <i>ss</i> specifies the seconds, and a colon ( : ) separates these three components. The value 0 means never tear down immediately. The default is one hour.
	<b>users</b>	Specifies the timeout for users.

**Defaults** The default timeout for users is one hour.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
radius-accounting parameter configuration	•	•	•	•	No

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Examples** The following example sets a timeout value for the user of ten minutes:

```
hostname(config)# policy-map type inspect radius-accounting ra
hostname(config-pmap)# parameters
hostname(config-pmap-p)# timeout user 00:10:00
```

Related Commands	Commands	Description
	<b>inspect radius-accounting</b>	Sets inspection for RADIUS accounting.
	<b>parameters</b>	Sets parameters for an inspection policy map.

## timeout (sla monitor)

To set the amount of time the SLA operation waits for a response to the request packets, use the **timeout** command in SLA monitor protocol configuration mode. To restore the default value, use the **no** form of this command.

**timeout** *milliseconds*

**no timeout**

### Syntax Description

*metric* 0 to 604800000.

### Defaults

The default timeout value is 5000 milliseconds.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
SLA monitor protocol configuration	•	—	•	—	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

Use the **frequency** command to set how often the SLA operation sends out the request packets and the **timeout** command to set how long the SLA operation waits to receive a response to those requests. The values specified for the **timeout** command cannot be greater than the value specified for the **frequency** command.

### Examples

The following example configures an SLA operation with an ID of 123 and creates a tracking entry with the ID of 1 to track the reachability of the SLA. The frequency of the SLA operation is set to 10 seconds, the threshold to 2500 milliseconds, and the timeout value us set to 4000 milliseconds.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# threshold 2500
hostname(config-sla-monitor-echo)# timeout 4000
hostname(config-sla-monitor-echo)# frequency 10
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```

■ timeout (sla monitor)

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>frequency</b>	Specifies the rate at which the SLA operation repeats.
<b>sla monitor</b>	Defines an SLA monitoring operation.



# timeout pinhole

To configure the timeout for DCERPC pinholes and override the global system pinhole timeout of two minutes, use the **timeout pinhole** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

**timeout pinhole** *hh:mm:ss*

**no timeout pinhole**

## Syntax Description

*hh:mm:ss* The timeout for pinhole connections. Value is between 0:0:1 and 1193:0:0.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to configure the pinhole timeout for pin hole connections in a DCERPC inspection policy map:

```
hostname(config)# policy-map type inspect dcerpc dcerpc_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# timeout pinhole 0:10:00
```

## Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# time-range

To enter time-range configuration mode and define a time range that you can attach to traffic rules, or an action, use the **time-range** command in global configuration mode. To disable, use the **no** form of this command.

**time-range** *name*

**no time-range** *name*

## Syntax Description

*name* Name of the time range. The name must be 64 characters or less.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Creating a time range does not restrict access to the device. The **time-range** command defines the time range only. After a time range is defined, you can attach it to traffic rules or an action.

To implement a time-based ACL, use the **time-range** command to define specific times of the day and week. Then use the with the **access-list extended time-range** command to bind the time range to an ACL.

The time range relies on the system clock of the security appliance; however, the feature works best with NTP synchronization.

## Examples

The following example creates a time range named “New\_York\_Minute” and enters time range configuration mode:

```
hostname(config)# time-range New_York_Minute
hostname(config-time-range)#
```

After you have created a time range and entered time-range configuration mode, you can define time range parameters with the **absolute** and **periodic** commands. To restore default settings for the **time-range** command **absolute** and **periodic** keywords, use the **default** command in time-range configuration mode.

To implement a time-based ACL, use the **time-range** command to define specific times of the day and week. Then use the with the **access-list extended** command to bind the time range to an ACL. The following example binds an ACL named “Sales” to a time range named “New\_York\_Minute”:

```
hostname(config)# access-list Sales line 1 extended deny tcp host 209.165.200.225 host
209.165.201.1 time-range New_York_Minute
hostname(config)#
```

See the **access-list extended** command for more information about ACLs.

#### Related Commands

Command	Description
<b>absolute</b>	Defines an absolute time when a time range is in effect.
<b>access-list extended</b>	Configures a policy for permitting or denying IP traffic through the security appliance.
<b>default</b>	Restores default settings for the <b>time-range</b> command <b>absolute</b> and <b>periodic</b> keywords.
<b>periodic</b>	Specifies a recurring (weekly) time range for functions that support the time-range feature.

# timers spf

To specify the shortest path first (SPF) calculation delay and hold time, use the **timers spf** command in router configuration mode. To restore the default values, use the **no** form of this command.

**timers spf** *delay holdtime*

**no timers spf** [*delay holdtime*]

## Syntax Description

<i>delay</i>	Specifies the delay time between when OSPF receives a topology change and when it starts a shortest path first (SPF) calculation in seconds, from 1 to 65535.
<i>holdtime</i>	The hold time between two consecutive SPF calculations in seconds; valid values are from 1 to 65535.

## Defaults

The defaults are as follows:

- *delay* is 5 seconds.
- *holdtime* is 10 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

To configure the delay time between when the OSPF protocol receives a topology change and when it starts a calculation, and the hold time between two consecutive SPF calculations, use the **timers spf** command. To return to the default timer values, use the **no timers spf** command.

## Examples

The following example sets the SPF calculation delay to 10 seconds and the SPF calculation hold time to 20 seconds:

```
hostname(config-router)# timers spf 10 20
hostname(config-router)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>router ospf</b>	Enters router configuration mode.
<b>show ospf</b>	Displays general information about the OSPF routing processes.
<b>timers lsa-group-pacing</b>	Specifies the interval at which OSPF link-state advertisements (LSAs) are collected and refreshed, checksummed, or aged.

# title

To customize the title of the WebVPN page displayed to WebVPN users when they connect to the security appliance, use the **title** command from webvpn customization mode:

**title** {**text** | **style**} *value*

[**no**] **title** {**text** | **style**} *value*

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>text</b>	Specifies you are changing the text.
<b>style</b>	Specifies you are changing the style.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default title text is “WebVPN Service”.

The default title style is:

```
background-color:white;color:maroon;border-bottom:5px groove #669999;font-size:larger;
vertical-align:middle;text-align:left;font-weight:bold
```

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

To have no title, use the **title text** command without a *value* argument.

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.

- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

In the following example, the title is customized with the text “Cisco WebVPN Service”:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# title text Cisco WebVPN Service
```

**Related Commands**

Command	Description
<b>logo</b>	Customizes the logo on the WebVPN page.
<b>page style</b>	Customizes the WebVPN page using Cascading Style Sheet (CSS) parameters.

# tos

To define a type of service byte in the IP header of an SLA operation request packet, use the **tos** command in SLA monitor protocol configuration mode. To restore the default value, use the **no** form of this command.

**tos** *number*

**no tos**

## Syntax Description

*number* The service type value to be used in the IP header. Valid values are from 0 to 255.

## Defaults

The default type of service value is 0.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
SLA monitor protocol configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This field contains information such as delay, precedence, reliability, and so on. This is can be used by other routers on the network for policy routing and features such as Committed Access Rate.

## Examples

The following example configures an SLA operation with an ID of 123 that uses an ICMP echo request/response time probe operation. It sets the payload size of the echo request packets to 48 bytes, the number of echo requests sent during an SLA operation to 5, and the type of service byte to 80.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# num-packets 5
hostname(config-sla-monitor-echo)# request-data-size 48
hostname(config-sla-monitor-echo)# tos 80
hostname(config-sla-monitor-echo)# timeout 4000
hostname(config-sla-monitor-echo)# threshold 2500
hostname(config-sla-monitor-echo)# frequency 10
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>num-packets</b>	Specifies the number of request packets to send during an SLA operation.
<b>request-data-size</b>	Specifies the size of the request packet payload.
<b>sla monitor</b>	Defines an SLA monitoring operation.
<b>type echo</b>	Configures the SLA operation as an echo response time probe operation.

# tracert

To determine the route packets will take to their destination, use the **tracert** command.

```
tracert destination_ip | hostname [source source_ip | source-interface] [numeric] [timeout
timeout_value] [probe probe_num] [tll min_ttl max_ttl] [port port_value] [use-icmp]
```

## Syntax Description

<i>destination_ip</i>	Specifies the destination IP address for the tracert.
<i>hostname</i>	The hostname of the host to which the route has to be traced. If the hostname is specified, define it with the <b>name</b> command, or configure a DNS server to enable tracert to resolve the hostname to an IP address. Supports DNS domain names such as www.example.com.
<b>source</b>	Specifies an IP address or interface is used as the source for the trace packets.
<i>source_ip</i>	Specifies the source IP address for the packet trace. This IP address must be the IP address of one of the interfaces. In transparent mode, it must be the management IP address of the security appliance.
<i>source_interface</i>	Specifies the source interface for the packet trace. When specified, the IP address of the source interface is used.
<b>numeric</b>	Specifies the output print only the IP addresses of the intermediate gateways. If this keyword is not specified the tracert attempts to look up the hostnames of the gateways reached during the trace.
<b>timeout</b>	Specifies a timeout value is used
<i>timeout_value</i>	Specifies the amount of time in seconds to wait for a response before the connection times out. The default is three seconds.
<b>probe</b> <i>probe_num</i>	The number of probes to be sent at each TTL level. The default count is 3.
<b>tll</b>	Keyword to specify the range of Time To Live values to use in the probes.
<i>min_ttl</i>	The TTL value for the first probes. The default is 1, but it can be set to a higher value to suppress the display of known hops.
<i>max-ttl</i>	The largest TTL value that can be used. The default is 30. The command terminates when the tracert packet reaches the destination or when the value is reached.
<b>port</b> <i>port_value</i>	The destination port used by the User Datagram Protocol (UDP) probe messages. The default is 33434.
<b>use-icmp</b>	Specifies the use of ICMP probe packets instead of UDP probe packets.

## Defaults

This command has no default settings.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged mode	•	•	•	•	•

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Usage Guidelines**

The traceroute command prints the result of each probe sent. Every line of output corresponds to a TTL value in increasing order. The following are the output symbols printed by the traceroute command:

Output Symbol	Description
*	No response was received for the probe within the timeout period.
<i>nn</i> msec	For each node, the round-trip time (in milliseconds) for the specified number of probes.
!N.	ICMP network unreachable.
!H	ICMP host unreachable.
!P	ICMP protocol unreachable.
!A	ICMP administratively prohibited.
?	Unknown ICMP error.

**Examples**

The following example shows traceroute output that results when a destination IP address has been specified:

```
hostname# traceroute 209.165.200.225

Tracing the route to 209.165.200.225

 0  10.83.194.1 0 msec 10 msec 0 msec
 1  10.83.193.65 0 msec 0 msec 0 msec
 2  10.88.193.101 0 msec 10 msec 0 msec
 3  10.88.193.97 0 msec 0 msec 10 msec
 4  10.88.239.9 0 msec 10 msec 0 msec
 5  10.88.238.65 10 msec 10 msec 0 msec
 6  172.16.7.221 70 msec 70 msec 80 msec
 7  209.165.200.225 70 msec 70 msec 70 msec
```

**Related Commands**

Command	Description
<b>capture</b>	Captures packet information, including trace packets.
<b>show capture</b>	Displays the capture configuration when no options are specified.
<b>packet-tracer</b>	Enables packet tracing capabilities.

# track rtr

To track the reachability of an SLA operation, use the **track rtr** command in global configuration mode. To remove the SLA tracking, use the **no** form of this command.

**track** *track-id* **rtr** *sla-id* **reachability**

**no track** *track-id* **rtr** *sla-id* **reachability**

## Syntax Description

<b>reachability</b>	Specifies that the reachability of the object is being tracked.
<i>sla-id</i>	The ID of the SLA used by the tracking entry.
<i>track-id</i>	Creates a tracking entry object ID. Valid values are from 1 to 500.

## Defaults

SLA tracking is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **track rtr** command creates a tracking entry object ID and specifies the SLA used by that tracking entry.

Every SLA operation maintains an operation return-code value, which is interpreted by the tracking process. The return code may be OK, Over Threshold, or several other return codes. Table 32-1 displays the reachability state of an object with respect to these return codes.

**Table 32-1** SLA Tracking Return Codes

Tracking	Return Code	Track State
Reachability	OK or Over Threshold	Up
	Any other code	Down

## Examples

The following example configures an SLA operation with an ID of 123 and creates a tracking entry with the ID of 1 to track the reachability of the SLA:

```
hostname(config)# sla monitor 123
```

```
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# timeout 1000
hostname(config-sla-monitor-echo)# frequency 3
hostname(config)# sla monitor schedule 123 life forever start-time now
hostname(config)# track 1 rtr 123 reachability
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>route</b>	Configures a static route.
<b>sla monitor</b>	Defines an SLA monitoring operation.

# traffic-non-sip

To allow non-SIP traffic using the well-known SIP signaling port, use the **traffic-non-sip** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

**traffic-non-sip**

**no traffic-non-sip**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command is disabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Parameters configuration	•	•	•	•	—

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Examples** The following example shows how to allow non-SIP traffic using the well-known SIP signaling port in a SIP inspection policy map:

```
hostname(config)# policy-map type inspect sip sip_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# traffic-non-sip
```

**Related Commands**

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# transfer-encoding

To restrict HTTP traffic by specifying a transfer encoding type, use the **transfer-encoding** command in HTTP map configuration mode, which is accessible using the **http-map** command. To disable this feature, use the **no** form of this command.

```
transfer-encoding type { chunked | compress | deflate | gzip | identity | default } action { allow | reset | drop } [log]
```

```
no transfer-encoding type { chunked | compress | deflate | gzip | identity | default } action { allow | reset | drop } [log]
```

## Syntax Description

<b>action</b>	Specifies the action taken when a connection using the specified transfer encoding type is detected.
<b>allow</b>	Allows the message.
<b>chunked</b>	Identifies the transfer encoding type in which the message body is transferred as a series of chunks.
<b>compress</b>	Identifies the transfer encoding type in which the message body is transferred using UNIX file compression.
<b>default</b>	Specifies the default action taken by the security appliance when the traffic contains a supported request method that is not on a configured list.
<b>deflate</b>	Identifies the transfer encoding type in which the message body is transferred using zlib format (RFC 1950) and deflate compression (RFC 1951).
<b>drop</b>	Closes the connection.
<b>gzip</b>	Identifies the transfer encoding type in which the message body is transferred using GNU zip (RFC 1952).
<b>identity</b>	Identifies connections in which the message body is no transfer encoding is performed.
<b>log</b>	(Optional) Generates a syslog.
<b>reset</b>	Sends a TCP reset message to client and server.
<b>type</b>	Specifies the type of transfer encoding to be controlled through HTTP application inspection.

## Defaults

This command is disabled by default. When the command is enabled and a supported transfer encoding type is not specified, the default action is to allow the connection without logging. To change the default action, use the **default** keyword and specify a different default action.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
HTTP map configuration	•	•	•	•	—

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

When you enable the **transfer-encoding** command, the security appliance applies the specified action to HTTP connections for each supported and configured transfer encoding type.

The security appliance applies the **default** action to all traffic that does *not* match the transfer encoding types on the configured list. The preconfigured **default** action is to **allow** connections without logging.

For example, given the preconfigured default action, if you specify one or more encoding types with the action of **drop** and **log**, the security appliance drops connections containing the configured encoding types, logs each connection, and allows all connections for the other supported encoding types.

If you want to configure a more restrictive policy, change the default action to **drop** (or **reset**) and **log** (if you want to log the event). Then configure each permitted encoding type with the **allow** action.

Enter the **transfer-encoding** command once for each setting you wish to apply. You use one instance of the **transfer-encoding** command to change the default action and one instance to add each encoding type to the list of configured transfer encoding types.

When you use the **no** form of this command to remove an application category from the list of configured application types, any characters in the command line after the application category keyword are ignored.

**Examples**

The following example provides a permissive policy, using the preconfigured default, which allows all supported application types that are not specifically prohibited.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# transfer-encoding gzip drop log
hostname(config-http-map)#
```

In this case, only connections using GNU zip are dropped and the event is logged.

The following example provides a restrictive policy, with the default action changed to reset the connection and to log the event for any encoding type that is not specifically allowed.

```
hostname(config)# http-map inbound_http
hostname(config-http-map)# port-misuse default action reset log
hostname(config-http-map)# port-misuse identity allow
hostname(config-http-map)#
```

In this case, only connections using no transfer encoding are allowed. When HTTP traffic for the other supported encoding types is received, the security appliance resets the connection and creates a syslog entry.



**Related Commands**

<b>Commands</b>	<b>Description</b>
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug appfw</b>	Displays detailed information about traffic associated with enhanced HTTP inspection.
<b>http-map</b>	Defines an HTTP map for configuring enhanced HTTP inspection.
<b>inspect http</b>	Applies a specific HTTP map to use for application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.

# trust-point

To specify the name of a trustpoint that identifies the certificate to be sent to the IKE peer, use the **trust-point** command in tunnel-group ipsec-attributes mode. To eliminate a trustpoint specification, use the **no** form of this command.

**trust-point** *trust-point-name*

**no trust-point** *trust-point-name*

## Syntax Description

*trust-point-name* Specifies the name of the trustpoint to use.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tunnel-group ipsec attributes	•	—	•	—	—

## Command History

Release	Modification
7.0.1	This command was introduced.

## Usage Guidelines

You can apply this attribute to all IPsec tunnel-group types.

## Examples

The following example entered in config-ipsec configuration mode, configures a trustpoint for identifying the certificate to be sent to the IKE peer for the IPsec LAN-to-LAN tunnel group named 209.165.200.225:

```
hostname(config)# tunnel-group 209.165.200.225 type IPsec_L2L
hostname(config)# tunnel-group 209.165.200.225 ipsec-attributes
hostname(config-tunnel-ipsec)# trust-point mytrustpoint
hostname(config-tunnel-ipsec)#
```

## Related Commands

Command	Description
<b>clear-configure tunnel-group</b>	Clears all configured tunnel groups.
<b>show running-config tunnel-group</b>	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
<b>tunnel-group ipsec-attributes</b>	Configures the tunnel-group ipsec-attributes for this group.

# tsig enforced

To require a TSIG resource record to be present, use the **tsig enforced** command in parameters configuration mode. To disable this feature, use the **no** form of this command.

**tsig enforced action { drop [log] | log }**

**no tsig enforced [action { drop [log] | log }]**

## Syntax Description

<b>drop</b>	Drops the packet if TSIG is not present.
<b>log</b>	Generates a system message log.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command enables monitoring and enforcement of TSIG presence in DNS transactions.

## Examples

The following example shows how to enable TSIG enforcement in a DNS inspection policy map:

```
hostname(config)# policy-map type inspect dns preset_dns_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# tsig enforced action log
```

## Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# ttl-evasion-protection

To disable the Time-To-Live evasion protection, use the **ttl-evasion-protection** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

**ttl-evasion-protection**

**no ttl-evasion-protection**

**Syntax Description** This command has no arguments or keywords.

**Defaults** TTL evasion protection offered by the security appliance is enabled by default.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tcp-map configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **ttl-evasion-protection** command in tcp-map configuration mode to prevent attacks that attempt to evade security policy.

For instance, an attacker can send a packet that passes policy with a very short TTL. When the TTL goes to zero, a router between the security appliance and the endpoint drops the packet. It is at this point that the attacker can send a malicious packet with a long TTL that appears to the security appliance to be a retransmission and is passed. To the endpoint host, however, it is the first packet that has been received by the attacker. In this case, an attacker is able to succeed without security preventing the attack. Enabling this feature prevents such attacks.

**Examples** The following example shows how to disable TTL evasion protection on flows from network 10.0.0.0 to 20.0.0.0:

```
hostname(config)# access-list TCP1 extended permit tcp 10.0.0.0 255.0.0.0 20.0.0.0
255.0.0.0
hostname(config)# tcp-map tmap
```

```

hostname(config-tcp-map)# ttl-evasion-protection disable
hostname(config)# class-map cmap
hostname(config-cmap)# match access-list TCP1
hostname(config)# policy-map pmap
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class</b>	Specifies a class map to use for traffic classification.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>set connection</b>	Configures connection values.
<b>tcp-map</b>	Creates a TCP map and allows access to tcp-map configuration mode.

# tunnel-group

To create and manage the database of connection-specific records for IPsec and WebVPN tunnels, use the **tunnel-group** command in global configuration mode. To remove a tunnel group, use the **no** form of this command.

**tunnel-group** *name* **type** *type*

**no tunnel-group** *name*

## Syntax Description

<i>name</i>	Specifies the name of the tunnel group. This can be any string you choose. If the name is an IP address, it is usually the IP address of the peer.
<i>type</i>	Specifies the type of tunnel group: ipsec-ra—IPsec remote access ipsec-l2l—IPsec LAN-to-LAN webvpn—WebVPN

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	See Note.	•	—	—



### Note

The tunnel-group command is available in transparent firewall mode to allow configuration of a LAN-to-LAN tunnel group, but not a remote-access group or a WebVPN group. All the tunnel-group commands that are available for LAN-to-LAN are also available in transparent firewall mode.

## Command History

Release	Modification
7.0	This command was introduced.
7.1	Added webvpn type.

## Usage Guidelines

The security appliance has the following default tunnel groups:

- DefaultRAGroup, the default IPsec remote-access tunnel group
- DefaultL2LGroup, the default IPsec LAN-to-LAN tunnel group
- DefaultWEBVPNGroup, the default WebVPN tunnel group.

You can change these groups, but not delete them. The security appliance uses these groups to configure default tunnel parameters for remote access and LAN-to-LAN tunnel groups when there is no specific tunnel group identified during tunnel negotiation.

After entering the **tunnel-group** command, you enter the appropriate following commands to configure specific attributes for a particular tunnel group. Each of these commands enters a configuration mode for configuring tunnel-group attributes.

- **tunnel-group general-attributes**
- **tunnel-group ipsec-attributes**
- **tunnel-group webvpn-attributes**
- **tunnel-group ppp-attributes**

### Examples

The following examples are entered in global configuration mode. The first configures an IPsec remote access tunnel group. The group name is “group1”.

