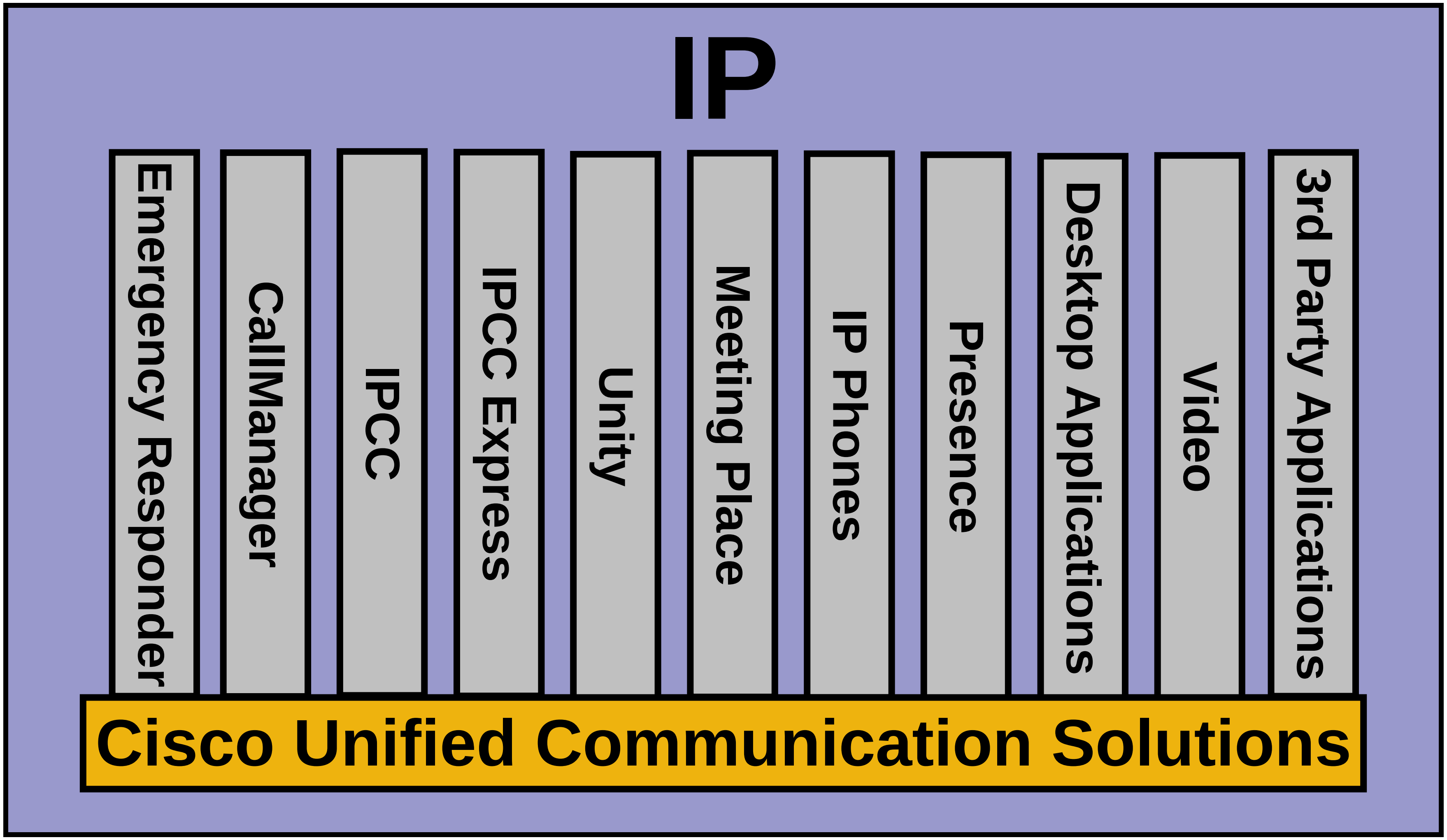
Understanding Cisco Enterprise IP Communication

Introducing Cisco Enterprise IP Communication Components

Objectives

- Cisco Unified Communications Overview
- Cisco IP Communication Components
- Columbus vs. Golden Bridge
- Cisco Unity
- Cisco IP Contact Center
- Cisco Unified Presence Server

Cisco Unified Communications Overview



IP

Emergency Responder

CallManager

IPCC

IPCC Express

Unity

Meeting Place

IP Phones

Presence

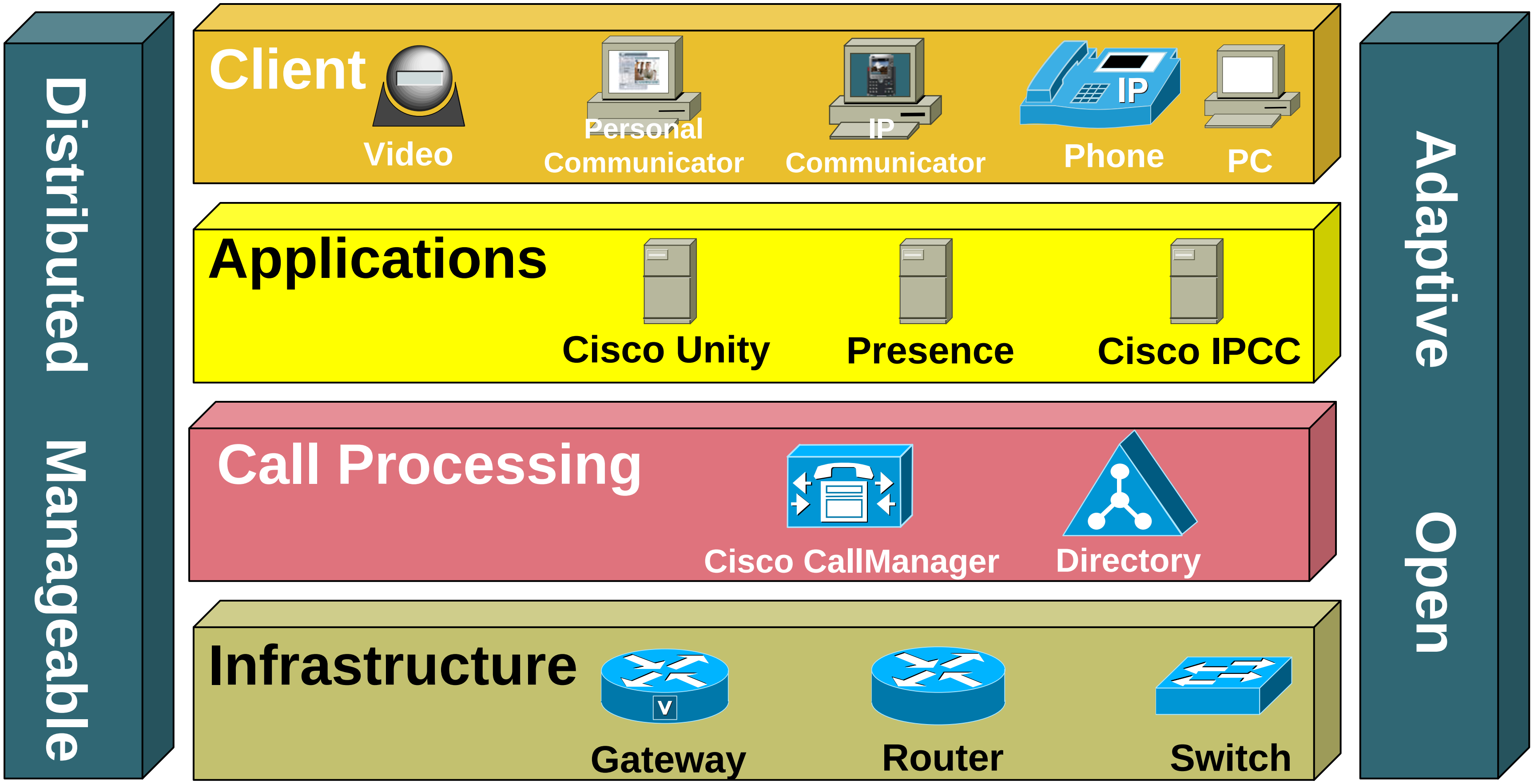
Desktop Applications

Video

3rd Party Applications

Cisco Unified Communication Solutions

Cisco Unified Communication Layers



Distributed Manageable

Client

Video

Personal Communicator

IP Communicator

Phone

PC

Applications

Cisco Unity

Presence

Cisco IPCC

Call Processing

Cisco CallManager

Directory

Infrastructure

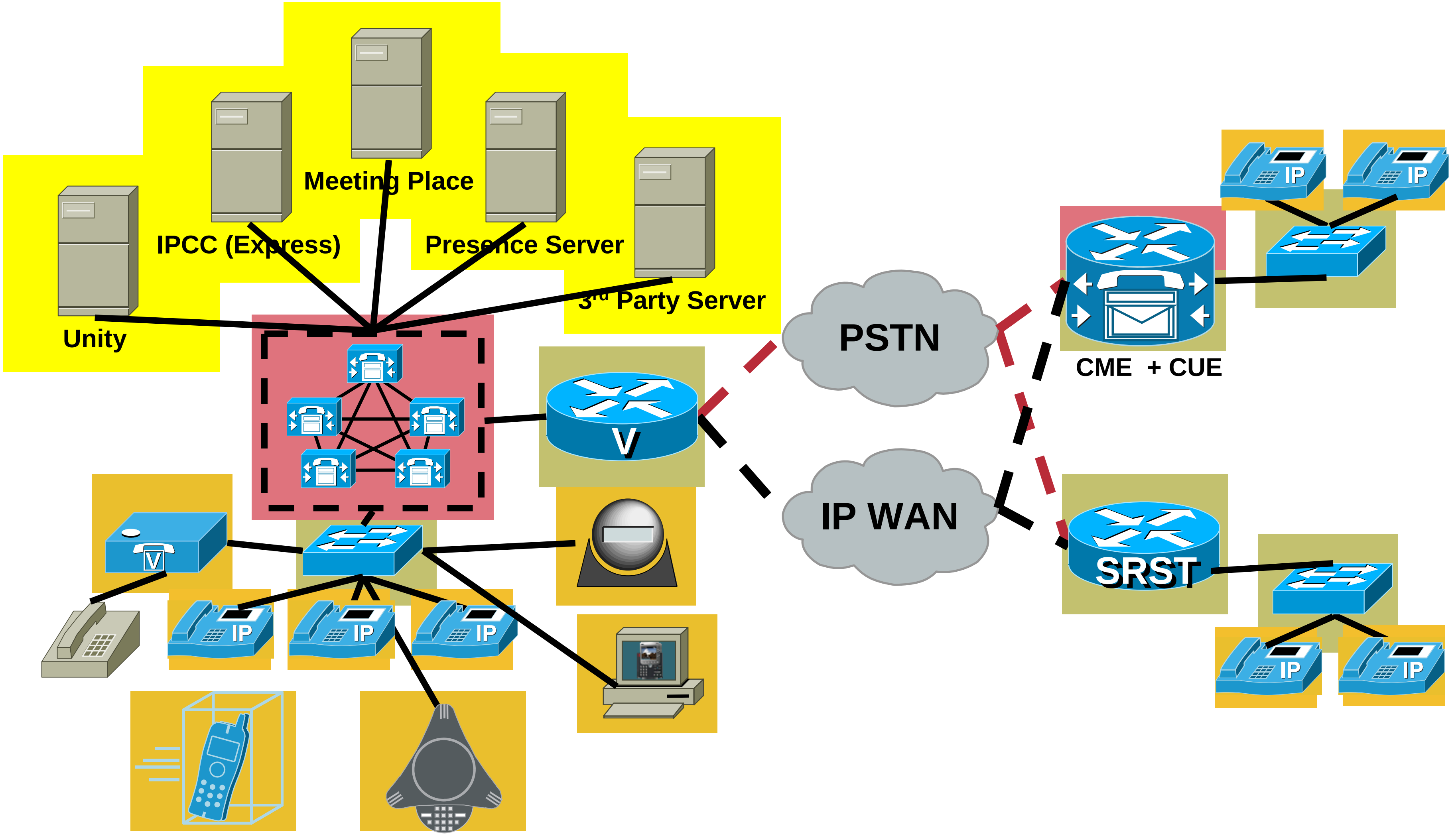
Gateway

Router

Switch

Adaptive Open

Cisco IP Communication Components


Meeting Place
IPCC (Express)
Presence Server
3^{rd} Party Server
Unity
V
PSTN
IP WAN
CME + CUE
SRST
IP

The Columbus Mission

Represents a new way of delivering Cisco Unified Communications functionality to enterprise customers.

- **Columbus integrates telephony, conferencing (voice, video and web), messaging, and contact center technology.**
- **Centered on the CCM 5.0 release.**
- **The first coordinated system release of an integrated set of products tested, documented and supported as a system.**

The Columbus Mission (cont.)

- Delivers a collection of products with one release date, testing methodology, and documentation.
- The first in a series of time-based releases integrating CCM with the current versions of all IPC products.
  - Unity, IPCC, CRS, Customer Voice Portal, MeetingPlace, NextGen IP Phones, phone and desktop client applications, etc.
- Columbus is the successor to Golden Bridge.

A Review of Golden Bridge

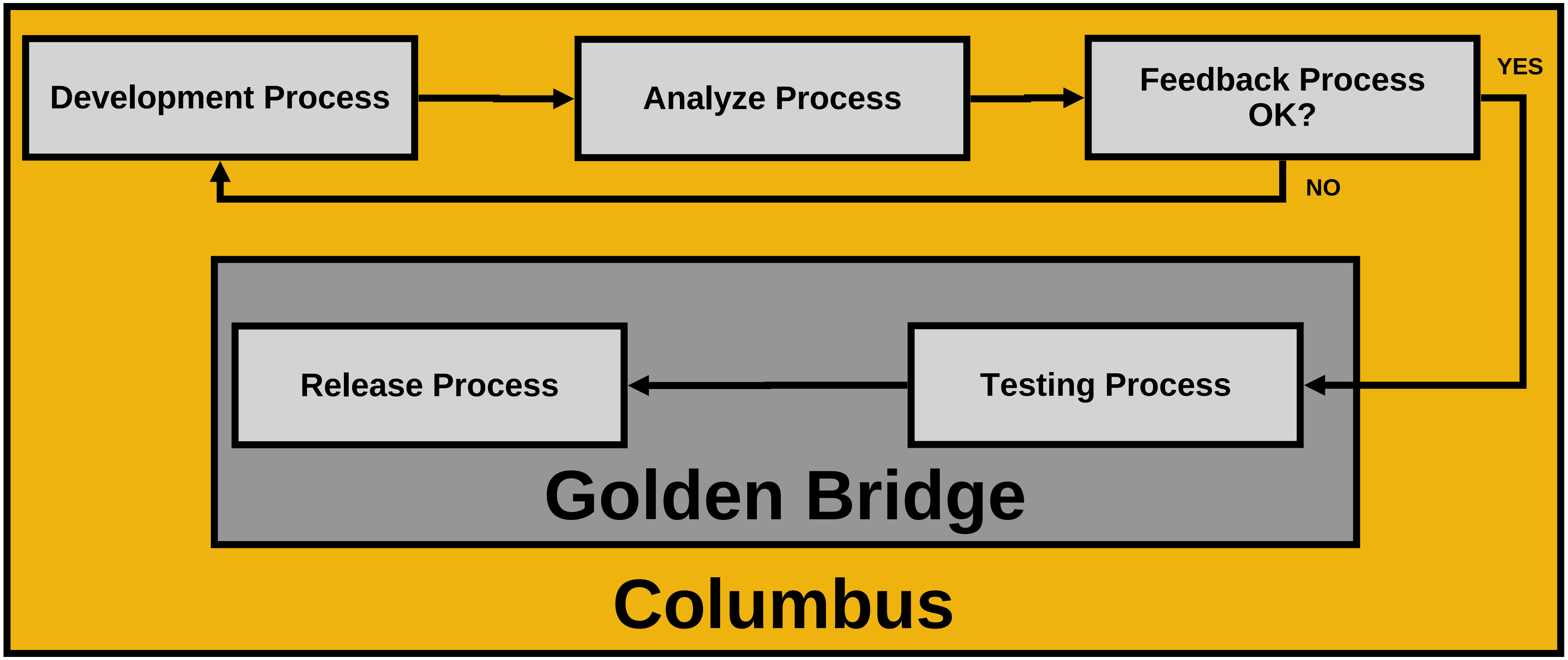
System Testing for Enterprise IPC

- Components = Infrastructure, Gateways, Call Control, Communications Applications, Management, Security
- Validates system compatibility, functionality, load etc.
- Integral part of Enterprise Voice solution management

The goal of Golden Bridge is to ensure success of Unified Communications systems throughout their lifecycle

Columbus Testing, Design, and Implementation Process

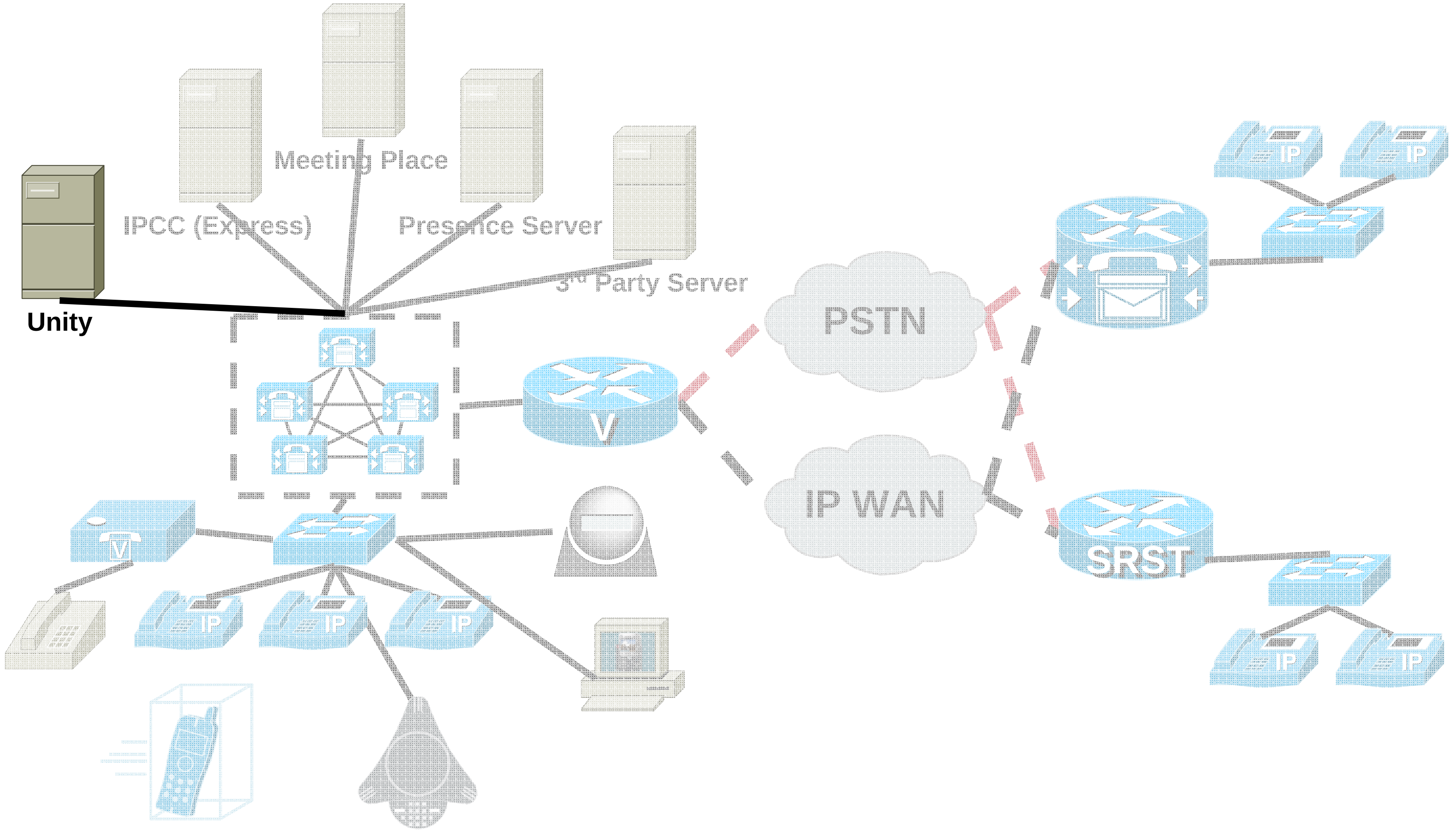
Columbus is a wider approach that includes the Golden Bridge process.


Development Process
Analyze Process
Feedback Process OK?
YES
NO
Release Process
Testing Process
Golden Bridge
Columbus

Columbus versus Golden Bridge

Function	Golden Bridge	Columbus
System Development Requirements		Partial
System Functional Spec		Partial
System Test Requirements	Yes	Yes
Integration	Yes	Yes
System Testing	Yes	Yes
System Documentation	Yes	Yes
System Performance Characterization	Yes	Yes
System EFT	Partial	Yes
System Training		Yes
System Marketing Launch		Yes
System Orderability		Yes
System-wide Licensing and Pricing		Yes

Cisco Unity


Meeting Place
IPCC (Express)
Presence Server
3rd Party Server
Unity
PSTN
IP WAN
V
SRST
IP
IP
IP
IP
IP
IP
IP
V

Cisco Unity

One-stop message access anywhere, any way, anytime.

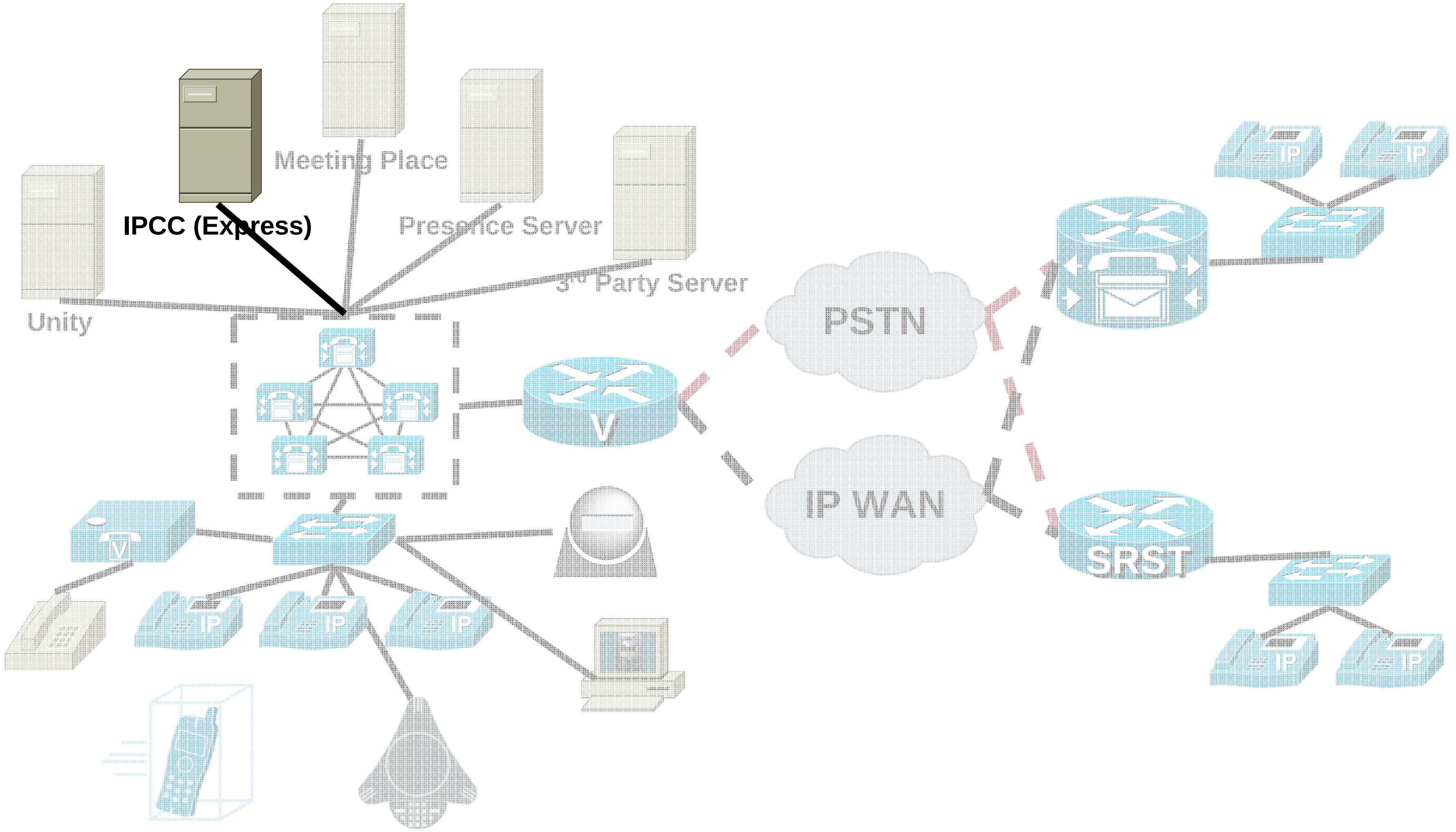
Broad range of options for advanced productivity with integrating voicemail, unified messaging & personalized productivity.

Voice and Unified Messaging

Depending on the deployment size and complexity different solutions are available:

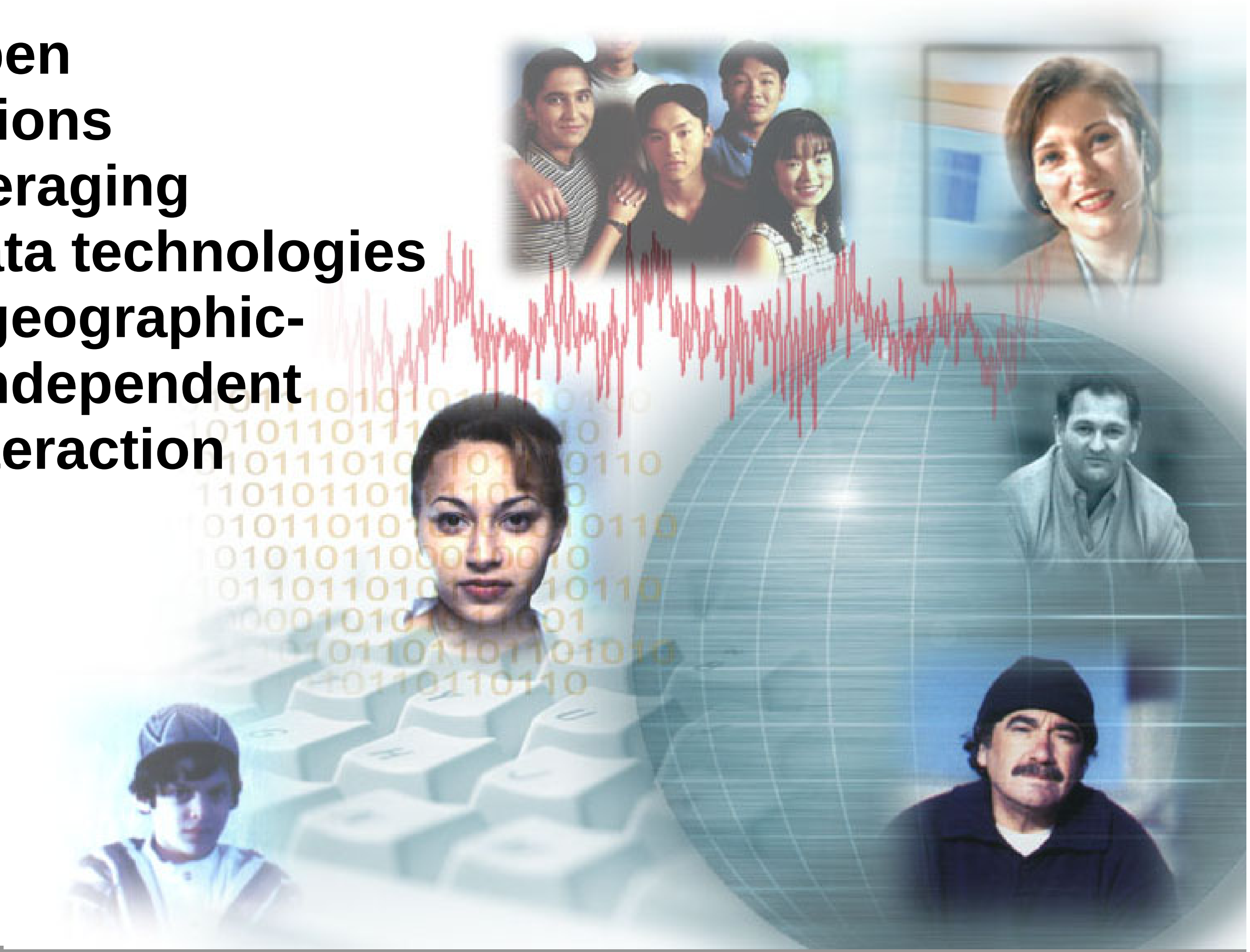
- Cisco Unity
  - Large scale enterprise voice and unified messaging.
  - Complex multi-site.
  - Thousands of users.
- Cisco Unity Connection
  - Single site enterprise voice and unified messaging
  - Up to 1500 users
- Cisco Unity Express
  - Router based voice messaging.
  - Small deployments.