```
hostname(config)# tunnel-group group1 type ipsec-ra
hostname(config)#
```

The following example configures an IPsec LAN-to-LAN tunnel group. The name is the IP address of the LAN-to-LAN peer:

```
hostname(config)# tunnel-group 209.165.200.225 type ipsec-l2l
hostname(config)#
```

The following example shows the tunnel-group command configuring the webvpn tunnel group named “group1”. You enter this command in global configuration mode:

```
hostname(config)# tunnel-group group1 type webvpn
hostname(config)#
```

### Related Commands

Command	Description
<b>clear configure tunnel-group</b>	Clears all configured tunnel groups.
<b>show running-config tunnel-group</b>	Shows the tunnel group configuration for all tunnel groups or for a particular tunnel group.
<b>tunnel-group general-attributes</b>	Enters the config-general mode for configuring general tunnel-group attributes
<b>tunnel-group ipsec-attributes</b>	Enters the config-ipsec mode for configuring IPsec tunnel-group attributes.
<b>tunnel-group ppp-attributes</b>	Enters the config-ppp mode for configuring PPP settings for L2TP connections.
<b>tunnel-group webvpn-attributes</b>	Enters the config-webvpn mode for configuring WebVPN tunnel-group attributes.

# tunnel-group general-attributes

To enter the general-attribute configuration mode, use the **tunnel-group general-attributes** command in global configuration mode. This mode is used to configure settings that are common to all supported tunneling protocols.

To remove all general attributes, use the **no** form of this command.

**tunnel-group** *name* **general-attributes**

**no tunnel-group** *name* **general-attributes**

## Syntax Description

<b>general-attributes</b>	Specifies attributes for this tunnel-group.
<i>name</i>	Specifies the name of the tunnel-group.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.0.1	This command was introduced.
7.1.1	Various attributes from other tunnel-group types migrated to the general tunnel-group attributes list, and the prompt for tunnel-group general-attributes mode changed.

## Usage Guidelines

The following table lists the commands belonging in this group and the tunnel-group type where you can configure them:

General Attribute	Availability by Tunnel-Group Type
accounting-server-group	IPSec RA, IPSec L2L, WebVPN
address-pool	IPSec RA
authentication-server-group	IPSec RA, WebVPN
authorization-dn-attributes	IPSec RA, WebVPN
authorization-required	WebVPN
authorization-server-group	IPSec RA



General Attribute	Availability by Tunnel-Group Type
default-group-policy	IPSec RA, IPSec L2L
dhcp-server	IPSec RA
override-account-disabled	IPSec RA, WebVPN
password-management	IPSec RA, WebVPN
strip-group	IPSec RA, WebVPN,
strip-realm	IPSec RA, WebVPN

### Examples

The following example entered in global configuration mode, creates a tunnel group for an IPSec LAN-to-LAN connection using the IP address of the LAN-to-LAN peer, then enters general configuration mode for configuring general attributes. The name of the tunnel group is 209.165.200.225.

```
hostname(config)# tunnel-group 209.165.200.225 type IPSec_L2L
hostname(config)# tunnel-group 209.165.200.225 general
hostname(config-tunnel-general)#
```

The following example entered in global configuration mode, creates a tunnel group named "remotegrp" for an IPSec remote access connection, and then enters general configuration mode for configuring general attributes for the tunnel group named "remotegrp":

```
hostname(config)# tunnel-group remotegrp type ipsec_ra
hostname(config)# tunnel-group remotegrp general
hostname(config-tunnel-general)
```

### Related Commands

Command	Description
<b>clear configure tunnel-group</b>	Clears the entire tunnel-group database or just the specified tunnel-group.
<b>show running-config tunnel-group</b>	Displays the currently running tunnel-group configuration for a specified tunnel group or for all tunnel groups.
<b>tunnel-group</b>	Creates and manages the database of connection-specific records for IPSec and WebVPN tunnels.

# tunnel-group ipsec-attributes

To enter the ipsec-attribute configuration mode, use the **tunnel-group ipsec-attributes** command in global configuration mode. This mode is used to configure settings that are specific to the IPSec tunneling protocol.

To remove all IPSec attributes, use the **no** form of this command.

**tunnel-group** *name* ipsec-attributes

**no tunnel-group** *name* ipsec-attributes

## Syntax Description

<b>ipsec-attributes</b>	Specifies attributes for this tunnel-group.
<i>name</i>	Specifies the name of the tunnel-group.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.0.1	This command was introduced.
7.1.1	Various IPSec tunnel-group attributes migrated to the general tunnel-group attributes list, and the prompt for tunnel-group ipsec-attributes mode changed.

## Usage Guidelines

The following commands belong in this group:

IPSec Attribute	Availability by Tunnel-Group Type
chain	IPSec RA, IPSec L2L
client-update	IPSec RA
isakmp keepalive	IPSec RA
peer-id-validate	IPSec RA, IPSec L2L
pre-shared-key	IPSec RA, IPSec L2L
radius-with-expiry	IPSec RA
trust-point	IPSec RA, IPSec L2L

---

**Examples**

The following example entered in global configuration, creates a tunnel group for the IPsec remote-access tunnel group named remotegrp, and then specifies IPsec group attributes:

```
hostname(config)# tunnel-group remotegrp type ipsec_ra
hostname(config)# tunnel-group remotegrp ipsec-attributes
hostname(config-tunnel-ipsec)
```

---

**Related Commands**

Command	Description
<b>clear configure tunnel-group</b>	Clears the entire tunnel-group database or just the specified tunnel-group.
<b>show running-config tunnel-group</b>	Displays the currently running tunnel-group configuration for a specified tunnel group or for all tunnel groups.
<b>tunnel-group</b>	Creates and manages the database of connection-specific records for IPsec and WebVPN tunnels.

# tunnel-group ppp-attributes

To enter the ppp-attributes configuration mode and configure PPP settings that are used by L2TP over IPSec connections, use the **tunnel-group ppp-attributes** command in global configuration mode.

To remove all PPP attributes, use the **no** form of this command.

**tunnel-group** *name* ppp-attributes

**no tunnel-group** *name* ppp-attributes

## Syntax Description

*name* Specifies the name of the tunnel-group.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2.1	This command was introduced.

## Usage Guidelines

PPP settings are used by the Layer 2 Tunneling Protocol (L2TP), a VPN tunneling protocol which allows remote clients to use the dialup telephone service public IP network to securely communicate with private corporate network servers. L2TP is based on the client/server model and uses PPP over UDP (port 1701) to tunnel the data.

The following table lists the commands belonging in this group and the tunnel-group type where you can configure them:

PPPoE Attribute	Availability by Tunnel-Group Type
authentication chap	PPPoE
authentication eap-proxy	PPPoE
authentication ms-chap-v1	PPPoE
authentication ms-chap-v2	PPPoE
authentication-pap	PPPoE

---

**Examples**

The following example creates the tunnel group *telecommuters* and enters ppp-attributes configuration mode:

```
hostname(config)# tunnel-group telecommuters type pppoe
hostname(config)# tunnel-group telecommuters ppp-attributes
hostname(tunnel-group-ppp)#
```

---

**Related Commands**

Command	Description
<b>clear configure tunnel-group</b>	Clears the entire tunnel-group database or just the specified tunnel-group.
<b>show running-config tunnel-group</b>	Displays the currently running tunnel-group configuration for a specified tunnel group or for all tunnel groups.
<b>tunnel-group</b>	Creates and manages the database of connection-specific records for IPSec and WebVPN tunnels.

# tunnel-group webvpn-attributes

To enter the webvpn-attribute configuration mode, use the **tunnel-group webvpn-attributes** command in global configuration mode. This mode configures settings that are common to WebVPN tunneling.

To remove all WebVPN attributes, use the **no** form of this command.

**tunnel-group** *name* **webvpn-attributes**

**no tunnel-group** *name* **webvpn-attributes**

## Syntax Description

<b>webvpn-attributes</b>	Specifies WebVPN attributes for this tunnel-group.
<i>name</i>	Specifies the name of the tunnel-group.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.1.1	This command was introduced.

## Usage Guidelines

In addition to the general attributes, you can also configure the following attributes specific to WebVPN connections in webvpn-attribute mode:

- authentication
- customization
- dns-group
- group-alias
- group-url
- hic-fail-group-policy
- nbns-server-name

See the individual command descriptions for complete information about configuring these attributes.

**Examples**

The following example entered in global configuration mode, creates a tunnel group for a WebVPN connection using the IP address of the LAN-to-LAN peer, then enters webvpn-configuration mode for configuring WebVPN attributes. The name of the tunnel group is 209.165.200.225.

```
hostname(config)# tunnel-group 209.165.200.225 type webvpn
hostname(config)# tunnel-group 209.165.200.225 webvpn-attributes
hostname(config-tunnel-webvpn)#
```

The following example entered in global configuration mode, creates a tunnel group named "remotegrp" for a WebVPN connection, and then enters webvpn configuration mode for configuring WebVPN attributes for the tunnel group named "remotegrp":

```
hostname(config)# tunnel-group remotegrp type webvpn
hostname(config)# tunnel-group remotegrp webvpn-attributes
hostname(config-tunnel-webvpn)#
```

**Related Commands**

Command	Description
<b>clear configure tunnel-group</b>	Clears the entire tunnel-group database or just the specified tunnel-group.
<b>show running-config tunnel-group</b>	Displays the currently running tunnel-group configuration for a specified tunnel group or for all tunnel groups.
<b>tunnel-group</b>	Creates and manages the database of connection-specific records for IPsec and WebVPN tunnels.

# tunnel-group-map default-group

The **tunnel-group-map default-group** command specifies the default tunnel-group to use if the name could not be determined using other configured methods.

Use the **no** form of this command to eliminate a tunnel-group-map.

**tunnel-group-map** [*rule-index*] **default-group** *tunnel-group-name*

**no tunnel-group-map**

## Syntax Description

<b>default-group</b> <i>tunnel-group-name</i>	Specifies a default tunnel group to use when the name cannot be derived by other configured methods. The <i>tunnel-group name</i> must already exist.
<i>rule index</i>	Optional. Refers to parameters specified by the <b>crypto ca certificate map</b> command. The values are 1 to 65535.

## Defaults

The default value for the **tunnel-group-map default-group** is DefaultRAGroup.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The tunnel-group-map commands configure the policy and rules by which certificate-based IKE sessions are mapped to tunnel groups. To associate the certificate map entries, created using the **crypto ca certificate map** command, with tunnel groups, use the **tunnel-group-map** command in global configuration mode. You can invoke this command multiple times as long as each invocation is unique and you do not reference a map index more than once.

The **crypto ca certificate map** command maintains a prioritized list of certificate mapping rules. There can be only one map. But this map can have up to 65535 rules. Refer to the documentation on the **crypto ca certificate map** command for more information.

The processing that derives the tunnel-group name from the certificate ignores entries in the certificate map that are not associated with a tunnel group (any map rule not identified by this command).



---

**Examples**

The following example entered in global configuration mode, specifies a default tunnel group to use when the name cannot be derived by other configured methods. The name of the tunnel group to use is group1:

```
hostname(config)# tunnel-group-map default-group group1
hostname(config)#
```

---

**Related Commands**

Command	Description
<b>crypto ca certificate map</b>	Enters crypto ca certificate map mode.
<b>subject-name (crypto ca certificate map)</b>	Identifies the DN from the CA certificate that is to be compared to the rule entry string.
<b>tunnel-group-map enable</b>	Configures the policy and rules by which certificate-based IKE sessions are mapped to tunnel groups

# tunnel-group-map enable

The **tunnel-group-map enable** command configures the policy and rules by which certificate-based IKE sessions are mapped to tunnel groups. Use the **no** form of this command to restore the default values.

**tunnel-group-map** [*rule-index*] **enable** *policy*

**no tunnel-group-map enable** [*rule-index*]

## Syntax Description

<i>policy</i>	<p>Specifies the policy for deriving the tunnel group name from the certificate. <i>Policy</i> can be one of the following:</p> <p><b>ike-id</b>—Indicates that if a tunnel-group is not determined based on a rule lookup or taken from the ou, then the certificate-based IKE sessions are mapped to a tunnel group based on the content of the phase1 IKE ID.</p> <p><b>ou</b>—Indicates that if a tunnel-group is not determined based on a rule lookup, then use the value of the organizational unit (OU) in the subject distinguished name (DN).</p> <p><b>peer-ip</b>—Indicates that if a tunnel-group is not determined based on a rule lookup or taken from the ou or ike-id methods, then use the established peer IP address.</p> <p><b>rules</b>—Indicates that the certificate-based IKE sessions are mapped to a tunnel group based on the certificate map associations configured by this command.</p>
<i>rule index</i>	Optional. Refers to parameters specified by the <b>crypto ca certificate map</b> command. The values are 1 to 65535.

## Defaults

The default values for the **tunnel-group-map** command are **enable ou** and **default-group** set to DefaultRAGroup.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

**Usage Guidelines**

The **crypto ca certificate map** command maintains a prioritized list of certificate mapping rules. There can be only one map. But this map can have up to 65535 rules. Refer to the documentation on the **crypto ca certificate map** command for more information.

**Examples**

The following example enables mapping of certificate-based IKE sessions to a tunnel group based on the content of the phase1 IKE ID:

```
hostname(config)# tunnel-group-map enable ike-id
hostname(config)#
```

The following example enables mapping of certificate-based IKE sessions to a tunnel group based on the established IP address of the peer:

```
hostname(config)# tunnel-group-map enable peer-ip
hostname(config)#
```

The following example enables mapping of certificate-based IKE sessions based on the organizational unit (OU) in the subject distinguished name (DN):

```
hostname(config)# tunnel-group-map enable ou
hostname(config)#
```

The following example enables mapping of certificate-based IKE sessions based on established rules:

```
hostname(config)# tunnel-group-map enable rules
hostname(config)#
```

**Related Commands**

Command	Description
<b>crypto ca certificate map</b>	Enters CA certificate map mode.
<b>subject-name (crypto ca certificate map)</b>	Identifies the DN from the CA certificate that is to be compared to the rule entry string.
<b>tunnel-group-map default-group</b>	Designates an existing tunnel-group name as the default tunnel group.

# tunnel-limit

To specify the maximum number of GTP tunnels allowed to be active on the security appliance, use the **tunnel limit** command in GTP map configuration mode, which is accessed by using the **gtp-map** command. Use the **no** to set the tunnel limit back to its default.

**tunnel-limit** *max\_tunnels*

**no tunnel-limit** *max\_tunnels*

<b>Syntax Description</b>	<i>max_tunnels</i>	This is the maximum number of tunnels allowed. The ranges is from 1 to 4294967295 for the global overall tunnel limit.
---------------------------	--------------------	--

**Defaults** The default for the tunnel limit is 500.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
GTP map configuration	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** New requests will be dropped once the number of tunnels specified by this command is reached.

**Examples** The following example specifies a maximum of 10,000 tunnels for GTP traffic:

```
hostname(config)# gtp-map gtp-policy
hostname(config-gtpmap)# tunnel-limit 10000
```

Related Commands	Commands	Description
	<b>clear service-policy</b> <b>inspect gtp</b>	Clears global GTP statistics.
	<b>debug gtp</b>	Displays detailed information about GTP inspection.
	<b>gtp-map</b>	Defines a GTP map and enables GTP map configuration mode.

Commands	Description
<b>inspect gtp</b>	Applies a specific GTP map to use for application inspection.
<b>show service-policy inspect gtp</b>	Displays the GTP configuration.

# tx-ring-limit

To specify the depth of the priority queues, use the **tx-ring-limit** command in priority-queue mode. To remove this specification, use the **no** form of this command.

**tx-ring-limit** *number-of-packets*

**no tx-ring-limit** *number-of-packets*

## Syntax Description

*number-of-packets* Specifies the maximum number of low-latency or normal priority packets allowed into the Ethernet transmit driver before the driver pushes back to the queues on the interface to let them buffer packets until the congestion clears. The range of **tx-ring-limit** values is 3 through 128 packets on the PIX platform and 3 through 256 packets on the ASA platform.

## Defaults

The default **tx-ring-limit** is 128 packets.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Priority-queue	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The security appliance allows two classes of traffic: low-latency queuing (LLQ) for higher priority, latency sensitive traffic (such as voice and video) and best-effort, the default, for all other traffic. The security appliance recognizes priority traffic and enforces appropriate Quality of Service (QoS) policies. You can configure the size and depth of the priority queue to fine-tune the traffic flow.

You must use the **priority-queue** command to create the priority queue for an interface before priority queuing takes effect. You can apply one **priority-queue** command to any interface that can be defined by the **nameif** command.

The **priority-queue** command enters priority-queue mode, as shown by the prompt. In priority-queue mode, you can configure the maximum number of packets allowed in the transmit queue at any given time (**tx-ring-limit** command) and the number of packets of either type (priority or best-effort) allowed to be buffered before dropping packets (**queue-limit** command).



### Note

You *must* configure the **priority-queue** command in order to enable priority queuing for the interface.

The tx-ring-limit and the queue-limit that you specify affect both the higher priority low-latency queue and the best-effort queue. The tx-ring-limit is the number of either type of packets allowed into the driver before the driver pushes back to the queues sitting in front of the interface to let them buffer packets until the congestion clears. In general, you can adjust these two parameters to optimize the flow of low-latency traffic.

Because queues are not of infinite size, they can fill and overflow. When a queue is full, any additional packets cannot get into the queue and are dropped. This is *tail drop*. To avoid having the queue fill up, you can use the **queue-limit** command to increase the queue buffer size.

**Note**

The upper limit of the range of values for the **queue-limit** and **tx-ring-limit** commands is determined dynamically at run time. To view this limit, enter **help** or **?** on the command line. The key determinant is the memory needed to support the queues and the memory available on the device. The range of **queue-limit** values is 0 through 2048 packets. The range of **tx-ring-limit** values is 3 through 128 packets on the PIX platform and 3 through 256 packets on the ASA platform.

**Examples**

The following example configures a priority queue for the interface named test, specifying a queue limit of 2048 packets and a transmit queue limit of 256 packets.

```
hostname(config)# priority-queue test
hostname(priority-queue)# queue-limit 2048
hostname(priority-queue)# tx-ring-limit 256
```

**Related Commands**

Command	Description
<b>clear configure priority-queue</b>	Removes the current priority queue configuration on the named interface.
<b>priority-queue</b>	Configures priority queuing on an interface.
<b>queue-limit</b>	Specifies the maximum number of packets that can be enqueued to a priority queue before it drops data.
<b>show priority-queue statistics</b>	Shows the priority-queue statistics for the named interface.
<b>show running-config priority-queue</b>	Shows the current priority queue configuration. If you specify the <b>all</b> keyword, this command displays all the current <b>priority-queue</b> , <b>queue-limit</b> , and <b>tx-ring-limit</b> command configuration values.

# type echo

To configure the SLA operation as an echo response time probe operation, use the **type echo** command in SLA monitor configuration mode. To remove the type from the SLA configuration, use the **no** form of this command.

```
type echo protocol ipIcmpEcho target interface if-name
```

```
no type echo protocol ipIcmpEcho target interface if-name
```

## Syntax Description

<b>interface</b> <i>if-name</i>	Specifies the interface name, as specified by the <b>nameif</b> command, of the interface used to send the echo request packets. The interface source address is used as the source address in the echo request packets.
<b>protocol</b>	The protocol keyword. The only value supported is <b>ipIcmpEcho</b> , which specifies using an IP/ICMP echo request for the echo operation.
<b>target</b>	The IP address or host name of the object being monitored.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
SLA monitor configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The default size of the payload of the ICMP packets is 28 bytes, creating a total ICMP packet size of 64 bytes. The payload size can be changed using the **request-data-size** command.

## Examples

The following example configures an SLA operation with an ID of 123 that uses an ICMP echo request/response time probe operation. It creates a tracking entry with the ID of 1 to track the reachability of the SLA. The frequency of the SLA operation is set to 10 seconds, the threshold to 2500 milliseconds, and the timeout value is set to 4000 milliseconds.

```
hostname(config)# sla monitor 123
hostname(config-sla-monitor)# type echo protocol ipIcmpEcho 10.1.1.1 interface outside
hostname(config-sla-monitor-echo)# threshold 2500
hostname(config-sla-monitor-echo)# timeout 4000
hostname(config-sla-monitor-echo)# frequency 10
hostname(config)# sla monitor schedule 123 life forever start-time now
```



```
hostname(config)# track 1 rtr 123 reachability
```

**Related Commands**

Command	Description
<b>num-packets</b>	Specifies the number of request packets to send during an SLA operation.
<b>request-data-size</b>	Specifies the size of the payload for the SLA operation request packet.
<b>sla monitor</b>	Defines an SLA monitoring operation.





## **urgent-flag through zonelabs integrity ssl-client-authentication Commands**

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# urgent-flag

To allow or clear the URG pointer through the TCP normalizer, use the **urgent-flag** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

**urgent-flag** { **allow** | **clear** }

**no urgent-flag** { **allow** | **clear** }

## Syntax Description

<b>allow</b>	Allows the URG pointer through the TCP normalizer.
<b>clear</b>	Clears the URG pointer through the TCP normalizer.

## Defaults

The urgent flag and urgent offset are clear by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tcp-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **urgent-flag** command in tcp-map configuration mode to allow the urgent flag.

The URG flag is used to indicate that the packet contains information that is of higher priority than other data within the stream. The TCP RFC is vague about the exact interpretation of the URG flag, therefore, end systems handle urgent offsets in different ways, which may make the end system vulnerable to attacks. The default behavior is to clear the URG flag and offset.

## Examples

The following example shows how to allow the urgent flag:

```
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# urgent-flag allow
hostname(config)# class-map cmap
hostname(config-cmap)# match port tcp eq 513
hostname(config)# policy-map pmap
```

```
hostname(config-pmap) # class cmap  
hostname(config-pmap) # set connection advanced-options tmap  
hostname(config) # service-policy pmap global
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class</b>	Specifies a class map to use for traffic classification.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>set connection</b>	Configures connection values.
<b>tcp-map</b>	Creates a TCP map and allows access to tcp-map configuration mode.

# uri-non-sip

To identify the non-SIP URIs present in the Alert-Info and Call-Info header fields, use the **uri-non-sip** command in parameters configuration mode. Parameters configuration mode is accessible from policy map configuration mode. To disable this feature, use the **no** form of this command.

**uri-non-sip action** {mask | log} [log]

**no uri-non-sip action** {mask | log} [log]

## Syntax Description

<b>mask</b>	Masks the non-SIP URIs.
<b>log</b>	Specifies standalone or additional log in case of violation.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Parameters configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to identify the non-SIP URIs present in the Alert-Info and Call-Info header fields in a SIP inspection policy map:

```
hostname(config)# policy-map type inspect sip sip_map
hostname(config-pmap)# parameters
hostname(config-pmap-p)# uri-non-sip action log
```

## Related Commands

Command	Description
<b>class</b>	Identifies a class map name in the policy map.
<b>class-map type inspect</b>	Creates an inspection class map to match traffic specific to an application.
<b>policy-map</b>	Creates a Layer 3/4 policy map.
<b>show running-config policy-map</b>	Display all current policy map configurations.

# url

To maintain the list of static URLs for retrieving CRLs, use the **url** command in `crl configure` configuration mode. The `crl configure` configuration mode is accessible from the `crypto ca trustpoint` configuration mode. To delete an existing URL, use the **no** form of this command.

```
url index url
```

```
no url index url
```

## Syntax Description

<i>index</i>	Specifies a value from 1 to 5 that determines the rank of each URL in the list. The security appliance tries the URL at index 1 first.
<i>url</i>	Specifies the URL from which to retrieve the CRL.

## Defaults

No default behaviors or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
CRL configure configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You cannot overwrite existing URLs. To replace an existing URL, first delete it using the **no** form of this command.

## Examples

The following example enters `ca-crl` configuration mode, and sets up an index 3 for creating and maintaining a list of URLs for CRL retrieval and configures the URL `https://foobin.com` from which to retrieve CRLs:

```
hostname(configure)# crypto ca trustpoint central
hostname(ca-trustpoint)# crl configure
hostname(ca-crl)# url 3 https://foobin.com
hostname(ca-crl)#
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>crl configure</b>	Enters ca-crl configuration mode.
<b>crypto ca trustpoint</b>	Enters trustpoint configuration mode.
<b>policy</b>	Specifies the source for retrieving CRLs.



# url-block

To manage the URL buffers used for web server responses while waiting for a filtering decision from the filtering server, use the **url-block** command. To remove the configuration, use the **no** form of this command.

**url-block block** *block\_buffer*

**no url-block block** *block\_buffer*

**url-block mempool-size** *memory\_pool\_size*

**no url-block mempool-size** *memory\_pool\_size*

**url-block url-size** *long\_url\_size*

**no url-block url-size** *long\_url\_size*

## Syntax Description

<b>block</b> <i>block_buffer</i>	Creates an HTTP response buffer to store web server responses while waiting for a filtering decision from the filtering server. The permitted values are from 1 to 128, which specifies the number of 1550-byte blocks.
<b>mempool-size</b> <i>memory_pool_size</i>	Configures the maximum size of the URL buffer memory pool in Kilobytes (KB). The permitted values are from 2 to 10240, which specifies a URL buffer memory pool from 2 KB to 10240 KB.
<b>url-size</b> <i>long_url_size</i>	Configures the maximum allowed URL size in KB for each long URL being buffered. The permitted values, which specifies a maximum URL size, for Websense are 2, 3, or 4, representing 2 KB, 3 KB, or 4KB; or for Secure Computing, 2 or 3, representing 2 KB or 3 KB.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

For Websense filtering servers, the **url-block url-size** command allows filtering of long URLs, up to 4 KB. For Secure Computing, the **url-block url-size** command allows filtering of long URLs, up to 3 KB. For both Websense and N2H2 filtering servers, the **url-block block** command causes the security appliance to buffer packets received from a web server in response to a web client request while waiting for a response from the URL filtering server. This improves performance for the web client compared to the default security appliance behavior, which is to drop the packets and to require the web server to retransmit the packets if the connection is permitted.

If you use the **url-block block** command and the filtering server permits the connection, the security appliance sends the blocks to the web client from the HTTP response buffer and removes the blocks from the buffer. If the filtering server denies the connection, the security appliance sends a deny message to the web client and removes the blocks from the HTTP response buffer.

Use the **url-block block** command to specify the number of blocks to use for buffering web server responses while waiting for a filtering decision from the filtering server.

Use the **url-block url-size** command with the **url-block mempool-size** command to specify the maximum length of a URL to be filtered and the maximum memory to assign to the URL buffer. Use these commands to pass URLs longer than 1159 bytes, up to a maximum of 4096 bytes, to the Websense or Secure-Computing server. The **url-block url-size** command stores URLs longer than 1159 bytes in a buffer and then passes the URL to the Websense or Secure-Computing server (through a TCP packet stream) so that the Websense or Secure-Computing server can grant or deny access to that URL.

**Examples**

The following example assigns 56 1550-byte blocks for buffering responses from the URL filtering server:

```
hostname#(config)# url-block block 56
```

**Related Commands**

Commands	Description
<b>clear url-block block statistics</b>	Clears the block buffer usage counters.
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>show url-block</b>	Displays information about the URL cache, which is used for buffering URLs while waiting for responses from an N2H2 or Websense filtering server.
<b>url-cache</b>	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# url-cache

To enable URL caching for URL responses received from an N2H2 or Websense server and to set the size of the cache, use the **url-cache** command in global configuration mode. To remove the configuration, use the **no** form of this command.

```
url-cache {dst | src_dst} kbytes [kb]
```

```
no url-cache {dst | src_dst} kbytes [kb]
```

## Syntax Description

<b>dst</b>	Cache entries based on the URL destination address. Select this mode if all users share the same URL filtering policy on the N2H2 or Websense server.
<b>size</b> <i>kbytes</i>	Specifies a value for the cache size within the range 1 to 128 KB.
<b>src_dst</b>	Cache entries based on the both the source address initiating the URL request as well as the URL destination policy address. Select this mode if users do not share the same URL filtering policy on the N2H2 or Websense server.
<b>statistics</b>	Use the <b>statistics</b> option to display additional URL cache statistics, including the number of cache lookups and hit rate.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **url-cache** command provides a configuration option to cache responses from the URL server.

Use the **url-cache** command to enable URL caching, set the size of the cache, and display cache statistics.

Caching stores URL access privileges in memory on the security appliance. When a host requests a connection, the security appliance first looks in the URL cache for matching access privileges instead of forwarding the request to the N2H2 or Websense server. Disable caching with the **no url-cache** command.

**Note**

If you change settings on the N2H2 or Websense server, disable the cache with the **no url-cache** command and then re-enable the cache with the **url-cache** command.

Using the URL cache does not update the Websense accounting logs for Websense protocol Version 1. If you are using Websense protocol Version 1, let Websense run to accumulate logs so you can view the Websense accounting information. After you get a usage profile that meets your security needs, enable **url-cache** to increase throughput. Accounting logs are updated for Websense protocol Version 4 and for N2H2 URL filtering while using the **url-cache** command.

**Examples**

The following example caches all outbound HTTP connections based on the source and destination addresses:

```
hostname(config)# url-cache src_dst 128
```

**Related Commands**

Commands	Description
<b>clear url-cache statistics</b>	Removes <b>url-cache</b> command statements from the configuration.
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>show url-cache statistics</b>	Displays information about the URL cache, which is used for URL responses received from an N2H2 or Websense filtering server.
<b>url-server</b>	Identifies an N2H2 or Websense server for use with the <b>filter</b> command.

# url-list

To configure a set of URLs for WebVPN users to access, use the **url-list** command in global configuration mode. To configure a list with multiple URLs, use this command with the same listname multiple times, once for each URL. To remove an entire configured list, use the **no url-list listname** command. To remove a configured URL, use the **no url-list listname url** command.

To configure multiple lists, use this command multiple times, assigning a unique *listname* to each list.

**url-list** {*listname displayname url*}

**no url-list** *listname*

**no url-list** *listname url*

## Syntax Description

<i>displayname</i>	Provides the text that displays on the WebVPN end user interface to identify the URL. Maximum 64 characters. The <i>displayname</i> must be unique for a given list. Spaces are allowed.
<i>listname</i>	Groups the set of URLs that WebVPN users can access. Maximum 64 characters. Maximum 64 characters. Semi-colons (;) ampersands (&), and less-than (<) characters are not allowed.
<i>url</i>	Specifies the link. Supported URL types are http, https and cifs.

## Defaults

There is no default URL list.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration mode	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

You use the **url-list** command in global configuration mode to create one or more lists of URLs. To allow access to the URLs in a list for a specific group policy or user, use the *listname* you create here with the **url-list** command in webvpn mode.

**Examples**

The following example shows how to create a URL list called *Marketing URLs* that provides access to www.cisco.com, www.example.com, and www.example.org. The following table provides values that the example uses for each application.

listname	displayname	url
Marketing URLs	Cisco Systems	http://www.cisco.com
Marketing URLs	Example Company, Inc.	http://www.example.com
Marketing URLs	Example Organization	http://www.example.org

```
hostname(config)# url-list Marketing URLs Cisco Systems http://www.cisco.com
hostname(config)# url-list Marketing URLs Example Company, Inc. http://www.example.com
hostname(config)# url-list Marketing URLs Example Organization http://www.example.org
```

**Related Commands**

Command	Description
<b>clear configuration url-list</b>	Removes all url-list commands from the configuration. If you include the listname, the security appliance removes only the commands for that list.
<b>url-list</b>	Use this command in webvpn mode to permit a group policy or user to access a previously configured list of urls.
<b>show running-configuration url-list</b>	Displays the current set of configured urls.
<b>webvpn</b>	Use in group-policy configuration mode or in username configuration mode. Lets you enter webvpn mode to configure parameters that apply to group policies or usernames.
<b>webvpn</b>	Use in global configuration mode. Lets you configure global settings for WebVPN.

## url-list (webvpn)

To apply a list of WebVPN servers and URLs to a particular user or group policy, use the **url-list** command in group-policy webvpn configuration mode or in username webvpn configuration mode. To remove a list, including a null value created by using the **url-list none** command, use the **no** form of this command. The **no** option allows inheritance of a value from another group policy. To prevent inheriting a url list, use the **url-list none** command. Using the command a second time overrides the previous setting.

```
url-list {value name | none} [index]
```

```
no url-list
```

### Syntax Description

<i>index</i>	Indicates the display priority on the home page.
<b>none</b>	Sets a null value for url lists. Prevents inheriting a list from a default or specified group policy.
<b>value name</b>	Specifies the name of a previously configured list of urls. To configure such a list, use the <b>url-list</b> command in global configuration mode.

### Defaults

There is no default URL list.

### Command Modes

The following table shows the modes in which you enter the commands:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn mode	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

Using the command a second time overrides the previous setting.

Before you can use the **url-list** command in webvpn mode to identify a URL list that you want to display on the WebVPN home page for a user or group policy, you must create the list. Use the **url-list** command in global configuration mode to create one or more lists.

### Examples

The following example applies a URL list called FirstGroupURLs for the group policy named FirstGroup and assigns it first place among the URL lists:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# url-list value FirstGroupURLs 1
```

## Related Commands

Command	Description
<b>clear configure url-list</b> <i>[listname]</i>	Removes all url-list commands from the configuration. If you include the listname, the security appliance removes only the commands for that list.
<b>show running-configuration url-list</b>	Displays the current set of configured <b>url-list</b> commands.
<b>url-list</b>	Use this command in webvpn mode, which you access in global configuration mode, to configure the set of URLs that WebVPN users can access.
<b>webvpn</b>	Lets you enter webvpn mode. This can be webvpn configuration mode, group-policy webvpn configuration mode (to configure webvpn settings for a specific group policy), or username webvpn configuration mode (to configure webvpn settings for a specific user).



# url-server

To identify an N2H2 or Websense server for use with the **filter** command, use the **url-server** command in global configuration mode. To remove the configuration, use the **no** form of this command.

## N2H2

```
url-server [<(if_name)>] vendor {smartfilter | n2h2} host <local_ip> [port <number>] [timeout <seconds>] [protocol {TCP [connections <number>]} | UDP]
```

```
no url-server [<(if_name)>] vendor {smartfilter | n2h2} host <local_ip> [port <number>] [timeout <seconds>] [protocol {TCP [connections <number>]} | UDP]
```

## Websense

```
url-server (if_name) vendor websense host local_ip [timeout seconds] [protocol {TCP | UDP | connections num_conns} | version]
```

```
no url-server (if_name) vendor websense host local_ip [timeout seconds] [protocol {TCP | UDP | connections num_conns} | version]
```

### Syntax Description

#### N2H2

<b>connections</b>	Limits the maximum number of TCP connections permitted.
<i>num_conns</i>	Specifies the maximum number of TCP connections created from the security appliance to the URL server. Since this number is per server, different servers can have different connection values.
<b>host</b> <i>local_ip</i>	The server that runs the URL filtering application.
<i>if_name</i>	(Optional) The network interface where the authentication server resides. If not specified, the default is inside.
<b>port</b> <i>number</i>	The N2H2 server port. The security appliance also listens for UDP replies on this port. The default port number is 4005.
<b>protocol</b>	The protocol can be configured using <b>TCP</b> or <b>UDP</b> keywords. The default is TCP.
<b>timeout</b> <i>seconds</i>	The maximum idle time permitted before the security appliance switches to the next server you specified. The default is 30 seconds.
<b>vendor</b>	Indicates URL filtering service, using either 'smartfilter' or 'n2h2' (for backward compatibility); however, 'smartfilter' is saved as the vendor string.

#### Websense

<b>connections</b>	Limits the maximum number of TCP connections permitted.
<i>num_conns</i>	Specifies the maximum number of TCP connections created from the security appliance to the URL server. Since this number is per server, different servers can have different connection values.
<b>host</b> <i>local_ip</i>	The server that runs the URL filtering application.
<i>if_name</i>	The network interface where the authentication server resides. If not specified, the default is inside.

<b>timeout</b> <i>seconds</i>	The maximum idle time permitted before the security appliance switches to the next server you specified. The default is 30 seconds.
<b>protocol</b>	The protocol can be configured using <b>TCP</b> or <b>UDP</b> keywords. The default is TCP protocol, Version 1.
<b>vendor</b> <b>websense</b>	Indicates URL filtering service vendor is Websense.
<i>version</i>	Specifies protocol Version <b>1</b> or <b>4</b> . The default is TCP protocol Version 1. TCP can be configured using Version 1 or Version 4. UDP can be configured using Version 4 only.

**Defaults**

This command is disabled by default.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	•

**Command History**

Release	Modification
Preexisting	This command was preexisting.

**Usage Guidelines**

The **url-server** command designates the server running the N2H2 or Websense URL filtering application. The limit is 16 URL servers in single context mode and 4 URL servers in multi mode; however, and you can use only one application at a time, either N2H2 or Websense. Additionally, changing your configuration on the security appliance does not update the configuration on the application server; this must be done separately, according to the vendor instructions.

The **url-server** command must be configured before issuing the **filter** command for HTTPS and FTP. If all URL servers are removed from the server list, then all **filter** commands related to URL filtering are also removed.

Once you designate the server, enable the URL filtering service with the **filter url** command.

Use the **show url-server statistics** command to view server statistic information including unreachable servers.

Follow these steps to filter URLs:

- Step 1** Designate the URL filtering application server with the appropriate form of the vendor-specific **url-server** command.
- Step 2** Enable URL filtering with the **filter** command.
- Step 3** (Optional) Use the **url-cache** command to enable URL caching to improve perceived response time.
- Step 4** (Optional) Enable long URL and HTTP buffering support using the **url-block** command.

**Step 5** Use the **show url-block block statistics**, **show url-cache statistics**, or the **show url-server statistics** commands to view run information.

For more information about Filtering by N2H2, visit N2H2's website at:

<http://www.n2h2.com>

For more information on Websense filtering services, visit the following website:

<http://www.websense.com/>

### Examples

Using N2H2, the following example filters all outbound HTTP connections except those from the 10.0.2.54 host:

```
hostname(config)# url-server (perimeter) vendor n2h2 host 10.0.1.1
hostname(config)# filter url http 0 0 0 0
hostname(config)# filter url except 10.0.2.54 255.255.255.255 0 0
```

Using Websense, the following example filters all outbound HTTP connections except those from the 10.0.2.54 host:

```
hostname(config)# url-server (perimeter) vendor websense host 10.0.1.1 protocol TCP
version 4
hostname(config)# filter url http 0 0 0 0
hostname(config)# filter url except 10.0.2.54 255.255.255.255 0 0
```

### Related Commands

Commands	Description
<b>clear url-server</b>	Clears the URL filtering server statistics.
<b>filter url</b>	Directs traffic to a URL filtering server.
<b>show url-block</b>	Displays information about the URL cache, which is used for URL responses received from an N2H2 or Websense filtering server.
<b>url-cache</b>	Enables URL caching while pending responses from an N2H2 or Websense server and sets the size of the cache.

# user-authentication

To enable user authentication, use the **user-authentication enable** command in group-policy configuration mode. To disable user authentication, use the **user-authentication disable** command. To remove the user authentication attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a value for user authentication from another group policy.

When enabled, user authentication requires that individual users behind a hardware client authenticate to gain access to the network across the tunnel.

**user-authentication { enable | disable }**

**no user-authentication**

## Syntax Description

<b>disable</b>	Disables user authentication.
<b>enable</b>	Enables user authentication.

## Defaults

User authentication is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Individual users authenticate according to the order of authentication servers that you configure.

If you require user authentication on the primary security appliance, be sure to configure it on any backup servers as well.

## Examples

The following example shows how to enable user authentication for the group policy named “FirstGroup”:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# user-authentication enable
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>ip-phone-bypass</b>	Lets IP phones connect without undergoing user authentication. Secure unit authentication remains in effect.
<b>leap-bypass</b>	Lets LEAP packets from wireless devices behind a VPN client travel across a VPN tunnel prior to user authentication, when enabled. This lets workstations using Cisco wireless access point devices establish LEAP authentication. Then they authenticate again per user authentication.
<b>secure-unit-authentication</b>	Provides additional security by requiring the VPN client to authenticate with a username and password each time the client initiates a tunnel.
<b>user-authentication-idle-timeout</b>	Sets an idle timeout for individual users. If there is no communication activity on a user connection in the idle timeout period, the security appliance terminates the connection.

## user-authentication-idle-timeout

To set an idle timeout for individual users behind hardware clients, use the **user-authentication-idle-timeout** command in group-policy configuration mode. To delete the idle timeout value, use the **no** form of this command. This option allows inheritance of an idle timeout value from another group policy. To prevent inheriting an idle timeout value, use the **user-authentication-idle-timeout none** command.

If there is no communication activity by a user behind a hardware client in the idle timeout period, the security appliance terminates the connection.

**user-authentication-idle-timeout** { *minutes* | **none** }

**no user-authentication-idle-timeout**

### Syntax Description

<b>minutes</b>	Specifies the number of minutes in the idle timeout period. The range is from 1 through 35791394 minutes
<b>none</b>	Permits an unlimited idle timeout period. Sets idle timeout with a null value, thereby disallowing an idle timeout. Prevents inheriting an user authentication idle timeout value from a default or specified group policy.

### Defaults

30 minutes.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

The minimum is 1 minute, the default is 30 minutes, and the maximum is 10,080 minutes.

### Examples

The following example shows how to set an idle timeout value of 45 minutes for the group policy named "FirstGroup":

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# user-authentication-idle-timeout 45
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>user-authentication</b>	Requires users behind hardware clients to identify themselves to the security appliance before connecting.