Cisco IP Contact Center


Meeting Place
IPCC (Express)
Presence Server
3rd Party Server
Unity
PSTN
IP WAN
V
SRST
IP

Cisco Contact Center Vision

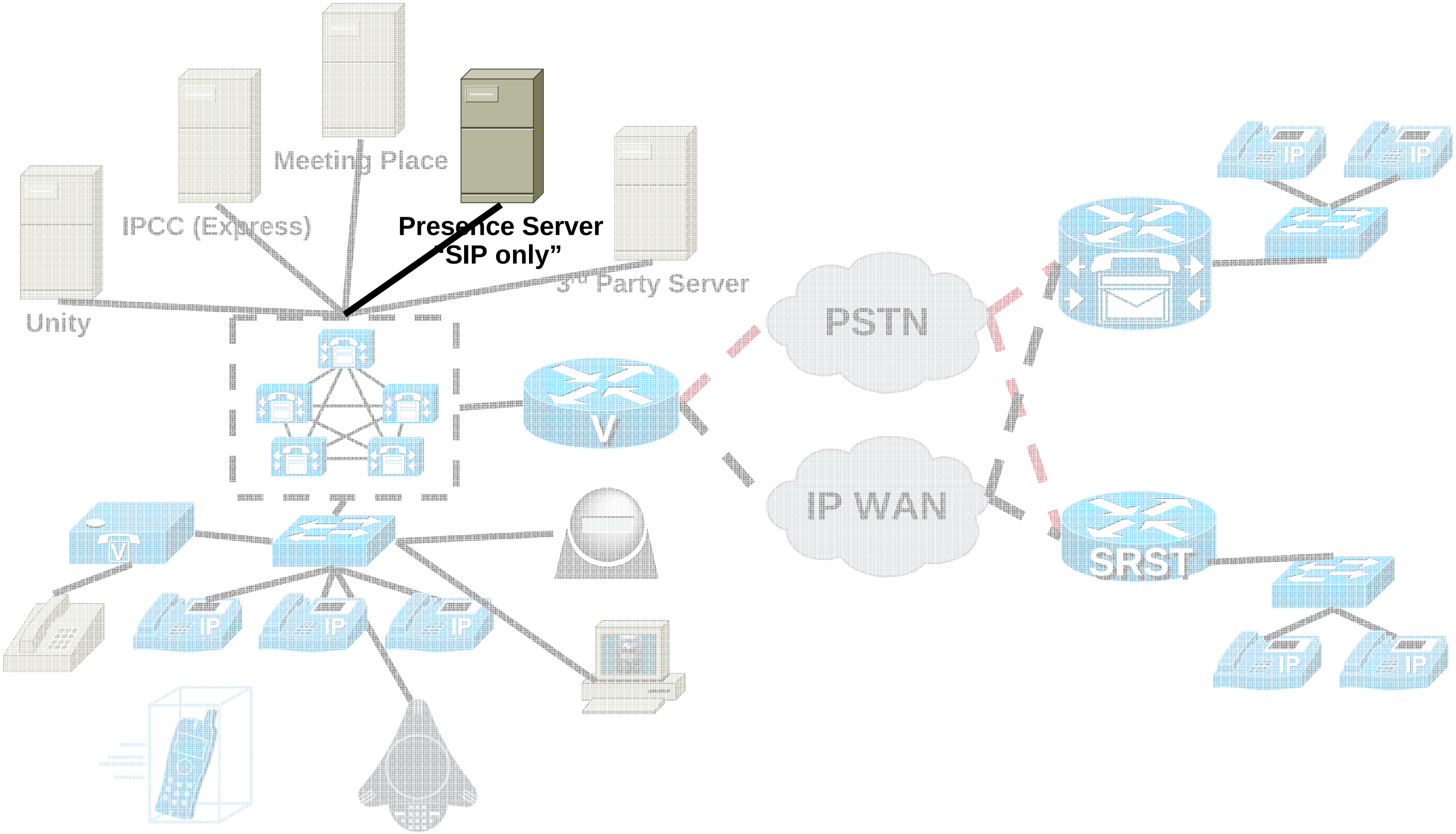
Create an open communications platform leveraging voice and data technologies to facilitate geographic- and media-independent customer interaction



IPCC Enterprise versus IPCC Express

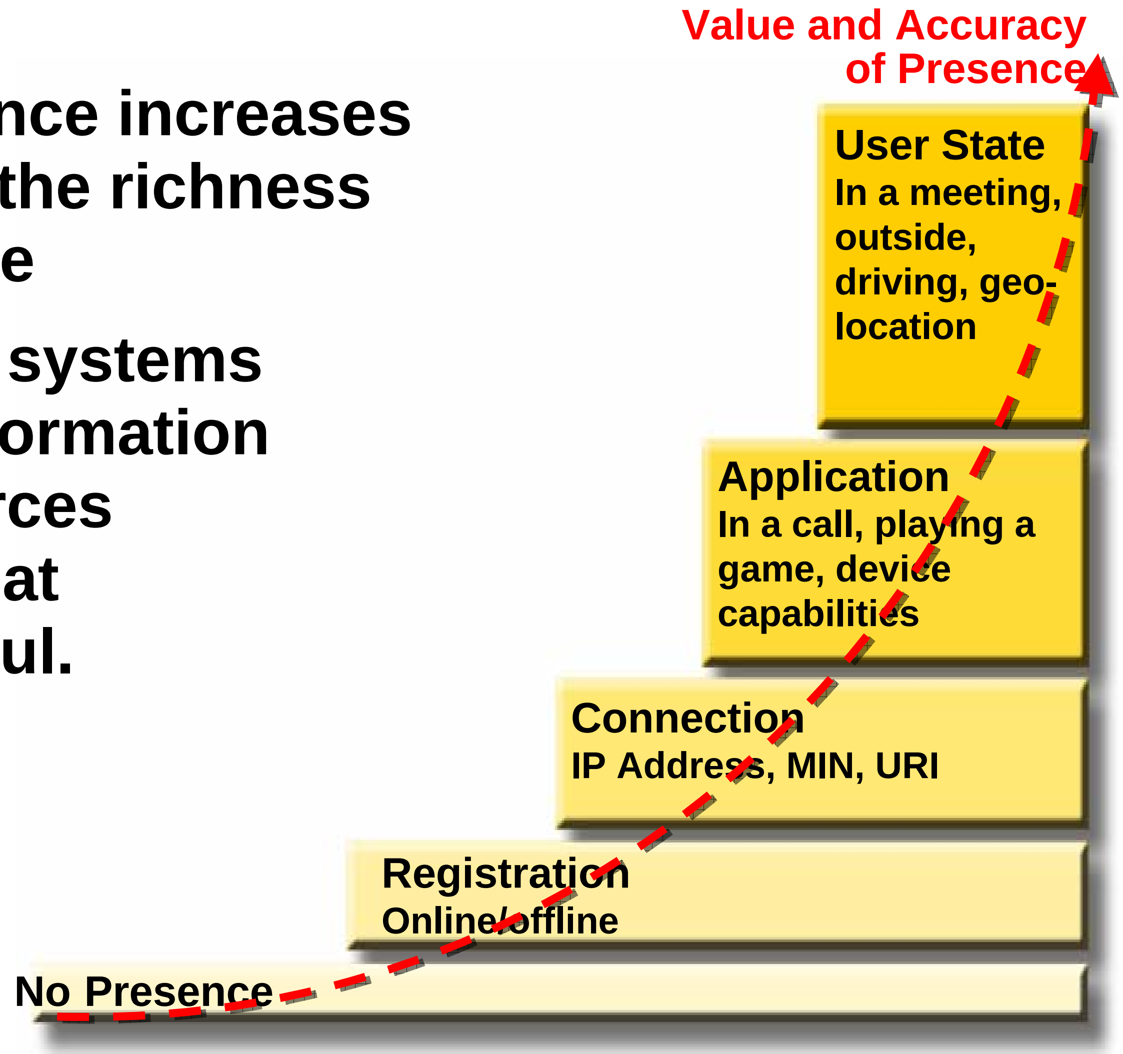
Criteria	Cisco IPCC Express Edition 4.0	Cisco IPCC Enterprise Edition 7.0
Virtual Contact Center in *Centralized* Call Deployment Model (One CallManager Cluster)	✓	✓
Virtual Contact Center in *Distributed* Call Deployment Model (Multiple CallManager Clusters)	🛇	✓
Integrated Multi-Channel	🛇	✓
Blended Inbound/Outbound	🛇	✓
Scalability > IPCCX to 300 agents, IPCCE to thousands	🛇	✓
Redundancy (NOTE: IPCC Enterprise has superior redundancy to that provided by IPCC Express e.g. preservation of calls/data in queue)	partial	✓
Pure IP Solution Integrated with Cisco CallManager	✓	✓
Multi-site and heterogeneous IP and TDM support with ICM	✓	✓
Simplified installation and administration, full integration with Cisco CallManager	✓	🛇
Integrated IVR	✓	🛇

Cisco Unified Presence Server


Meeting Place
IPCC (Express)
Presence Server
"SIP only"
3rd Party Server
Unity
V
PSTN
IP WAN
SRST
IP

Presence Overview: Introduction

- The value of Presence increases exponentially with the richness of the data available
- The best Presence systems gather accurate information from the most sources and apply policy that makes it most useful.



Value and Accuracy of Presence

User State
In a meeting, outside, driving, geo-location

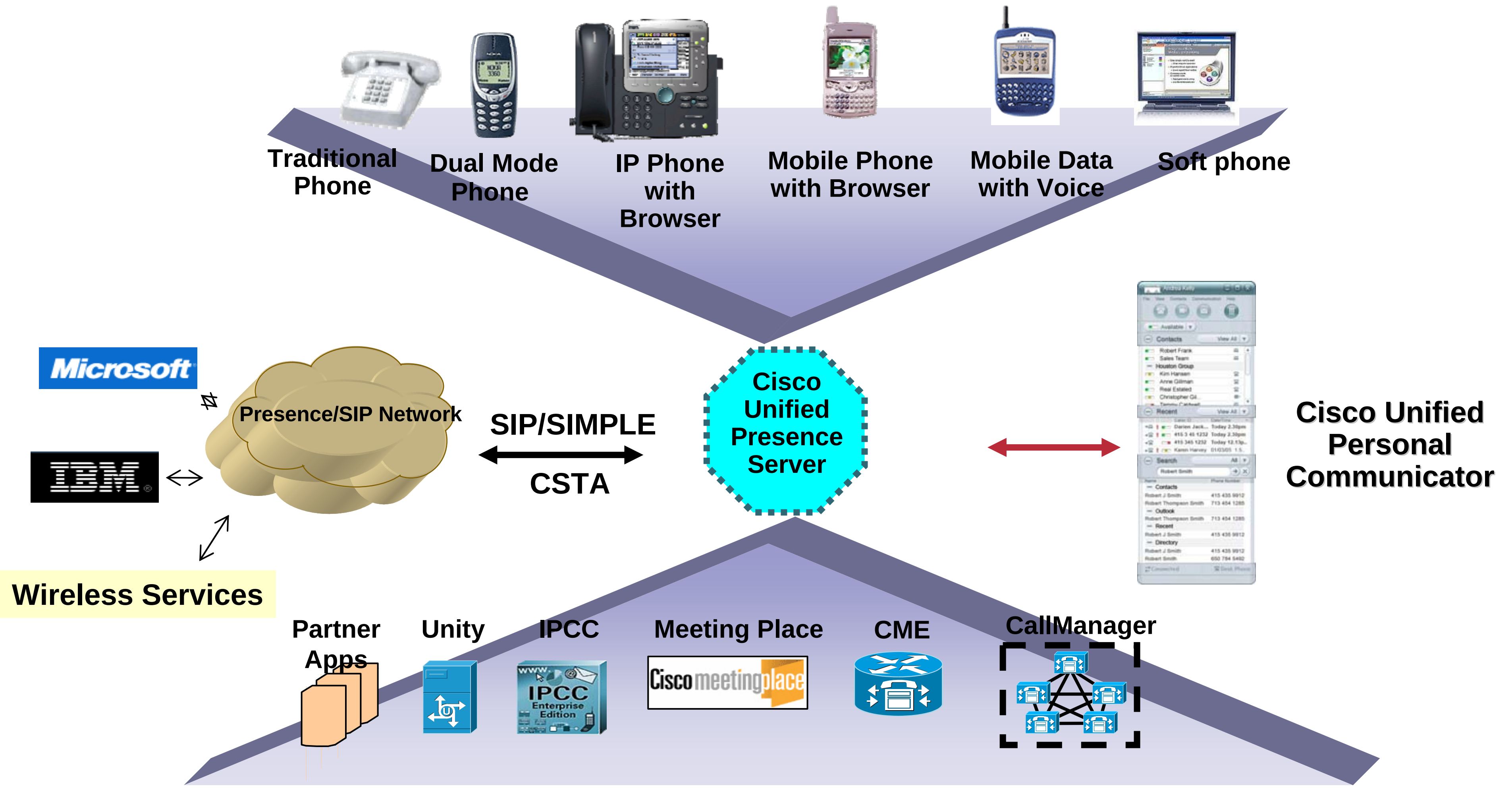
Application
In a call, playing a game, device capabilities

Connection
IP Address, MIN, URI

Registration
Online/offline

No Presence

Cisco Unified Presence Server: Overview



Traditional Phone

Dual Mode Phone

IP Phone with Browser

Mobile Phone with Browser

Mobile Data with Voice

Soft phone

Microsoft

IBM

Presence/SIP Network

Wireless Services

SIP/SIMPLE

CSTA

Cisco Unified Presence Server

Cisco Unified Personal Communicator

Partner Apps

Unity

IPCC

Meeting Place

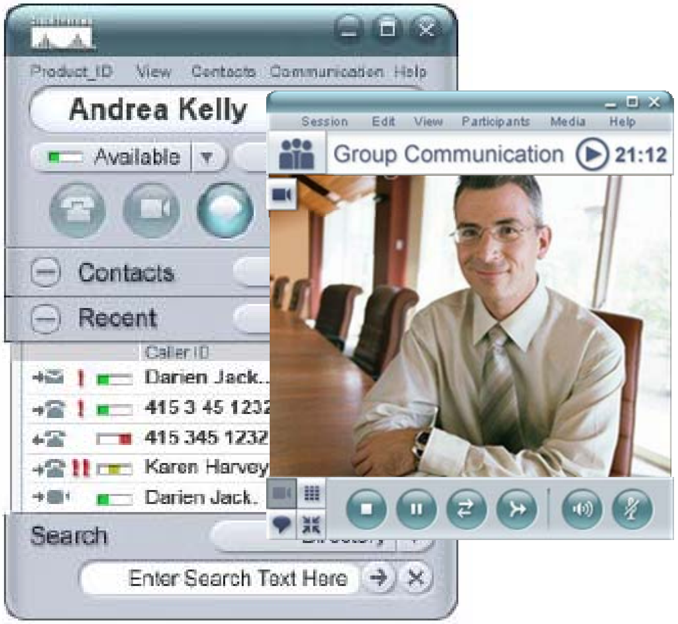
CME

CallManager

Cisco Unified Personal Communicator

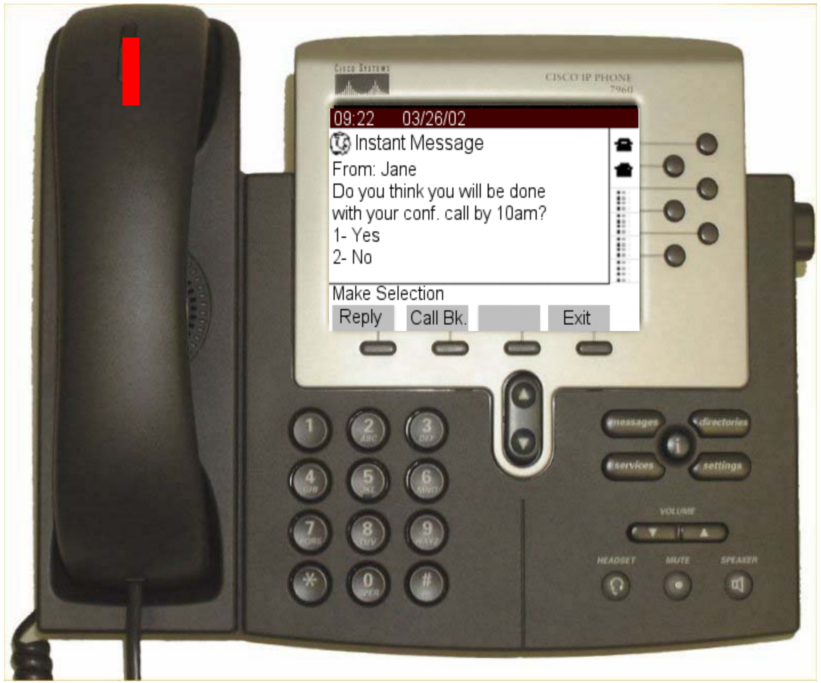
Seamlessly integrates a wide variety of communication applications and services into a single, rich media interface, helping workers communicate more effectively.

- **Leverage reach ability and presence indicators**
- **Use video to exchange ideas "face-to-face"**
- **Escalate communication methods for more effective interactions**
  - **Voice, Video, Web Collaboration**
- **Communicate anywhere, anytime**
- **Pure SIP based Solution**


Product_ID View Contacts Communication Help
Andrea Kelly
Available
Contacts
Recent
Caller ID
Darien Jack..
415 3 45 1232
415 345 1232
Karen Harvey
Darien Jack.
Search
Enter Search Text Here
Session Edit View Participants Media Help
Group Communication
21:12

Cisco Unified Presence Server: IP Phone Messenger

- **Unified Client users see other user’s IP phone’s on/off hook states**
- **Users can send or reply to messages from their IP Phones using predefined templates or composing text messages**
- **Users can call back IM senders by hitting 1 button.**
- **Will also integrate with other IM clients and presence sources beyond UPS 1.0**



09:22 03/26/02

Instant Message

From: Jane

Do you think you will be done with your conf. call by 10am?

1- Yes

2- No

Make Selection

CISCO IP PHONE 7960
Reply
Call Bk.
Exit
messages
directories
services
settings
VOLUME
HEADSET
MUTE
SPEAKER

Summary

- Cisco has everything today's communication needs.
- Products in Cisco Communications build a whole Solution for converged networks. Ranging from Infrastructure to endpoints.
- Columbus is the follower of Golden Bridge, a wider approach that starts in the development phase.
- Cisco Unity is available in Voicemail only mode and in the unified messaging using one message store for all messages
- Contact Server Solutions from Cisco System address small to large contact center environments.
- With the Cisco Unified Presence Server the next step in Unified Communications is available.

CISCO SYSTEMS

Understanding Cisco Enterprise IP Communication

Understanding Cisco Unified CallManager Concepts

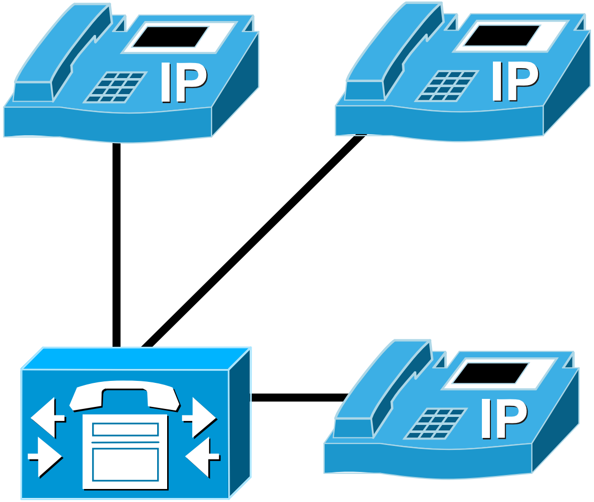
Objectives

- Cisco Unified CallManager Functions Overview
- Cisco Unified CallManager Telephony Features
- New features in Cisco Unified CallManager 5.0
- Contrast CallManager 4.x and CallManager 5.0
- Licensing Compliance

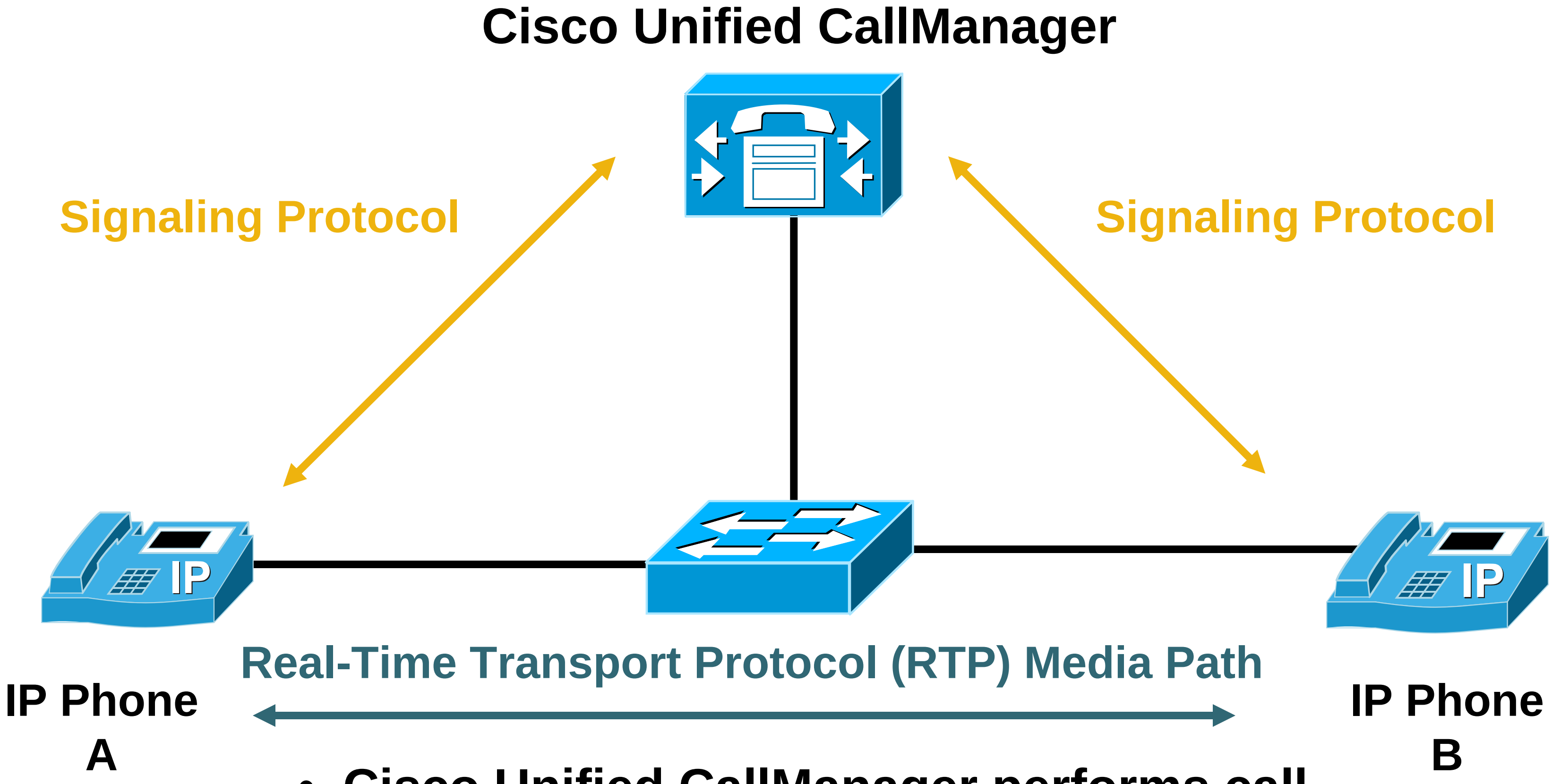
Cisco Unified CallManager Functions Overview

Cisco Unified CallManager is the heart of a Cisco IP Communications Environment

- Call processing
- Signaling and device control
- Dial plan administration
- Phone feature administration
- Directory services
- Programming interface to external applications



Cisco Unified CallManager Functions (Cont.)


Cisco Unified CallManager
Signaling Protocol
Signaling Protocol
IP
IP
Real-Time Transport Protocol (RTP) Media Path
IP Phone A
IP Phone B

- Cisco Unified CallManager performs call setup and maintenance tasks using a Signaling Protocol (Skinny/SIP).
- IP Phones stream audio using RTP.

Cisco Unified CallManager Telephony Features

- Abbreviated dial
- Barge and Conference Barge
- Call-back
- Call park and pickup
- Immediate divert to voice mail
- Multiparty conference-ad-hoc with add-on, meet-me features, Conference list and drop any party (ad-hoc conference)
- Music on hold
- Privacy
- Transfer: blind, consultative, direct transfer of two parties on a line
- Video telephony
- Web dialer-click to dial

Note: Visit the CallManager 5.0 Data Sheet Page for a complete list of supported features:

http://www.cisco.com/en/US/products/sw/voicesw/ps556/products_data_sheet0900aecd8042403e.html

New Features in Cisco Unified CallManager 5.0

Cisco Unified CallManager 5.0 key features include:

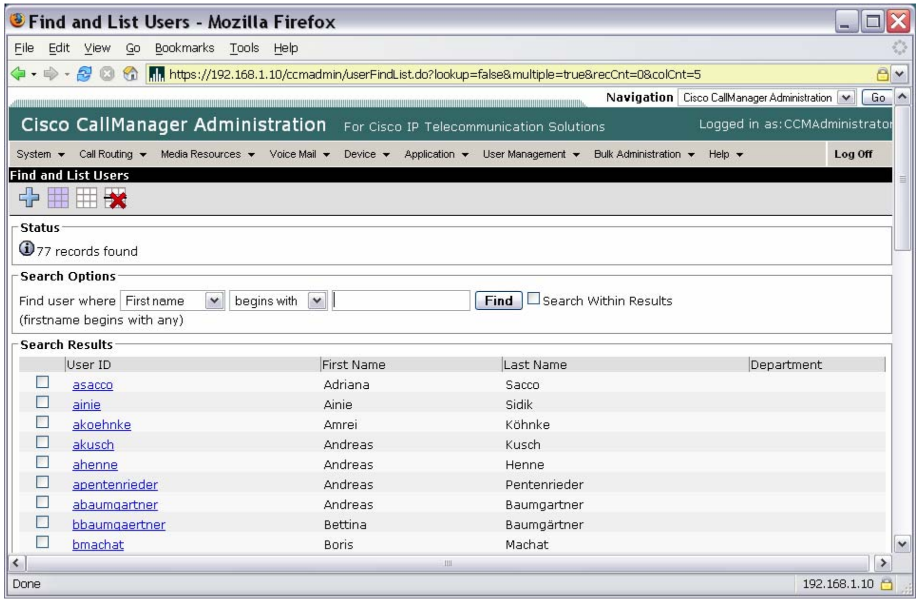
- Appliance model
  - Improved installation and upgrades
- Administration enhancements
- Expanding SIP portfolio
  - SIP line side
  - Enhanced networking
  - Presence with Unified Presence Server
- Integrated Presence using Busy Line Field
- Japanese, Chinese, and Korean Character Set Support
- Licensing compliance

Cisco Unified CallManager Appliance Model

- Complete hardware software solution
- Alternative operating system
  - Improve installation and upgrade
  - Increased security and reliability
- Software solution
  - Cisco Security Agent included as with Windows version
- Interfaces provide access to system
  - Administration via CLI and GUI
  - Third-party access is through documented APIs

Administration Enhancements

- Administration improvements
  - Easier and quicker user add and delete
  - Line Improvements
    -- Arrange lines on 7914
  - Scheduled provisioning
    -- Bulk Administration Tool
  - Navigation bar is now vertical and always present
  - Toolbar always available at top of screen
- Cisco common look and feel


Find and List Users - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Find and List Users
Done
192.168.1.10

https://192.168.1.10/ccmadmin/userFindList.do?lookup=false&multiple=true&recCnt=0&colCnt=5

Status

77 records found

Search Options

Find user where First name begins with [ ] Find ☐ Search Within Results
(firstname begins with any)

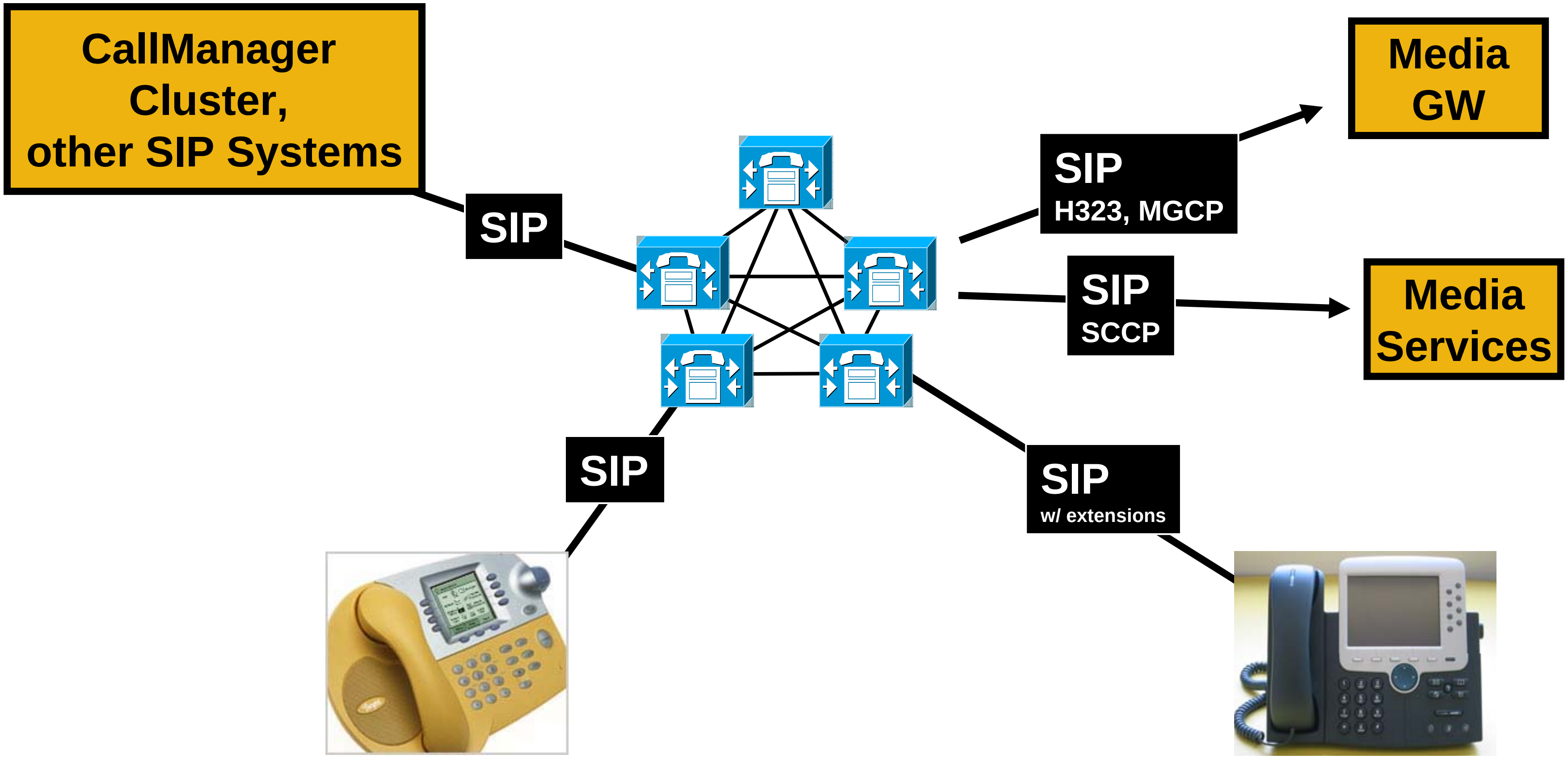
Search Results

	User ID	First Name	Last Name	Department
☐	asacco	Adriana	Sacco	
☐	ainie	Ainie	Sidik	
☐	akoehnke	Amrei	Köhnke	
☐	akusch	Andreas	Kusch	
☐	ahenne	Andreas	Henne	
☐	apentenrieder	Andreas	Pentenrieder	
☐	abaumgartner	Andreas	Baumgartner	
☐	bbaumgaertner	Bettina	Baumgärtner	
☐	bmachat	Boris	Machat	