## username

To add a user to the security appliance database, enter the **username** command in global configuration mode. To remove a user, use the **no** version of this command with the username you want to remove. To remove all usernames, use the **no** version of this command without appending a username.

```
username name { nopassword | password password [mschap | encrypted | nt-encrypted] }
  [privilege priv_level]
```

```
no username name
```

### Syntax Description

<b>encrypted</b>	Indicates that the password is encrypted (if you did not specify <b>mschap</b> ). When you define a password in the <b>username</b> command, the security appliance encrypts it when it saves it to the configuration for security purposes. When you enter the <b>show running-config</b> command, the <b>username</b> command does not show the actual password; it shows the encrypted password followed by the <b>encrypted</b> keyword. For example, if you enter the password “test,” the <b>show running-config</b> display would appear to be something like the following:  <pre>username pat password rvEdRh0xPC8bel7s encrypted</pre> The only time you would actually enter the <b>encrypted</b> keyword at the CLI is if you are cutting and pasting a configuration to another security appliance and you are using the same password.
<b>mschap</b>	Specifies that the password will be converted to unicode and hashed using MD4 after you enter it. Use this keyword if users are authenticated using MSCHAPv1 or MSCHAPv2.
<i>name</i>	Specifies the name of the user as a string from 4 to 15 characters in length.
<b>nopassword</b>	Indicates that this user needs no password.
<b>nt-encrypted</b>	Indicates that the password is encrypted for use with MSCHAPv1 or MSCHAPv2. If you specified the <b>mschap</b> keyword when you added the user, then this keyword is displayed instead of the <b>encrypted</b> keyword when you view the configuration using the <b>show running-config</b> command.  When you define a password in the <b>username</b> command, the security appliance encrypts it when it saves it to the configuration for security purposes. When you enter the <b>show running-config</b> command, the <b>username</b> command does not show the actual password; it shows the encrypted password followed by the <b>nt-encrypted</b> keyword. For example, if you enter the password “test,” the <b>show running-config</b> display would appear to be something like the following:  <pre>username pat password DLaUiAX3l78qgoB5c7iVNw== nt-encrypted</pre> The only time you would actually enter the <b>nt-encrypted</b> keyword at the CLI is if you are cutting and pasting a configuration to another security appliance and you are using the same password.
<b>password</b> <i>password</i>	Sets the password as a string from 3 to 16 characters in length.
<b>privilege</b> <i>priv_level</i>	Sets a privilege level for this use from 0 to 15 (lowest to highest). The default privilege level is 2. This privilege level is used with command authorization.



**Defaults**

The default privilege level is 2.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

**Command History**

Release	Modification
7.2(1)	The <b>mschap</b> and <b>nt-encrypted</b> keywords were added.

**Usage Guidelines**

The **login** command uses this database for authentication.

If you add users to the local database who can gain access to the CLI and whom you do not want to enter privileged mode, you should enable command authorization. (See the **aaa authorization command** command.) Without command authorization, users can access privileged EXEC mode (and all commands) at the CLI using their own password if their privilege level is 2 or greater (2 is the default). Alternatively, you can use AAA authentication so the user will not be able to use the **login** command, or you can set all local users to level 1 so you can control who can use the **enable** password to access privileged EXEC mode.

By default, VPN users that you add with this command have no attributes or group policy association. You must configure all values explicitly using the **username attributes** command.

**Examples**

The following example shows how to configure a user named “anyuser” with a password of 12345678 and a privilege level of 12:

```
hostname(config)# username anyuser password 12345678 privilege 12
```

**Related Commands**

Command	Description
<b>aaa authorization command</b>	Configures command authorization.
<b>clear config username</b>	Clears the configuration for a particular user or for all users.
<b>show running-config username</b>	Displays the running configuration for a particular user or for all users.
<b>username attributes</b>	Enters username attributes mode, which lets you configure attributes for specific users.
<b>webvpn</b>	Enters config-group-webvpn mode, in which you can configure the WebVPN attributes for the specified group.

## username attributes

To enter the username attributes mode, use the **username attributes** command in username configuration mode. To remove all attributes for a particular user, use the **no** form of this command and append the username. To remove all attributes for all users, use the **no** form of this command without appending a username. The attributes mode lets you configure Attribute-Value Pairs for a specified user.

**username** {*name*} **attributes**

**no username** [*name*] **attributes**

### Syntax Description

*name* Provides the name of the user.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Username	•	—	•	—	—

### Command History

Release	Modification
7.0.1	This command was introduced.

### Usage Guidelines

The internal user authentication database consists of the users entered with the username command. The login command uses this database for authentication. You can configure the username attributes using either the **username** command or the **username attributes** command.

The syntax of the commands in config-username mode have the following characteristics in common:

- The **no** form removes the attribute from the running configuration.
- The **none** keyword also removes the attribute from the running configuration. But it does so by setting the attribute to a null value, thereby preventing inheritance.
- Boolean attributes have explicit syntax for enabled and disabled settings.

The **username attributes** command enters config-username mode, in which you can configure any of the following attributes:

Attribute	Function
<b>group-lock</b>	Name an existing tunnel-group with which the user is required to connect.
<b>password-storage</b>	Enables/disables storage of the login password on the client system.
<b>vpn-access-hours</b>	Specifies the name of a configured time-range policy.
<b>vpn-filter</b>	Specifies the name of a user-specific ACL
<b>vpn-framed-ip-address</b>	Specifies the IP address and the net mask to be assigned to the client.
<b>vpn-group-policy</b>	Specifies the name of a group-policy from which to inherit attributes.
<b>vpn-idle-timeout</b>	Specifies the idle timeout period in minutes, or <b>none</b> to disable.
<b>vpn-session-timeout</b>	Specifies the maximum user connection time in minutes, or <b>none</b> for unlimited time.
<b>vpn-simultaneous-logins</b>	Specifies the maximum number of simultaneous logins allowed.
<b>vpn-tunnel-protocol</b>	Specifies permitted tunneling protocols.
<b>webvpn</b>	Enters webvpn mode, in which you configure webvpn attributes.

You configure webvpn-mode attributes for the username by entering the **username attributes** command and then entering the **webvpn** command in username webvpn configuration mode. See the description of the **webvpn** command (group-policy attributes and username attributes modes) for details.

### Examples

The following example shows how to enter username attributes configuration mode for a user named “anyuser”:

```
hostname(config)# username anyuser attributes
hostname(config-username)#
```

### Related Commands

Command	Description
<b>clear config username</b>	Clears the username database.
<b>show running-config username</b>	Displays the running configuration for a particular user or for all users.
<b>username</b>	Adds a user to the security appliance database.
<b>webvpn</b>	Enters username webvpn configuration mode, in which you can configure the WebVPN attributes for the specified group.

# username-prompt

To customize the username prompt of the WebVPN page login box that is displayed to WebVPN users when they connect to the security appliance, use the **username-prompt** command from webvpn customization mode:

```
username-prompt {text | style} value
```

```
[no] username-prompt {text | style} value
```

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>text</b>	Specifies you are changing the text.
<b>style</b>	Specifies you are changing the style.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default is text of the username prompt is "USERNAME:".

The default style of the username prompt is color:black;font-weight:bold;text-align:right.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.

- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

In the following example, the text is changed to “Corporate Username:”, and the default style is changed with the font weight increased to bolder:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# username-prompt text Corporate Username:
F1-asal(config-webvpn-custom)# username-prompt style font-weight:bolder
```

**Related Commands**

Command	Description
<b>group-prompt</b>	Customizes the group prompt of the WebVPN page.
<b>password-prompt</b>	Customizes the password prompt of the WebVPN page.

# user-parameter

To specify the name of the HTTP POST request parameter in which a username must be submitted for SSO authentication, use the **user-parameter** command in aaa-server-host configuration mode. This is an SSO with HTTP Forms command.

**user-parameter** *name*



## Note

To configure SSO with the HTTP protocol correctly, you must have a thorough working knowledge of authentication and HTTP protocol exchanges.

## Syntax Description

<i>string</i>	The name of the username parameter included in the HTTP POST request. The maximum name size is 128 characters.
---------------	--

## Defaults

There is no default value or behavior.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Aaa-server-host configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The WebVPN server of the security appliance uses an HTTP POST request to submit a single sign-on authentication request to an SSO server. The required command **user-parameter** specifies that the HTTP POST request must include a username parameter for SSO authentication.



## Note

At login, the user enters the actual name value which is entered into the HTTP POST request and passed on to the authenticating web server.

## Examples

The following example, entered in aaa-server-host configuration mode, specifies that the username parameter userid be included in the HTTP POST request used for SSO authentication:

```
hostname(config)# aaa-server testgrp1 host example.com
hostname(config-aaa-server-host)# user-parameter userid
hostname(config-aaa-server-host)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>action-uri</b>	Specifies a web server URI to receive a username and password for single sign-on authentication.
<b>auth-cookie-name</b>	Specifies a name for the authentication cookie.
<b>hidden-parameter</b>	Creates hidden parameters for exchange with the authenticating web server.
<b>password-parameter</b>	Specifies the name of the HTTP POST request parameter in which a user password must be submitted for SSO authentication.
<b>start-url</b>	Specifies the URL at which to retrieve a pre-login cookie.

# validate-attribute

To validate RADIUS attributes when using RADIUS accounting, use the **validate attribute** command in radius-accounting parameter configuration mode, which is accessed by using the **inspect radius-accounting** command.

This option is disabled by default.

**validate-attribute** [*attribute\_number*]

**no validate-attribute** [*attribute\_number*]

## Syntax Description

<i>attribute_number</i>	The RADIUS attribute to be validated with RADIUS accounting. Values range from 1-191. Vendor Specific Attributes are not supported.
-------------------------	---

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
radius-accounting parameter configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

When this command is configured, the security appliance will also do a match on these attributes in addition to the Framed IP attribute. Multiple instances of this command are allowed.

You can find a list of RADIUS attribute types here:

<http://www.iana.org/assignments/radius-types>

## Examples

The following example shows how to enable RADIUS accounting for the user name RADIUS attribute:

```
hostname(config)# policy-map type inspect radius-accounting ra
hostname(config-pmap)# parameters
hostname(config-pmap-p)# validate attribute 1
```



Related Commands	Commands	Description
	<b>inspect radius-accounting</b>	Sets inspection for RADIUS accounting.
	<b>parameters</b>	Sets parameters for an inspection policy map.

# verify

To verify the checksum of a file, use the **verify** command in privileged EXEC mode.

```
verify path
```

```
verify /md5 path [md5-value]
```

Syntax Description	
<b>/md5</b>	(Optional) Calculates and displays the MD5 value for the specified software image. Compare this value with the value available on Cisco.com for this image.
<i>md5-value</i>	(Optional) The known MD5 value for the specified image. When an MD5 value is specified in the command, the system will calculate the MD5 value for the specified image and display a message verifying that the MD5 values match or that there is a mismatch.
<i>path</i>	<ul style="list-style-type: none"> <li>• <b>disk0:/[path]/filename</b> This option is only available for the ASA 5500 series adaptive security appliance, and indicates the internal Flash memory. You can also use <b>flash</b> instead of <b>disk0</b>; they are aliased.</li> <li>• <b>disk1:/[path]/filename</b> This option is only available for the ASA 5500 series adaptive security appliance, and indicates the external Flash memory card.</li> <li>• <b>flash:/[path]/filename</b> This option indicates the internal Flash card. For the ASA 5500 series adaptive security appliance, <b>flash</b> is an alias for <b>disk0</b>.</li> <li>• <b>ftp://[user[:password]@]server[:port]/[path]/filename[;type=xx]</b> The <b>type</b> can be one of the following keywords: <ul style="list-style-type: none"> <li>– <b>ap</b>—ASCII passive mode</li> <li>– <b>an</b>—ASCII normal mode</li> <li>– <b>ip</b>—(Default) Binary passive mode</li> <li>– <b>in</b>—Binary normal mode</li> </ul> </li> <li>• <b>http[s]://[user[:password]@]server[:port]/[path]/filename</b></li> <li>• <b>tftp://[user[:password]@]server[:port]/[path]/filename[;int=interface_name]</b> Specify the interface name if you want to override the route to the server address.  The pathname cannot contain spaces. If a pathname has spaces, set the path in the <b>tftp-server</b> command instead of in the <b>verify</b> command.</li> </ul>

## Defaults

The current flash device is the default file system.

**Note**

When you specify the **/md5** option, you can use a network file, such as ftp, http and tftp as the source. The **verify** command without the **/md5** option only lets you verify local images in Flash.

**Command Modes**

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	—	•

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Usage Guidelines**

Use the **verify** command to verify the checksum of a file before using it.

Each software image that is distributed on disk uses a single checksum for the entire image. This checksum is displayed only when the image is copied into Flash memory; it is not displayed when the image file is copied from one disk to another.

Before loading or duplicating a new image, record the checksum and MD5 information for the image so that you can verify the checksum when you copy the image into Flash memory or onto a server. A variety of image information is available on Cisco.com.

To display the contents of Flash memory, use the **show flash** command. The Flash contents listing does not include the checksum of individual files. To recompute and verify the image checksum after the image has been copied into Flash memory, use the **verify** command. Note, however, that the **verify** command only performs a check on the integrity of the file after it has been saved in the file system. It is possible for a corrupt image to be transferred to the security appliance and saved in the file system without detection. If a corrupt image is transferred successfully to the security appliance, the software will be unable to tell that the image is corrupted and the file will verify successfully.

To use the message-digest5 (MD5) hash algorithm to ensure file validation, use the **verify** command with the **/md5** option. MD5 is an algorithm (defined in RFC 1321) that is used to verify data integrity through the creation of a unique 128-bit message digest. The **/md5** option of the **verify** command allows you to check the integrity of the security appliance software image by comparing its MD5 checksum value against a known MD5 checksum value for the image. MD5 values are now made available on Cisco.com for all security appliance software images for comparison against local system image values.

To perform the MD5 integrity check, issue the **verify** command using the **/md5** keyword. For example, issuing the **verify /md5 flash:cdisk.bin** command will calculate and display the MD5 value for the software image. Compare this value with the value available on Cisco.com for this image.

Alternatively, you can get the MD5 value from Cisco.com first, then specify this value in the command syntax. For example, issuing the **verify /md5 flash:cdisk.bin 8b5f3062c4cacdbae72571440e962233** command will display a message verifying that the MD5 values match or that there is a mismatch. A mismatch in MD5 values means that either the image is corrupt or the wrong MD5 value was entered.

**Examples**

The following example shows the verify command used on an image file called cdisk.bin. Some of the text was removed for clarity:

```
hostname# verify cdisk.bin
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Embedded Hash MD5: af5a155f3d5c128a271282c33277069b
Computed Hash MD5: af5a155f3d5c128a271282c33277069b
CCO Hash MD5: b569fff8bbf8087f3355aaf22ef46b782
Signature Verified
Verified disk0:/cdisk.bin
hostname#
```

**Related Commands**

Command	Description
copy	Copies files.
dir	Lists the files in the system.

# version

To specify the version of RIP used globally by the security appliance, use the **version** command in router configuration mode. To restore the defaults, use the **no version** form of this command.

**version** { 1 | 2 }

**no version**

## Syntax Description

<b>1</b>	Specifies RIP Version 1.
<b>2</b>	Specifies RIP Version 2.

## Defaults

The security appliance accepts Version 1 and Version 2 packets but sends only Version 1 packets.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Router configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

You can override the global setting on a per-interface basis by entering the **rip send version** and **rip receive version** commands on an interface.

If you specify RIP version 2, you can enable neighbor authentication and use MD5-based encryption to authenticate the RIP updates.

## Examples

The following example configures the security appliance to send and receive RIP Version 2 packets on all interfaces:

```
hostname(config)# router rip
hostname(config-router)# network 10.0.0.0
hostname(config-router)# version 2
```

## Related Commands

<b>Command</b>	<b>Description</b>
<b>rip send version</b>	Specifies the RIP version to use when sending update out of a specific interface.
<b>rip receive version</b>	Specifies the RIP version to accept when receiving updates on a specific interface.
<b>router rip</b>	Enables the RIP routing process and enter router configuration mode for that process.

# virtual http

To configure a virtual HTTP server, use the **virtual http** command in global configuration mode. To disable the virtual server, use the **no** form of this command.

```
virtual http ip_address [warning]
```

```
no virtual http ip_address [warning]
```

## Syntax Description

**ip\_address** Sets the IP address for the virtual HTTP server on the security appliance. Make sure this address is an unused address that is routed to the security appliance. For example, if you perform NAT for inside addresses when they access the outside, and you want to provide outside access to the virtual HTTP server, you can use one of the global NAT addresses for the virtual HTTP server address.

**warning** (Optional) Notifies users that the HTTP connection needs to be redirected to the security appliance. This keyword applies only for text-based browsers, where the redirect cannot happen automatically.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was deprecated because the inline basic HTTP authentication method used in prior releases was replaced by the redirection method; this command was no longer needed.
7.2(2)	This command was revived because you can now choose between using basic HTTP authentication (the default) or using HTTP redirection using the <b>aaa authentication listener</b> command. The redirection method does not require an extra command for cascading HTTP authentications.

## Usage Guidelines

When you use HTTP authentication on the security appliance (see the **aaa authentication match** or the **aaa authentication include** command), the security appliance uses basic HTTP authentication by default. You can change the authentication method so that the security appliance redirects HTTP connections to web pages generated by the security appliance itself using the **aaa authentication listener** command with the **redirect** keyword.

However, if you continue to use basic HTTP authentication, then you might need the **virtual http** command when you have cascading HTTP authentications.

If the destination HTTP server requires authentication in addition to the security appliance, then the **virtual http** command lets you authenticate separately with the security appliance (via a AAA server) and with the HTTP server. Without virtual HTTP, the same username and password you used to authenticate with the security appliance is sent to the HTTP server; you are not prompted separately for the HTTP server username and password. Assuming the username and password is not the same for the AAA and HTTP servers, then the HTTP authentication fails.

This command redirects all HTTP connections that require AAA authentication to the virtual HTTP server on the security appliance. The security appliance prompts for the AAA server username and password. After the AAA server authenticates the user, the security appliance redirects the HTTP connection back to the original server, but it does not include the AAA server username and password. Because the username and password are not included in the HTTP packet, the HTTP server prompts the user separately for the HTTP server username and password.

**Note**

Do not set the **timeout uauth** command duration to 0 seconds when using the **virtual http** command, because this setting prevents HTTP connections to the real web server.

**Examples**

This example shows how to enable virtual HTTP along with AAA authentication:

```
hostname(config)# access-list HTTP-ACL extended permit tcp 10.1.1.0 any eq 80
hostname(config)# aaa authentication match HTTP-ACL inside tacacs+
hostname(config)# virtual http 10.1.2.1
```

**Related Commands**

Command	Description
<b>aaa authentication listener http</b>	Sets the method by which the security appliance authenticates.
<b>clear configure virtual</b>	Removes <b>virtual</b> command statements from the configuration.
<b>show running-config virtual</b>	Displays the IP address of the security appliance virtual server.
<b>sysopt uauth allow-http-cache</b>	When you enable the <b>virtual http</b> command, this command lets you use the username and password in the browser cache to reconnect to the virtual server.
<b>virtual telnet</b>	Provides a virtual Telnet server on the security appliance to let users authenticate with the security appliance before initiating other types of connections that require authentication.



# virtual telnet

To configure a virtual Telnet server on the security appliance, use the **virtual telnet** command in global configuration mode. You might need to authenticate users with the virtual Telnet server if you require authentication for other types of traffic for which the security appliance does not supply an authentication prompt. To disable the server, use the **no** form of this command.

**virtual telnet** *ip-address*

**no virtual telnet** *ip-address*

## Syntax Description

*ip\_address* Sets the IP address for the virtual Telnet server on the security appliance. Make sure this address is an unused address that is routed to the security appliance. For example, if you perform NAT for inside addresses when they access the outside, and you want to provide outside access to the virtual Telnet server, you can use one of the global NAT addresses for the virtual Telnet server address.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

Although you can configure network access authentication for any protocol or service (see the **aaa authentication match** or **aaa authentication include** command), you can authenticate directly with HTTP, Telnet, or FTP only. A user must first authenticate with one of these services before other traffic that requires authentication is allowed through. If you do not want to allow HTTP, Telnet, or FTP through the security appliance, but want to authenticate other types of traffic, you can configure virtual Telnet; the user Telnets to a given IP address configured on the security appliance, and the security appliance provides a Telnet prompt.

When an unauthenticated user connects to the virtual Telnet IP address, the user is challenged for a username and password, and then authenticated by the AAA server. Once authenticated, the user sees the message “Authentication Successful.” Then, the user can successfully access other services that require authentication.

**Examples**

This example shows how to enable virtual Telnet along with AAA authentication for other services:

```
hostname(config)# access-list AUTH extended permit tcp 10.1.1.0 host 10.1.2.1 eq telnet
hostname(config)# access-list AUTH extended permit tcp 10.1.1.0 host 209.165.200.225 eq
smtp
hostname(config)# aaa authentication match AUTH inside tacacs+
hostname(config)# virtual telnet 10.1.2.1
```

**Related Commands**

Command	Description
<b>clear configure virtual</b>	Removes <b>virtual</b> command statements from the configuration.
<b>show running-config virtual</b>	Displays the IP address of the security appliance virtual server.
<b>virtual http</b>	When you use HTTP authentication on the security appliance, and the HTTP server also requires authentication, this command allows you to authenticate separately with the security appliance and with the HTTP server. Without virtual HTTP, the same username and password you used to authenticate with the security appliance is sent to the HTTP server; you are not prompted separately for the HTTP server username and password.

# vlan

To assign a VLAN ID to a subinterface, use the **vlan** command in interface configuration mode. To remove a VLAN ID, use the **no** form of this command. Subinterfaces require a VLAN ID to pass traffic. VLAN subinterfaces let you configure multiple logical interfaces on a single physical interface. VLANs let you keep traffic separate on a given physical interface, for example, for multiple security contexts.

**vlan** *id*

**no vlan**

## Syntax Description

*id* Specifies an integer between 1 and 4094. Some VLAN IDs might be reserved on connected switches, so check the switch documentation for more information.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Interface configuration	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was moved from a keyword of the <b>interface</b> command to an interface configuration mode command.

## Usage Guidelines

You can only assign a single VLAN to a subinterface, and not to the physical interface. Each subinterface must have a VLAN ID before it can pass traffic. To change a VLAN ID, you do not need to remove the old VLAN ID with the **no** option; you can enter the **vlan** command with a different VLAN ID, and the security appliance changes the old ID.

You need to enable the physical interface with the **no shutdown** command to let subinterfaces be enabled. If you enable subinterfaces, you typically do not also want the physical interface to pass traffic, because the physical interface passes untagged packets. Therefore, you cannot prevent traffic from passing through the physical interface by bringing down the interface. Instead, ensure that the physical interface does not pass traffic by leaving out the **nameif** command. If you want to let the physical interface pass untagged packets, you can configure the **nameif** command as usual.

The maximum number of subinterfaces varies depending on your platform. See the *Cisco Security Appliance Command Line Configuration Guide* for the maximum subinterfaces per platform.

**Examples**

The following example assigns VLAN 101 to a subinterface:

```
hostname(config)# interface gigabitethernet0/0.1
hostname(config-subif)# vlan 101
hostname(config-subif)# nameif dmz1
hostname(config-subif)# security-level 50
hostname(config-subif)# ip address 10.1.2.1 255.255.255.0
hostname(config-subif)# no shutdown
```

The following example changes the VLAN to 102:

```
hostname(config)# show running-config interface gigabitethernet0/0.1
interface GigabitEthernet0/0.1
    vlan 101
    nameif dmz1
    security-level 50
    ip address 10.1.2.1 255.255.255.0

hostname(config)# interface gigabitethernet0/0.1
hostname(config-interface)# vlan 102

hostname(config)# show running-config interface gigabitethernet0/0.1
interface GigabitEthernet0/0.1
    vlan 102
    nameif dmz1
    security-level 50
    ip address 10.1.2.1 255.255.255.0
```

**Related Commands**

Command	Description
<b>allocate-interface</b>	Assigns interfaces and subinterfaces to a security context.
<b>interface</b>	Configures an interface and enters interface configuration mode.
<b>show running-config interface</b>	Shows the current configuration of the interface.

# vpdn group

To create or edit a vpdn group and configure PPPoE client settings, use the **vpdn group** command in global configuration mode. To remove a group policy from the configuration, use the **no** form of this command.

```
vpdn group group_name {localname username | request dialout pppoe | ppp authentication
{chap | mschap | pap}}
```

```
no vpdn group group_name {localname name | request dialout pppoe | ppp authentication
{chap | mschap | pap}}
```



## Note

PPPoE is not supported when failover is configured on the security appliance, or in multiple context or transparent mode. PPPoE is only supported in single, routed mode, without failover.

## Syntax Description

<b>vpdn group</b> <i>group_name</i>	Specifies a name for the vpdn group
<b>localname</b> <i>username</i>	Links the user name to the vpdn group for authentication, and must match the name configured with the <b>vpdn username</b> command.
<b>request dialout pppoe</b>	Specifies to allow dialout PPPoE requests.
<b>ppp authentication</b> {chap   mschap   pap}}	Specifies the Point-to-Point Protocol (PPP) authentication protocol. The Windows client dial-up networking settings lets you specify what authentication protocol to use (PAP, CHAP, or MS-CHAP). Whatever you specify on the client must match the setting you use on the security appliance. Password Authentication Protocol (PAP) lets PPP peers authenticate each other. PAP passes the host name or username in clear text. Challenge Handshake Authentication Protocol (CHAP) lets PPP peers prevent unauthorized access through interaction with an access server. MS-CHAP is a Microsoft derivation of CHAP. PIX Firewall supports MS-CHAP Version 1 only (not Version 2.0).  If an authentication protocol is not specified on the host, do not specify the <b>ppp authentication</b> option in your configuration.

## Defaults

default behavior or values. See Usage Guidelines.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

**Command History**

Release	Modification
7.2.1	This command was introduced.

**Usage Guidelines**

Virtual Private Dial-up Networking (VPDN) is used to provide long distance, point-to-point connections between remote dial-in users and a private network. VPDN on the security appliance uses the Layer 2 tunnelling technology PPPoE to establish dial-up networking connections from the remote user to the private network across a public network.

PPPoE is the Point-to-Point Protocol (PPP) over Ethernet. PPP is designed to work with network layer protocols such as IP, IPX, and ARA. PPP also has CHAP and PAP as built-in security mechanisms.

The **show vpngroup session pppoe** command displays session information for PPPOE connections. The **clear configure vpngroup** command removes all **vpngroup** commands from the configuration and stops all the active L2TP and PPPoE tunnels. The **clear configure vpngroup username** command removes all the **vpngroup username** commands from the configuration.

Because PPPoE encapsulates PPP, PPPoE relies on PPP to perform authentication and ECP and CCP functions for client sessions operating within the VPN tunnel. Additionally, PPPoE is not supported in conjunction with DHCP because PPP assigns the IP address for PPPoE.

**Note**

Unless the VPDN group for PPPoE is configured, PPPoE cannot establish a connection.

To define a VPDN group to be used for PPPoE, use the **vpngroup group\_name request dialout pppoe** command. Then use the **pppoe client vpngroup** command from interface configuration mode to associate a VPDN group with a PPPoE client on a particular interface.

If your ISP requires authentication, use the **vpngroup group\_name ppp authentication {chap | mschap | pap}** command to select the authentication protocol used by your ISP.

Use the **vpngroup group\_name localname username** command to associate the username assigned by your ISP with the VPDN group.

Use the **vpngroup username username password password** command to create a username and password pair for the PPPoE connection. The username must be a username that is already associated with the VPDN group specified for PPPoE.

**Note**

If your ISP is using CHAP or MS-CHAP, the username may be called the remote system name and the password may be called the CHAP secret.

The PPPoE client functionality is turned off by default, so after VPDN configuration, enable PPPoE with the **ip address if\_name pppoe [setroute]** command. The **setroute** option causes a default route to be created if no default route exists.

As soon as PPPoE is configured, the security appliance attempts to find a PPPoE access concentrator with which to communicate. When a PPPoE connection is terminated, either normally or abnormally, the security appliance attempts to find a new access concentrator with which to communicate.

The following **ip address** commands should not be used after a PPPoE session is initiated because they will terminate the PPPoE session:

- **ip address outside pppoe**, because it attempts to initiate a new PPPoE session.
- **ip address outside dhcp**, because it disables the interface until the interface gets its DHCP configuration.

- **ip address outside** *address netmask*, because it brings up the interface as a normally initialized interface.

### Examples

The following example creates a vpdn group *telecommuters* and configures the PPPoE client:

```
F1(config)# vpdn group telecommuters request dialout pppoe
F1(config)# vpdn group telecommuters localname user1
F1(config)# vpdn group telecommuters ppp authentication pap
F1(config)# vpdn username user1 password test1
F1(config)# interface GigabitEthernet 0/1
F1(config-subif)# ip address pppoe setroute
```

### Related Commands

Command	Description
<b>clear configure vpdn group</b>	Removes all vpdn group commands from the configurations.
<b>clear configure vpdn username</b>	Removes all vpdn username commands from the configuration.
<b>show vpdn group</b> <i>group_name</i>	Displays the vpdn group configuration.
<b>vpdn username</b>	Creates a username and password pair for the PPPoE connection.

## vpdn username

To create a username and password pair for PPPoE connections, use the **vpdn username** command in global configuration mode.

```
vpdn username username password password [store-local]
```

```
no vpdn username username password password [store-local]
```



### Note

PPPoE is not supported when failover is configured on the security appliance, or in multiple context or transparent mode. PPPoE is only supported in single, routed mode, without failover.

### Syntax Description

<i>username</i>	Specifies the username.
<i>password</i>	Specifies the password.
<b>store-local</b>	Stores the username and password in a special location of NVRAM on the security appliance. If an Auto Update Server sends a clear config command to the security appliance and the connection is then interrupted, the security appliance can read the username and password from NVRAM and re-authenticate to the Access Concentrator.

### Defaults

No default behavior or values. See Usage Guidelines.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

The **vpdn username** must be a username that is already associated with the VPDN group specified with the **vpdn group** *group\_name* **localname** *username* command.

The **clear configure vpdn username** command removes all the **vpdn username** commands from the configuration.

### Examples

The following example creates the vpdn username *bob\_smith* with the password *telecommuter9/8*:

```
F1(config)# vpdn username bob_smith password telecommuter9/8
```



**Related Commands**

<b>Command</b>	<b>Description</b>
<b>clear configure vpdn group</b>	Removes all vpdn group commands from the configurations.
<b>clear configure vpdn username</b>	Removes all vpdn username commands from the configuration.
<b>show vpdn group</b>	Displays the vpdn group configuration.
<b>vpdn group</b>	Create a vpdn group and configures PPPoE client settings,

# vpn-access-hours

To associate a group policy with a configured time-range policy, use the **vpn-access-hours** command in group-policy configuration mode or username configuration mode. To remove the attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a time-range value from another group policy. To prevent inheriting a value, use the **vpn-access-hours none** command.

**vpn-access hours value** {*time-range*} | **none**

**no vpn-access hours**

## Syntax Description

<b>none</b>	Sets VPN access hours to a null value, thereby allowing no time-range policy. Prevents inheriting a value from a default or specified group policy.
<i>time-range</i>	Specifies the name of a configured time-range policy.

## Defaults

Unrestricted.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—
Username	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

## Examples

The following example shows how to associate the group policy named FirstGroup with a time-range policy called 824:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# vpn-access-hours 824
```

## Related Commands

Command	Description
<b>time-range</b>	Sets days of the week and hours of the day for access to the network, including start and end dates.

## vpn-addr-assign

To specify a method for assigning IP addresses to remote access clients, use the **vpn-addr-assign** command in global configuration mode. To remove the attribute from the configuration, use the **no** version of this command. To remove all configured Vpn address assignment methods from the security appliance, use the **no** version of this command. without arguments.

```
vpn-addr-assign { aaa | dhcp | local }
```

```
no vpn-addr-assign [ aaa | dhcp | local ]
```

### Syntax Description

<b>aaa</b>	Obtains IP addresses from an external AAA authentication server.
<b>dhcp</b>	Obtains IP addresses via DHCP.
<b>local</b>	Assigns IP addresses from internal authentication server, and associates them with a tunnel group.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

### Command History

Release	Modification
7.0(1)(1)	This command was introduced.

### Usage Guidelines

If you choose DHCP, you must also use the **dhcp-network-scope** command to define the range of IP addresses that the DHCP server can use.

If you choose local, you must also use the **ip-local-pool** command to define the range of IP addresses to use. You then use the **vpn-framed-ip-address** and **vpn-framed-netmask** commands to assign IP addresses and netmasks to individual users.

If you choose AAA, you obtain IP addresses from either a previously configured RADIUS server.

### Examples

The following example shows how to configure DHCP as the address assignment method:

```
hostname(config)# vpn-addr-assign dhcp
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>dhcp-network-scope</b>	Specifies the range of IP addresses the security appliance DHCP server should use to assign addresses to users of a group policy.
<b>ip-local-pool</b>	Creates a local IP address pool.
<b>vpn-framed-ip-address</b>	Specifies the IP address to assign to a particular user.
<b>vpn-framed-ip-netmask</b>	Specifies the netmask to assign to a particular user.

# vpn-filter

To specify the name of the ACL to use for VPN connections, use the **vpn-filter** command in group policy or username mode. To remove the ACL, including a null value created by issuing the **vpn-filter none** command, use the **no** form of this command. The **no** option allows inheritance of a value from another group policy. To prevent inheriting values, use the **vpn-filter none** command.

You configure ACLs to permit or deny various types of traffic for this user or group policy. You then use the **vpn-filter** command to apply those ACLs.

```
vpn-filter {value ACL name | none}
```

```
no vpn-filter
```

## Syntax Description

<b>none</b>	Indicates that there is no access list. Sets a null value, thereby disallowing an access list. Prevents inheriting an access list from another group policy.
<b>value ACL name</b>	Provides the name of the previously configured access list.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Group-policy	•	—	•	—	—
Username	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

WebVPN does not use the ACL defined in the **vpn-filter** command.

## Examples

The following example shows how to set a filter that invokes an access list named `acl_vpn` for the group policy named `FirstGroup`:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# vpn-filter value acl_vpn
```

## Related Commands

Command	Description
<b>access-list</b>	Creates an access list, or uses a downloadable access list.

## vpn-framed-ip-address

To specify the IP address to assign to a particular user, use the **vpn-framed-ip-address** command in username mode. To remove the IP address, use the **no** form of this command.

```
vpn-framed-ip-address {ip_address}
```

```
no vpn-framed-ip-address
```

Syntax Description	<i>ip_address</i>	Provides the IP address for this user.

Defaults	No default behavior or values.

Command Modes	The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Username	•	—	•	—	—

Command History	Release	Modification
	7.0(1)(1)	This command was introduced.

The following example shows how to set an IP address of 10.92.166.7 for a user named anyuser:

```
hostname(config)# username anyuser attributes
hostname(config-username)# vpn-framed-ip-address 10.92.166.7
```

Related Commands	Command	Description
	<b>vpn-framed-ip-netmask</b>	Provides the subnet mask for this user.

# vpn-framed-ip-netmask

To specify the subnet mask to assign to a particular user, use the **vpn-framed-ip-netmask** command in username mode. To remove the subnet mask, use the **no** form of this command.

```
vpn-framed-ip-netmask {netmask}
```

```
no vpn-framed-ip-netmask
```

## Syntax Description

<i>netmask</i>	Provides the subnet mask for this user.
----------------	---

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Username	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Examples

The following example shows how to set a subnet mask of 255.255.255. 254 for a user named anyuser:

```
hostname(config)# username anyuser attributes
hostname(config-username)# vpn-framed-ip-netmask 255.255.255.254
```



### Note

If RADIUS only returns the subnet mask, the authentication uses the IP address from the local pool which has its own subnet netmask. It does not use the mask from RADIUS. To prevent this, return both the netmask and IP address from RADIUS.

## Related Commands

Command	Description
<b>vpn-framed-ip-address</b>	Provides the IP address for this user.

# vpn-group-policy

To have a user inherit attributes from a configured group policy, use the **vpn-group-policy** command in username configuration mode. To remove a group policy from a user configuration, use the **no** version of this command. Using this command lets users inherit attributes that you have not configured at the username level.

```
vpn-group-policy {group-policy name}
```

```
no vpn-group-policy {group-policy name}
```

## Syntax Description

group-policy name	Provides the name of the group policy.
-------------------	--

## Defaults

By default, VPN users have no group policy association.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Username	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

You can override the value of an attribute in a group policy for a particular user by configuring it in username mode, if that attribute is available in username mode.

## Examples

The following example shows how to configure a user named anyuser to use attributes from the group policy named FirstGroup:

```
hostname(config)# username anyuser attributes
hostname(config-username)# vpn-group-policy FirstGroup
```

## Related Commands

Command	Description
group-policy	Adds a group policy to the security appliance database.
group-policy attributes	Enters group-policy attributes mode, which lets you configure AVPs for a group policy.



Command	Description
<code>username</code>	Adds a user to the security appliance database.
<code>username attributes</code>	Enters username attributes mode, which lets you configure AVPs for specific users.

# vpn-idle-timeout

To configure a user timeout period use the **vpn-idle-timeout** command in group-policy configuration mode or in username configuration mode. If there is no communication activity on the connection in this period, the security appliance terminates the connection.

To remove the attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a time-out value from another group policy. To prevent inheriting a value, use the **vpn-idle-timeout none** command.

**vpn-idle-timeout** {*minutes* | **none**}

**no vpn-idle-timeout**

## Syntax Description

<i>minutes</i>	Specifies the number of minutes in the timeout period. Use an integer between 1 and 35791394.
<b>none</b>	Permits an unlimited idle timeout period. Sets idle timeout with a null value, thereby disallowing an idle timeout. Prevents inheriting a value from a default or specified group policy.

## Defaults

30 minutes.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—
Username	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Examples

The following example shows how to set a VPN idle timeout of 15 minutes for the group policy named “FirstGroup”:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# vpn-idle-timeout 30
```

## Related Commands

---

<b>group-policy</b>	Creates or edits a group policy.
<b>vpn-session-timeout</b>	Configures the maximum amount of time allowed for VPN connections. At the end of this period of time, the security appliance terminates the connection.

---

# vpn load-balancing

To enter vpn load-balancing mode, in which you can configure VPN load balancing and related functions, use the **vpn load-balancing** command in global configuration mode.

## vpn load-balancing



### Note

Only ASA Models 5540 and 5520 support VPN load balancing. VPN load balancing also requires an active 3DES/AES license. The security appliance checks for the existence of this crypto license before enabling load balancing. If it does not detect an active 3DES or AES license, the security appliance prevents the enabling of load balancing and also prevents internal configuration of 3DES by the load balancing system unless the license permits this usage.

### Syntax Description

This command has no arguments or keywords.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration mode	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

Use the **vpn load-balancing** command to enter vpn load-balancing mode. The following commands are available in vpn load-balancing mode:

**cluster encryption**

**cluster ip address**

**cluster key**

**cluster port**

**interface**

**nat**

**participate**

**priority**

See the individual command descriptions for detailed information.

**Examples**

The following is an example of the **vpn load-balancing** command; note the change in the prompt:

```
hostname(config)# vpn load-balancing
hostname(config-load-balancing)#
```

The following is an example of a VPN load-balancing command sequence that includes an interface command that specifies the public interface of the cluster as “test” and the private interface of the cluster as “foo”:

```
hostname(config)# interface GigabitEthernet 0/1
hostname(config-if)# ip address 209.165.202.159 255.255.255.0
hostname(config)# nameif test
hostname(config)# interface GigabitEthernet 0/2
hostname(config-if)# ip address 209.165.201.30 255.255.255.0
hostname(config)# nameif foo
hostname(config)# vpn load-balancing
hostname(config-load-balancing)# nat 192.168.10.10
hostname(config-load-balancing)# priority 9
hostname(config-load-balancing)# interface lbpublic test
hostname(config-load-balancing)# interface lbprivate foo
hostname(config-load-balancing)# cluster ip address 209.165.202.224
hostname(config-load-balancing)# cluster key 123456789
hostname(config-load-balancing)# cluster encryption
hostname(config-load-balancing)# cluster port 9023
hostname(config-load-balancing)# participate
```

Command	Description
<b>clear configure vpn load-balancing</b>	Removes the load-balancing runtime configuration and disables load balancing.
<b>show running-config vpn load-balancing</b>	Displays the the current VPN load-balancing virtual cluster configuration.
<b>show vpn load-balancing</b>	Displays VPN load-balancing runtime statistics.

## vpn-nac-exempt

To add an entry to the list of remote computer types that are exempt from posture validation, use the **vpn-nac-exempt** command in group-policy configuration mode.

```
vpn-nac-exempt os "os name" [filter {acl-name | none}] [disable]
```

To disable inheritance and specify that all hosts will be subject to posture validation, use the **none** keyword immediately following **vpn-nac-exempt**.

```
vpn-nac-exempt none
```

To remove an entry from the exemption list, use the **no** form of this command and name the operating system (and ACL) in the entry to be removed.

```
no vpn-nac-exempt [os "os name"] [filter {acl-name | none}] [disable]
```

To remove all entries from the exemption list associated with this group policy and inherit the list from the default group policy, use the **no** form of this command without specifying additional keywords.

```
no vpn-nac-exempt
```

### Syntax

Description	<i>acl-name</i>	Name of the ACL present in the security appliance configuration.
<b>disable</b>		Disables the entry in the exemption list without removing it from the list.
<b>filter</b>		Applies an ACL to filter the traffic if the computer's operating system matches the <i>os name</i> .
<b>none</b>		When entered immediately after <b>vpn-nac-exempt</b> , this keyword disables inheritance and specifies that all hosts will be subject to posture validation. When entered immediately after <b>filter</b> , this keyword indicates that the entry does not specify an ACL.
<b>OS</b>		Exempts an operating system from posture validation.
<i>os name</i>		Operating system name. Quotation marks are required only if the name includes a space (for example, "Windows XP").

### Defaults

By default, the exemption list is empty.

The default value of the filter attribute is "none".

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
group-policy configuration	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** Enter the **vpn-nac-exempt** once for each operating system (and ACL) to be matched to exempt remote hosts from posture validation.

**Examples** The following example adds all hosts running Windows XP to the list of computers that are exempt from posture validation:

```
hostname(config-group-policy)# vpn-nac-exempt os "Windows XP"
hostname(config-group-policy)
```

The following examples exempts all hosts running Windows 98 and apply the ACL acl-1 to traffic from those hosts:

```
hostname(config-group-policy)# vpn-nac-exempt os "Windows 98" filter acl-1
hostname(config-group-policy)
```

The following example adds the same entry to the exemption list, but disables it:

```
hostname(config-group-policy)# vpn-nac-exempt os "Windows 98" filter acl-1 disable
hostname(config-group-policy)
```

The following example removes the same entry from the exemption list, regardless of whether it is disabled:

```
hostname(config-group-policy)# no vpn-nac-exempt os "Windows 98" filter acl-1
hostname(config-group-policy)
```

The following example disables inheritance and specifies that all hosts will be subject to posture validation:

```
hostname(config-group-policy)# no vpn-nac-exempt none
hostname(config-group-policy)
```

The following example removes all entries from the exemption list:

```
hostname(config-group-policy)# no vpn-nac-exempt
hostname(config-group-policy)
```

Related Commands	Command	Description
	<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
	<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
	<b>debug nac</b>	Enables logging of NAC events.
	<b>nac</b>	Enables Network Admission Control on a group policy.