SIP Support

- Support of industry wide accepted SIP behaviors
  - SIP registration
  - SIP basic call
  - SIP ‘Best Practices’ for core feature support
- Support key Cisco Unified CallManager call control features
  - Link into core CallManager call control
  - Support for Core CTI based applications
- Support of third-party SIP phones
  - Basic feature set supported.
- Support for SIP trunks
  - Includes intercluster trunks
- Support for Presence

SIP Possibilities Overview CCM 5.0



CallManager Cluster, other SIP Systems

SIP

SIP
H323, MGCP

Media GW

SIP
SCCP

Media Services

SIP

SIP
w/ extensions

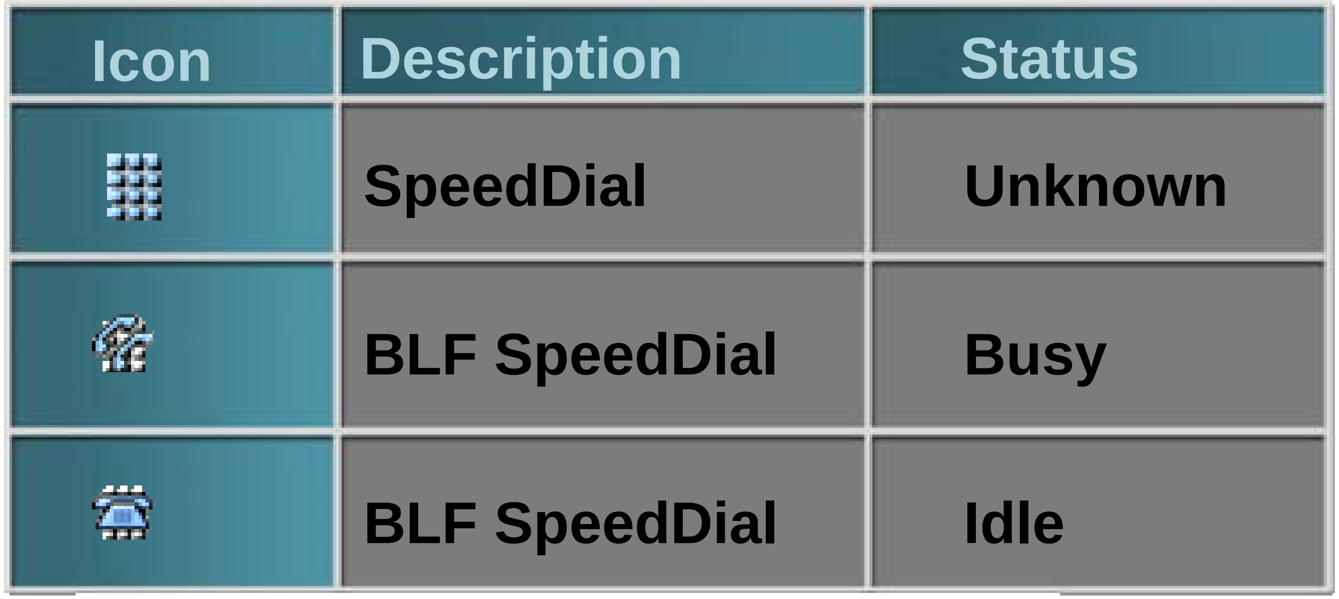
SIP RFC 3261 Compliant Phones

Next-Gen Cisco SIP Phones

Cisco Unified CallManager 5.0 Presence Features

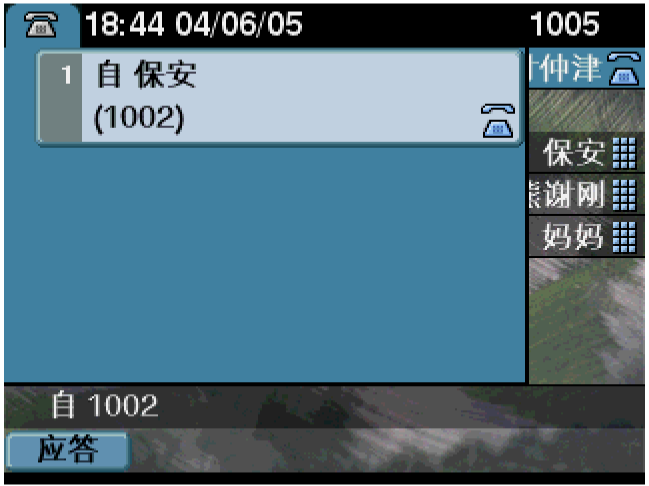
Busy-line field is now available at CCM

- Speed-dial buttons
- Call history logs
- Directory



Icon	Description	Status
▦	SpeedDial	Unknown
☎	BLF SpeedDial	Busy
☎	BLF SpeedDial	Idle

Multi-Byte Character Support (Japanese)


18:44 04/06/05 1005

1 自 保安
(1002)

仲津

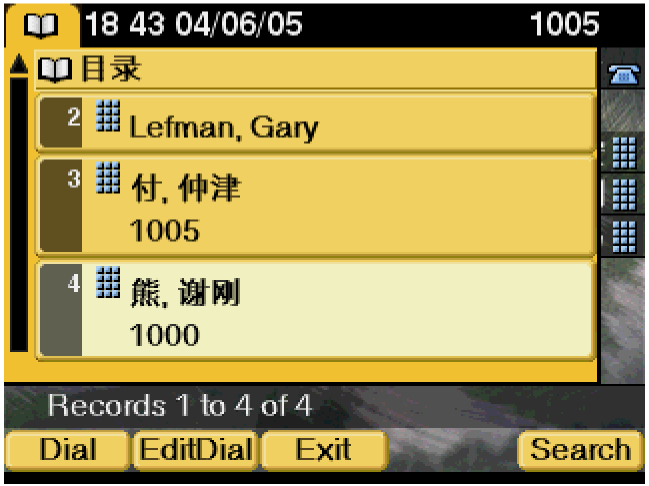
保安

谢刚

妈妈

自 1002

Incoming Call


18 43 04/06/05 1005

目录

2 Lefman, Gary

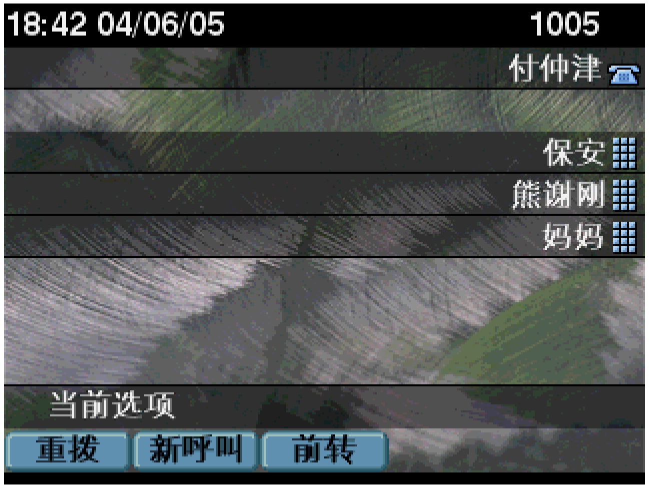
3 付, 仲津
1005

4 熊, 谢刚
1000

Records 1 to 4 of 4

Dial
EditDial
Exit
Search

Corporate Directory


18:42 04/06/05 1005

付仲津

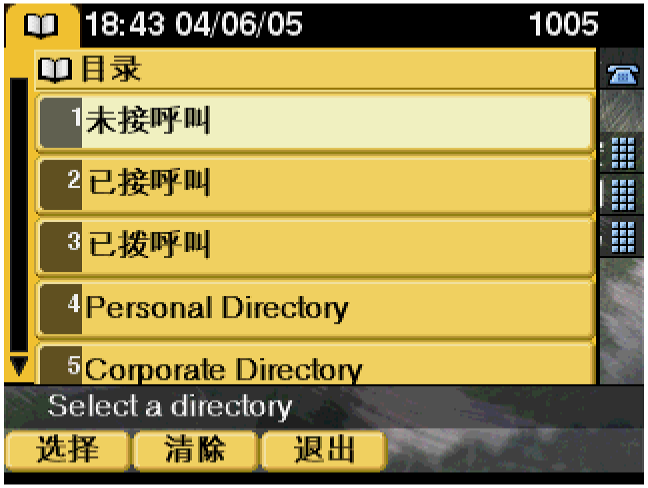
保安

熊谢刚

妈妈

当前选项

Speed Dials


18:43 04/06/05 1005

目录

1 未接呼叫

2 已接呼叫

3 已拨呼叫

4 Personal Directory

5 Corporate Directory

Select a directory

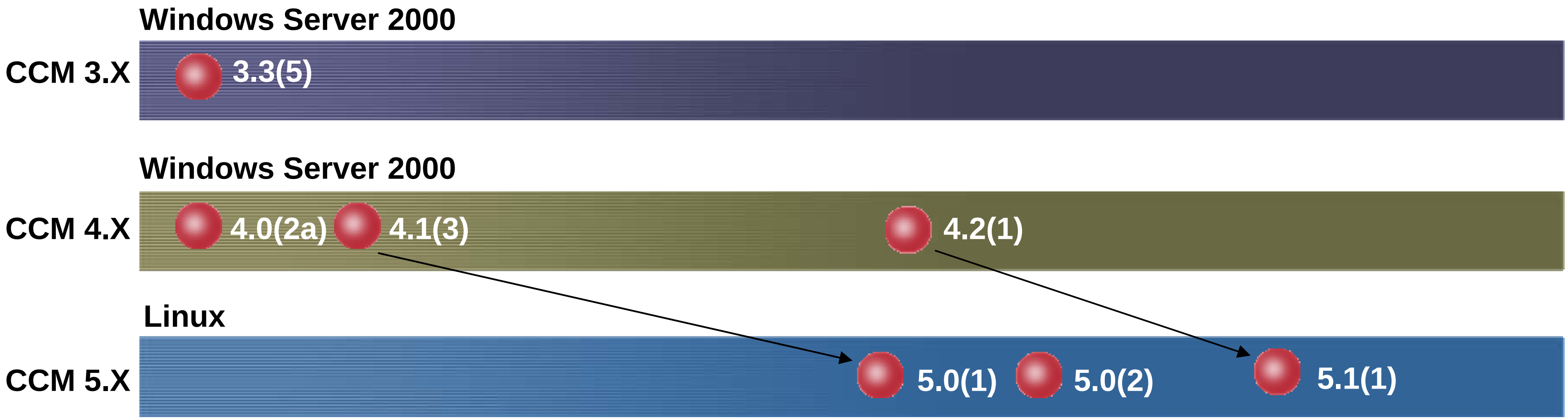
Directories

Contrast
Cisco Unified CallManager 4.x and 5.0

Cisco Unified CallManager 5.0 is a new development train:

- Feature parity with Cisco Unified CallManager 4.1(3)
  - 4.2 features won't be included in initial 5.0(1) releases.
- Most 4.1(3) applications will be supported in 5.0(1)
  - Main exception: Personal Assistant.
  - Check compatibility information for updated information.
- 4.x and 5.x train will be merged from a feature perspective.

Contrast
Cisco Unified CallManager 4.x and 5.0



Windows Server 2000

CCM 3.X 3.3(5)

Windows Server 2000

CCM 4.X 4.0(2a) 4.1(3) 4.2(1)

Linux

CCM 5.X 5.0(1) 5.0(2) 5.1(1)

Licensing Compliance

Cisco Unified CallManager licensing compliance separated for Devices and Application.

Device licenses:

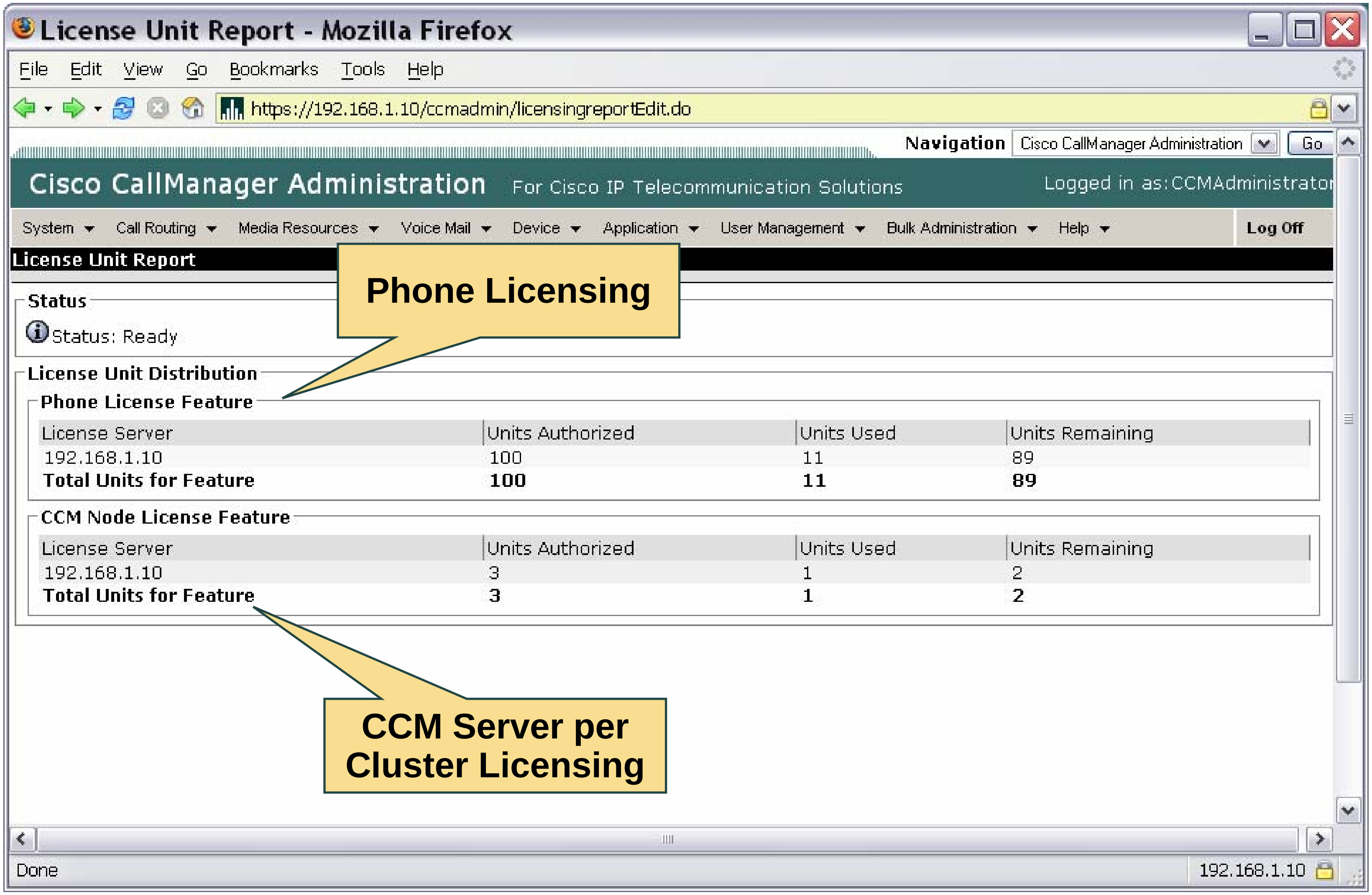
- **The maximum number of provisioned devices (IP phones, video devices) in CCM database will be tracked and enforced**
- **CCM will only be able to support the number of devices purchased licenses for**

Application licenses:

- **The CCM software will be tied to a server via mac address**

Licenses will be created and distributed in accordance with Cisco FlexLM process used for Cisco Unity today

License Unit Report


License Unit Report - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/licensingreportEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
License Unit Report
Done
192.168.1.10

Status

Status: Ready

License Unit Distribution

Phone License Feature

License Server	Units Authorized	Units Used	Units Remaining
192.168.1.10	100	11	89
Total Units for Feature	**100**	**11**	**89**

CCM Node License Feature

License Server	Units Authorized	Units Used	Units Remaining
192.168.1.10	3	1	2
Total Units for Feature	**3**	**1**	**2**

Phone Licensing

CCM Server per Cluster Licensing

Summary

- Cisco Unified CallManager is the heart of a Cisco IP Communications Environment.
- Cisco Unified CallManager 5.0 introduces new key features, including the move to an appliance.
- Cisco Unified CallManager 5.0 has feature parity with Cisco Unified CallManager 4.1.3, with additional 5.0 specific features.
- The new licensing model also introduces license enforcement.

Cisco Systems

Understanding Cisco Enterprise IP Communication

Evaluating Cisco Unified CallManager Deployment Models

Objectives

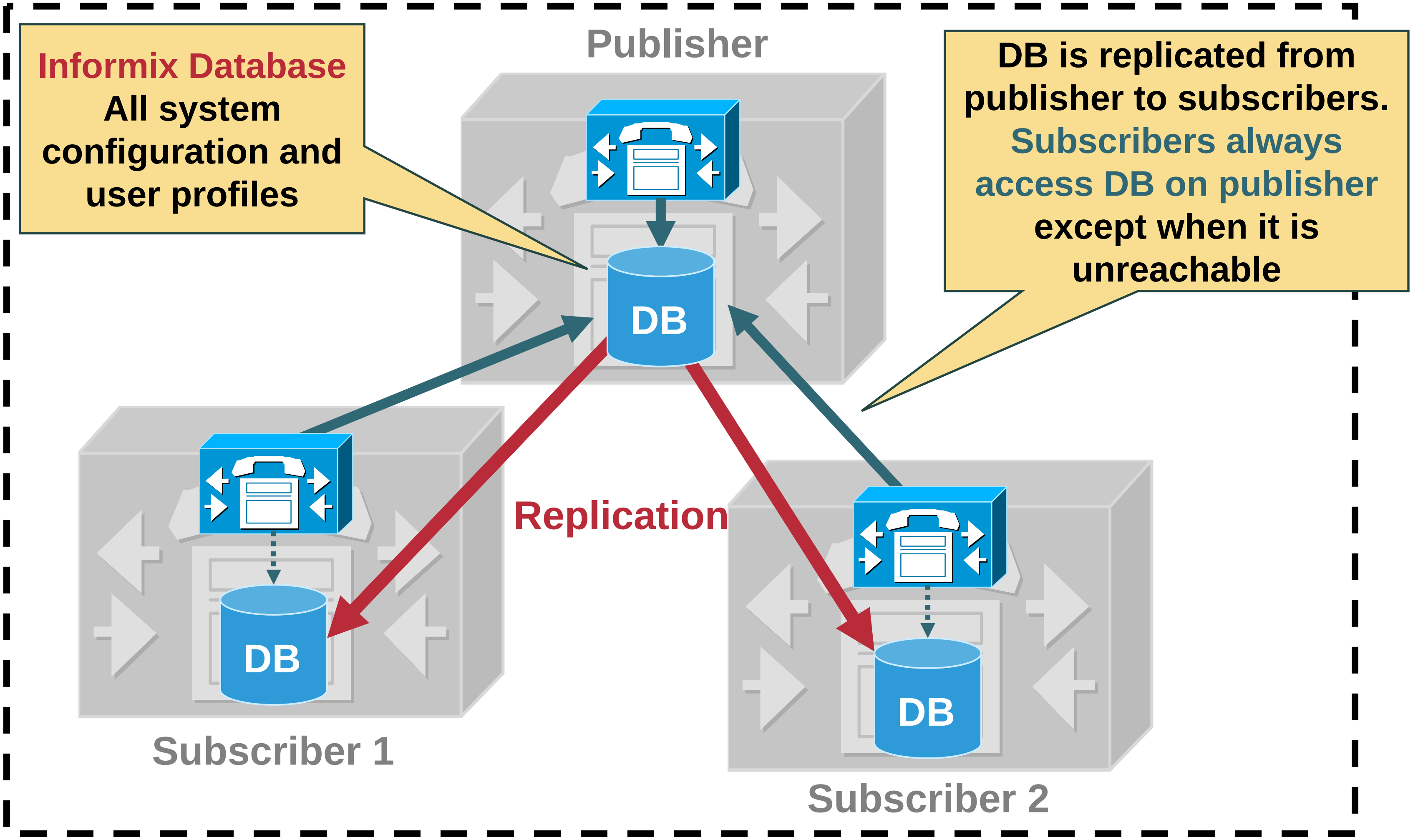
- Cisco Unified CallManager 5.0 Redundancy
- Call-Processing Deployment Models
- Single-Site Deployment
- Multi site WAN with Centralized Call Processing
- Multi site WAN with Distributed Call Processing
- Clustering over the IP WAN/MAN

Cisco Unified CallManager 5.0 Clusters

Clusters are used for redundancy and scalability:

- One Publisher maintains database.
- Multiple Subscribers obtain database from publisher.
- Up to eight servers in a Cisco Unified CallManager cluster can run call processing services.
  - Redundant call processing.
  - Shared load results in higher capacity.
- Role of a server in a cluster depends on activated services.

CallManager 5.0 Directory Architecture



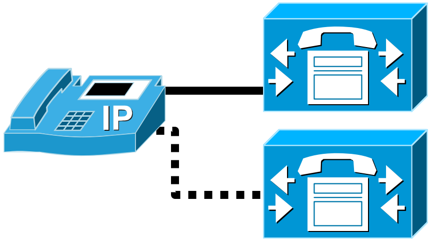
Informix Database
All system configuration and user profiles

DB is replicated from publisher to subscribers. Subscribers always access DB on publisher except when it is unreachable

Publisher
DB
Replication
DB
Subscriber 1
DB
Subscriber 2

Cisco Unified CallManager Cluster

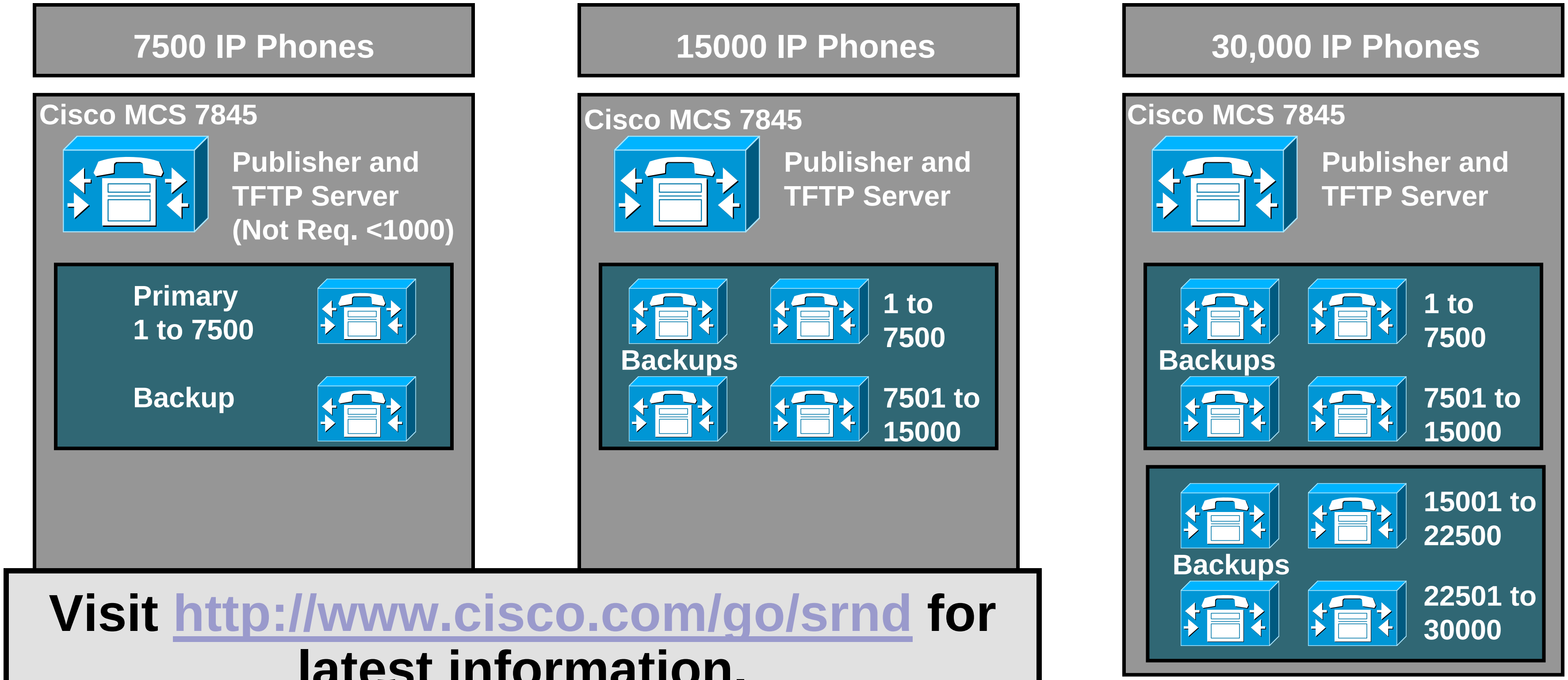
1:1 Redundancy Design



Primary

Secondary/
Backup

- Pro: High availability
- Con: Increased server count and cost



7500 IP Phones

Cisco MCS 7845

Publisher and
TFTP Server
(Not Req. <1000)

Primary
1 to 7500

Backup

15000 IP Phones

Cisco MCS 7845

Publisher and
TFTP Server

Backups

1 to
7500

7501 to
15000

30,000 IP Phones

Cisco MCS 7845

Publisher and
TFTP Server

Backups

1 to
7500

7501 to
15000

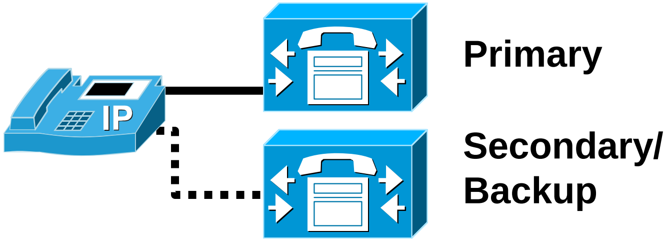
Backups

15001 to
22500

22501 to
30000

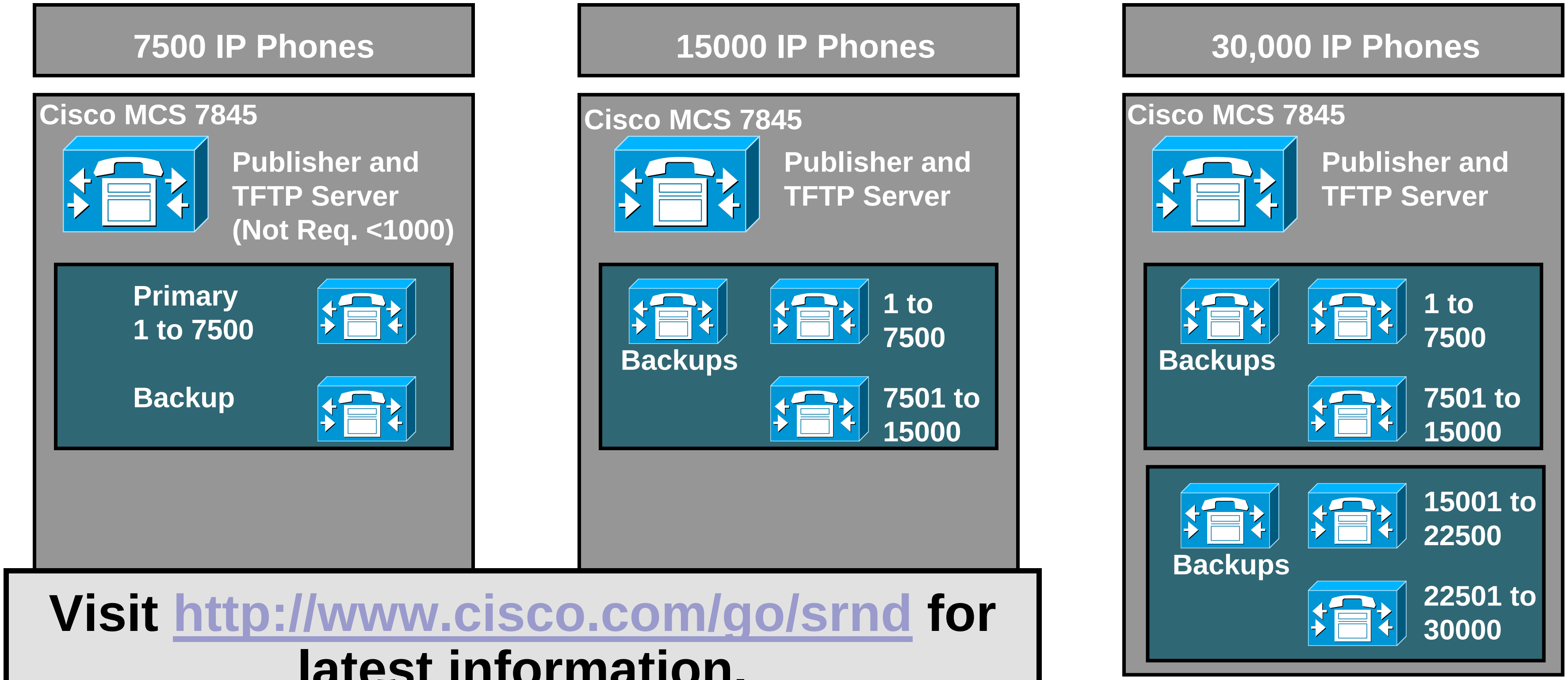
Visit http://www.cisco.com/go/srnd for latest information.