# vpn-sessiondb logoff

To log off all or selected VPN sessions, use the **vpn-sessiondb logoff** command in global configuration mode.

```
vpn-sessiondb logoff {remote | l2l | webvpn | email-proxy | protocol protocol-name | name
username | ipaddress IPAddr | tunnel-group groupname | index indexnumber | all}
```

## Syntax Description

<b>all</b>	Logs off all VPN sessions.
<b>email-proxy</b>	Logs off all e-mail proxy sessions.
<b>index</b> <i>indexnumber</i>	Logs off a single session by index number. Specify the index number for the session.
<b>ipaddress</b> <i>IPAddr</i>	Logs off sessions for the IP address that you specify.
<b>l2l</b>	Logs off all LAN-to-LAN sessions.
<b>name</b> <i>username</i>	Logs off sessions for the username that you specify.
<b>protocol</b> <i>protocol-name</i>	Logs off sessions for protocols that you specify. The protocols include: IKE IMAP4S IPSec IPSecLAN2LAN IPSecLAN2LANOverNatT IPSecOverNatT IPSecoverTCP IPSecOverUDP POP3S SMTPS userHTTPS vcaLAN2LAN
<b>remote</b>	Logs off all remote-access sessions.
<b>tunnel-group</b> <i>groupname</i>	Logs off sessions for the tunnel group that you specify.
<b>webvpn</b>	Logs off all WebVPN sessions.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—



**Command History**

<b>Release</b>	<b>Modification</b>
7.0(1)(1)	This command was introduced.

**Examples**

The following example shows how to log off all remote-access sessions:

```
hostname# vpn-sessiondb logoff remote
```

The next example shows how to log off all IPsec sessions:

```
hostname# vpn-sessiondb logoff protocol IPsec
```

# vpn-sessiondb max-session-limit

To limit VPN sessions to a lower value than the security appliance allows, use the **vpn-sessiondb max-session-limit** command in global configuration mode. To remove the session limit, use the **no** version of this command. To overwrite the current setting, use the command again.

```
vpn-sessiondb max-session-limit {session-limit}
```

```
no vpn-sessiondb max-session-limit
```

## Syntax Description

<i>session-limit</i>	Specifies the maximum number of VPN sessions permitted.
----------------------	---

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

This command applies to IPSec VPN sessions,.

## Examples

The following example shows how to set a maximum VPN session limit of 450:

```
hostname# vpn-sessiondb max-session-limit 450
```

## Related Commands

Command	Description
<b>vpn-sessiondb logoff</b>	Logs off all or specific types of IPsec VPN and WebVPN sessions.
<b>vpn-sessiondb max-webvpn-session-limit</b>	Sets a maximum number of WebVPN sessions.

# vpn-sessiondb max-webvpn-session-limit

To limit WebVPN sessions to a lower value than the security appliance allows, use the **vpn-sessiondb max-webvpn-session-limit** command in global configuration mode. To remove the session limit, use the **no** version of this command. To overwrite the current setting, use the command again.

```
vpn-sessiondb max-webvpn-session-limit {session-limit}
```

```
no vpn-sessiondb max-webvpn-session-limit
```

## Syntax Description

<i>session-limit</i>	Specifies the maximum number of WebVPN sessions permitted.
----------------------	--

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

This command applies to WebVPN sessions.

## Examples

The following example shows how to set a maximum WebVPN session limit of 75:

```
hostname (config)# vpn-sessiondb max-webvpn-session-limit 75
```

## Related Commands

Command	Description
<b>vpn-sessiondb logoff</b>	Logs off all or specific types of IPsec VPN and WebVPN sessions.
<b>vpn-sessiondb max-vpn-session-limit</b>	Sets a maximum number of VPN sessions.

## vpn-session-timeout

To configure a maximum amount of time allowed for VPN connections, use the **vpn-session-timeout** command in group-policy configuration mode or in username configuration mode. At the end of this period of time, the security appliance terminates the connection.

To remove the attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a time-out value from another group policy. To prevent inheriting a value, use the **vpn-session-timeout none** command.

**vpn-session-timeout** {*minutes* | **none**}

**no vpn-session-timeout**

Syntax Description	minutes	none
	Specifies the number of minutes in the timeout period. Use an integer between 1 and 35791394.	Permits an unlimited session timeout period. Sets session timeout with a null value, thereby disallowing a session timeout. Prevents inheriting a value from a default or specified group policy.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—
Username	•	—	•	—	—

Command History	Release	Modification
	7.0(1)(1)	This command was introduced.

**Examples** The following example shows how to set a VPN session timeout of 180 minutes for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# vpn-session-timeout 180
```

### Related Commands

---

<b>group-policy</b>	Creates or edits a group policy.
<b>vpn-idle-timeout</b>	Configures the user timeout period. If there is no communication activity on the connection in this period, the security appliance terminates the connection.

---

# vpn-simultaneous-logins

To configure the number of simultaneous logins permitted for a user, use the **vpn-simultaneous-logins** command in group-policy configuration mode or username configuration mode. To remove the attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a value from another group policy. Enter 0 to disable login and prevent user access.

**vpn-simultaneous-logins** {*integer*}

**no vpn-simultaneous-logins**

**Syntax Description**     *integer*     A number between 0 and 2147483647.

**Defaults**     The default is 3 simultaneous logins.

**Command Modes**     The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Group-policy	•	—	•	—	—
Username	•	—	•	—	—

Command History	Release	Modification
	7.0(1)(1)	This command was introduced.

**Usage Guidelines**     Enter 0 to disable login and prevent user access.

**Examples**     The following example shows how to allow a maximum of 4 simultaneous logins for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# vpn-simultaneous-logins 4
```

# vpn-tunnel-protocol

To configure a VPN tunnel type (IPSec, L2TP over IPSec, or WebVPN), use the **vpn-tunnel-protocol** command in group-policy configuration mode or username configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

```
vpn-tunnel-protocol {webvpn | l2tp-ipsec | IPSec}
```

```
no vpn-tunnel-protocol [webvpn | l2tp-ipsec | IPSec]
```

## Syntax Description

<b>IPSec</b>	Negotiates an IPSec tunnel between two peers (a remote access client or another secure gateway). Creates security associations that govern authentication, encryption, encapsulation, and key management.
<b>l2tp-ipsec</b>	Negotiates an IPSec tunnel for an L2TP connection.
<b>webvpn</b>	Provides VPN services to remote users via an HTTPS-enabled web browser, and does not require a client

## Defaults

IPSec.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—
Username	•	—	•	—	—

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.
7.2(1)	The <b>l2tp-ipsec</b> keyword was added.

## Usage Guidelines

Use this command to configure one or more tunneling modes. You must configure at least one tunneling mode for users to connect over a VPN tunnel.

## Examples

The following example shows how to configure WebVPN and IPSec tunneling modes for the group policy named "FirstGroup":

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# vpn-tunnel-protocol webvpn
hostname(config-group-policy)# vpn-tunnel-protocol IPSec
```

# vpnclient connect

To attempt to establish an Easy VPN Remote connection to the configured server or servers, use the **vpnclient connect** command in global configuration mode.

## vpnclient connect

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

This command applies only to the ASA model 5505.

### Examples

The following example shows how to attempt to establish an Easy VPN Remote connection to a configured EasyVPN server:

```
hostname(config)# vpnclient connect
hostname(config)#
```



# vpnclient disconnect

To disconnect Easy VPN Remote connection, use the **vpnclient disconnect** command in global configuration mode.

## vpnclient disconnect

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
EXEC	•	—	•	—	—
Global configuration	•	—	•	—	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

This command applies only to the ASA model 5505.

### Examples

The following example shows how to disconnect an Easy VPN Remote connection:

```
hostname(config)# vpnclient disconnect
hostname(config)#
```

# vpnclient enable

To enable the Easy VPN Remote feature, use the **vpnclient enable** command in global configuration mode. To disable the Easy VPN Remote feature, use the **no** form of this command:

**vpnclient enable**

**no vpnclient enable**

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command applies only to the ASA 5505.

If you enter the **vpnclient enable** command, the ASA 5505 functions as a Easy VPN hardware client (also called “Easy VPN Remote”). If you enter the **no vpnclient enable** command, it functions as an Easy VPN server (also called a “headend”). It can function only as a client or a server.

## Examples

The following example shows how to enable the Easy VPN Remote feature:

```
hostname(config)# vpnclient enable
hostname(config)#
```

The following example shows how to disable the Easy VPN Remote feature:

```
hostname(config)# no vpnclient enable
hostname(config)#
```

# vpnclient ipsec-over-tcp

To configure the ASA 5505 running as an Easy VPN hardware client to use TCP-encapsulated IPsec, use the **vpnclient ipsec-over-tcp** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

```
vpnclient ipsec-over-tcp [port tcp_port]
```

```
no vpnclient ipsec-over-tcp
```

## Syntax Description

<b>port</b>	(Optional) Specifies the use of a particular port.
<i>tcp_port</i>	(Required if you specify the keyword <b>port</b> .) Specifies the TCP port number to be used for a TCP-encapsulated IPsec tunnel.

## Defaults

The Easy VPN Remote connection uses port 10000 if the command does not specify a port number.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command applies only to the ASA 5505 running as an Easy VPN hardware client (also called “Easy VPN Remote”).

By default, the Easy VPN client and server encapsulate IPsec in User Datagram Protocol (UDP) packets. Some environments, such as those with certain firewall rules, or NAT and PAT devices, prohibit UDP. To use standard Encapsulating Security Protocol (ESP, Protocol 50) or Internet Key Exchange (IKE, UDP 500) in such environments, you must configure the client and the server to encapsulate IPsec within TCP packets to enable secure tunneling. If your environment allows UDP, however, configuring IPsec over TCP adds unnecessary overhead.

If you configure an ASA 5505 to use TCP-encapsulated IPsec, enter the following command to let it send large packets over the outside interface:

```
hostname(config)# crypto ipsec df-bit clear-df outside
hostname(config)#
```

This command clears the Don't Fragment (DF) bit from the encapsulated header. A DF bit is a bit within the IP header that determines whether the packet can be fragmented. This command lets the Easy VPN hardware client send packets that are larger than the MTU size.

---

**Examples**

The following example shows how to configure the Easy VPN hardware client to use TCP-encapsulated IPSec, using the default port 10000, and to let it send large packets over the outside interface:

```
hostname(config)# vpnclient ipsec-over-tcp  
hostname(config)# crypto ipsec df-bit clear-df outside  
hostname(config)#
```

The next example shows how to configure the Easy VPN hardware client to use TCP-encapsulated IPSec, using the port 10501, and to let it send large packets over the outside interface:

```
hostname(config)# vpnclient ipsec-over-tcp port 10501  
hostname(config)# crypto ipsec df-bit clear-df outside  
hostname(config)#
```

# vpnclient mac-exempt

To exempt devices behind an Easy VPN Remote connection from individual user authentication requirements, use the **vpnclient mac-exempt** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

```
vpnclient mac-exempt mac_addr_1 mac_mask_1 [mac_addr_2 mac_mask_2...mac_addr_n
mac_mask_n]
```

```
no vpnclient mac-exempt
```

## Syntax Description

<i>mac_addr_1</i>	MAC address, in dotted hexadecimal notation, specifying a manufacturer and serial number of a device for which to exempt individual user authentication. For more than one device, specify each MAC address, separating each with a space and the respective network mask.  The first 6 characters of the MAC address identify the device manufacturer, and the last 6 characters are the serial number. The last 24 bits are the unit's serial number in hexadecimal format.
<i>mac_mask_1</i>	Network mask for the corresponding MAC address. Use a space to separate the network mask and any subsequent MAC address and network mask pairs.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

---

**Usage Guidelines**

This command applies only to the ASA model 5505.

Devices such as Cisco IP phones, wireless access points, and printers are incapable of performing authentication, and therefore do not authenticate when individual unit authentication is enabled. If individual user authentication is enabled, you can use this command to exempt such devices from authentication. The exemption of devices from individual user authentication is also called “device pass-through.”

The format for specifying the MAC address and mask in this command uses three hex digits, separated by periods; for example, the MAC mask ffff.ffff.ffff matches just the specified MAC address. A MAC mask of all zeroes matches no MAC address, and a MAC mask of ffff.ff00.0000 matches all devices made by the same manufacturer.

---

**Examples**

Cisco IP phones have the Manufacturer ID 00036b, so the following command exempts any Cisco IP phone, including Cisco IP phones, you might add in the future:

```
hostname(config)# vpnclient mac-exempt 0003.6b00.0000 ffff.ff00.0000  
hostname(config)#
```

The next example provides greater security but less flexibility because it exempts one specific Cisco IP phone:

```
hostname(config)# vpnclient mac-exempt 0003.6b54.b213 ffff.ffff.ffff  
hostname(config)#
```

# vpnclient management

To generate IPsec tunnels for management access to the Easy VPN hardware client, use the **vpnclient management** command in global configuration mode.

```
vpnclient management tunnel ip_addr_1 ip_mask_1 [ip_addr_2 ip_mask_2...ip_addr_n
ip_mask_n]
```

**vpnclient management clear**

To remove the attribute from the running configuration, use the **no** form of this command, which sets up IPsec tunnels exclusively for management in accordance with the **split-tunnel-policy** and **split-tunnel-network-list** commands.

**no vpnclient management**

## Syntax Description

**clear** Uses normal routing to provide management access from the corporate network to the outside interface of the ASA 5505 running as an Easy VPN Client. This option does not create management tunnels.



**Note** Use this option if a NAT device is operating between the client and the Internet.

**ip\_addr** IP address of the host or network for which to build a management tunnel from the Easy VPN hardware client. Use this argument with the **tunnel** keyword. Specify one or more IP addresses, separating each with a space and the respective network mask.

**ip\_mask** Network mask for the corresponding IP address. Use a space to separate the network mask and any subsequent IP address and network mask pairs.

**tunnel** Automates the setup of IPsec tunnels specifically for management access from the corporate network to the outside interface of the ASA 5505 running as an Easy VPN Client.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

**Usage Guidelines**

This command applies only to the ASA 5505 running as an Easy VPN Client (also called “Easy VPN Remote”). It assumes the ASA 5505 configuration contains the following commands:

**vpnclient server** to specify the peer.

**vpnclient mode** to specify the client mode (PAT) or network extension mode.

One of the following:

- **vpnclient vpngroup** to name the tunnel group and the IKE pre-shared key used for authentication on the Easy VPN server.
- **vpnclient trustpoint** to name the trustpoint identifying the RSA certificate to use for authentication

**vpnclient enable** to enable the ASA 5505 as an Easy VPN Client.

**Note**

The public address of an ASA 5505 behind a NAT device is inaccessible unless you add static NAT mappings on the NAT device.

**Examples**

The following example shows how to generate an IPSec tunnel from the outside interface of the ASA 5505 to the host with the IP address/mask combination 192.168.10.10 255.255.255.0:

```
hostname(config)# vpnclient management tunnel 192.168.10.0 255.255.255.0
hostname(config)#
```

The following example shows how to provide management access to the outside interface of the ASA 5505 without using IPSec:

```
hostname(config)# vpnclient management clear
hostname(config)#
```



# vpnclient mode

To configure the Easy VPN Remote connection for either client mode or network extension mode, use the **vpnclient mode** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

```
vpnclient mode {client-mode | network-extension-mode}
```

```
no vpnclient mode
```

## Syntax Description

<b>client-mode</b>	Configures the Easy VPN Remote connection to use client mode (PAT).
<b>network-extension-mode</b>	Configures the Easy VPN Remote connection to use network extension mode (NEM).

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command applies only to the ASA 5505 running as an Easy VPN Client (also called “Easy VPN Remote”). The Easy VPN Client supports one of two modes of operation: client mode or NEM. The mode of operation determines whether the inside hosts, relative to the Easy VPN Client, are accessible from the Enterprise network over the tunnel. Specifying a mode of operation is mandatory before making a connection because Easy VPN Client does not have a default mode.

- In client mode, the Easy VPN client performs port address translation (PAT) for all VPN traffic from its inside hosts. This mode requires no IP address management for either the inside address of the hardware client (which has a default RFC 1918 address assigned to it) or the inside hosts. Because of PAT, the inside hosts are not accessible from the enterprise network.
- In NEM, all nodes on the inside network and the inside interface are assigned addresses routable across the enterprise network. The inside hosts are accessible from the enterprise network over a tunnel. Hosts on the inside network are assigned IP addresses from an accessible subnet (statically or through DHCP). PAT is not applied to the VPN traffic when in network extension mode.

**Note**

If the Easy VPN hardware client is using NEM and has connections to secondary servers, use the **crypto map set reverse-route** command on each headend device to configure dynamic announcements of the remote network using Reverse Route Injection (RRI).

**Examples**

The following example shows how to configure an Easy VPN Remote connection for client mode:

```
hostname(config)# vpnclient mode client-mode  
hostname(config)#
```

The following example shows how to configure an Easy VPN Remote connection for NEM:

```
hostname(config)# vpnclient mode network-extension-mode  
hostname(config)#
```

# vpnclient nem-st-autoconnect

To configure the Easy VPN Remote connection to automatically initiate IPsec data tunnels when NEM and split tunneling are configured, use the **vpnclient nem-st-autoconnect** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

**vpnclient nem-st-autoconnect**

**no vpnclient nem-st-autoconnect**

## Syntax Description

This command has no keywords or arguments.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command applies only to the ASA 5505 running as an Easy VPN Client (also called “Easy VPN Remote”).

Before entering the **vpnclient nem-st-autoconnect** command, ensure that network extension mode is enabled for the hardware client. Network extension mode lets hardware clients present a single, routable network to the remote private network over the VPN tunnel. IPsec encapsulates all traffic from the private network behind the hardware client to networks behind the security appliance. PAT does not apply. Therefore, devices behind the security appliance have direct access to devices on the private network behind the hardware client over the tunnel, and only over the tunnel, and vice versa. The hardware client must initiate the tunnel. After the tunnel is up, either side can initiate data exchange.



### Note

You must also configure the Easy VPN server to enable network extension mode. To do so, use the **nem enable** command in group-policy configuration mode.

IPsec data tunnels are automatically initiated and sustained when in network extension mode, except when split-tunneling is configured.

---

**Examples**

The following example shows how to configure an Easy VPN Remote connection to automatically connect in network extension mode with split-tunneling configured. Network extension mode is enabled for the group policy FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# nem enable
hostname(config)# vpnclient nem-st-autoconnect
hostname(config)#
```

---

**Related Commands**

Command	Description
<b>nem</b>	Enables network extension mode for hardware clients.

---

# vpnclient server-certificate

To configure the Easy VPN Remote connection to accept only connections to Easy VPN servers with the specific certificates specified by the certificate map, use the **vpnclient server-certificate** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

**vpnclient server-certificate** *certmap\_name*

**no vpnclient server-certificate**

## Syntax Description

*certmap\_name* Specifies the name of a certificate map that specifies the acceptable Easy VPN server certificate. The maximum length is 64 characters.

## Defaults

Easy VPN server certificate filtering is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command applies only to the ASA model 5505.

Use this command to enable Easy VPN server certificate filtering. You define the certificate map itself using the `crypto ca certificate map` and `crypto ca certificate chain` commands.

## Examples

The following example shows how to configure an Easy VPN Remote connection to support only connections to Easy VPN servers with the certificate map name `homeservers`:

```
hostname(config)# vpnclient server-certificate homeservers
hostname(config)#
```

## Related Commands

Command	Description
<code>certificate</code>	Adds the indicated certificate.
<code>vpnclient trustpoint</code>	Configures the RSA identity certificate to be used by the Easy VPN Remote connection.

# vpnclient server

To configure the primary and secondary IPsec servers, for the Easy VPN Remote connection, use the **vpnclient server** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

```
vpnclient server ip_primary_address [ip_secondary_address_1 ... ipsecondary_address_10]
```

```
no vpnclient server
```

## Syntax Description

<i>ip_primary_address</i>	IP address or DNS name of the primary Easy VPN (IPsec) server. Any ASA or VPN 3000 Concentrator Series can act as an Easy VPN server.
<i>ip_secondary_address_n</i>	(Optional) List of the IP addresses or DNS names of up to ten backup Easy VPN servers. Use a space to separate the items in the list.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command applies only to the ASA model 5505.

A server must be configured before a connection can be established. The **vpnclient server** command supports IPv4 addresses, the names database, or DNS names and resolves addresses in that order.

You can use either the IP address or the hostname of a server.

## Examples

The following example associates the name headend-1 with the address 10.10.10.10 and uses the **vpnclient server** command to specify three servers: headend-dns.domain.com (primary), headend-1 (secondary), and 192.168.10.10 (secondary):

```
hostname(config)# names
hostname(config)# 10.10.10.10 headend-1
hostname(config)# vpnclient server headend-dns.domain.com headend-1 192.168.10.10
hostname(config)#
```

The following example shows how to configure a VPN client primary IPsec server with the IP address 10.10.10.15 and secondary servers with the IP addresses 10.10.10.30 and 192.168.10.45.

```
hostname(config)# vpnclient server 10.10.10.15 10.10.10.30 192.168.10.10  
hostname(config)#
```



# vpnclient trustpoint

To configure the RSA identity certificate to be used by the Easy VPN Remote connection, use the **vpnclient trustpoint** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

**vpnclient trustpoint** *trustpoint\_name* [**chain**]

**no vpnclient trustpoint**

## Syntax Description

<b>chain</b>	Sends the entire certificate chain.
<i>trustpoint_name</i>	Specifies the name of a trustpoint identifying the RSA certificate to use for authentication.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command applies only to the ASA model 5505 and only when using digital certificates.

Define the trustpoint using the **crypto ca trustpoint** command. A trustpoint represents a CA identity and possibly a device identity, based on a certificate issued by the CA. The commands within the trustpoint sub mode control CA-specific configuration parameters which specify how the security appliance obtains the CA certificate, how the security appliance obtains its certificate from the CA, and the authentication policies for user certificates issued by the CA.