2:1 Redundancy Design



IP
Primary
Secondary/
Backup

- Pro: Lower cost
- Con: Less redundancy



7500 IP Phones
Cisco MCS 7845
Publisher and
TFTP Server
(Not Req. <1000)
Primary
1 to 7500
Backup
15000 IP Phones
Cisco MCS 7845
Publisher and
TFTP Server
Backups
1 to
7500
7501 to
15000
30,000 IP Phones
Cisco MCS 7845
Publisher and
TFTP Server
Backups
1 to
7500
7501 to
15000
Backups
15001 to
22500
22501 to
30000

Visit http://www.cisco.com/go/srnd for latest information.

Call-Processing Deployment Models

Supported IP Communication deployment models:

- Single-site deployment
- Multisite WAN with centralized call processing
- Multisite WAN with distributed call processing
- Clustering over the IP WAN

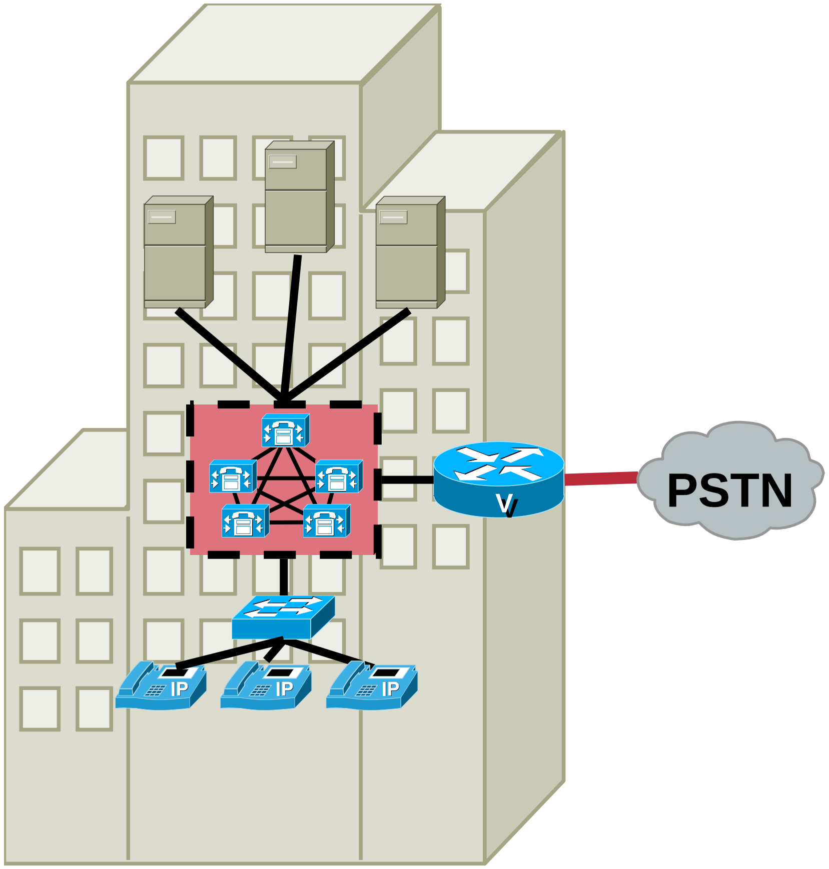
Defining characteristics of each:

- Type of traffic that is carried over the WAN (data only or data and voice)
- Location of call-processing agent
- Size of the deployment

Single-Site Deployment

Usually used for single site enterprise companies

- Cisco Unified CallManager servers, applications, and DSP resources at same physical location
- IP WAN (if one) used for data traffic only;
  PSTN used for all external calls
- Supports approximately 30,000 IP Phones per cluster

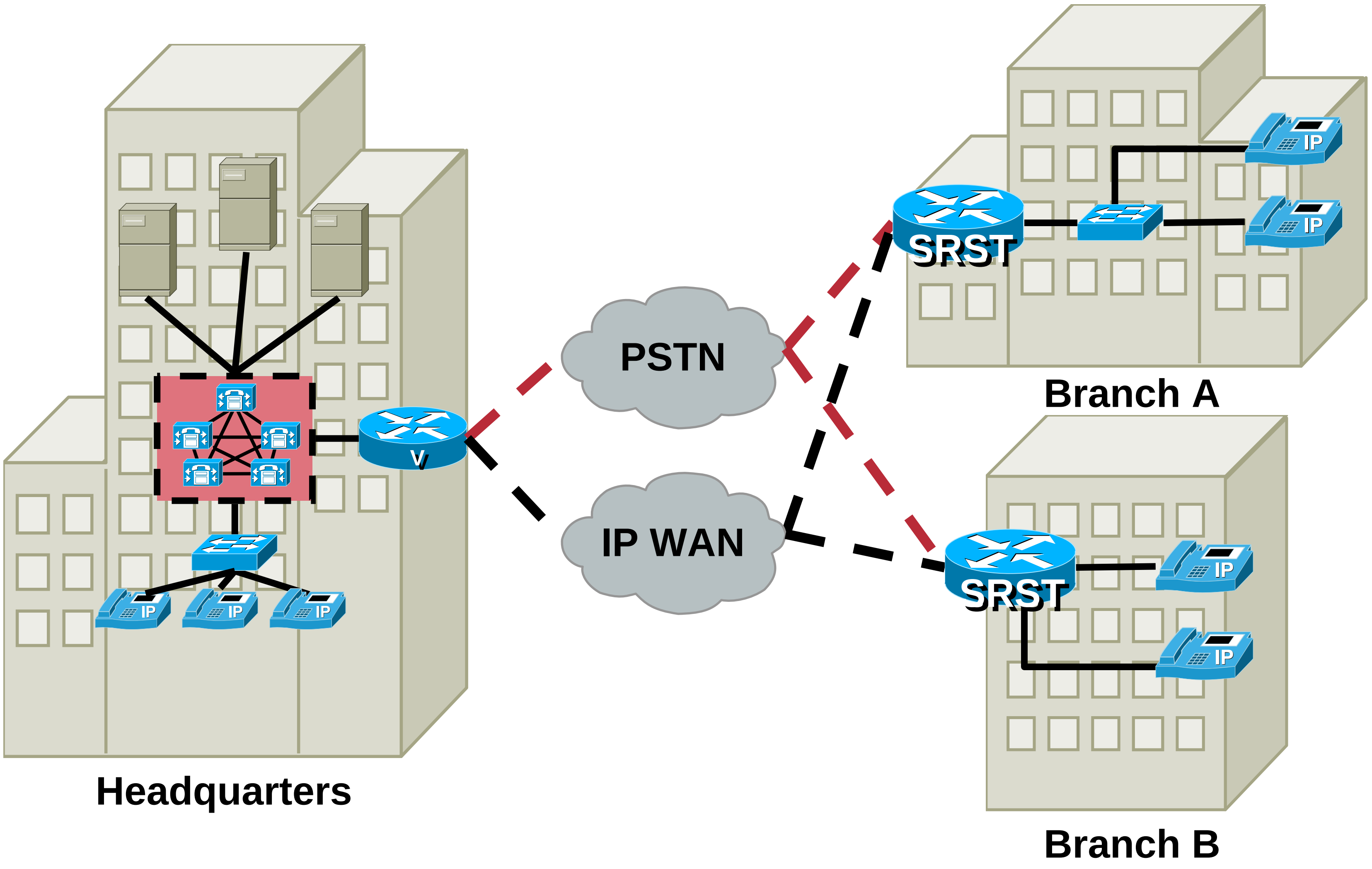


Multi site WAN with Centralized Call Processing

Usually used for enterprise companies with small to medium sized branch sites, centralized administration and regional proximity.

- Cisco Unified CallManager at central site; applications and DSP resources centralized or distributed
- IP WAN carries voice traffic and call control signaling
- Supports approximately 30,000 IP Phones per cluster
- Call admission control to control the number of intersite calls.
- Survivable remote site telephony (SRST) for remote branches
- Automated alternate routing (AAR) used if WAN bandwidth is exceeded

Multi site WAN with Centralized Call Processing

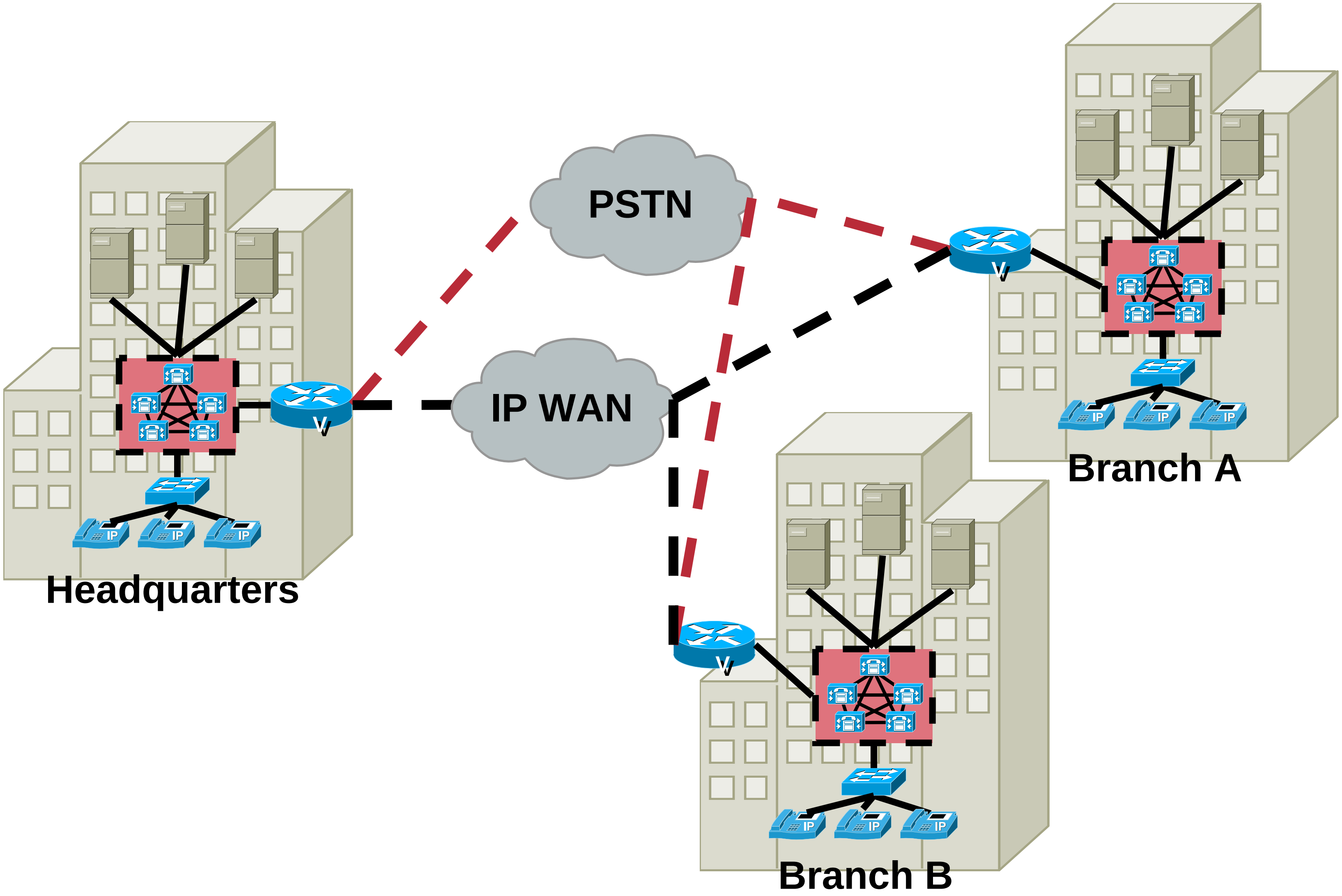

PSTN
IP WAN
SRST
SRST
V
IP
Branch A
Branch B
Headquarters

Multi site WAN with Distributed Call Processing

Usually used for enterprise companies with large sites in distant locations.

- **Cisco Unified CallManager and applications located at each site.**
- **IP WAN does not carry call control signaling.**
- **Scales to hundreds of sites.**

Multi site Distributed Call Processing: Topology

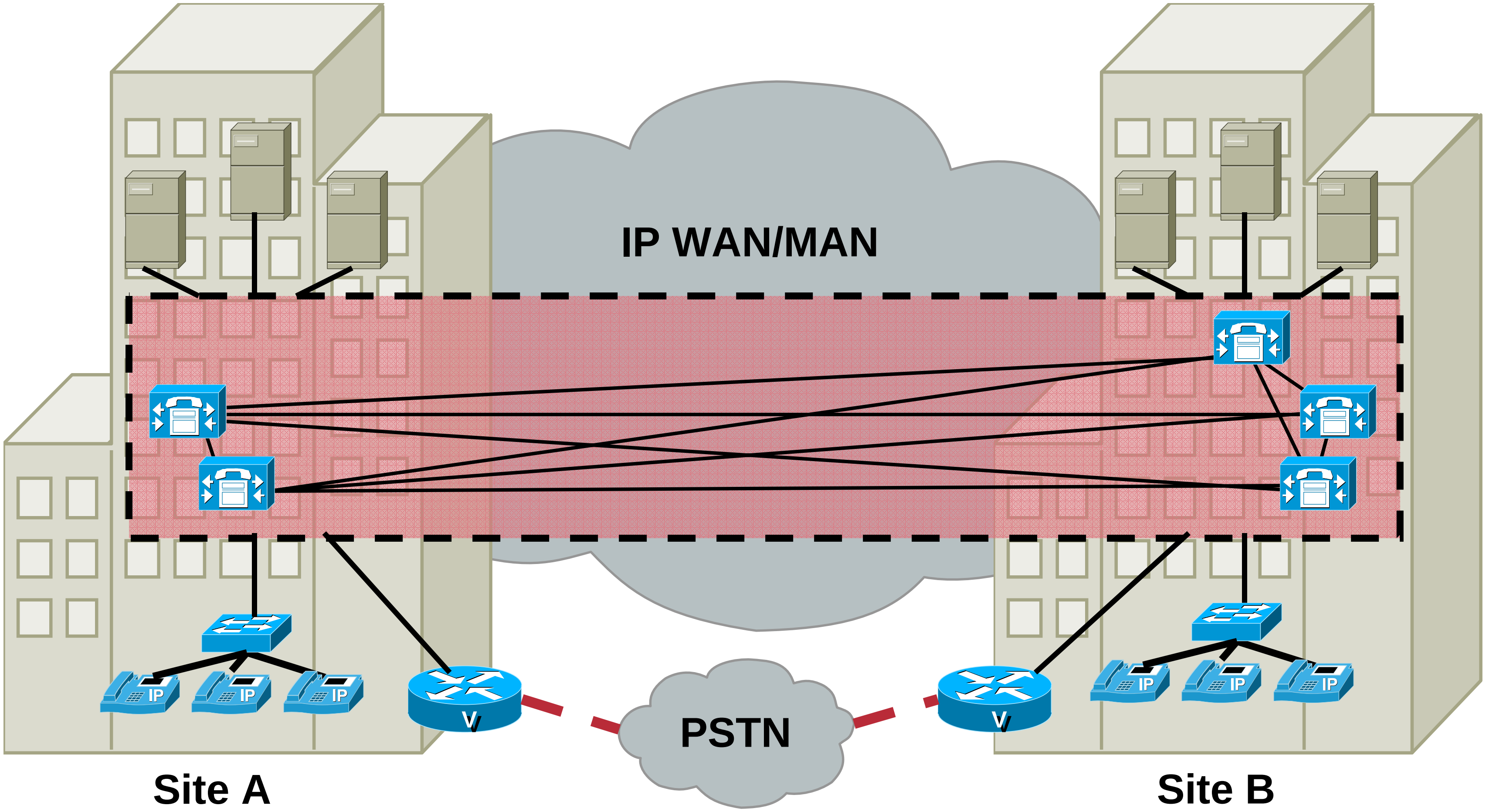

PSTN
IP WAN
V
Headquarters
Branch A
Branch B
IP

Clustering over the IP WAN/MAN

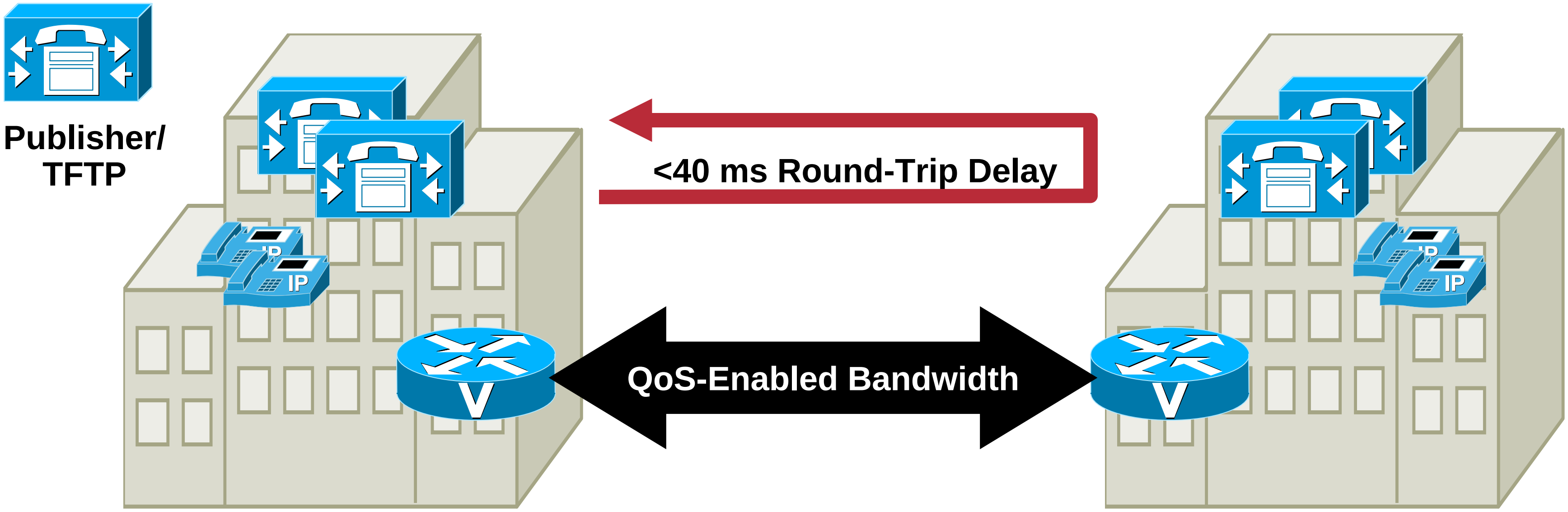
Usually used for enterprise companies with

- Cisco Unified CallManager Cluster is distributed across sites.
- No Fallback with SRST needed.
- Up to eight small sites using the remote failover deployment model
- Failover across WAN supported (more bandwidth)

Clustering over the IP WAN/MAN: Topology


IP WAN/MAN
IP
V
PSTN
Site A
Site B

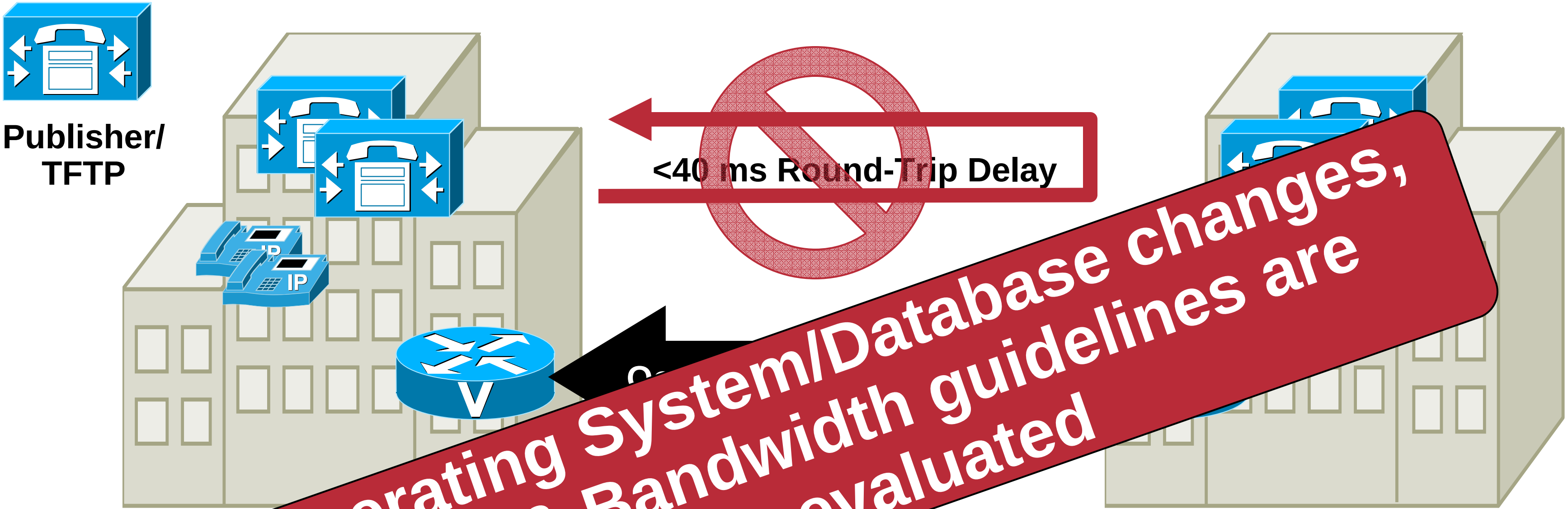
Clustering over the IP WAN: Requirements with CCM 4.x


Publisher/
TFTP
<40 ms Round-Trip Delay
QoS-Enabled Bandwidth
IP
IP
V
V

- **40-ms round-trip delay between any two Cisco Unified CallManager servers in the cluster**
- **900 kbps for every 10,000 BHCAs within the cluster**

Visit http://www.cisco.com/go/srnd for latest information.

Clustering over the IP WAN: Requirements


Publisher/
TFTP
IP
IP
V
<40 ms Round-Trip Delay

Due Operating System/Database changes, RTT delay & Bandwidth guidelines are being re-evaluated

- lay between any two Cisco Unified C servers in the cluster
- 90 kbps for every 10,000 BHCAs within the cluster

IP Communication SRND for CallManager 5.0 will have full details

Summary

- Clusters provide database redundancy. One publisher maintains the only writable database. Up to eight subscribers maintain read-only copies.
- There are two different failover models: the 1:1 model and the 2:1 model.
- Supported Cisco IP Communication deployment models are single-site, multisite with centralized call processing, multisite with distributed call processing, and clustering over the IP WAN.

Understanding Cisco Enterprise IP Communication

Evaluating Cisco IP Communication Endpoints

Objectives

- Endpoint Overview
- SCCP Phones
- SIP Endpoints
- Video Endpoints
- Comparing Endpoints

Endpoint Overview

- A wide range of IP Communication Endpoints are available.
- Cisco has developed a product range to support all types of communications needs.
- Entry-Level phones through mid and upper level endpoints are available.
- 3rd party vendor products are supported and can also be integrated into a Cisco IP Communications Environment.
- Protocols that are supported for Cisco IP Communications endpoints are SCCP, SIP and H.323.
- There are numerous H.323 endpoints available, but they are not covered in more depth in this course.

SCCP – Skinny Client Control Protocol

SCCP Characteristic

- Fully integrated into CCM and supports all features of Cisco CallManager
- Supports all Cisco IP Phones
- This is a Cisco proprietary protocol
- Currently offers more features to Cisco IP Phones than SIP

SCCP Phones

SCCP- only Phones

7902

7920

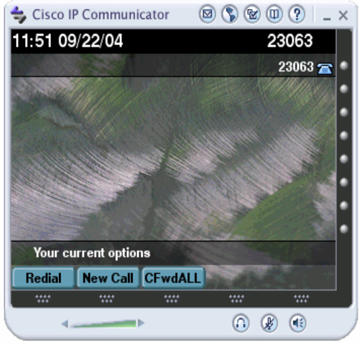
7936

7985

Visit http://www.cisco.com/go/ipphone for latest information.

SCCP Devices

SCCP- only Devices


Cisco IP Communicator
11:51 09/22/04
23063
23063
Your current options
Redial
New Call
CFwdALL

Communicator

ATA-18x

VG248/224

Visit http://www.cisco.com/go/ipphone for latest information.

SIP – Session Initiation Protocol

SIP Characteristics

- Is a partial implementation in CallManager 4.x and a full implementation on Cisco Unified CallManager 5.x
- The future signaling protocol for Cisco Unified CallManager
- There are Phones available with limited and advanced SIP support.
  - Only fully supported by the 7911, 7940, 7960 and 7970 phones
  - Special Firmware for IP Phones is needed
- SIP is an open standard (IETF)
- Today a feature gap between SIP and SCCP exists.

SIP Endpoints (Basic)

“Existing” Basic Cisco SIP Phones

Very Basic SIP

7912

7940/7960

Generic 3rd-Party

Visit http://www.cisco.com/go/ipphone for latest information.

SIP Endpoints (Advanced)

“Enhanced” SIP Phones

PC-Application

7911

7941/7961

7970/7971

Session View Contacts Communication Help
Andrea Kelly
Available
Desk Phone
Contacts
Recent
3
1
Events
Search
Directory
Enter Search Text Here

Cisco Unified Personal Communicator

Visit http://www.cisco.com/go/ipphone for latest information.

Video Endpoints

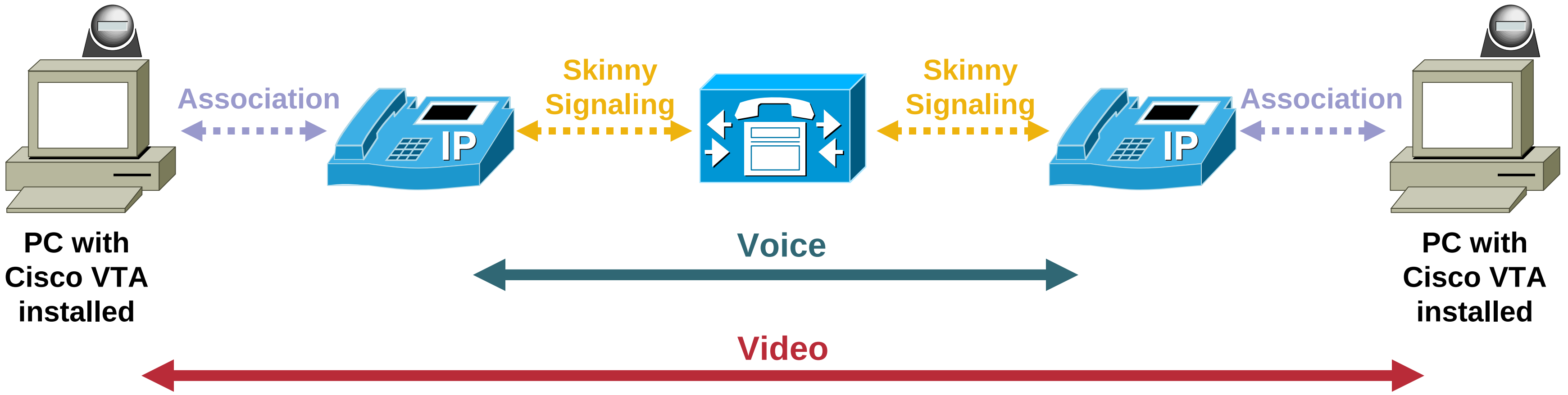
As with Cisco IP Communication the three major signaling protocols for Cisco IP Video are SIP, SCCP and H.323

- CCM 5.0 is the first version that supports video with SIP
  - SIP endpoints and trunks are now video enabled.
  - Currently Cisco has no SIP video endpoints.
- Video was first introduced in Cisco Unified CallManager version 4.0
  - SCCP video is still relatively new, but the relative low cost of Cisco VTA is causing rapid adoption of this type of endpoint.
  - H.323 video endpoints can be integrated into Cisco CallManager, examples of these devices are H.323 room systems and stand alone video terminals.

Cisco VT Advantage

- Must use Cisco IP Phone 7940/7960/7970/7971
- PC based application
- Video Standards include H.263 and Cisco Wideband codec
- Video Resolution up to 30 fps SIF, QSIF, CIF, QCIF, VGA
- All phone features are maintained

Cisco VTA Component Interaction


Association
Skinny Signaling
Skinny Signaling
Association
IP
IP
PC with Cisco VTA installed
PC with Cisco VTA installed
Voice
Video

- Phones has to be enabled for video in Cisco CallManager
- Cisco VTA software on PC associates with IP Phone
- IP Phone registers as a video capable phone
- Audio on the IP Phone
- Video on the PC

Cisco 7985 Video Phone

- Must use Skinny Call Control Protocol (SCCP)
- Video Standards are H264, H.263+, H263, H261
- Video Resolution include CIF, SIF, QCIF
- Audio Codecs available are G711, G722, G729
- Directory Search available
- SRST fallback, CDP available

Visit http://www.cisco.com/go/ipphone for latest information.

Tandberg SCCP Video Terminals

- Tandberg 550MXP, 770MXP, T1000MXP, 1500MXP, 2000MXP
- Video Standards are H.261, H.263, H.263+, H.264
- Video Resolution include CIF, QCIF, SIF
- Audio Codecs available are G.711, G.722, G.729AB
- XML-Services, Call Back
- No SRST fallback, No CDP

SONY SCCP Video Terminals

- Sony PCS TL-50 and PCS-1
- Video Standards
  H.261, H.263, H.264 (CCM 4.1)
- Video Resolution
  CIF, QCIF
- Audio Codecs
  G.729a, G.728, G.723.1, G.711, G.722
- Directory Search available
- No SRST fallback, No CDP

H.323 Video Terminals

H.323 Video Terminals are widely available in the field.

- **H.323 Video Endpoints are configured as H.323 Clients**
- **H.323 MCU ‘s are configured as H.323 Gateways**
- **You may also register H.323 Terminals on a Gatekeeper (GK)**
  - **If they are only registered at the GK then a trunk from Cisco Unified CallManager to the GK is used to route calls**
  - **If they are registered at GK *and* configured in Cisco Unified CallManager then E.164 Numbers are used with a RAS-Aggregation Trunk between Cisco Unified CallManager and GK to dynamically resolve the IP addresses.**
- **Examples of well known vendors are Polycom, Sony, Tandberg and Microsoft.**

Video Codec Support Cisco Unified CallManager 5.0

	H.261	H.263	H.263+	H.263++	H.264	Cisco VTA Wideband
SCCP	X	X	X	X	X	X
H.323	X	X	X	X	X	
SIP	X	X	X	X	X	
H.323 ICT	X	X	X	X	X	X

Comparing Endpoints

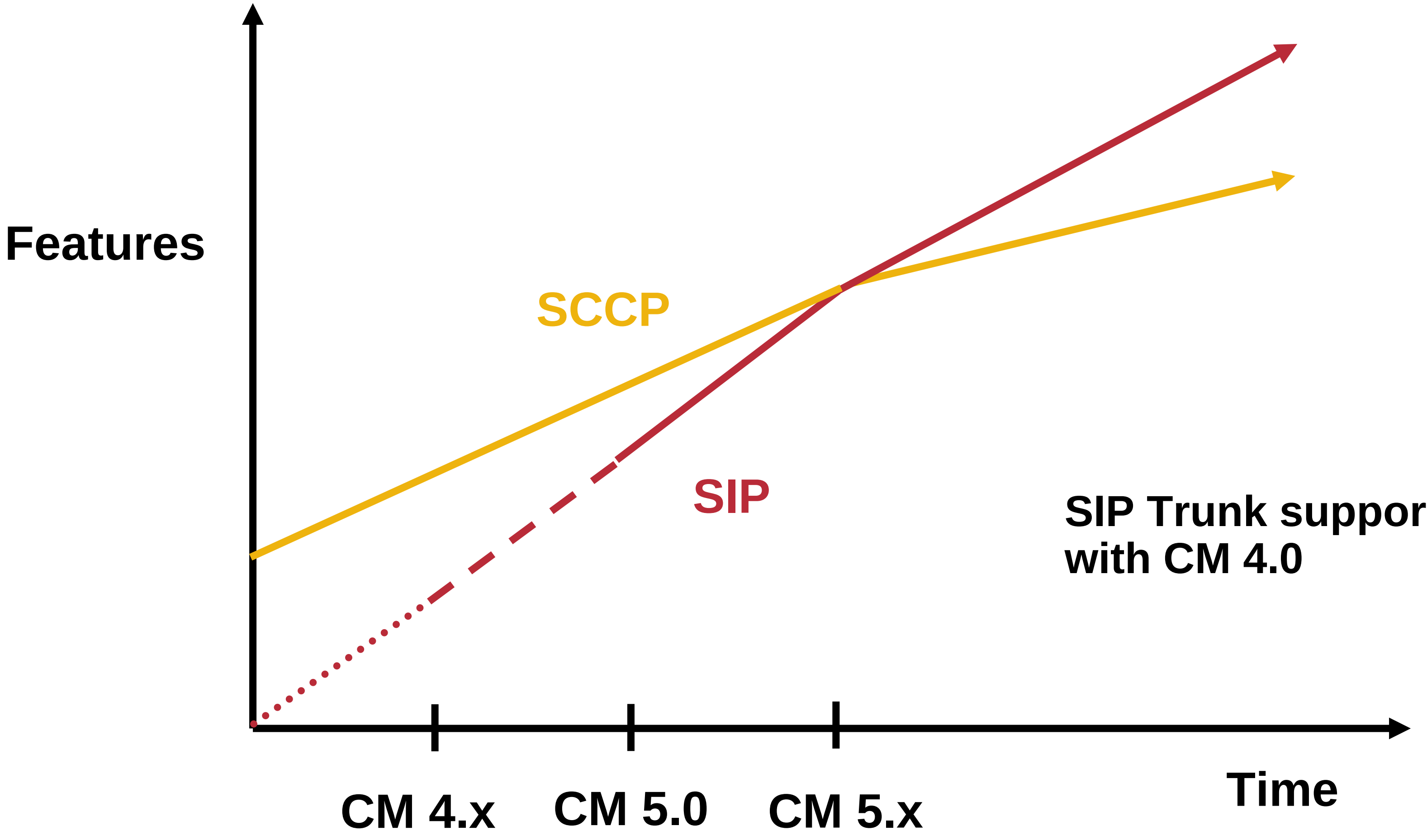
In Cisco IP Communication environments SCCP and SIP are the major Signaling Protocols.

SIP is the rising star in the Cisco IP Communication signaling protocol family

- Service Providers will be able to offer new services to end customers
- SIP for Cisco Unified CallManager will offer more features than SCCP in the near future

H.323 is more or less a survivor from the beginning of IP Communication, but it still very relevant in relation to gateways.

Feature Richness SCCP - SIP



SIP Trunk support began with CM 4.0

SIP vs SCCP configuration differences

SIP	SCCP
• Configuration file via TFTP • Softkey File via TFTP (Enhanced IP Phones only)	• Configuration via TFTP • Softkey template via SCCP messages
Can have local dial plan	Does not have local dial plan
Registers via UDP, TCP or TLS	Registers via TCP or TLS

Summary

- With CallManager 5.x all available standards based IP-Phones are supported.
- All Cisco IP Phones support SCCP firmware
- The new IP-Phone models will support SIP firmware.
- A broad range of video endpoints are available for Cisco IP Communications
- SIP is the up and coming new standard for endpoints, but its features are still not up to par with SCCP

Deploying a Cisco Unified CallManager 5.0 Cluster

Cisco Unified CallManager 5.0 Architecture

Objectives

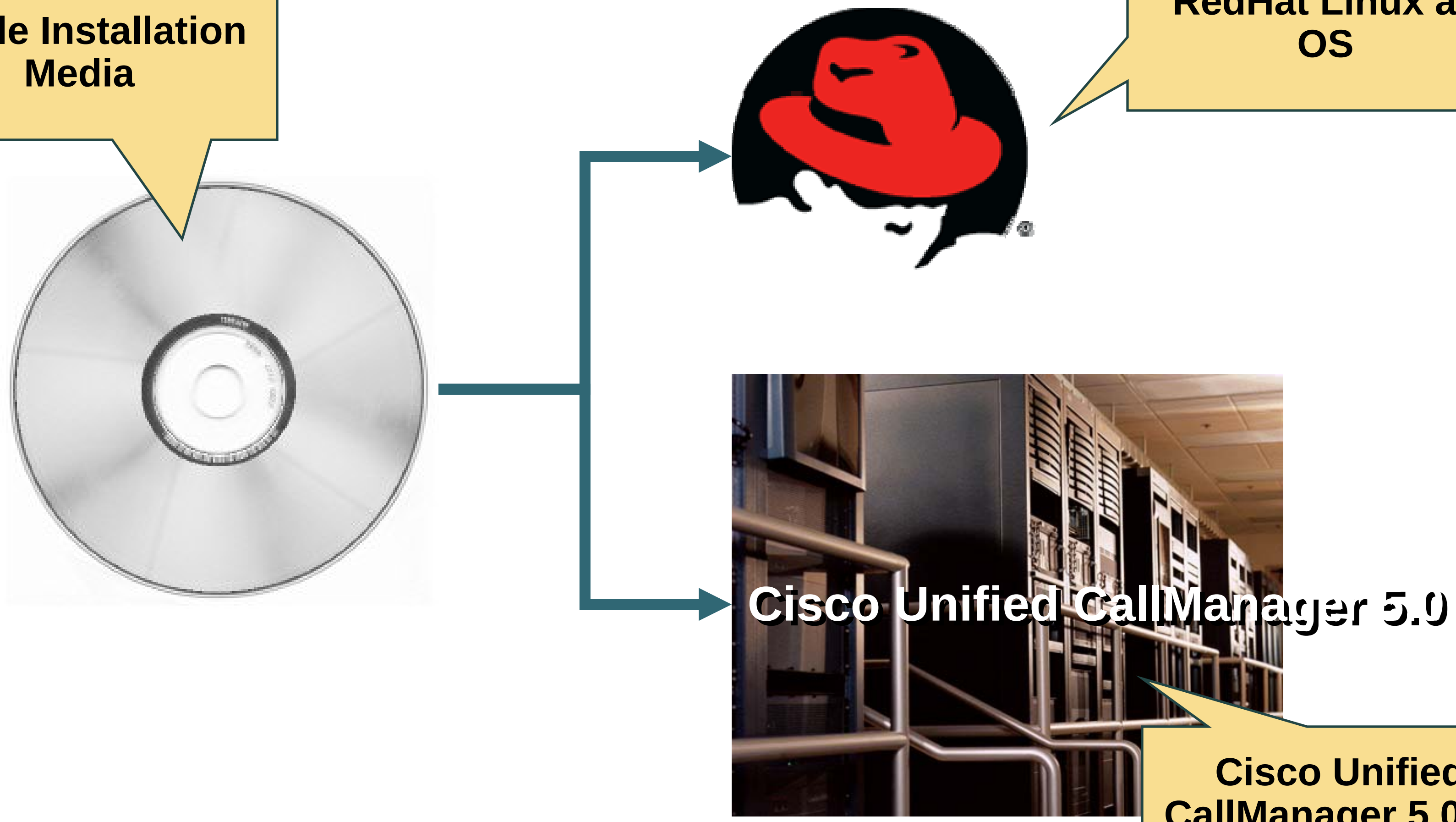
- Cisco Unified CallManager 5.0 Overview
- Appliance Model
- Database Changes
- Active and Standby partitions
- CLI of Cisco Unified CallManager 5.0

Cisco Unified CallManager 5.0 Overview

Cisco Unified CallManager 5.0 Characteristics:

- Appliance model based on Linux.
- Combines OS and Application installation.
- Initial feature parity with Cisco Unified CallManager 4.1(3).

Cisco Unified CallManager 5.0 Overview


Cisco Unified CallManager 5.0

Single Installation Media

RedHat Linux as OS

Cisco Unified CallManager 5.0 as application

Appliance Model

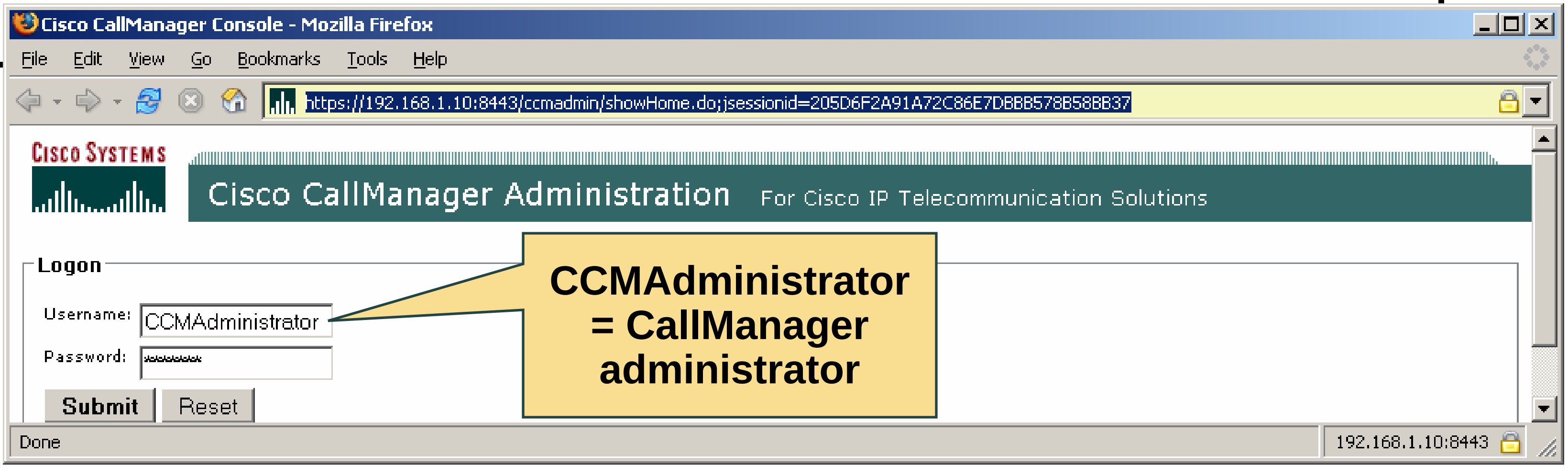
Cisco Unified CallManager 5.0 introduces the appliance approach:

- Avoids contact with the actual OS.
- User should only access the appliance via Cisco controlled tools and interfaces.
  - Less prone to unexpected software behavior.
  - Easier to test and deploy.
- No OS knowledge needed to operate Cisco Unified CallManager 5.0
- The Appliance Model uses a distinctly separate, CLI based, administration platform than CallManager.

Appliance Model

```
login as: administrator
administrator@192.168.1 10's password:

   Welcome to the Platfo   Command Line Interface (version 1.1)

admin:
      show*
      set*
      delete*
      unset*
      file*
      utils*
      run*

admin:
```

Administrator = Platform administrator


Cisco CallManager Console - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
Cisco Systems
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logon
Submit
Reset
Done

https://192.168.1.10:8443/ccmadmin/showHome.do;jsessionid=205D6F2A91A72C86E7DBBB578B58BB37

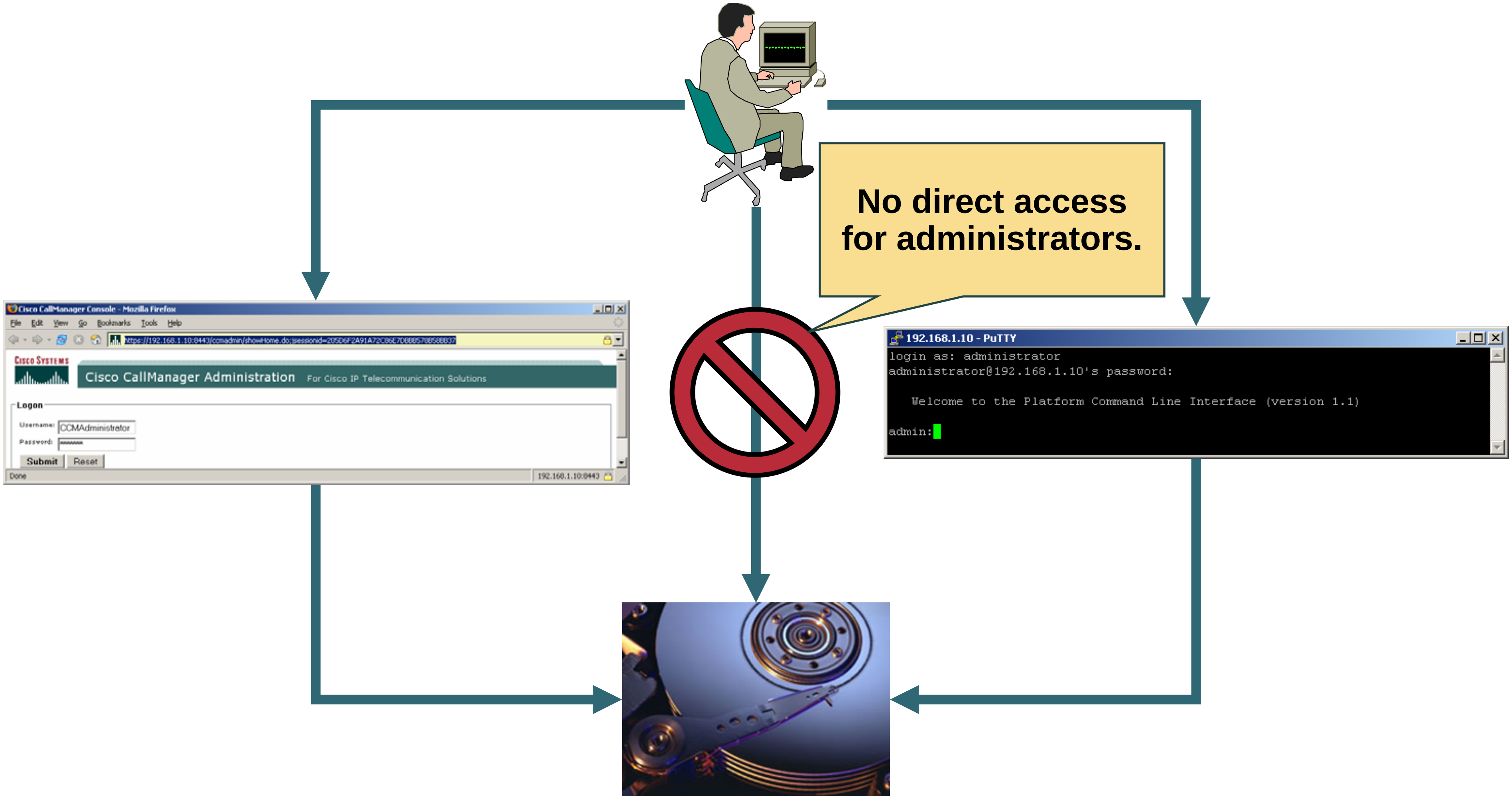
Username: CCMAdministrator

Password: ********

192.168.1.10:8443

CCMAdministrator = CallManager administrator

Appliance Model


Cisco CallManager Console - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
Cisco Systems
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logon
Submit
Reset
Done
192.168.1.10:8443
192.168.1.10 - PuTTY

Username: CCMAdministrator

Password: *******

```
login as: administrator
administrator@192.168.1.10's password:

   Welcome to the Platform Command Line Interface (version 1.1)

admin:
```

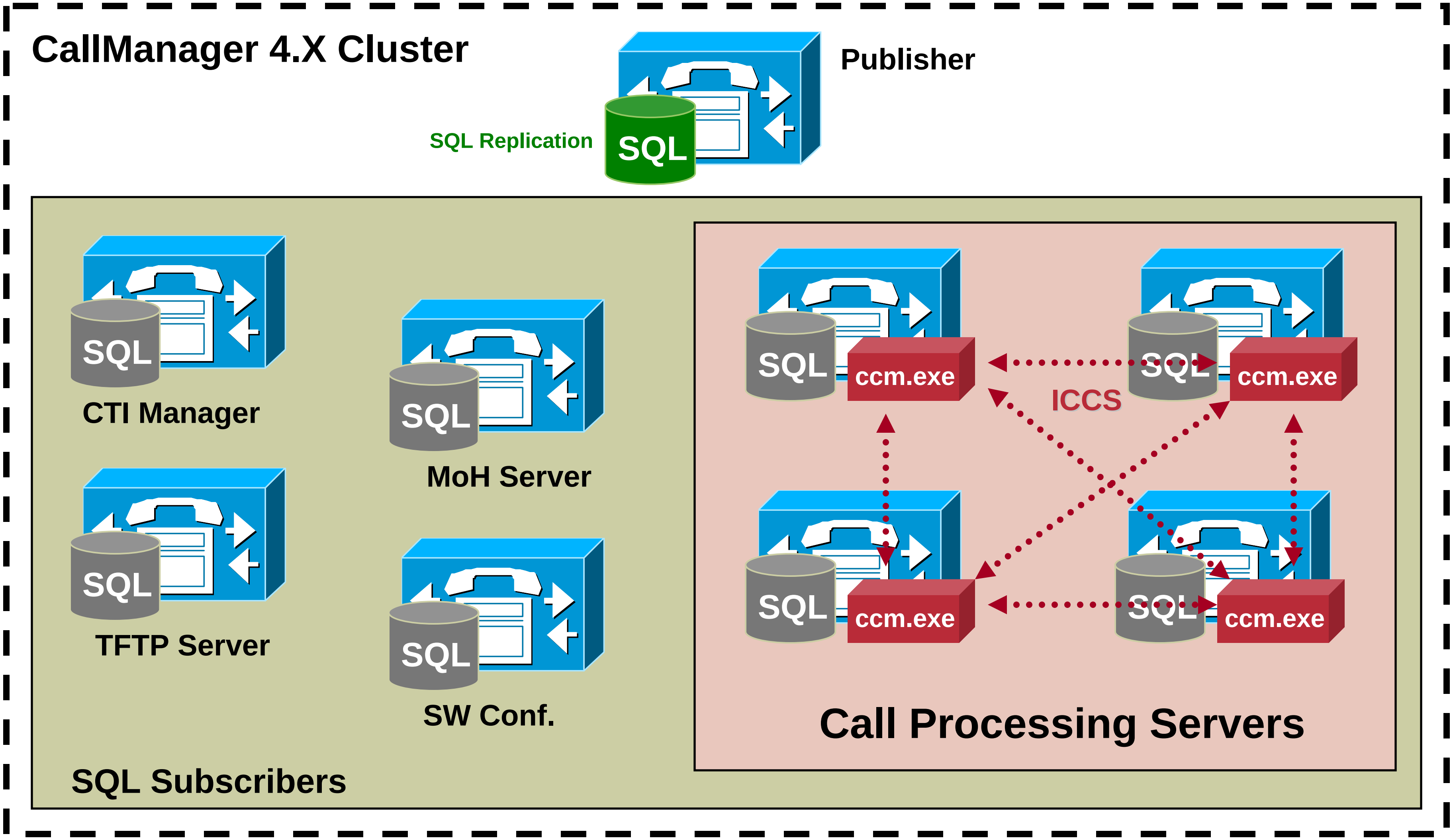
No direct access for administrators.

Database Changes

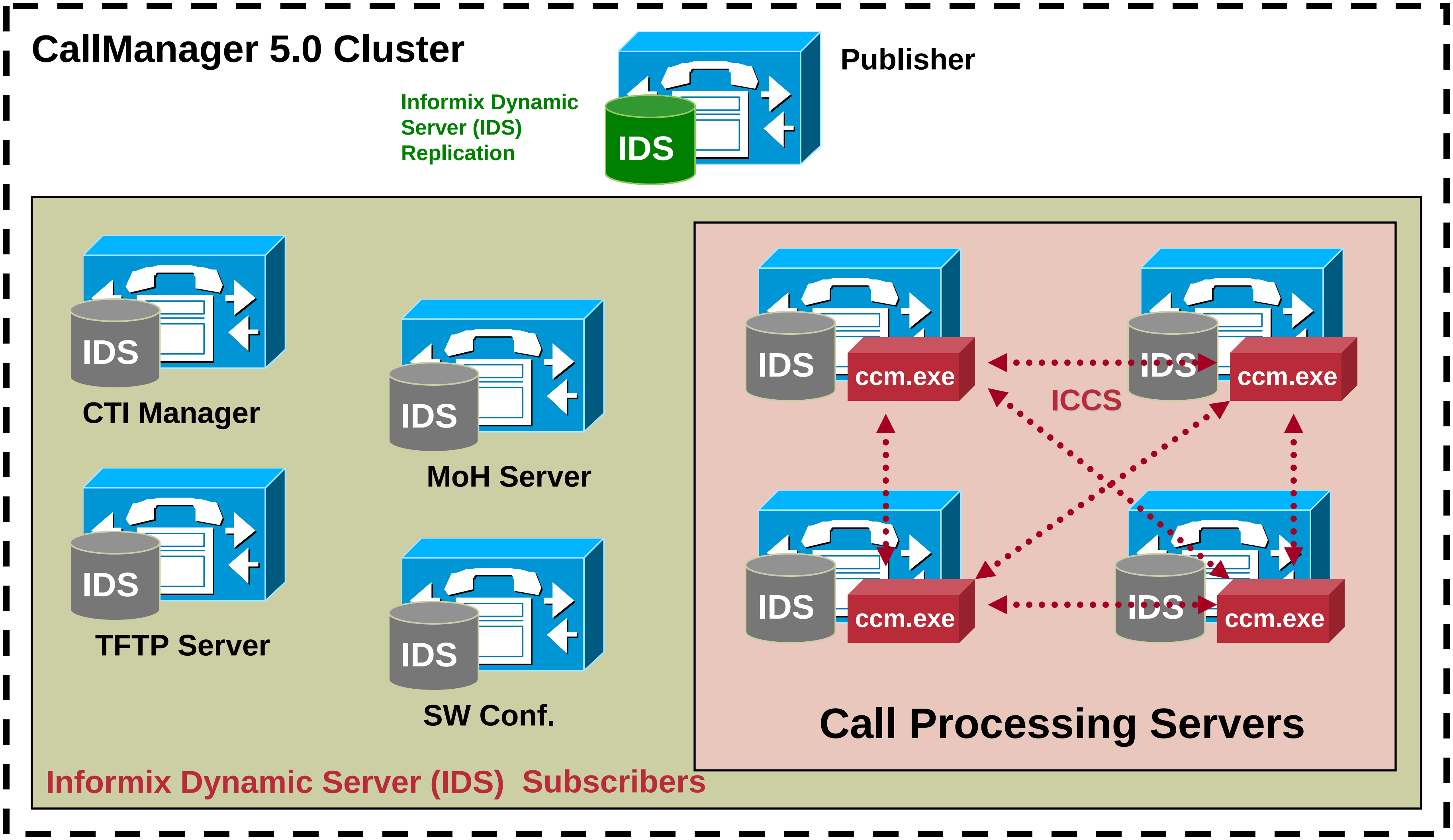
Cisco Unified CallManager 5.0 introduces a new database:

- **Windows CallManager uses MS SQL DB.**
- **Cisco Unified CallManager 5.0 uses an IBM Informix DB.**
- **Replication mechanism is similar:**
  - **Currently no multi-master database.**
  - **Publisher still single point of failure.**
  - **May change in the future.**
- **Active and Standby partitions allow easy fallback.**

Database Changes


CallManager 4.X Cluster
Publisher
SQL Replication
SQL
CTI Manager
MoH Server
TFTP Server
SW Conf.
SQL Subscribers
ccm.exe
ICCS
Call Processing Servers

Database Changes


CallManager 5.0 Cluster
Publisher
Informix Dynamic Server (IDS) Replication
IDS
IDS
CTI Manager
IDS
MoH Server
IDS
TFTP Server
IDS
SW Conf.
IDS
ccm.exe
IDS
ccm.exe
ICCS
IDS
ccm.exe
IDS
ccm.exe
Call Processing Servers
Informix Dynamic Server (IDS) Subscribers

CLI of Cisco Unified CallManager 5.0

CLI used to perform platform administration:

- Direct access via console.
- SSH access via SSH Clients.
- Platform administration includes:
  - Network configuration
  - Network security configuration
  - User management for platform administration
- Similar to IOS
  - Use ‘?’ for context sensitive help

CLI of Cisco Unified CallManager 5.0

```
Welcome to the Platform Command Line Interface (version 1.1)

admin:
      show*
      set*
      delete*
      unset*
      file*
      utils*
      run*

admin:set ?
      set timezone
      set web-security
      set smtp
      set account
      set output*
      set logging*
      set workingdir*
      set network*
      set password*
      set ipsec*
      set cert*
      set trace*
```

CLI of Cisco Unified CallManager 5.0

```
Welcome to the Platform Command Line Interface (version 1.1)

admin:ls

Executed command unsuccessfully
No valid command entered
admin:mkdir

Executed command unsuccessfully
No valid command entered
admin:
```

No “Linux” root access and commands.

Summary

- Cisco Unified CallManager 5.0 is based on a Linux appliance.
- The appliance seperates appliaction and OS access.
- Cisco Unified CallManager 5.0 uses an IBM Informix database.
- The CLI can be used to perform basic platform administration in Cisco Unified CallManager 5.0.

Deploying a Cisco Unified CallManager 5.0 Cluster

Installing Cisco Unified CallManager 5.0

Objectives

- Hardware Requirements
- Installation Requirements
- Installation Steps
- Calculate Licenses
- Install License File

Hardware Requirements

CCM5.0 has strict hardware requirements:

- **Only supports specific hardware models.**
- **Installer script performs various hardware checks:**
  - **Platform vendor and product ID**
  - **BIOS version and release**
  - **HD raid arrays and disk health**
  - **Number of CPUs**
  - **Available RAM**
- **Installation only proceeds if *ALL* requirements are met.**

Hardware Requirements (cont.)

Hardware Requirements:

MCS 7845	**Depends**
MCS 7835	**Depends**
MCS 7825	**Depends**
MCS 7815	**Depends**

CPU	**=> 2 GHz**
RAM	**=> 2 GB**
HD	**=> 72 GB**

HDs and RAM can easily be upgraded.