## Examples

The following example shows how to configure an Easy VPN Remote connection to use the specific identity certificate named central and to send the entire certificate chain:

```
hostname(config)# crypto ca trustpoint central
hostname(config)# vpnclient trustpoint central chain
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>crypto ca trustpoint</b>	Enters the trustpoint submode for the specified trustpoint and manages trustpoint information.

# vpnclient username

To configure the VPN username and password for the Easy VPN Remote connection, use the **vpnclient username** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

```
vpnclient username xauth_username password xauth_password
```

```
no vpnclient username
```

## Syntax Description

<i>xauth_password</i>	Specifies the password to use for XAUTH. The maximum length is 64 characters.
<i>xauth_username</i>	Specifies the username to use for XAUTH. The maximum length is 64 characters.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command applies only to the ASA model 5505.

The XAUTH username and password parameters are used when secure unit authentication is disabled and the server requests XAUTH credentials. If secure unit authentication is enabled, these parameters are ignored, and the security appliance prompts the user for a username and password.

## Examples

The following example shows how to configure the Easy VPN Remote connection to use the XAUTH username testuser and the password ppurkm1:

```
hostname(config)# vpnclient username testuser password ppurkm1
hostname(config)#
```

# vpnclient vpngroup

To configure the VPN tunnel group name and password for the Easy VPN Remote connection, use the **vpnclient vpngroup** command in global configuration mode. To remove the attribute from the running configuration, use the **no** form of this command.

```
vpnclient vpngroup group_name password preshared_key
```

```
no vpnclient vpngroup
```

## Syntax Description

<i>group_name</i>	Specifies the name of the VPN tunnel group configured on the Easy VPN server. The maximum length is 64 characters, and no spaces are allowed.
<i>preshared_key</i>	The IKE pre-shared key used for authentication by the Easy VPN server. The maximum length is 128 characters.

## Defaults

If the configuration of the ASA 5505 running as an Easy VPN client does not specify a tunnel group, the client attempts to use an RSA certificate.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

This command applies only to the ASA 5505 running as an Easy VPN client (also called “Easy VPN Remote”).

Use the pre-shared key as the password. You must configure a server before establishing a connection.

## Examples

The following example shows how to configure an Easy VPN Remote connection with a VPN tunnel group with the group name TestGroup1 and the password my\_key123.

```
hostname(config)# vpnclient vpngroup TestGroup1 password my_key123
hostname(config)#
```

## Related Commands

Command	Description
vpnclient trustpoint	Configures the RSA identity certificate to be used by the Easy VPN connection.


# wccp

To allocate space and to enable support of the specified Web Cache Communication Protocol (WCCP) service for participation in a service group, use the **wccp** command in global configuration mode. To disable the service group and deallocate space, use the no form of this command.

```
wccp { web-cache | service-number } [redirect-list access-list] [group-list access-list] [password
password]
```

```
no wccp { web-cache | service-number } [redirect-list access-list] [group-list access-list]
[password password [0 | 7]]
```

## Syntax Description

<b>web-cache</b>	Specifies the web-cache service.
	 <p><b>Note</b> Web cache counts as one service. The maximum number of services, including those assigned with the service-number argument are 256</p>
<i>service-number</i>	A dynamic service identifier, which means the service definition is dictated by the cache. The dynamic service number can be from 0 to 254 and up to 255. There is a maximum allowable number of 256 that includes the web-cache service specified with the <b>web-cache</b> keyword.
<b>redirect-list</b>	(Optional) Used with an access list that controls traffic redirected to this service group. The access-list argument should consist of a string of no more than 64 characters (name or number) that specifies the access list.
<i>access-list</i>	Specifies the name of the access list.
<b>group-list</b>	(Optional) Access list that determines which web caches are allowed to participate in the service group. The access-list argument should consist of a string of no more than 64 characters (name or number) that specifies the access list.
<b>password</b>	(Optional) Specifies Message Digest 5 (MD5) authentication for messages received from the service group. Messages that are not accepted by the authentication are discarded.
<i>password</i>	Specifies the password to be used for authentication. The password argument can be up to seven characters in length.

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	•	•	•	—

**Command History**

Release	Modification
7.2(1)	This command was introduced.

**Examples**

The following example shows how to enable WCCP for participation in a service group:

```
hostname(config)# wccp web-cache redirect-list jeeves group-list wooster password whatho
```

**Related Commands**

Commands	Description
<code>show wccp</code>	Displays the WCCP configuration.
<code>wccp redirect</code>	Enables support of WCCP redirection.

# wccp redirect

To enable packet redirection on the ingress of an interface using Web Cache Communication Protocol (WCCP), use the **wccp redirect** command. To disable WCCP redirection, use the no form of this command.

**wccp interface** *interface\_name* *service* **redirect in**

**no wccp interface** *interface\_name* *service* **redirect in**

## Syntax Description

<i>interface_name</i>	Name of the interface where packets should be redirected..
<i>service</i>	Specifies the service group. You can specify the <b>web-cache</b> keyword, or you can specify the identification number (from 0 to 99) of the service.
<b>in</b>	Specifies redirection when packet comes into this interface

## Defaults

This command is disabled by default.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	•	•	•	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example shows how to enable WCCP redirection on the inside interface for the web-cache service:

```
hostname(config)# wccp interface inside web-cache redirect in
```

## Related Commands

Commands	Description
<b>show wccp</b>	Displays the WCCP configuration.
<b>wccp</b>	Enables support of WCCP with service groups.



# web-agent-url

To specify the SSO server URL to which the security appliance makes SSO authentication requests, use the **web-agent-url** command in webvpn-sso-siteminder configuration mode. This is an SSO with CA SiteMinder command.

To remove an SSO server authentication URL, use the **no** form of this command.

**web-agent-url** *url*

**no web-agent-url** *url*



## Note

This command is required for SSO authentication.

## Syntax Description

<i>url</i>	Specifies the authentication URL of the SSO server. Must contain http:// or https://.
------------	---

## Defaults

By default, an authentication URL is not configured.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn-sso-siteminder configuration	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

Single-sign-on support, available only for WebVPN, lets users access different secure services on different servers without reentering a username and password more than once. The SSO server has a URL that handles authentication requests.

Use the **web-agent-url** command to configure the security appliance to send authentications to this URL. Before configuring the authentication URL, you must create the SSO server using the **sso-server** command.

## Examples

The following example, entered in webvpn-sso-siteminder configuration mode, specifies an authentication URL of http://www.example.com/webvpn:

```
hostname(config-webvpn)# sso-server example type siteminder
hostname(config-webvpn-sso-siteminder)# web-agent-url http://www.example.com/webvpn
```

```
hostname(config-webvpn-sso-siteminder)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>max-retry-attempts</b>	Configures the number of times the security appliance retries a failed SSO authentication attempt.
<b>policy-server-secret</b>	Creates a secret key used to encrypt authentication requests to an SSO server.
<b>request-timeout</b>	Specifies the number of seconds before a failed SSO authentication attempt times out.
<b>show webvpn sso-server</b>	Displays the operating statistics for an SSO server.
<b>sso-server</b>	Creates a single sign-on server.

# web-applications

To customize the Web Application box of the WebVPN Home page that is displayed to authenticated WebVPN users, use the **web-applications** command from webvpn customization mode:

```
web-applications { title | message | dropdown } { text | style } value
```

```
[no] web-applications { title | message | dropdown } { text | style } value
```

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>title</b>	Specifies you are changing the title.
<b>message</b>	Specifies you are changing the message displayed under the title.
<b>dropdown</b>	Specifies you are changing the dropdown box.
<b>text</b>	Specifies you are changing the text.
<b>style</b>	Specifies you are changing the HTML style.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default title text is “Web Application”.

The default title style is background-color:#99CCCC;color:black;font-weight:bold;text-transform:uppercase

The default message text is “Enter Web Address (URL)”.

The default message style is background-color:#99CCCC;color:maroon;font-size:smaller.

The default dropdown text is “Web Bookmarks”.

The default dropdown style is border:1px solid black;font-weight:bold;color:black;font-size:80%.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

**Usage Guidelines**

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.
- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

The following example changes the title to “Applications”, and the color of the text to blue:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# web-applications title text Applications
F1-asal(config-webvpn-custom)# web-applications title style color:blue
```

**Related Commands**

Command	Description
<b>application-access</b>	Customizes the Application Access box of the WebVPN Home page.
<b>browse-networks</b>	Customizes the Browse Networks box of the WebVPN Home page.
<b>web-bookmarks</b>	Customizes the Web Bookmarks title or links on the WebVPN Home page.
<b>file-bookmarks</b>	Customizes the File Bookmarks title or links on the WebVPN Home page.

# web-bookmarks

To customize the Web Bookmarks title or links on the WebVPN Home page that is displayed to authenticated WebVPN users, use the **web-bookmarks** command from webvpn customization mode:

```
web-bookmarks {link {style value} | title {style value | text value}}
```

```
[no] web-bookmarks {link {style value} | title {style value | text value}}
```

To remove the command from the configuration and cause the value to be inherited, use the **no** form of the command.

## Syntax Description

<b>link</b>	Specifies you are changing the links.
<b>title</b>	Specifies you are changing the title.
<b>style</b>	Specifies you are changing the HTML style.
<b>text</b>	Specifies you are changing the text.
<i>value</i>	The actual text to display (maximum 256 characters), or Cascading Style Sheet (CSS) parameters (maximum 256 characters).

## Defaults

The default link style is color:#669999;border-bottom: 1px solid #669999;text-decoration:none.

The default title style is color:#669999;background-color:#99CCCC;font-weight:bold.

The default title text is “Web Bookmarks”.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Webvpn customization	•	—	•	—	—

## Command History

Release	Modification
7.1(1)	This command was introduced.

## Usage Guidelines

The **style** option is expressed as any valid Cascading Style Sheet (CSS) parameters. Describing these parameters is beyond the scope of this document. For more information about CSS parameters, consult CSS specifications at the World Wide Web Consortium (W3C) website at [www.w3.org](http://www.w3.org). Appendix F of the CSS 2.1 Specification contains a convenient list of CSS parameters, and is available at [www.w3.org/TR/CSS21/propidx.html](http://www.w3.org/TR/CSS21/propidx.html).

Here are some tips for making the most common changes to the WebVPN pages—the page colors:

- You can use a comma-separated RGB value, an HTML color value, or the name of the color if recognized in HTML.

- RGB format is 0,0,0, a range of decimal numbers from 0 to 255 for each color (red, green, blue); the comma separated entry indicates the level of intensity of each color to combine with the others.
- HTML format is #000000, six digits in hexadecimal format; the first and second represent red, the third and fourth green, and the fifth and sixth represent blue.

**Note**

To easily customize the WebVPN pages, we recommend that you use ASDM, which has convenient features for configuring style elements, including color swatches and preview capabilities.

**Examples**

The following example customizes the Web Bookmarks title to “Corporate Web Bookmarks”:

```
F1-asal(config)# webvpn
F1-asal(config-webvpn)# customization cisco
F1-asal(config-webvpn-custom)# web-bookmarks title text Corporate Web Bookmarks
```

**Related Commands**

Command	Description
<b>application-access</b>	Customizes the Application Access box of the WebVPN Home page.
<b>browse-networks</b>	Customizes the Browse Networks box of the WebVPN Home page.
<b>file-bookmarks</b>	Customizes the File Bookmarks title or links on the WebVPN Home page.
<b>web-applications</b>	Customizes the Web Application box of the WebVPN Home page.

## webvpn (group-policy and username modes)

To enter this webvpn mode, use the **webvpn** command in group-policy configuration mode or in username configuration mode. To remove all commands entered in webvpn mode, use the **no** form of this command. These webvpn commands apply to the username or group policy from which you configure them.

Webvpn commands for group policies and usernames define access to files, MAPI proxy, URLs and TCP applications over WebVPN. They also identify ACLs and types of traffic to filter.

**webvpn**

**no webvpn**

### Syntax Description

This command has no arguments or keywords.

### Defaults

WebVPN is disabled by default.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—
Username	•	—	•	—	—

### Command History

Release	Modification
7.0(1)	This command was introduced.

### Usage Guidelines

Webvpn mode, which you enter from global configuration mode, lets you configure global settings for WebVPN. The **webvpn** command in group-policy attributes configuration mode or username attributes configuration mode applies the settings specified in the webvpn command to the group or user specified in the parent command. In other words, webvpn mode, described in this section, and which you enter from group-policy or username mode, lets you customize a WebVPN configuration for specific users or group policies.

The webvpn attributes that you apply for a specific group policy in group-policy attributes mode override those specified in the default group policy. The WebVPN attributes that you apply for a specific user in username attributes mode override both those in the default group policy and those in the group policy to which that user belongs. Essentially, these commands let you tweak the settings that would otherwise be inherited from the default group or the specified group policy. For information about the WebVPN settings, see the description of the **webvpn** command in global configuration mode.

The following table lists the attributes you can configure in webvpn group-policy attributes and username attributes mode. See the individual command descriptions for details.

Attribute	Description
<b>auto-signon</b>	Configures the security appliance to automatically pass WebVPN user login credentials on to internal servers, providing a single sign-on method for WebVPN users.
<b>customization</b>	Specifies a preconfigured WebVPN customization to apply.
<b>deny-message</b>	Specifies a message to display to the user when access is denied.
<b>filter</b>	Identifies the access list to be used for WebVPN connections.
<b>functions</b>	Configures file access and file browsing, MAPI Proxy, and URL entry over WebVPN.
<b>homepage</b>	Sets the URL of the webpage that displays when WebVPN users log in.
<b>html-content-filter</b>	Identifies Java, ActiveX, images, scripts, and cookies to filter for WebVPN sessions.
<b>http-comp</b>	Specifies the HTTP compression algorithm to use.
<b>keep-alive-ignore</b>	Specifies the maximum object size to ignore for updating the session.
<b>port-forward</b>	Enables WebVPN application access.
<b>port-forward-name</b>	Configures the display name that identifies TCP port forwarding to end users.
<b>sso-server</b>	Configures the SSO server name.
<b>svc</b>	Configures SSL VPN Client attributes.
<b>url-list</b>	Identifies a list of servers and URLs that users can access via WebVPN.

### Examples

The following example shows how to enter webvpn mode for the group policy named “FirstGroup”:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# webvpn
hostname(config-webvpn)#
```

The following example shows how to enter webvpn mode for the username named “test”:

```
hostname(config)# group-policy test attributes
hostname(config-username)# webvpn
hostname(config-webvpn)#
```

### Related Commands

<b>clear configure group-policy</b>	Removes the configuration for a particular group policy or for all group policies.
<b>group-policy attributes</b>	Enters config-group-policy mode, which lets you configure attributes and values for a specified group policy or lets you enter webvpn mode to configure webvpn attributes for the group.



---

<b>show running-config group-policy</b>	Displays the running configuration for a particular group policy or for all group policies.
<b>webvpn</b>	Enters config-group-webvpn mode, in which you can configure the WebVPN attributes for the specified group.

---

# who

To display active Telnet administration sessions on the security appliance, use the **who** command in privileged EXEC mode.

```
who [local_ip]
```

## Syntax Description

*local\_ip* (Optional) Specifies to limit the listing to one internal IP address or network address, either IPv4 or IPv6.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The **who** command allows you to display the TTY\_ID and IP address of each Telnet client that is currently logged into the security appliance.

## Examples

This example shows the output of the **who** command when a client is logged into the security appliance through a Telnet session:

```
hostname# who
0: 100.0.0.2
hostname# who 100.0.0.2
0: 100.0.0.2
hostname#
```

## Related Commands

Command	Description
<b>kill</b>	Terminate a Telnet session.
<b>telnet</b>	Adds Telnet access to the security appliance console and sets the idle timeout.

# window-variation

To drop a connection with a window size variation, use the **window-variation** command in tcp-map configuration mode. To remove this specification, use the **no** form of this command.

**window variation** { **allow-connection** | **drop-connection** }

**no window variation** { **allow-connection** | **drop-connection** }

## Syntax Description

<b>allow-connection</b>	Allows the connection.
<b>drop-connection</b>	Drops the connection.

## Defaults

The default action is to allow the connection.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Tcp-map configuration	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **tcp-map** command is used along with the Modular Policy Framework infrastructure. Define the class of traffic using the **class-map** command and customize the TCP inspection with **tcp-map** commands. Apply the new TCP map using the **policy-map** command. Activate TCP inspection with **service-policy** commands.

Use the **tcp-map** command to enter tcp-map configuration mode. Use the **window-variation** command in tcp-map configuration mode to drop all connections with a window size that has been shrunk.

The window size mechanism allows TCP to advertise a large window and to subsequently advertise a much smaller window without having accepted too much data. From the TCP specification, “shrinking the window” is strongly discouraged. When this condition is detected, the connection can be dropped.

## Examples

The following example shows how to drop all connections with a varied window size:

```
hostname(config)# access-list TCP extended permit tcp any any
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# window-variation drop-connection
hostname(config)# class-map cmap
hostname(config-cmap)# match access-list TCP
hostname(config)# policy-map pmap
```

```
hostname(config-pmap)# class cmap
hostname(config-pmap)# set connection advanced-options tmap
hostname(config)# service-policy pmap global
```

**Related Commands**

Command	Description
<b>class</b>	Specifies a class map to use for traffic classification.
<b>policy-map</b>	Configures a policy; that is, an association of a traffic class and one or more actions.
<b>set connection</b>	Configures connection values.
<b>tcp-map</b>	Creates a TCP map and allows access to tcp-map configuration mode.

# wins-server

To set the IP address of the primary and secondary WINS servers, use the **wins-server** command in group-policy configuration mode. To remove the attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a WINS server from another group policy. To prevent inheriting a server, use the **wins-server none** command.

**wins-server value** {*ip\_address*} [*ip\_address*] | none

**no wins-server**

## Syntax Description

<b>none</b>	Sets wins-servers to a null value, thereby allowing no WINS servers. Prevents inheriting a value from a default or specified group policy.
value <i>ip_address</i>	Specifies the IP address of the primary and secondary WINS servers.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Group-policy	•	—	•	—	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Every time you issue the **wins-server** command you overwrite the existing setting. For example, if you configure WINS server x.x.x.x and then configure WINS server y.y.y.y, the second command overwrites the first, and y.y.y.y becomes the sole WINS server. The same holds true for multiple servers. To add a WINS server rather than overwrite previously configured servers, include the IP addresses of all WINS servers when you enter this command.

## Examples

The following example shows how to configure WINS servers with the IP addresses 10.10.10.15, 10.10.10.30, and 10.10.10.45 for the group policy named FirstGroup:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# wins-server value 10.10.10.15 10.10.10.30 10.10.10.45
```

# write erase

To erase the startup configuration, use the **write erase** command in privileged EXEC mode. The running configuration remains intact.

**write erase**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** This command is not supported within a security context. Context startup configurations are identified by the **config-url** command in the system configuration. If you want to delete a context configuration, you can remove the file manually from the remote server (if specified) or clear the file from Flash memory using the **delete** command in the system execution space.

**Examples** The following example erases the startup configuration:

```
hostname# write erase
Erase configuration in flash memory? [confirm] y
```

Related Commands	Command	Description
	<b>configure net</b>	Merges a configuration file from the specified TFTP URL with the running configuration.
	<b>delete</b>	Removes a file from Flash memory.
	<b>show running-config</b>	Shows the running configuration.
	<b>write memory</b>	Saves the running configuration to the startup configuration.

# write memory

To save the running configuration to the startup configuration, use the **write memory** command in privileged EXEC mode.

**write memory** [**all** [/noconfirm]]

## Syntax Description

<b>/noconfirm</b>	Eliminates the confirmation prompt when you use the <b>all</b> keyword.
<b>all</b>	From the system execution space in multiple context mode, this keyword saves all context configurations as well as the system configuration.

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.2(1)	You can now save all context configurations with the <b>all</b> keyword.

## Usage Guidelines

The running configuration is the configuration currently running in memory, including any changes you made at the command line. Changes are only preserved between reboots if you save them to the startup configuration, which is the configuration loaded into running memory at startup. The location of the startup configuration for single context mode and for the system in multiple context mode can be changed from the default location (a hidden file) to a location of your choosing using the **boot config** command. For multiple context mode, a context startup configuration is at the location specified by the **config-url** command in the system configuration.

In multiple context mode, you can enter the **write memory** command in each context to save the current context configuration. To save all context configurations, enter the **write memory all** command in the system execution space. Context startup configurations can reside on external servers. In this case, the security appliance saves the configuration back to the server specified by the **config-url** command, except for HTTP and HTTPS URLs, which do not allow you to save the configuration back to the server. After the security appliance saves each context with the **write memory all** command, the following message appears:

```
'Saving context 'b' ... ( 1/3 contexts saved ) '
```

Sometimes, a context is not saved because of an error. See the following information for errors:

- For contexts that are not saved because of low memory, the following message appears:

```
The context 'context a' could not be saved due to Unavailability of resources
```

- For contexts that are not saved because the remote destination is unreachable, the following message appears:

```
The context 'context a' could not be saved due to non-reachability of destination
```

- For contexts that are not saved because the context is locked, the following message appears:

```
Unable to save the configuration for the following contexts as these contexts are
locked.
context 'a' , context 'x' , context 'z' .
```

A context is only locked if another user is already saving the configuration or in the process of deleting the context.

- For contexts that are not saved because the startup configuration is read-only (for example, on an HTTP server), the following message report is printed at the end of all other messages:

```
Unable to save the configuration for the following contexts as these contexts have
read-only config-urls:
context 'a' , context 'b' , context 'c' .
```

- For contexts that are not saved because of bad sectors in the Flash memory, the following message appears:

```
The context 'context a' could not be saved due to Unknown errors
```

Because the system uses the admin context interfaces to access context startup configurations, the **write memory** command also uses the admin context interfaces. The **write net** command, however, uses the context interfaces to write a configuration to a TFTP server.

The **write memory** command is equivalent to the **copy running-config startup-config** command.

## Examples

The following example saves the running configuration to the startup configuration:

```
hostname# write memory
Building configuration...
Cryptochecksum: e43e0621 9772bebe b685e74f 748e4454

19319 bytes copied in 3.570 secs (6439 bytes/sec)
[OK]
hostname#
```

## Related Commands

Command	Description
<b>admin-context</b>	Sets the admin context.
<b>configure memory</b>	Merges the startup configuration with the running configuration.
<b>config-url</b>	Specifies the location of the context configuration.
<b>copy running-config startup-config</b>	Copies the running configuration to the startup configuration.
<b>write net</b>	Copies the running configuration to a TFTP server.



# write net

To save the running configuration to a TFTP server, use the **write net** command in privileged EXEC mode.