Installation Requirements

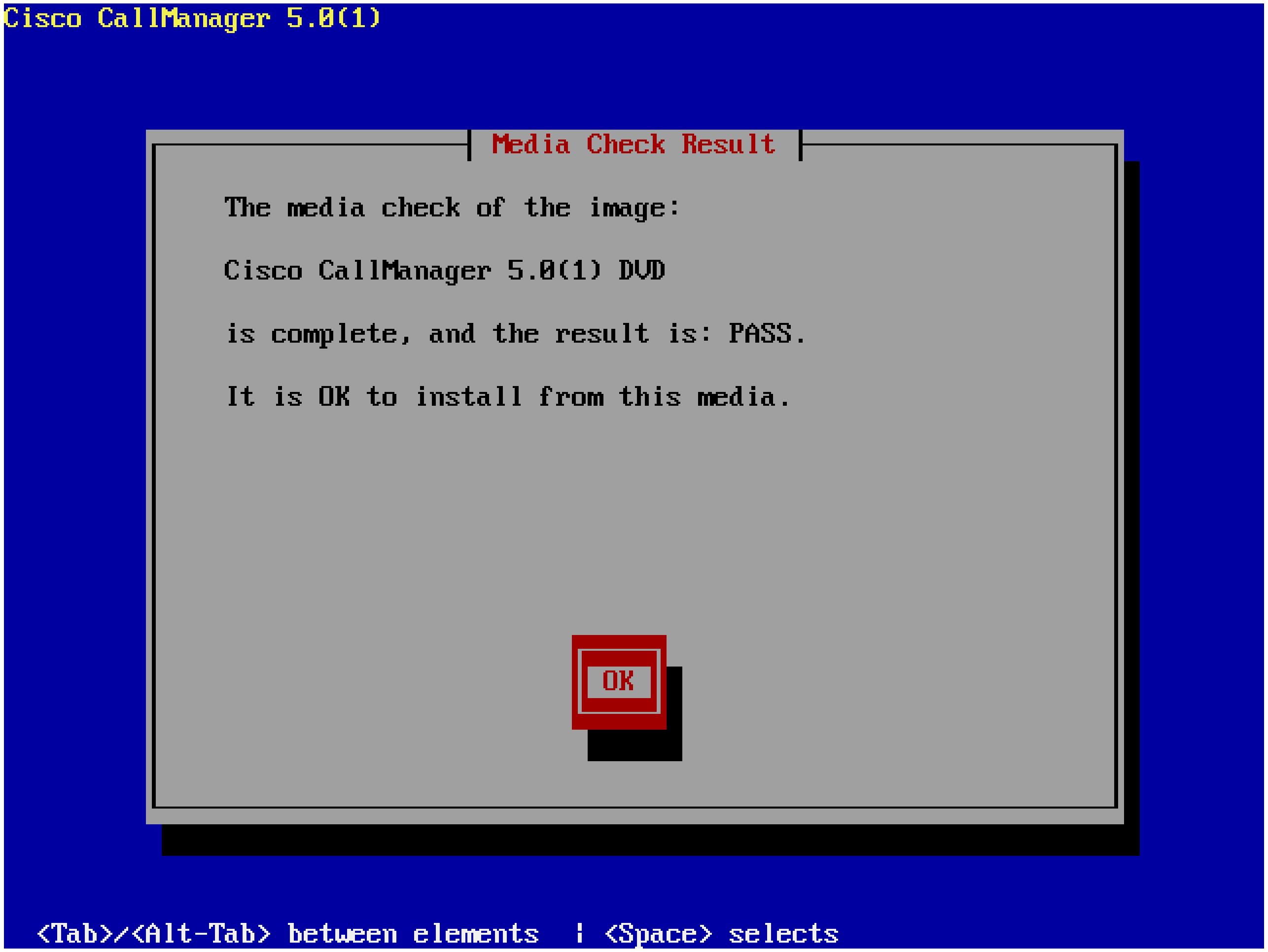
The following information is required for installation:

Functionality	Evaluation
License	Mandatory
IP Address and Default Gateway	Mandatory
Hostname and Domain	Mandatory
NTP	Highly Recommended
DNS	Highly Recommended, especially for SIP
External DHCP	Highly Recommended

Installation Steps

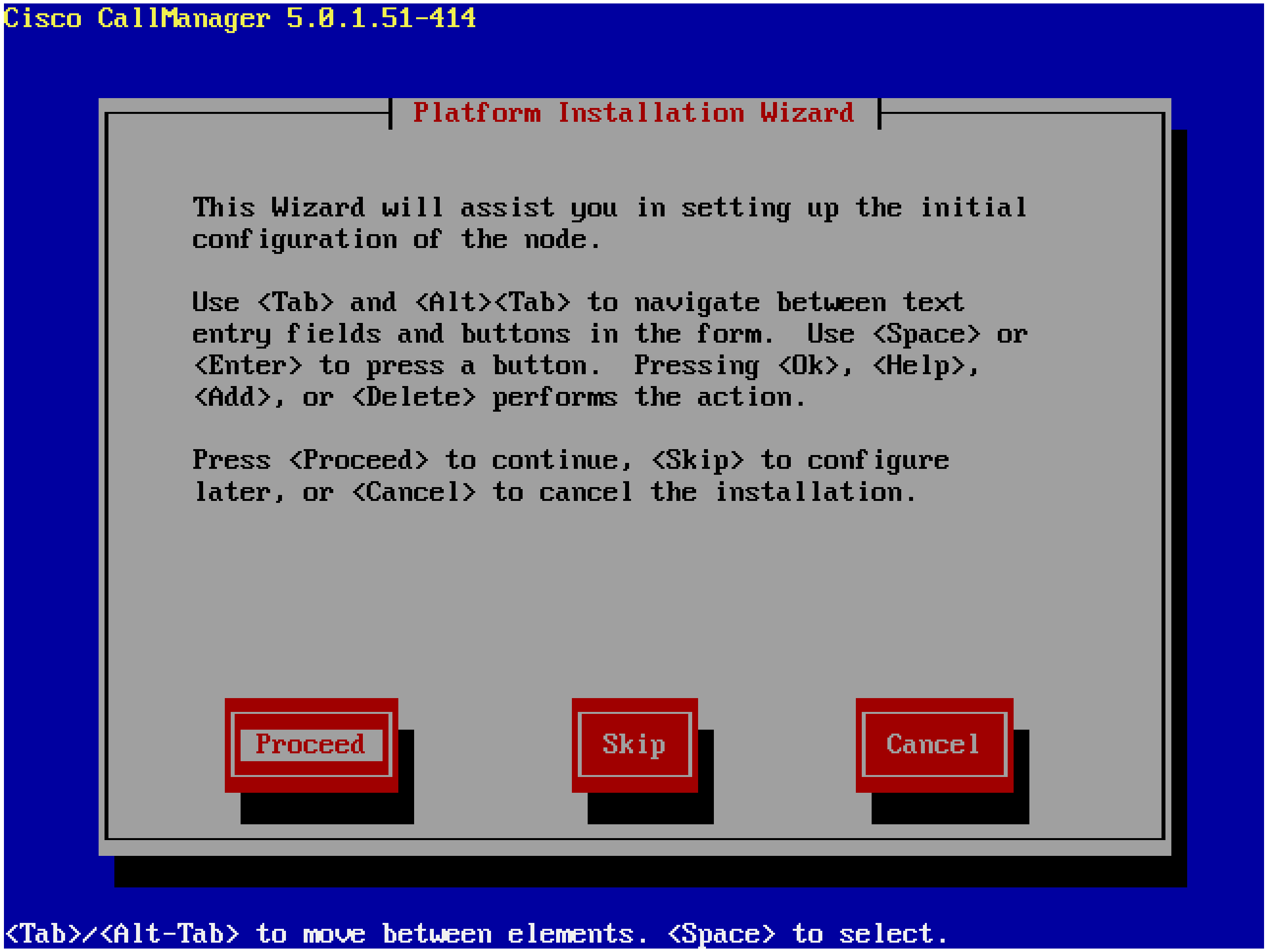
1. Basic Installation Procedure
2. Configure Timezones
3. Configure static IP address
4. Configure DNS Client
5. Configure Platform Administrator Login
6. Configure certificates
7. Configure NTP
8. Configure Database Access Security
9. Configure SMTP
10. Configure password for CCMAdministrator

Basic Installation Procedure



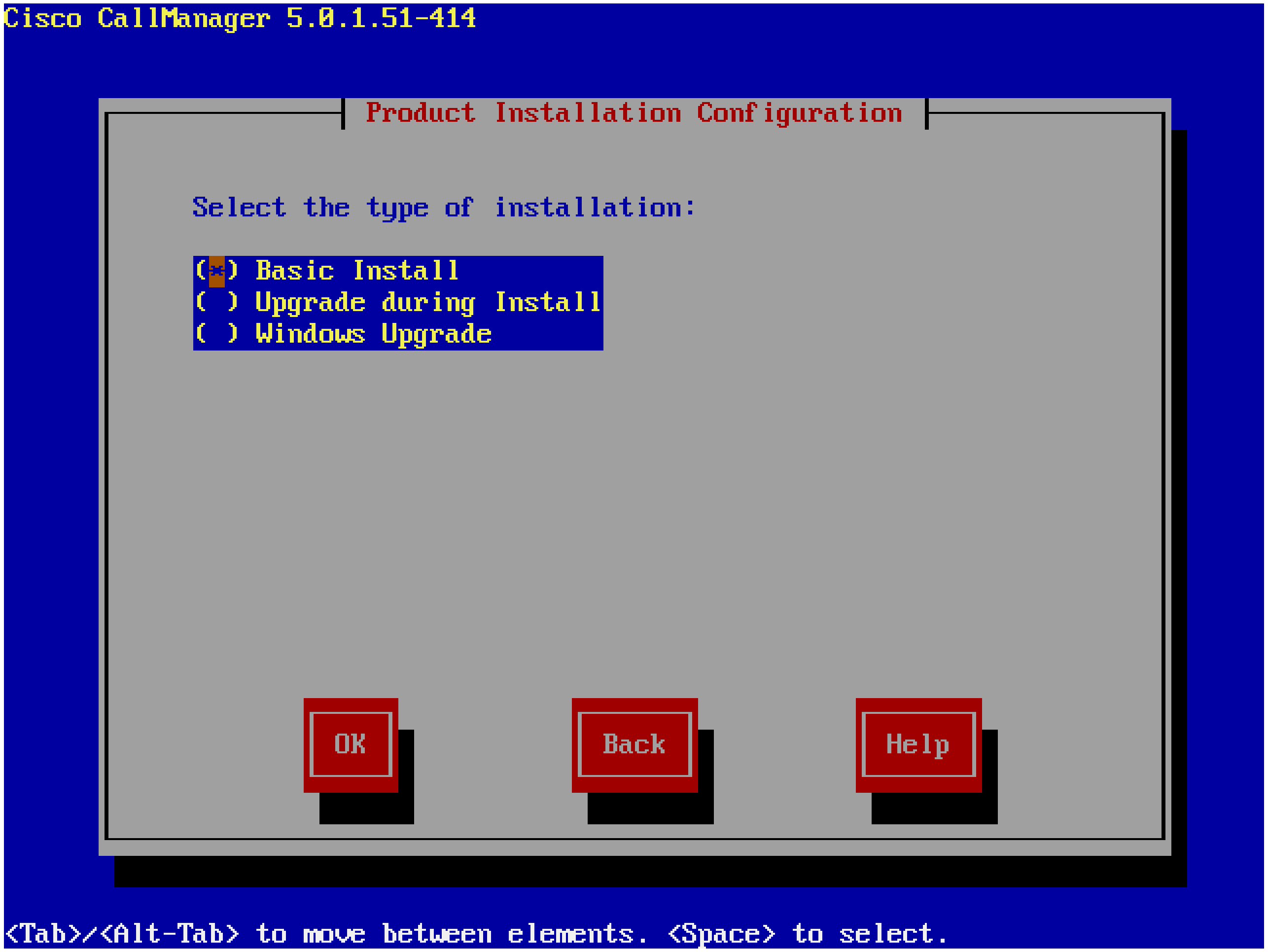
```
Cisco CallManager 5.0(1)

Media Check Result

The media check of the image:

Cisco CallManager 5.0(1) DVD

is complete, and the result is: PASS.

It is OK to install from this media.

<Tab>/<Alt-Tab> between elements   | <Space> selects
```

Basic Installation Procedure



```
Cisco CallManager 5.0.1.51-414

Platform Installation Wizard

This Wizard will assist you in setting up the initial
configuration of the node.

Use <Tab> and <Alt><Tab> to navigate between text
entry fields and buttons in the form.  Use <Space> or
<Enter> to press a button.  Pressing <Ok>, <Help>,
<Add>, or <Delete> performs the action.

Press <Proceed> to continue, <Skip> to configure
later, or <Cancel> to cancel the installation.

<Tab>/<Alt-Tab> to move between elements. <Space> to select.
```

Basic Installation Procedure



Cisco CallManager 5.0.1.51-414

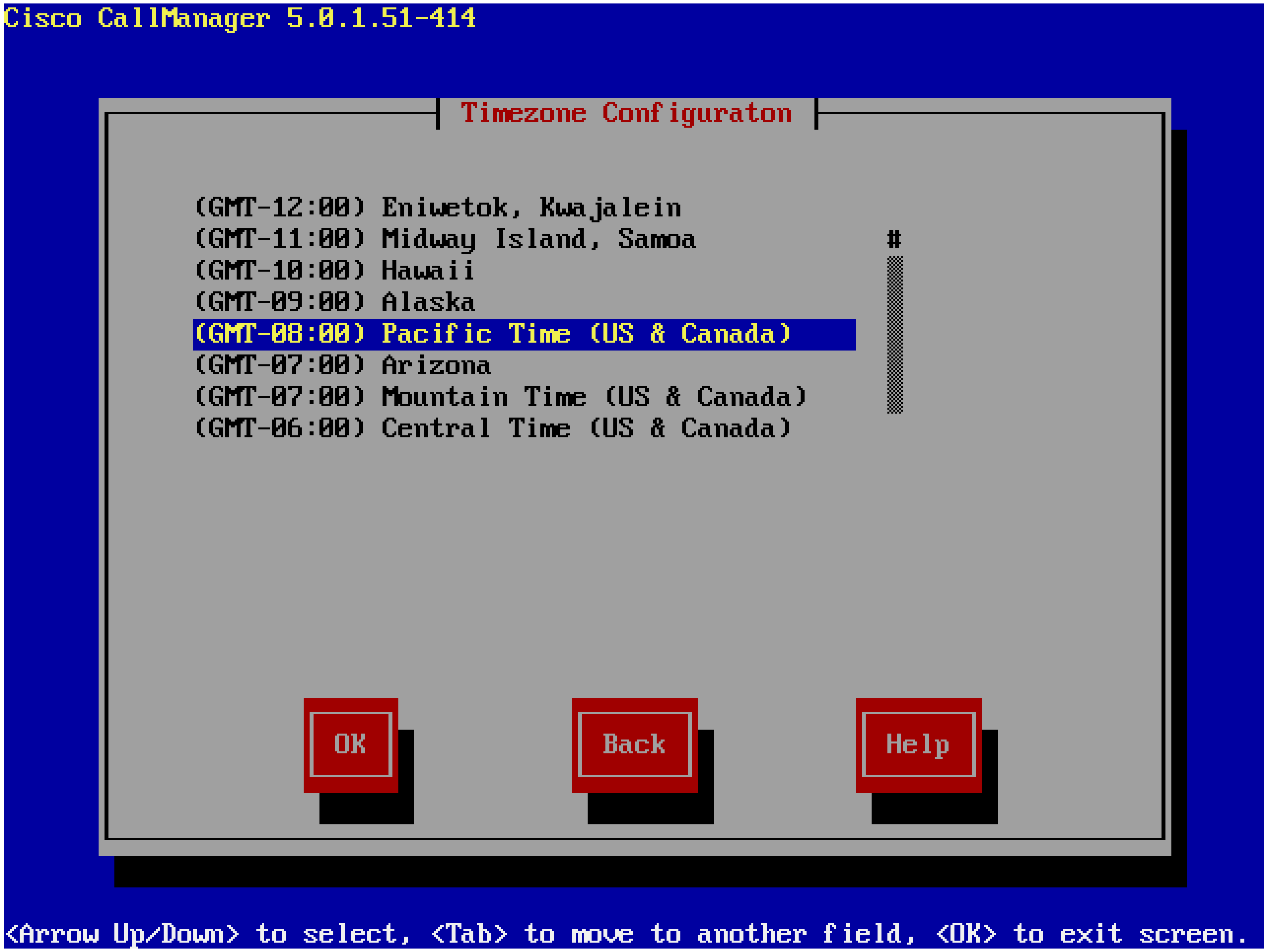
Product Installation Configuration

Select the type of installation:

(*) Basic Install
( ) Upgrade during Install
( ) Windows Upgrade

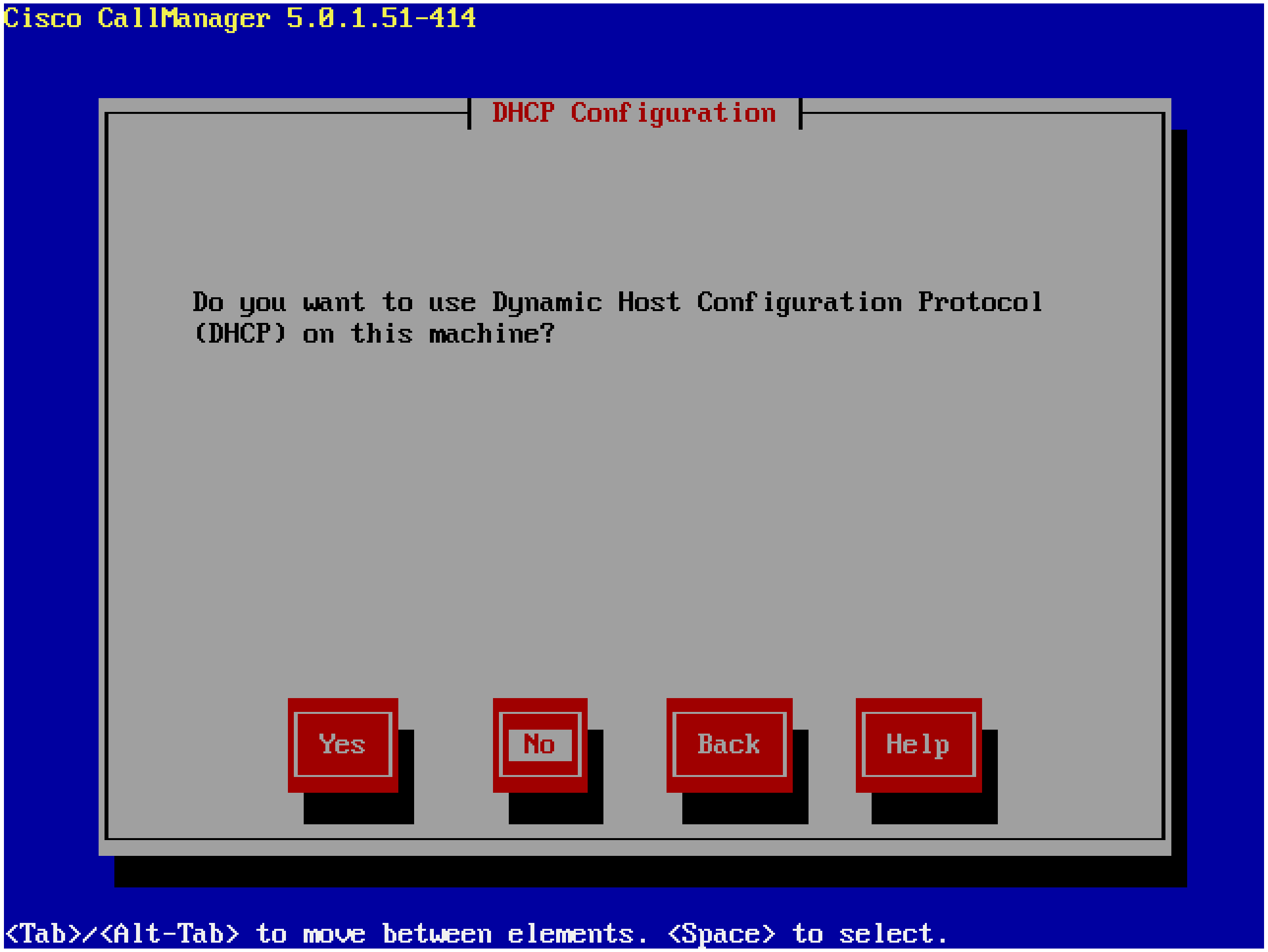
<Tab>/<Alt-Tab> to move between elements. <Space> to select.

Timezone Configuration



```
Cisco CallManager 5.0.1.51-414

                    Timezone Configuraton

     (GMT-12:00) Eniwetok, Kwajalein
     (GMT-11:00) Midway Island, Samoa
     (GMT-10:00) Hawaii
     (GMT-09:00) Alaska
     (GMT-08:00) Pacific Time (US & Canada)
     (GMT-07:00) Arizona
     (GMT-07:00) Mountain Time (US & Canada)
     (GMT-06:00) Central Time (US & Canada)

<Arrow Up/Down> to select, <Tab> to move to another field, <OK> to exit screen.
```

Static Network Configuration



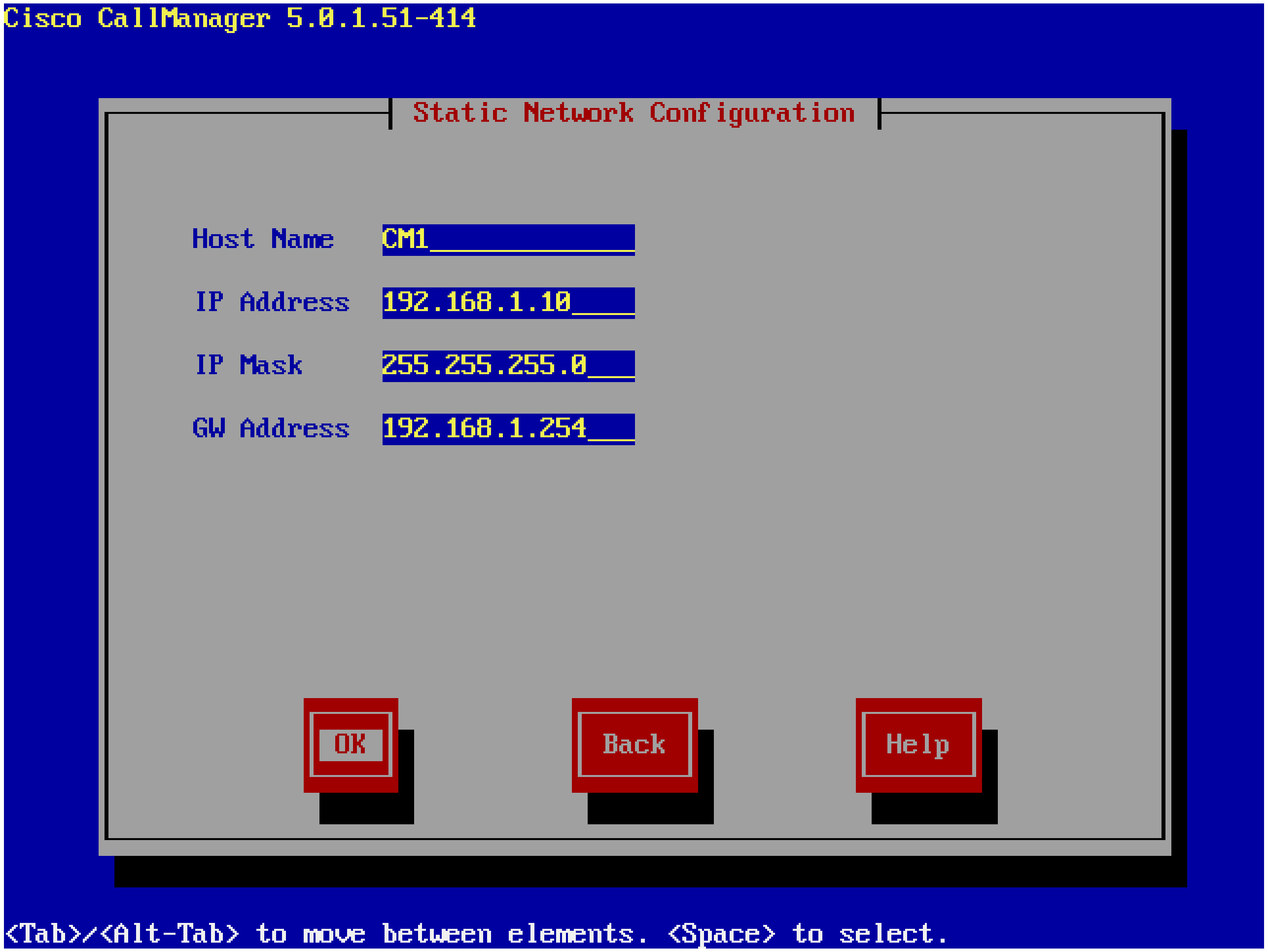
Cisco CallManager 5.0.1.51-414

DHCP Configuration

Do you want to use Dynamic Host Configuration Protocol (DHCP) on this machine?

<Tab>/<Alt-Tab> to move between elements. <Space> to select.

Static Network Configuration



Cisco CallManager 5.0.1.51-414

Static Network Configuration

Host Name CM1

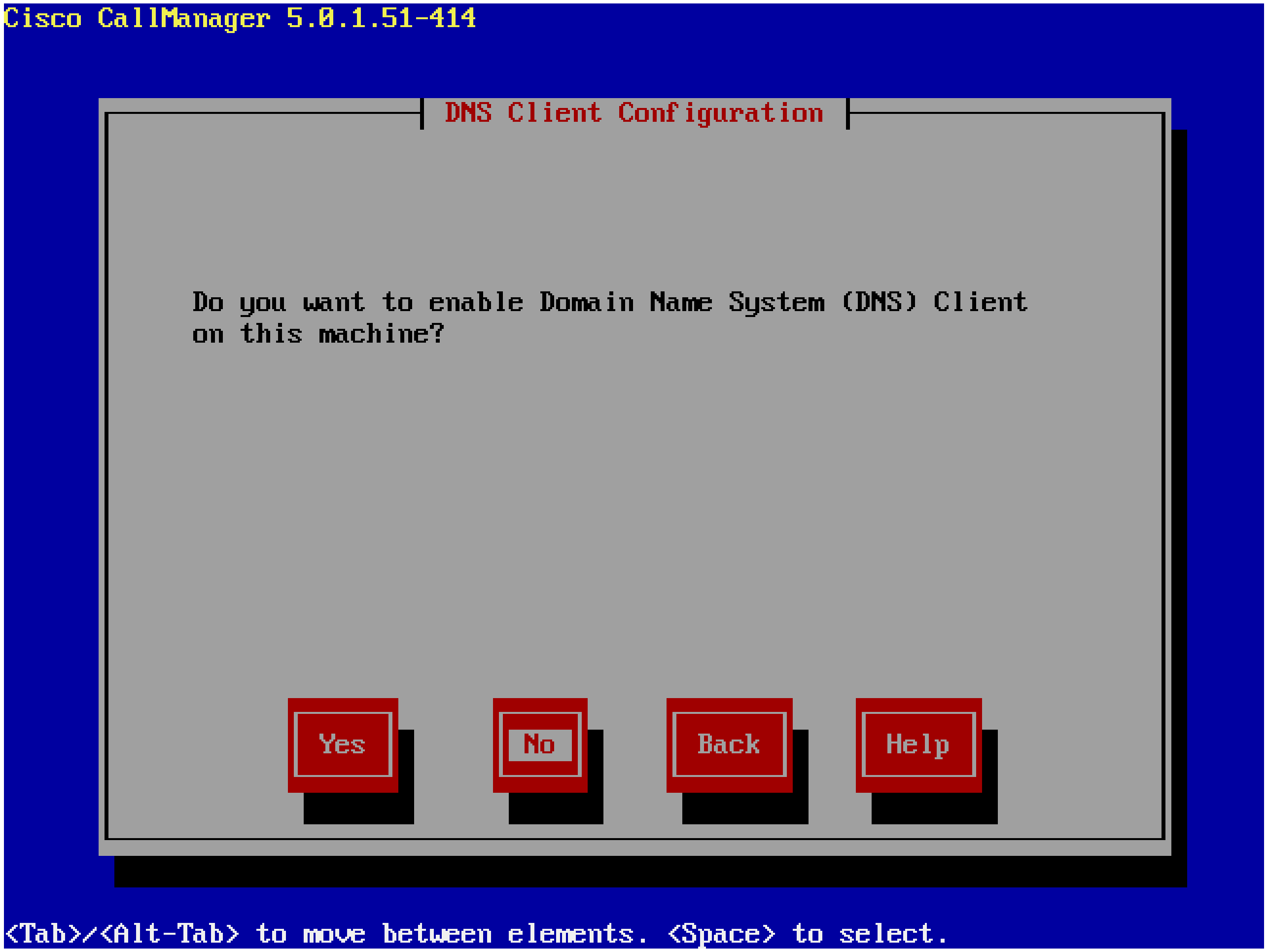
IP Address 192.168.1.10

IP Mask 255.255.255.0

GW Address 192.168.1.254

<Tab>/<Alt-Tab> to move between elements. <Space> to select.

DNS Client Configuration



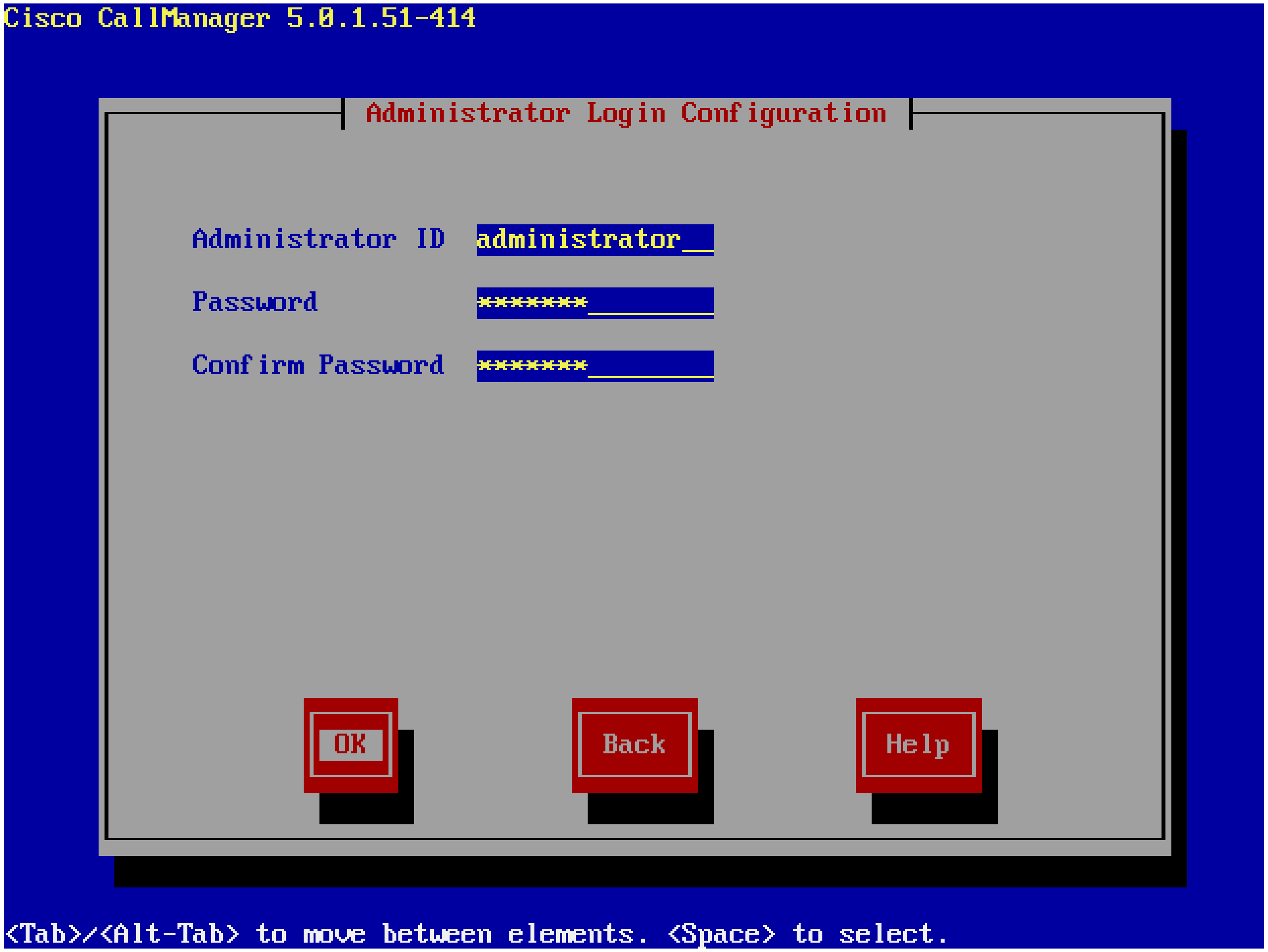
Cisco CallManager 5.0.1.51-414

DNS Client Configuration

Do you want to enable Domain Name System (DNS) Client
on this machine?

<Tab>/<Alt-Tab> to move between elements. <Space> to select.

Administrator Login Configuration



Cisco CallManager 5.0.1.51-414

Administrator Login Configuration

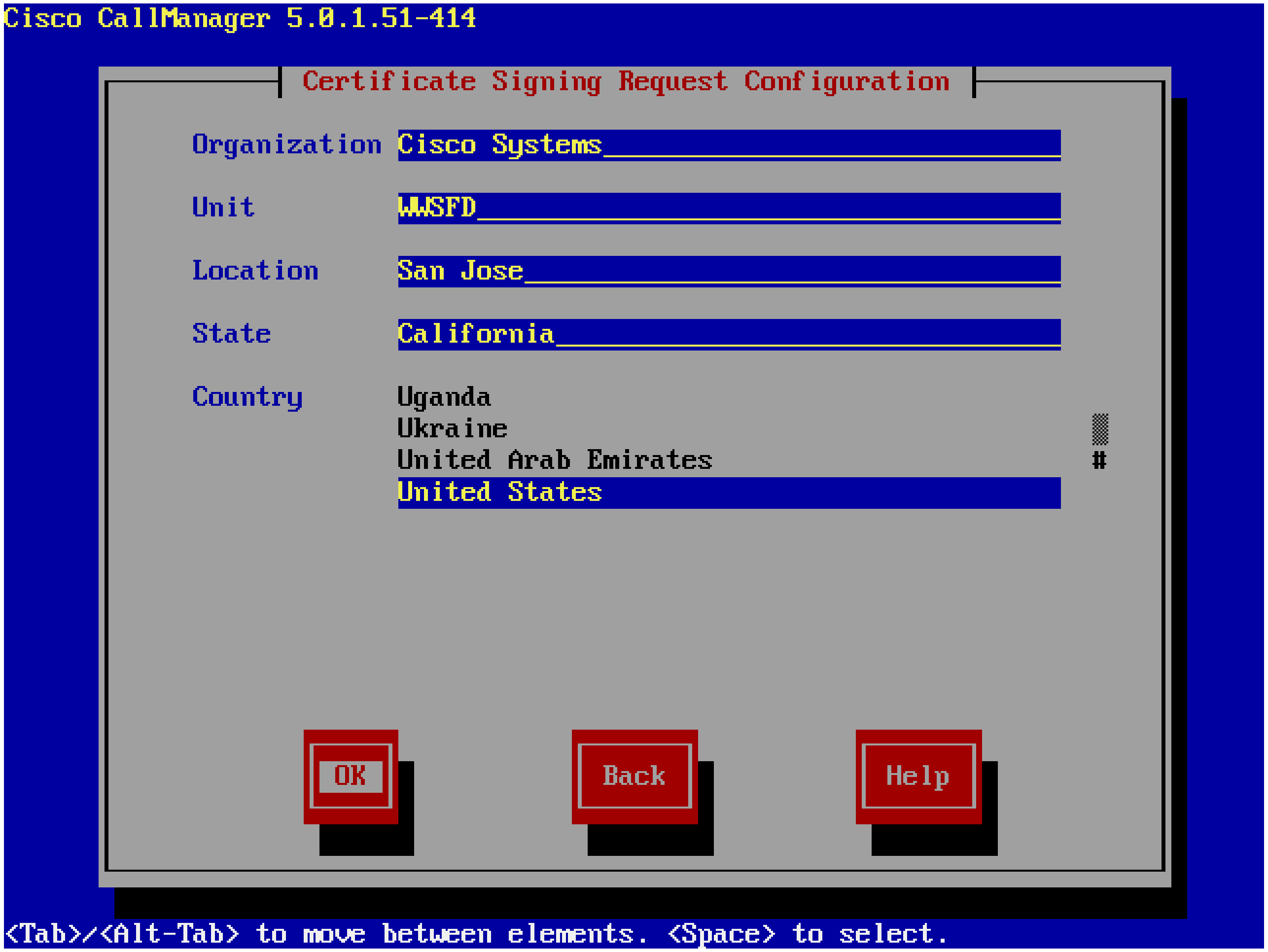
Administrator ID administrator

Password ********

Confirm Password ********

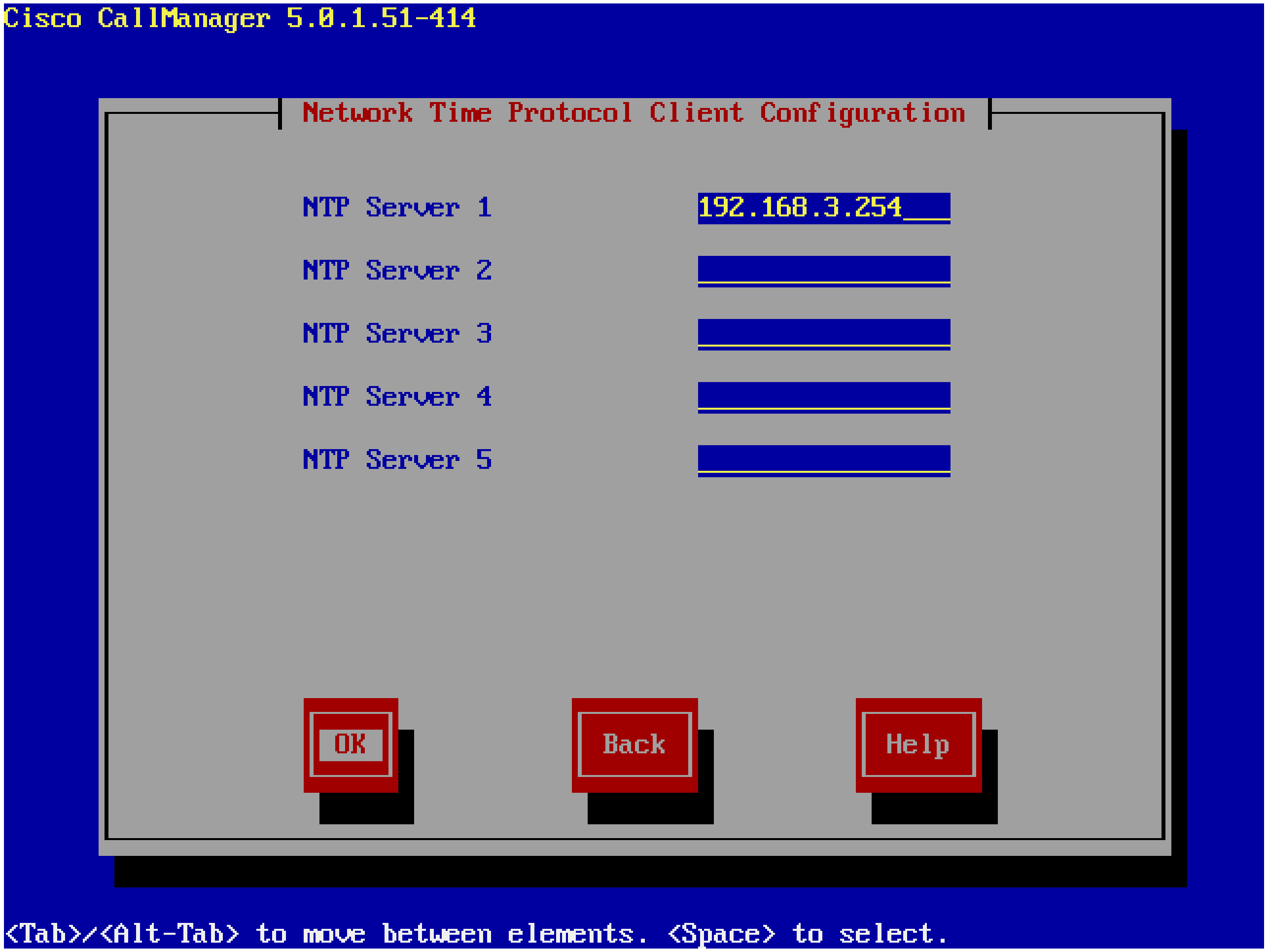
<Tab>/<Alt-Tab> to move between elements. <Space> to select.

Certificate Configuration



```
Cisco CallManager 5.0.1.51-414

        Certificate Signing Request Configuration

      Organization Cisco Systems

      Unit         WWSFD

      Location     San Jose

      State        California

      Country      Uganda
                   Ukraine
                   United Arab Emirates
                   United States

<Tab>/<Alt-Tab> to move between elements. <Space> to select.
```

NTP Client Configuration



Cisco CallManager 5.0.1.51-414

Network Time Protocol Client Configuration

NTP Server 1 192.168.3.254

NTP Server 2

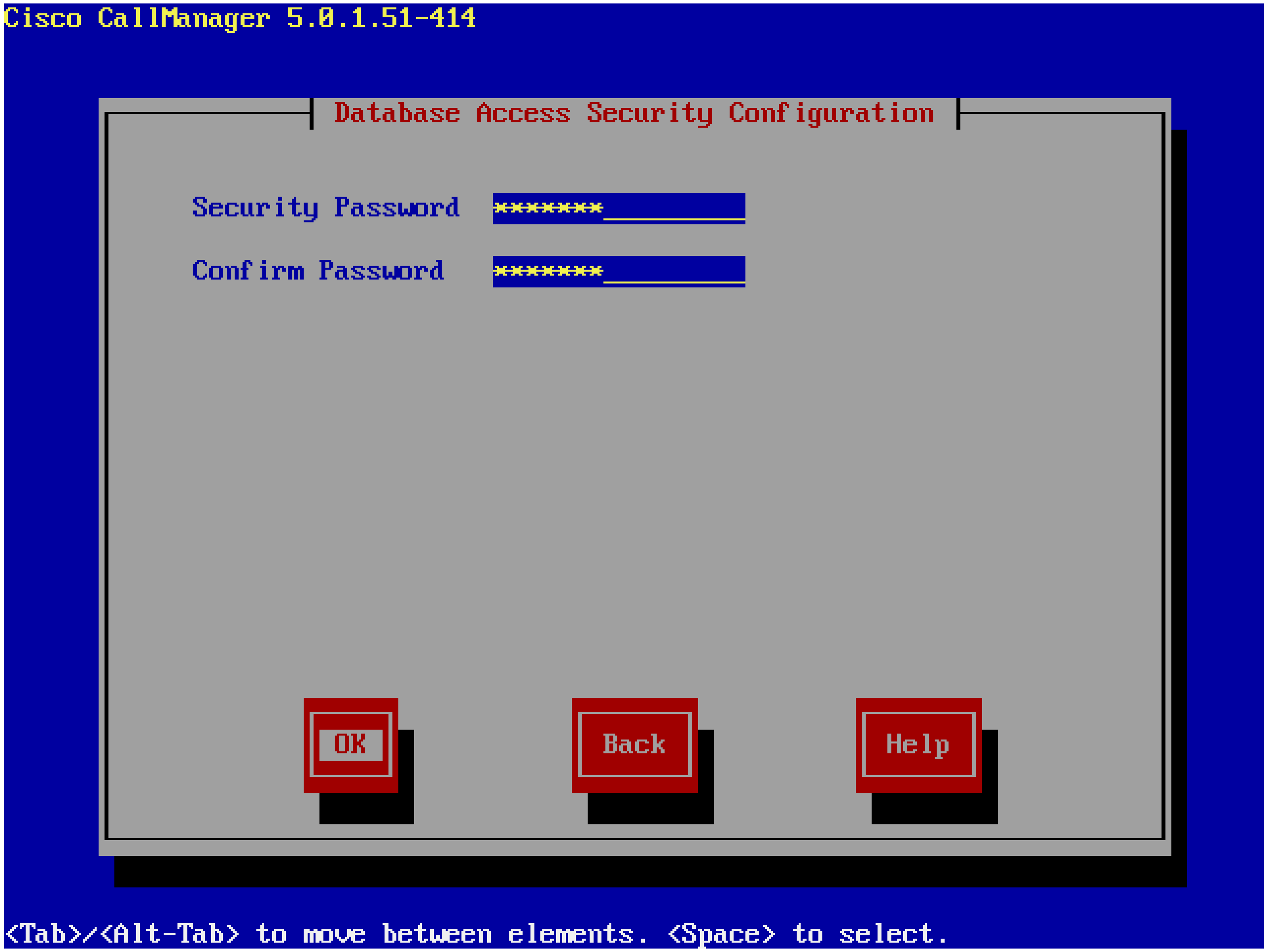
NTP Server 3

NTP Server 4

NTP Server 5

<Tab>/<Alt-Tab> to move between elements. <Space> to select.

Database Access Security Configuration



Cisco CallManager 5.0.1.51-414

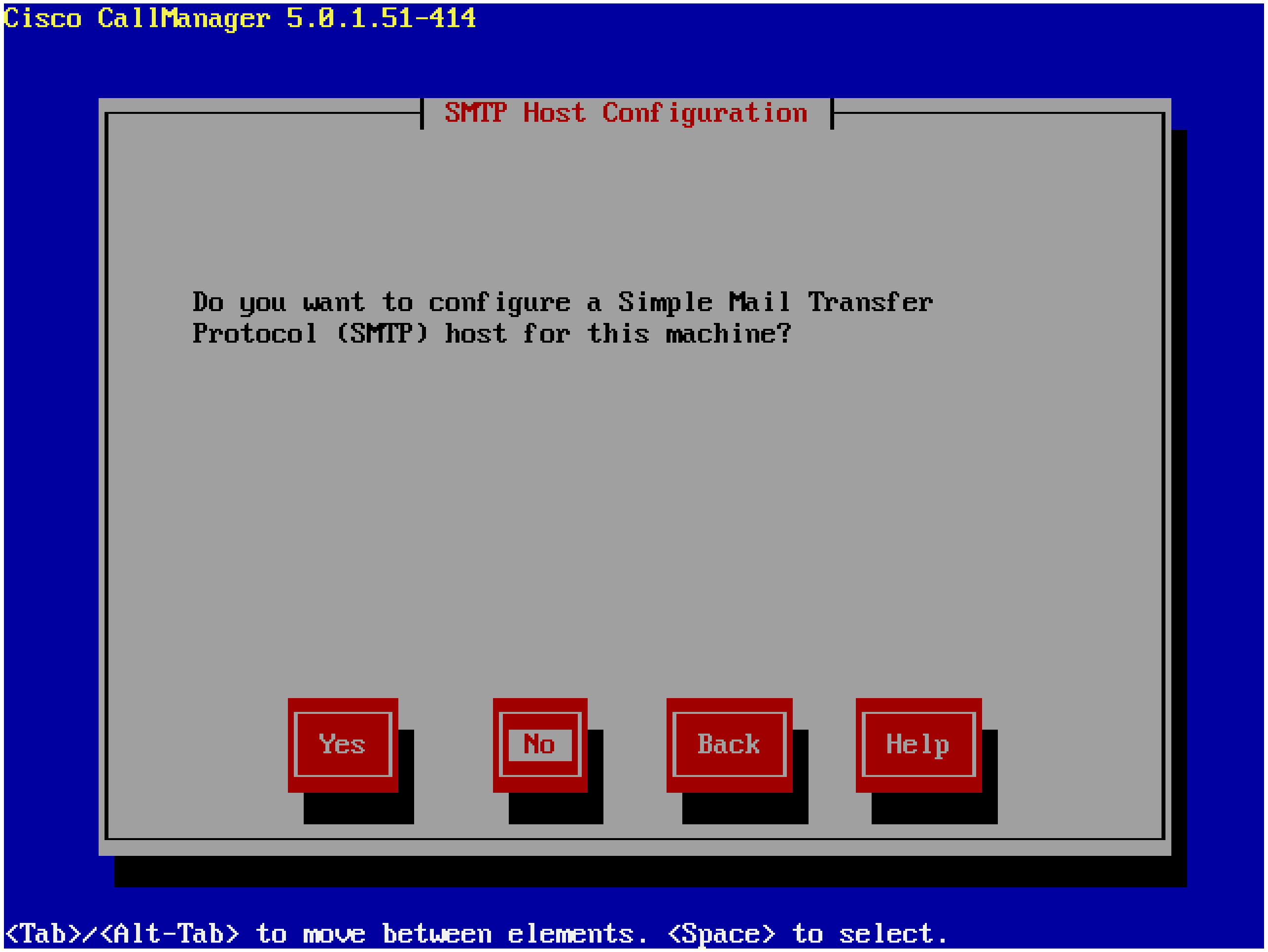
Database Access Security Configuration

Security Password ********

Confirm Password ********

<Tab>/<Alt-Tab> to move between elements. <Space> to select.

SMTP Configuration



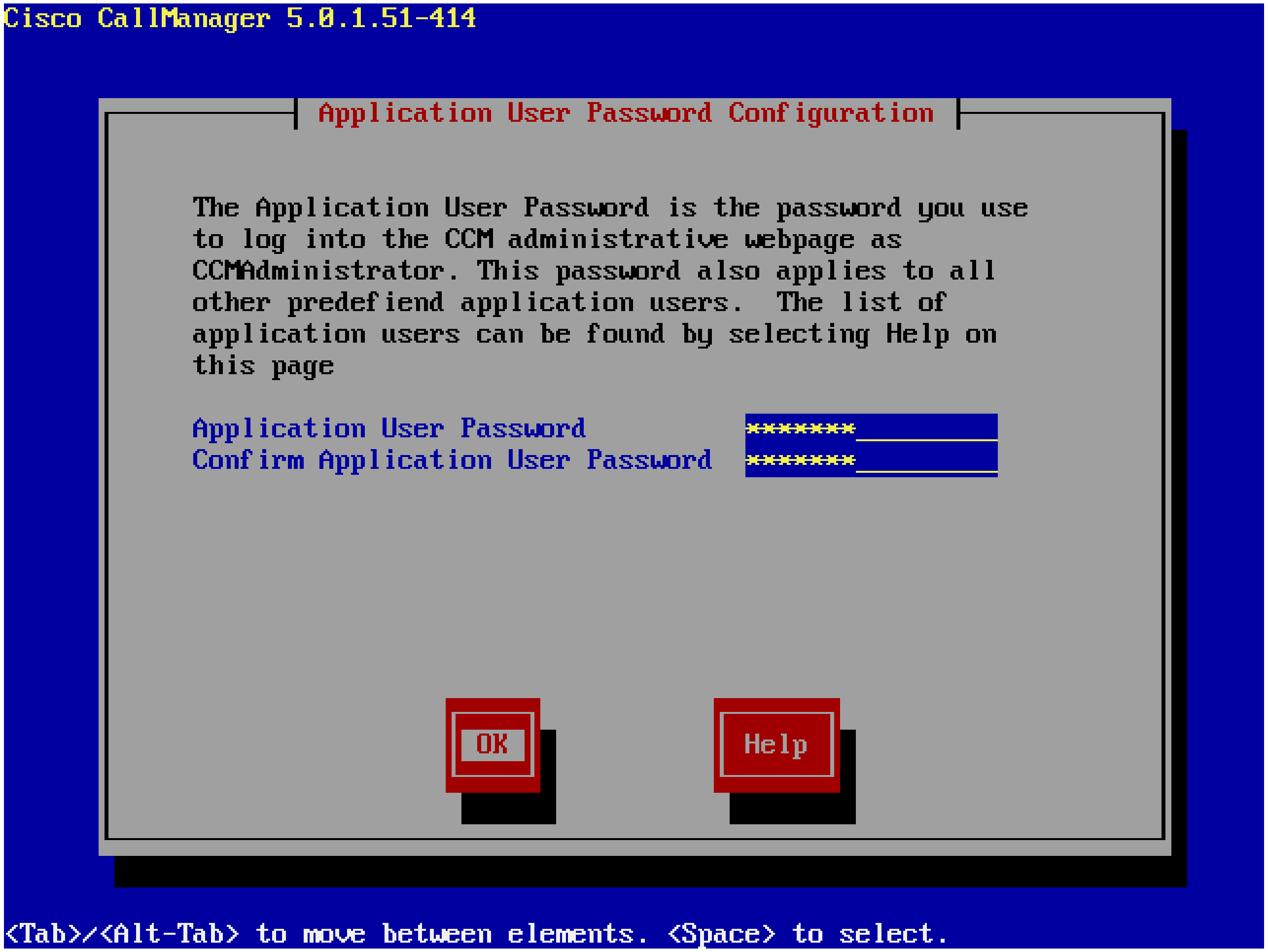
Cisco CallManager 5.0.1.51-414

SMTP Host Configuration

Do you want to configure a Simple Mail Transfer Protocol (SMTP) host for this machine?

<Tab>/<Alt-Tab> to move between elements. <Space> to select.

CCMAdministrator Password Configuration



Cisco CallManager 5.0.1.51-414

Application User Password Configuration

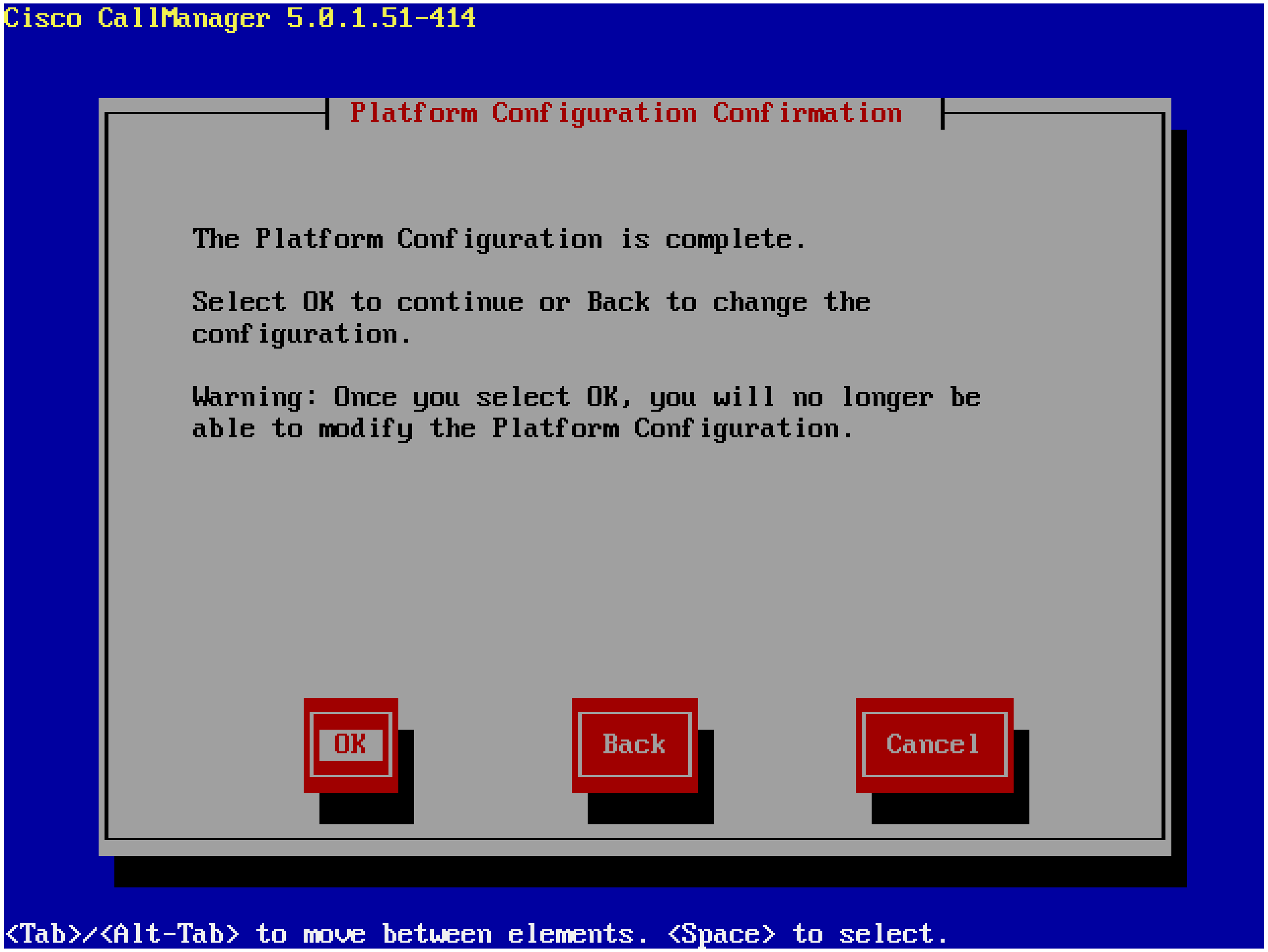
The Application User Password is the password you use to log into the CCM administrative webpage as CCMAdministrator. This password also applies to all other predefiend application users. The list of application users can be found by selecting Help on this page

Application User Password ********

Confirm Application User Password ********

<Tab>/<Alt-Tab> to move between elements. <Space> to select.

Confirm Platform Configuration



```
Cisco CallManager 5.0.1.51-414

Platform Configuration Confirmation

The Platform Configuration is complete.

Select OK to continue or Back to change the
configuration.

Warning: Once you select OK, you will no longer be
able to modify the Platform Configuration.

<Tab>/<Alt-Tab> to move between elements. <Space> to select.
```

Obtain License File

License Calculation:

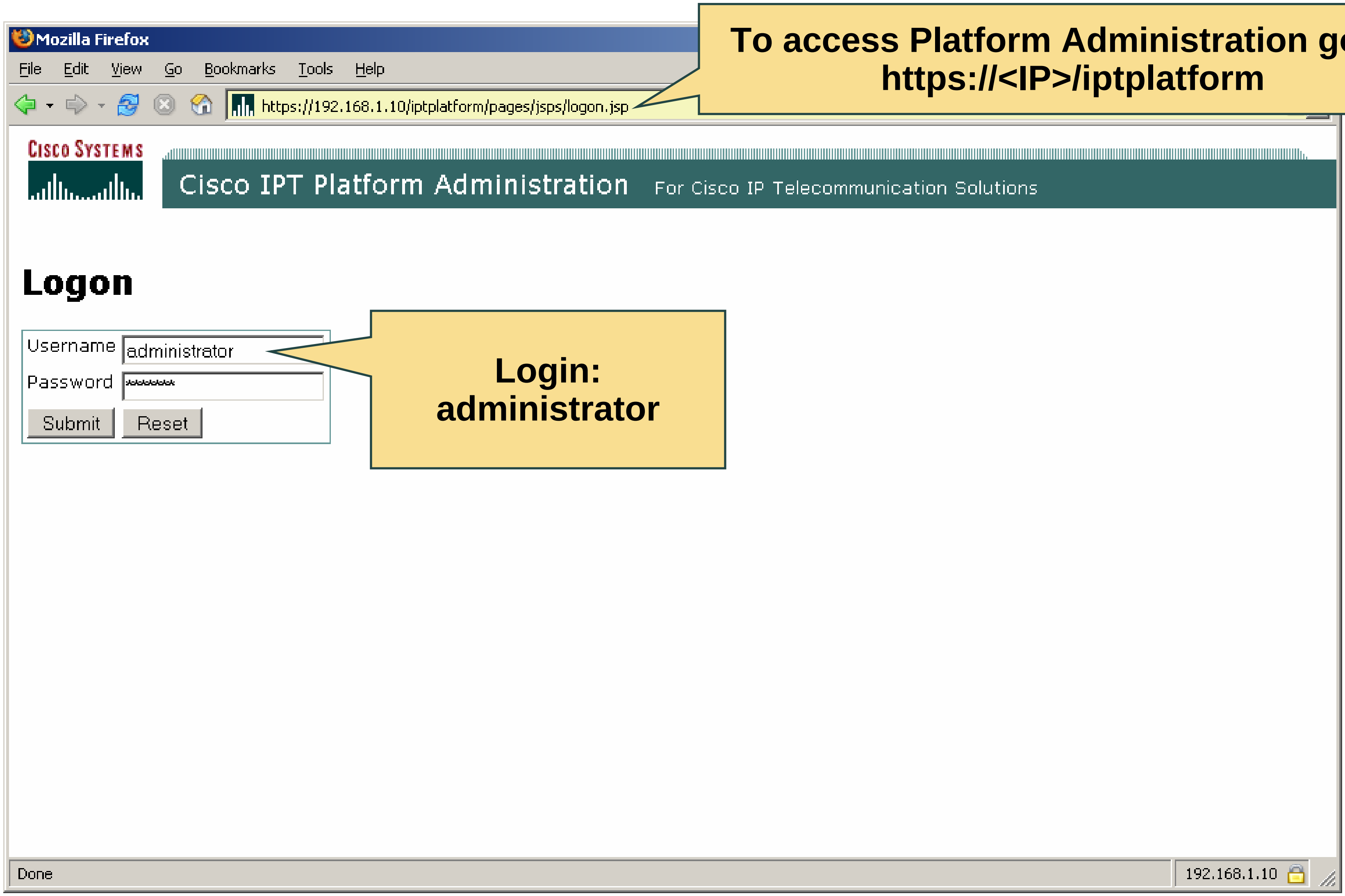
1. Obtain MAC address of publisher using platform administration.
2. Go to CCO and http://www.cisco.com/go/license. T. E.1
3. Use software serial number / PAK and MAC address to obtain license file.