```
write net [server:[filename] | :filename]
```

## Syntax Description

<i>:filename</i>	<p>Specifies the path and filename. If you already set the filename using the <b>tftp-server</b> command, then this argument is optional.</p> <p>If you specify the filename in this command as well as a name in the <b>tftp-server</b> command, the security appliance treats the <b>tftp-server</b> command filename as a directory, and adds the <b>write net</b> command filename as a file under the directory.</p> <p>To override the <b>tftp-server</b> command value, enter a slash in front of the path and filename. The slash indicates that the path is not relative to the tftpboot directory, but is an absolute path. The URL generated for this file includes a double slash (//) in front of the filename path. If the file you want is in the tftpboot directory, you can include the path for the tftpboot directory in the filename path. If your TFTP server does not support this type of URL, use the <b>copy running-config tftp</b> command instead.</p> <p>If you specified the TFTP server address using the <b>tftp-server</b> command, you can enter the filename alone preceded by a colon (:).</p>
<i>server:</i>	<p>Sets the TFTP server IP address or name. This address overrides the address you set in the <b>tftp-server</b> command, if present.</p> <p>The default gateway interface is the highest security interface; however, you can set a different interface name using the <b>tftp-server</b> command.</p>

## Defaults

No default behavior or values.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
Preexisting	This command was preexisting.

## Usage Guidelines

The running configuration is the configuration currently running in memory, including any changes you made at the command line.

In multiple context mode, this command saves only the current configuration; you cannot save all contexts with a single command. You must enter this command separately for the system and for each context. The **write net** command uses the context interfaces to write a configuration to a TFTP server. The **write memory** command, however, uses the admin context interfaces to save to the startup configuration because the system uses the admin context interfaces to access context startup configurations.

The **write net** command is equivalent to the **copy running-config tftp** command.

### Examples

The following example sets the TFTP server and filename in the **tftp-server** command:

```
hostname# tftp-server inside 10.1.1.1 /configs/contextbackup.cfg
hostname# write net
```

The following example sets the server and filename in the **write net** command. The **tftp-server** command is not populated.

```
hostname# write net 10.1.1.1:/configs/contextbackup.cfg
```

The following example sets the server and filename in the **write net** command. The **tftp-server** command supplies the directory name, and the server address is overridden.

```
hostname# tftp-server 10.1.1.1 configs
hostname# write net 10.1.2.1:context.cfg
```

### Related Commands

Command	Description
<b>configure net</b>	Merges a configuration file from the specified TFTP URL with the running configuration.
<b>copy running-config tftp</b>	Copies the running configuration to a TFTP server.
<b>show running-config</b>	Shows the running configuration.
<b>tftp-server</b>	Sets a default TFTP server and path for use in other commands.
<b>write memory</b>	Saves the running configuration to the startup configuration.

# write standby

To copy the security appliance or context running configuration to the failover standby unit, use the **write standby** command in privileged EXEC mode.

## write standby

### Syntax Description

This command has no arguments or keywords.

### Defaults

No default behavior or values.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Privileged EXEC	•	•	•	•	•

### Command History

Release	Modification
Preexisting	This command was preexisting.

### Usage Guidelines

For Active/Standby failover, the **write standby** command writes the configuration stored in the RAM of the active failover unit to the RAM on the standby unit. Use the **write standby** command if the primary and secondary unit configurations have different information. Enter this command on the active unit.

For Active/Active failover, the **write standby** command behaves as follows:

- If you enter the **write standby** command in the system execution space, the system configuration and the configurations for all of the security contexts on the security appliance is written to the peer unit. This includes configuration information for security contexts that are in the standby state. You must enter the command in the system execution space on the unit that has failover group 1 in the active state.
- If you enter the **write standby** command in a security context, only the configuration for the security context is written to the peer unit. You must enter the command in the security context on the unit where the security context appears in the active state.



#### Note

The **write standby** command replicates the configuration to the running configuration of the peer unit; it does not save the configuration to the startup configuration. To save the configuration changes to the startup configuration, use the **copy running-config startup-config** command on the same unit that you entered the **write standby** command. The command will be replicated to the peer unit and the configuration saved to the startup configuration.

---

**Examples**

The following example writes the current running configuration to the standby unit:

```
hostname# write standby
Building configuration...
[OK]
hostname#
```

---

**Related Commands**

Command	Description
<b>failover</b>	Forces the standby unit to reboot.
<b>reload-standby</b>	

---

# write terminal

To show the running configuration on the terminal, use the **write terminal** command in privileged EXEC mode.

## write terminal

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

Command History	Release	Modification
	Preexisting	This command was preexisting.

**Usage Guidelines** This command is equivalent to the **show running-config** command.

**Examples** The following example writes the running configuration to the terminal:

```
hostname# write terminal
: Saved
:
ASA Version 7.0(0)61
multicast-routing
names
name 10.10.4.200 outside
!
interface GigabitEthernet0/0
 nameif inside
 security-level 100
 ip address 10.86.194.60 255.255.254.0
 webvpn enable
...
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>configure net</b>	Merges a configuration file from the specified TFTP URL with the running configuration.
<b>show running-config</b>	Shows the running configuration.
<b>write memory</b>	Saves the running configuration to the startup configuration.

# zonelabs-integrity fail-close

To configure the security appliance so that connections to VPN clients close when the connection between the security appliance and the Zone Labs Integrity Firewall Server fails, use the **zonelabs-integrity fail-close** command in global configuration mode. To reinstate the default whereby the VPN connections remain open on failure of the Zone Labs connection, use the **no** form of this command.

**zonelabs-integrity fail-close**

**no zonelabs-integrity fail-close**

**Syntax Description** This command has no arguments or keywords.

**Defaults** By default, the connection remains open on failure.

**Command Modes** The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

**Usage Guidelines** If the primary Zone Labs Integrity Firewall Server does not respond to the security appliance, the security appliance still establishes VPN client connections to the private network by default. It also maintains open, existing connections. This ensures that the enterprise VPN is not disrupted by the failure of a firewall server. If, however, you do not want the VPN connections to remain operational if the Zone Labs Integrity Firewall Server fails, use the **zonelabs-integrity fail-close** command.

To return to the default condition whereby the security appliance maintains client VPN connections if the connection to the Zone Labs Integrity Firewall Server fails, use the **zonelabs-integrity fail-open** command.

**Examples** The following example configures the security appliance to close the VPN client connections if the Zone Labs Integrity Firewall Server fails to respond or if the connection is interrupted:

```
hostname(config)# zonelabs-integrity fail-close
hostname(config)#
```

Related Commands	Command	Description
	<b>zonelabs-integrity fail-open</b>	Specifies that VPN client connections to the security appliance remain open after the connection between the security appliance and the Zone Labs Integrity Firewall Server fails.
	<b>zonelabs-integrity fail-timeout</b>	Specifies the time in seconds before the security appliance declares a nonresponsive Zone Labs Integrity Firewall Server unreachable.
	<b>zonelabs-integrity server-address</b>	Adds Zone Labs Integrity Firewall Servers to the security appliance configuration.



# zonelabs-integrity fail-open

To keep remote VPN client connections to the security appliance open after the connection between the security appliance and the Zone Labs Integrity Firewall Server fails, use the **zonelabs-integrity fail-open** command in global configuration mode. To close connections to VPN clients upon failure of the Zone Labs server connection, use the **no** form of this command.

**zonelabs-integrity fail-open**

**no zonelabs-integrity fail-open**

## Syntax Description

This command has no arguments or keywords.

## Defaults

By default, remote VPN connections remain open if the security appliance does not establish or maintain a connection to the Zone Labs Integrity Firewall Server.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

If the primary Zone Labs Integrity Firewall Server does not respond to the security appliance, the security appliance still establishes VPN client connections to the private network by default. It also maintains existing open connections. This ensures that the enterprise VPN is not disrupted by the failure of a firewall server. If, however, you do not want the VPN connections to remain operational if the Zone Labs Integrity Firewall Server fails, use the **zonelabs-integrity fail-close** command. To then return to the default condition whereby the security appliance maintains client VPN connections if the connection to the Zone Labs Integrity Firewall Server fails, use the **zonelabs-integrity fail-open** command or the **no zonelabs-integrity fail-open** command.

## Examples

The following example reinstates the default condition whereby the VPN client connections remain open if the connection to the Zone Labs Integrity Firewall Server fails:

```
hostname(config)# zonelabs-integrity fail-open
hostname(config)#
```

## Related Commands

Command	Description
<b>zonelabs-integrity fail-close</b>	Specifies that the security appliance close VPN client connections when the connection between the security appliance and the Zone Labs Integrity Firewall Server fails.
<b>zonelabs-integrity fail-timeout</b>	Specifies the time in seconds before the security appliance declares a nonresponsive Zone Labs Integrity Firewall Server unreachable.

# zonelabs-integrity fail-timeout

To specify the time in seconds before the security appliance declares a nonresponsive Zone Labs Integrity Firewall Server unreachable, use the **zonelabs-integrity fail-timeout** command in global configuration mode. To restore the default timeout of 10 seconds, use the **no** form of this command without an argument.

**zonelabs-integrity fail-timeout** *timeout*

**no zonelabs-integrity fail-timeout**

## Syntax Description

*timeout* The number of seconds before the security appliance declares a nonresponsive Zone Labs Integrity Firewall Servers unreachable. The acceptable range is from 5 to 20 seconds.

## Defaults

The default timeout value is 10 seconds.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

If the security appliance waits for the specified number of seconds without a response from the Zone Labs server, the server is declared nonresponsive. Connections to VPN clients either remain open by default or if configured to do so with the **zonelabs-integrity fail-open** command. If, however, the **zonelabs-integrity fail-close** command has been issued, the connections will close when the security appliance declares the Integrity server unresponsive.

## Examples

The following example configures the security appliance to declare the active Zone Labs Intergity Server to be unreachable after 12 seconds:

```
hostname(config)# zonelabs-integrity fail-timeout 12
hostname(config)#
```

## Related Commands

Command	Description
<b>zonelabs-integrity fail-open</b>	Specifies that VPN client connections to the security appliance remain open after the connection between the security appliance and the Zone Labs Integrity Firewall Server fails.
<b>zonelabs-integrity fail-close</b>	Specifies that the security appliance close VPN client connections when the connection between the security appliance and the Zone Labs Integrity Firewall Server fails.
<b>zonelabs-integrity server-address</b>	Adds Zone Labs Integrity Firewall Servers to the security appliance configuration.

# zonelabs-integrity interface

To specify a security appliance interface for communication with the Zone Labs Integrity Server, use the **zonelabs-integrity interface** command in global configuration mode. To reset the Zone Labs Integrity Firewall Server interface back to the default of none, use the **no** form of this command.

**zonelabs-integrity interface** *interface*

**no zonelabs-integrity interface**

## Syntax Description

*interface* Specifies the security appliance interface on which the Zone Labs Integrity Firewall Server communicates. It is often an interface name created with the **nameif** command.

## Defaults

By default, the Zone Labs Integrity Firewall Server interface is set to none.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Examples

The following example configures three Zone Labs Integrity Servers using IP addresses ranging from 10.0.0.5 to 10.0.0.7. The commands also configure the security appliance to listen to the server on port 300 and on an interface called inside:

```
hostname(config)# zonelabs-integrity server-address 10.0.0.5 10.0.0.6 10.0.0.7
hostname(config)# zonelabs-integrity port 300
hostname(config)# zonelabs-integrity interface inside
hostname(config)#
```

## Related Commands

Command	Description
<b>zonelabs-integrity port</b>	Specifies a port on the security appliance for communicating with a Zone Labs Integrity Firewall Server.
<b>zonelabs-integrity server-address</b>	Adds Zone Labs Integrity Firewall Servers to the security appliance configuration.

<b>Command</b>	<b>Description</b>
<b>zonelabs-integrity ssl-certificate-port</b>	Specifies a security appliance port to which the Zone Labs Integrity Firewall Server will connect when retrieving an SSL certificate.
<b>zonelabs-integrity ssl-client-authentication</b>	Enables authentication of the Zone Labs Integrity Firewall Server SSL certificate by the security appliance.

## zonelabs-integrity port

To specify a port on the security appliance for communicating with a Zone Labs Integrity Firewall Server, use the **zonelabs-integrity port** command in global configuration mode. To revert to the default port of 5054 for the Zone Labs Integrity Firewall Server, use the **no** form of this command.

**zonelabs-integrity port** *port\_number*

**no zonelabs-integrity port** *port\_number*

### Syntax Description

<b>port</b>	Specifies a Zone Labs Integrity Firewall Server port on the security appliance.
<i>port_number</i>	The number of the Zone Labs Integrity Firewall Server port. It can range from 10 to 10000.

### Defaults

The default Zone Labs Integrity Firewall Server port is 5054.

### Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

The security appliance listens to the Zone Labs Integrity Firewall Server on the port and interface configured with the **zonelabs-integrity port** and **zonelabs-integrity interface** commands respectively.



#### Note

The current release of the security appliance supports one Integrity Server at a time even though the user interfaces support the configuration of up to five Integrity Servers. If the active Server fails, configure another Integrity Server on the security appliance and then reestablish the client VPN session.

### Examples

The following example configures a Zone Labs Integrity Servers using the IP address 10.0.0.5. The commands also configure the security appliance to listen to the active Zone Labs server on port 300 instead of the default 5054 port:

```
hostname(config)# zonelabs-integrity server-address 10.0.0.5
hostname(config)# zonelabs-integrity port 300
hostname(config)#
```

Related Commands	Command	Description
	<b>zonelabs-integrity interface</b>	Specifies the security appliance interface on which it communicates with the active Zone Labs Integrity Server.
	<b>zonelabs-integrity server-address</b>	Adds Zone Labs Integrity Firewall Servers to the security appliance configuration.
	<b>zonelabs-integrity ssl-certificate-port</b>	Specifies a security appliance port to which the Zone Labs Integrity Firewall Server will connect when retrieving an SSL certificate.
	<b>zonelabs-integrity ssl-client-authentication</b>	Enables authentication of the Zone Labs Integrity Firewall Server SSL certificate by the security appliance.



# zonelabs-integrity server-address

To add Zone Labs Integrity Firewall Servers to the security appliance configuration, use the **zonelabs-integrity server-address** command in global configuration mode. Specify the Zone Labs server by either IP address or hostname.

To remove Zone Labs Integrity Firewall Servers from the running configuration, use the **no** form of this command without arguments.

```
zonelabs-integrity server-address {hostname1 | ip-address1}
```

```
no zonelabs-integrity server-address
```



## Note

While the user interfaces appear to support the configuration of multiple Integrity Servers, the security appliance only supports one server at a time in the current release.

## Syntax Description

<i>hostname</i>	Specifies the hostname of the Zone Labs Integrity Firewall Server. See the <b>name</b> command for hostname guidelines.
<i>ip-address</i>	Specifies the IP address of the Zone Labs Integrity Firewall Server.

## Command Default

By default, no Zone Labs Integrity Firewall Servers are configured.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

With this release, you can configure one Zone Labs Integrity Firewall Server. If that server fails, configure another Integrity Server first and then reestablish the client VPN session.

To specify a server by hostname, you must first configure the Zone Labs server name using the **name** command. Before using the **name** command, use the **names** command to enable it.



## Note

The current release of the security appliance supports one Integrity Server at a time even though the user interfaces support the configuration of up to five Integrity Servers. If the active Server fails, configure another Integrity Server on the security appliance and then reestablish the client VPN session.

**Examples**

The following example assigns the server name ZL-Integrity-Svr to the IP address 10.0.0.5 and configures a Zone Labs Integrity Server using that name:

```
hostname(config)# names
hostname(config)# name 10.0.0.5 ZL-Integrity-Svr
hostname(config)# zonelabs-integrity server-address ZL-Integrity-Svr
hostname(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>zonelabs-integrity fail-close</b>	Specifies that the security appliance close VPN client connections when the connection between the security appliance and the Zone Labs Integrity Firewall Server fails.
<b>zonelabs-integrity interface</b>	Specifies the security appliance interface on which it communicates with the active Zone Labs Integrity Server.
<b>zonelabs-integrity port</b>	Specifies a port on the security appliance for communicating with a Zone Labs Integrity Firewall Server.
<b>zonelabs-integrity ssl-certificate-port</b>	Specifies a security appliance port to which the Zone Labs Integrity Firewall Server will connect when retrieving an SSL certificate.
<b>zonelabs-integrity ssl-client-authentication</b>	Enables authentication of the Zone Labs Integrity Firewall Server SSL certificate by the security appliance.

# zonelabs-integrity ssl-certificate-port

To specify a security appliance port to which the Zone Labs Integrity Firewall Server will connect when retrieving an SSL certificate, use the **zonelabs-integrity ssl-certificate-port** command in global configuration mode. To revert to the default port number (80), use the **no** form of this command without an argument.

**zonelabs-integrity ssl-certificate-port** *cert-port-number*

**no zonelabs-integrity ssl-certificate-port**

## Syntax Description

*cert-port-number* Specifies a port number on which the security appliance expects the Zone Labs Integrity Firewall Server to connect when requesting an SSL certificate.

## Defaults

By default, the security appliance expects the Zone Labs Integrity Firewall Server to request an SSL certificate on port 80.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

For SSL communications between the security appliance and the Zone Labs Integrity Firewall Server, the security appliance is the SSL server and the Zone Labs server is the SSL client. When initiating an SSL connection, the certificate of the SSL server (security appliance) must be authenticated by the client (Zone Labs server). The **zonelabs-integrity ssl-certificate-port** command specifies the port to which the Zone Labs server connects when requesting the SSL server certificate.

## Examples

The following example configures port 30 on the security appliance to receive SSL certificate requests from the Zone Labs Integrity Server:

```
hostname(config)# zonelabs-integrity ssl-certificate-port 30
hostname(config)#
```

## Related Commands

Command	Description
<b>zonelabs-integrity port</b>	Specifies a port on the security appliance for communicating with a Zone Labs Integrity Firewall Server.
<b>zonelabs-integrity interface</b>	Specifies the security appliance interface on which it communicates with the active Zone Labs Integrity Server.
<b>zonelabs-integrity server-address</b>	Adds Zone Labs Integrity Firewall Servers to the security appliance configuration.
<b>zonelabs-integrity ssl-client-authentication</b>	Enables authentication of the Zone Labs Integrity Firewall Server SSL certificate by the security appliance.

# zonelabs-integrity ssl-client-authentication

To enable authentication of the Zone Labs Integrity Firewall Server SSL certificate by the security appliance, use the **zonelabs-integrity ssl-client-authentication** command in global configuration mode with the *enable* argument. To disable authentication of the Zone Labs SSL certificate, use the *disable* argument or use the **no** form of this command without an argument.

```
zonelabs-integrity ssl-client-authentication {enable | disable}
```

```
no zonelabs-integrity ssl-client-authentication
```

## Syntax Description

<i>enable</i>	Specifies that the security appliance authenticates the SSL certificate of the Zone Labs Integrity Firewall Server.
<i>disable</i>	Specifies the IP address of the Zone Labs Integrity Firewall Server.

## Defaults

By default, security appliance authentication of the Zone Labs Integrity Firewall Server SSL certificate is disabled.

## Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				Context	System
Global configuration	•	—	•	—	—

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

For SSL communications between the security appliance and the Zone Labs Integrity Firewall Server, the security appliance is the SSL server and the Zone Labs server is the SSL client. When initiating an SSL connection, the certificate of the SSL server (security appliance) must be authenticated by the client (Zone Labs server). Authentication of the client certificate is optional, however. You use the **zonelabs-integrity ssl-client-authentication** command to enable or disable security appliance authentication of the Zone Lab server (SSL client) certificate.

## Examples

The following example configures the security appliance to authenticate the SSL certificate of the Zone Labs Integrity Server:

```
hostname(config)# zonelabs-integrity ssl-client-authentication enable
hostname(config)#
```

Related Commands	Command	Description
	<b>zonelabs-integrity interface</b>	Specifies the security appliance interface on which it communicates with the active Zone Labs Integrity Server.
	<b>zonelabs-integrity port</b>	Specifies a port on the security appliance for communicating with a Zone Labs Integrity Firewall Server.
	<b>zonelabs-integrity server-address</b>	Adds Zone Labs Integrity Firewall Servers to the security appliance configuration.
	<b>zonelabs-integrity ssl-certificate-port</b>	Specifies a security appliance port to which the Zone Labs Integrity Firewall Server will connect when retrieving an SSL certificate.