Slide 21

T. E.1 Need clarification by Cisco.

Tolga Erdogan, 3/14/2006

Obtain License File: Publisher MAC Address



Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Cisco Systems
Cisco IPT Platform Administration For Cisco IP Telecommunication Solutions
Submit
Reset
Done
192.168.1.10

https://192.168.1.10/iptplatform/pages/jsps/logon.jsp

Logon

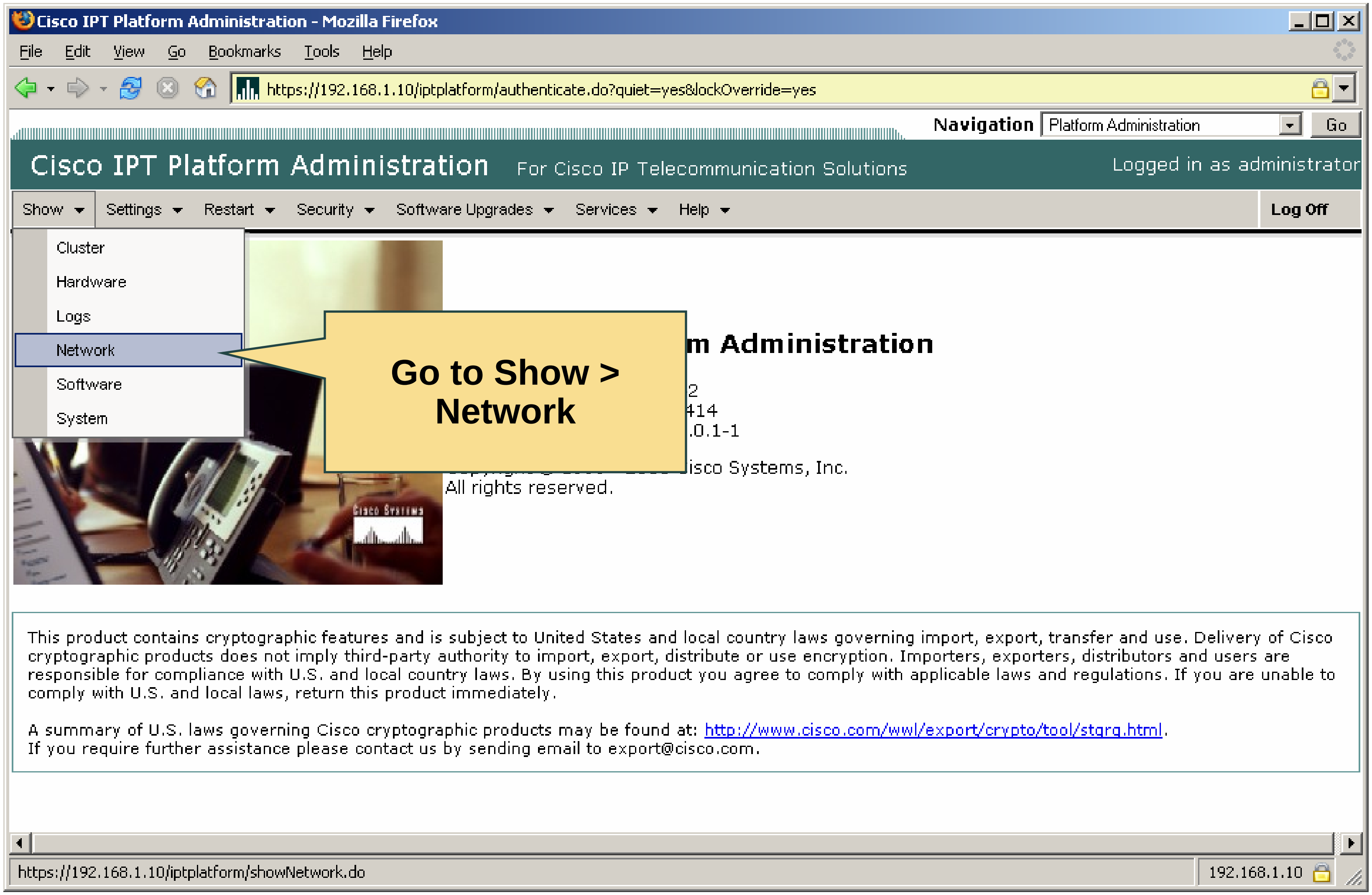
Username: administrator

Password: ••••••••

To access Platform Administration go to: https://<IP>/iptplatform

Login: administrator

Obtain License File: Publisher MAC Address


Cisco IPT Platform Administration - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://192.168.1.10/iptplatform/authenticate.do?quiet=yes&lockOverride=yes

Navigation Platform Administration Go

Cisco IPT Platform Administration For Cisco IP Telecommunication Solutions Logged in as administrator

Show Settings Restart Security Software Upgrades Services Help Log Off

- Cluster
- Hardware
- Logs
- Network
- Software
- System

m Administration

2
414
.0.1-1

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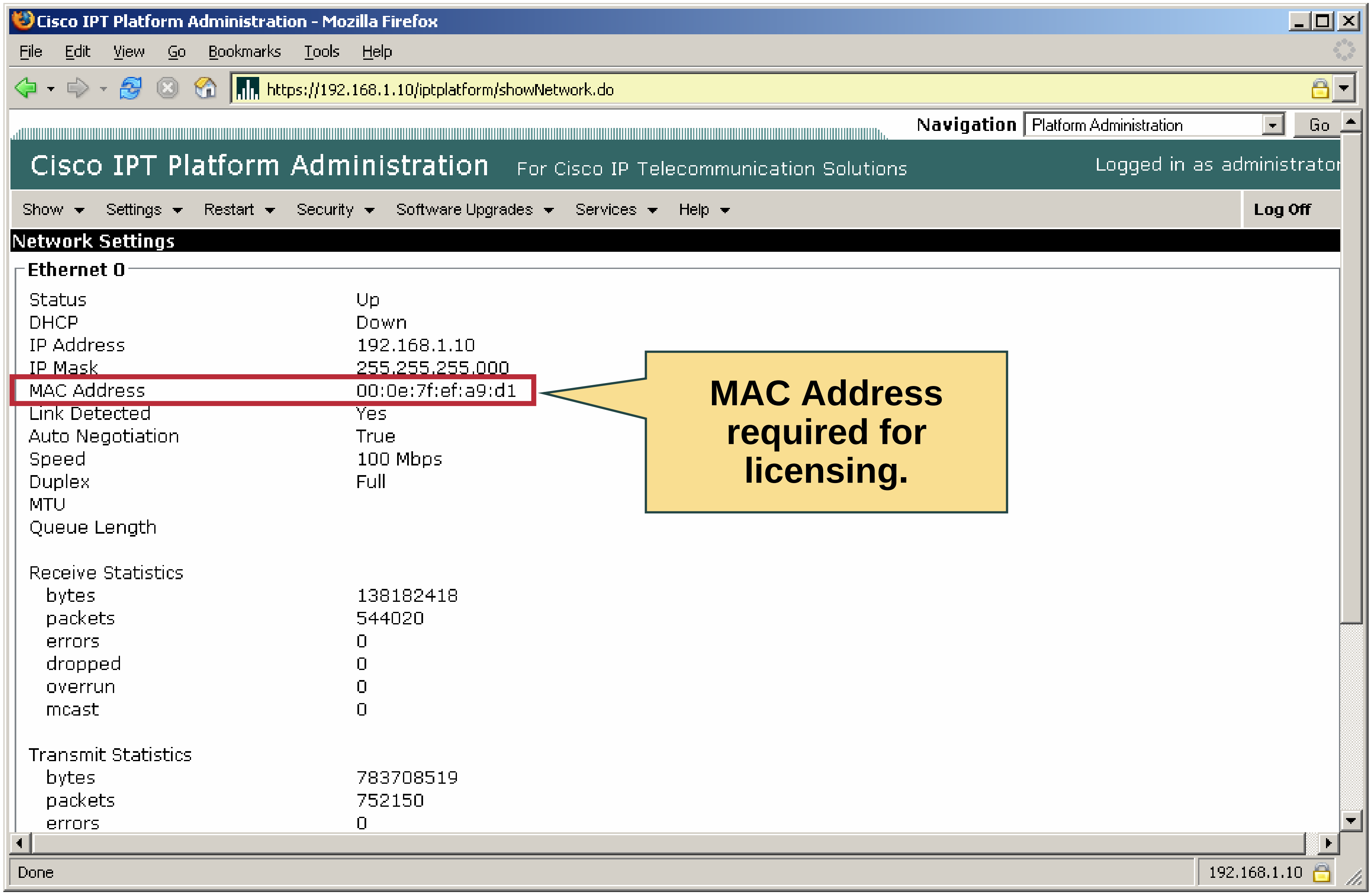
This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at: http://www.cisco.com/wwl/export/crypto/tool/stqrg.html.
If you require further assistance please contact us by sending email to export@cisco.com.

https://192.168.1.10/iptplatform/showNetwork.do 192.168.1.10

Go to Show > Network

Obtain License File: Publisher MAC Address


Cisco IPT Platform Administration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/iptplatform/showNetwork.do
Navigation Platform Administration Go
Cisco IPT Platform Administration For Cisco IP Telecommunication Solutions
Logged in as administrator
Show Settings Restart Security Software Upgrades Services Help
Log Off
Done
192.168.1.10

Network Settings

Ethernet 0

Status	Up
DHCP	Down
IP Address	192.168.1.10
IP Mask	255.255.255.000
MAC Address	00:0e:7f:ef:a9:d1
Link Detected	Yes
Auto Negotiation	True
Speed	100 Mbps
Duplex	Full
MTU	
Queue Length	
Receive Statistics	
bytes	138182418
packets	544020
errors	0
dropped	0
overrun	0
mcast	0
Transmit Statistics	
bytes	783708519
packets	752150
errors	0

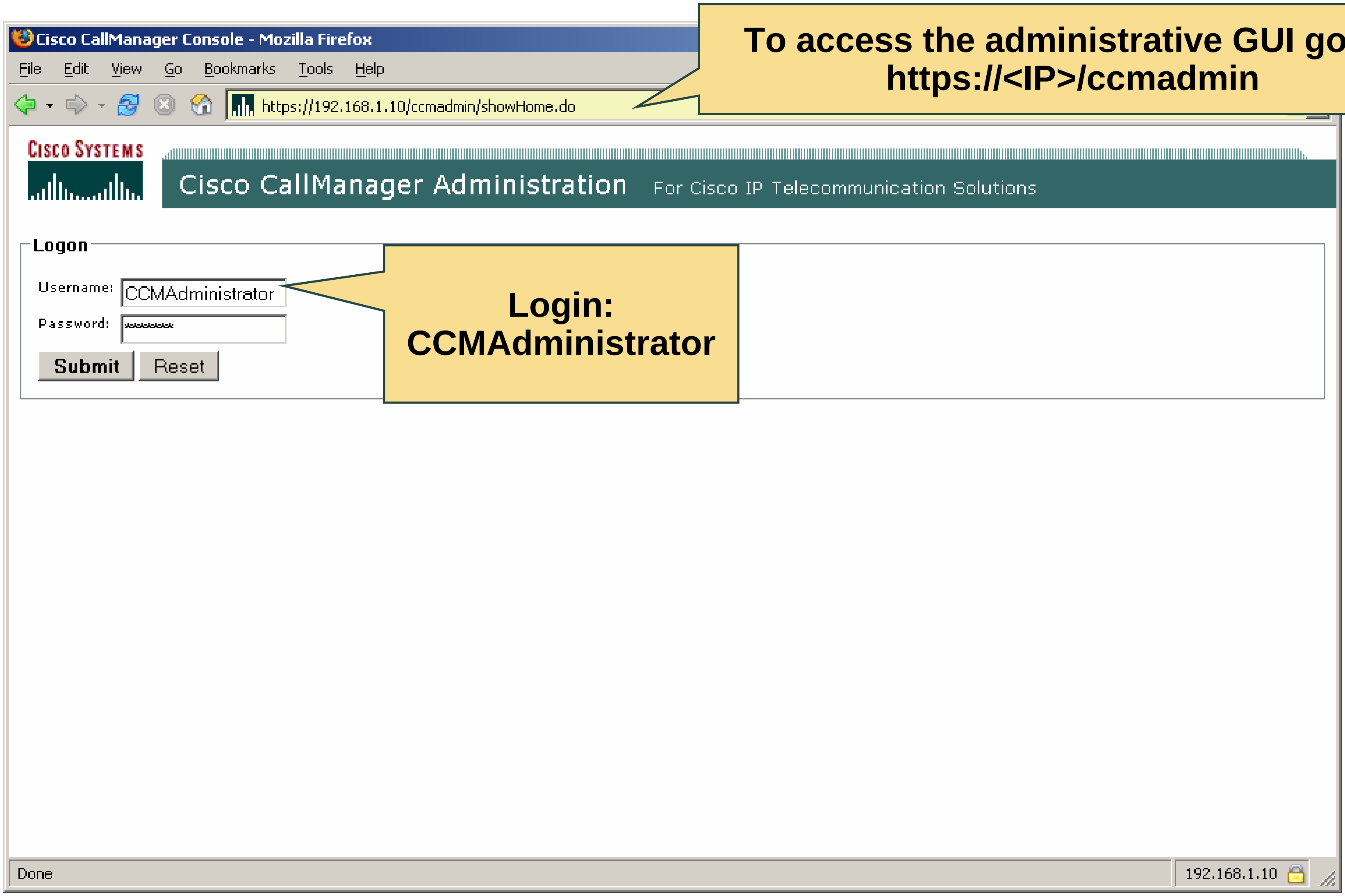
MAC Address required for licensing.

Install License File

Installing License Files:

1. Access CCMAdmin Webpage
2. Upload license file to Cisco Unified CallManager.
3. Review license status.

Install License File: Access CCMAdmin Webpage



Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Cisco Systems
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logon
Submit
Reset
Done
192.168.1.10

https://192.168.1.10/ccmadmin/showHome.do

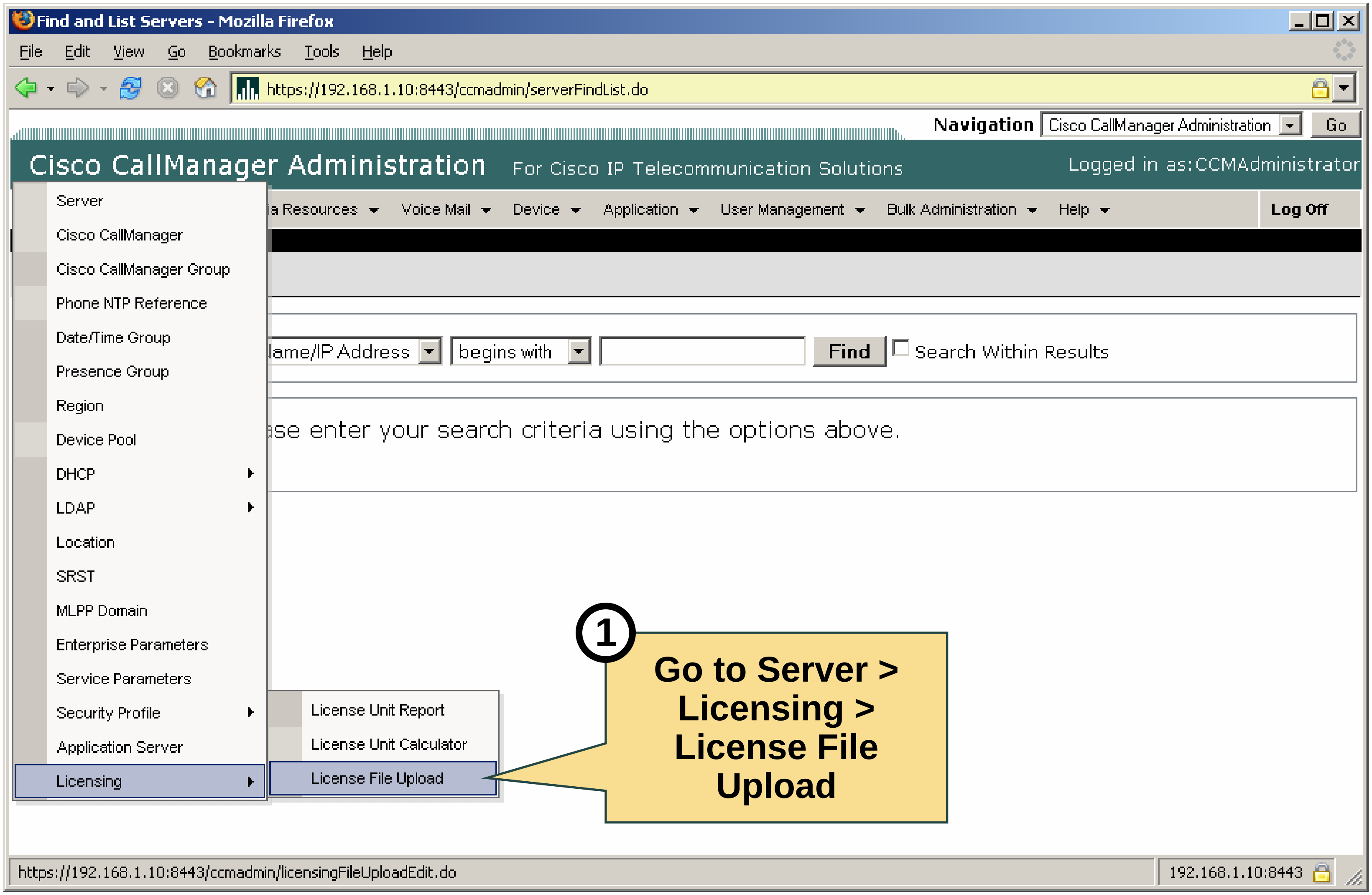
Username: CCMAdministrator

Password: ●●●●●●●

To access the administrative GUI go to:
https://<IP>/ccmadmin

Login:
CCMAdministrator

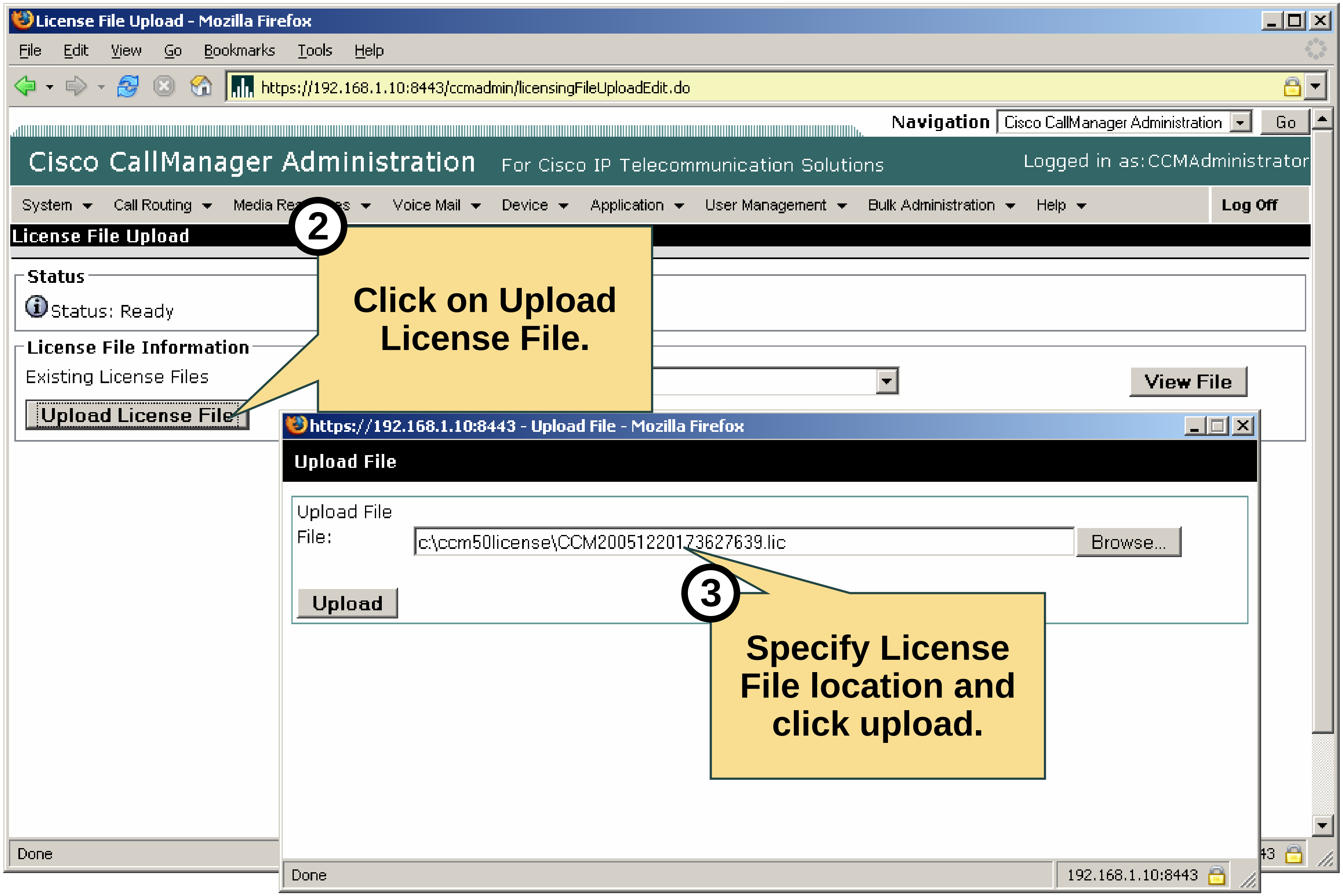
Install License File: Upload License File



Find and List Servers - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/serverFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
a Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Server
Cisco CallManager
Cisco CallManager Group
Phone NTP Reference
Date/Time Group
Presence Group
Region
Device Pool
DHCP
LDAP
Location
SRST
MLPP Domain
Enterprise Parameters
Service Parameters
Security Profile
Application Server
Licensing
License Unit Report
License Unit Calculator
License File Upload
lame/IP Address begins with Find
☐ Search Within Results
ase enter your search criteria using the options above.
https://192.168.1.10:8443/ccmadmin/licensingFileUploadEdit.do
192.168.1.10:8443

① Go to Server > Licensing > License File Upload

Install License File: Upload License File


License File Upload - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/licensingFileUploadEdit.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Re...es
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
License File Upload
Status
License File Information
Existing License Files
View File
Upload License File
Done
https://192.168.1.10:8443 - Upload File - Mozilla Firefox
Upload File
Upload File
Browse...
Upload
Done
192.168.1.10:8443

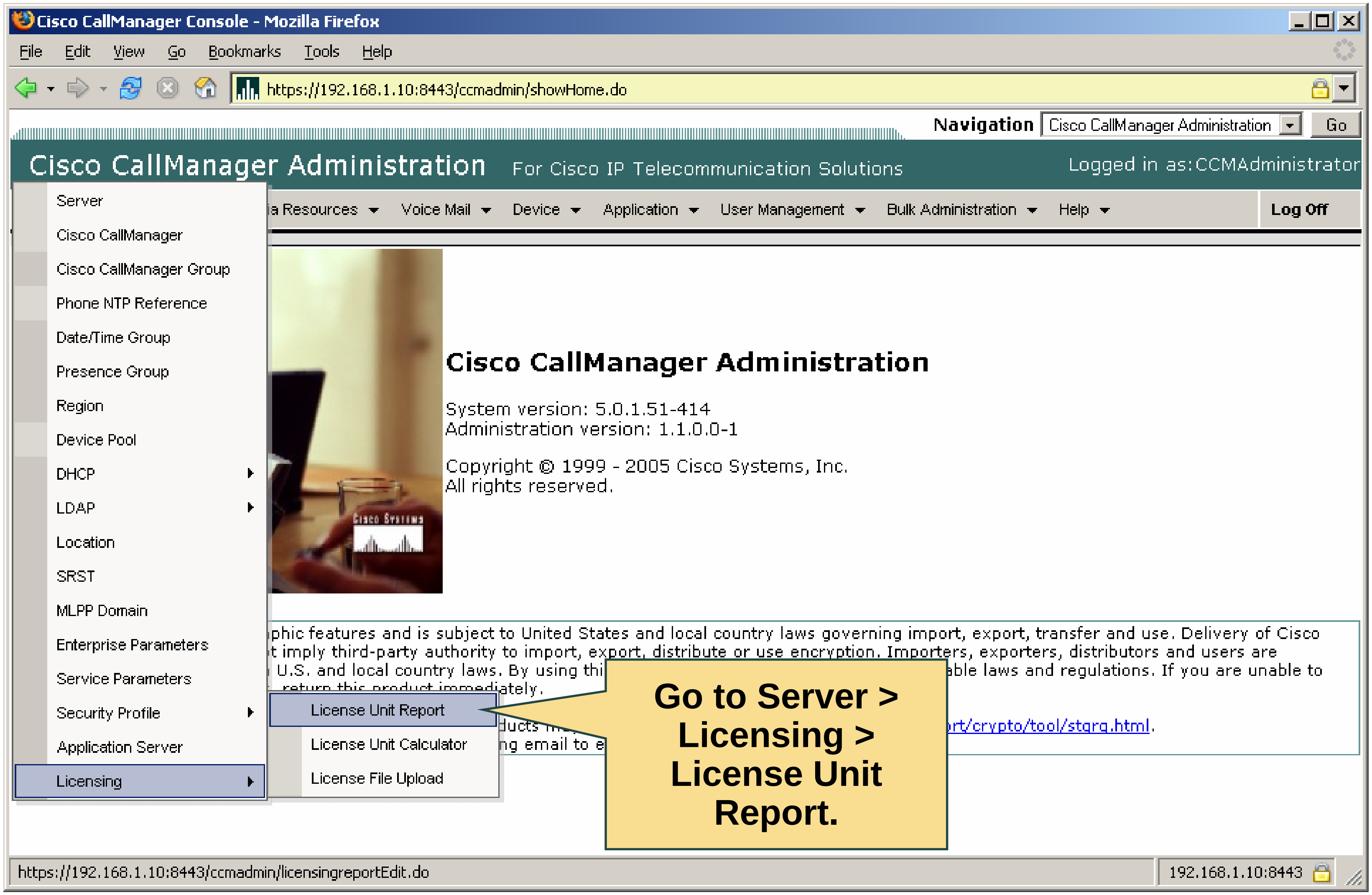
Status: Ready

File: c:\ccm50license\CCM20051220173627639.lic

② Click on Upload License File.

③ Specify License File location and click upload.

Install License File: Verify License Status


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/showHome.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
a Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Server
Cisco CallManager
Cisco CallManager Group
Phone NTP Reference
Date/Time Group
Presence Group
Region
Device Pool
DHCP
LDAP
Location
SRST
MLPP Domain
Enterprise Parameters
Service Parameters
Security Profile
Application Server
Licensing
License Unit Report
License Unit Calculator
License File Upload
CISCO SYSTEMS

Cisco CallManager Administration

System version: 5.0.1.51-414
Administration version: 1.1.0.0-1

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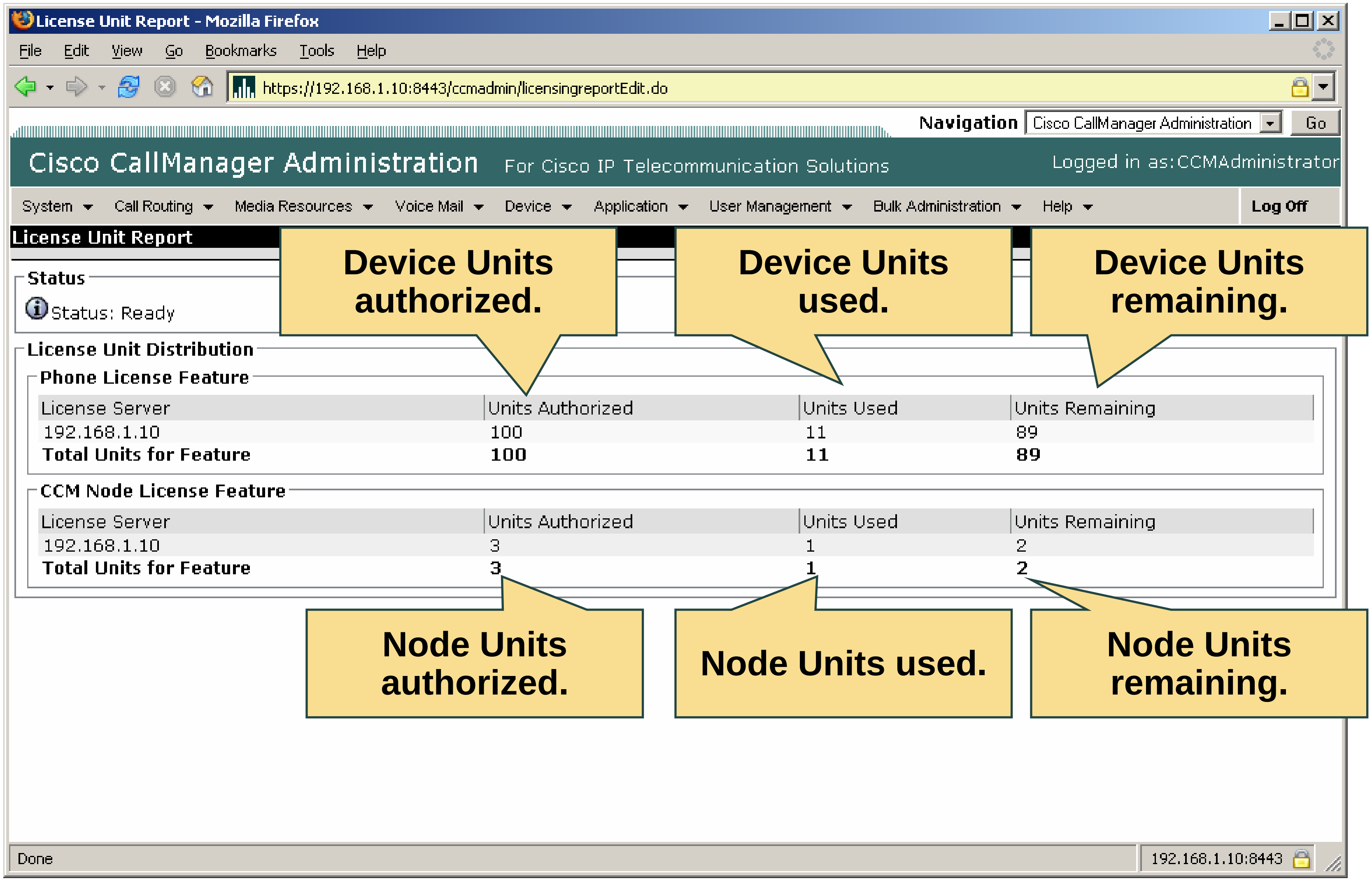
t imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are
U.S. and local country laws. By using thi able laws and regulations. If you are unable to
return this product immediately.
ducts rt/crypto/tool/stqrg.html.
ng email to e

https://192.168.1.10:8443/ccmadmin/licensingreportEdit.do
192.168.1.10:8443

Go to Server > Licensing > License Unit Report.

Install License File: Verify License Status


License Unit Report - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/licensingreportEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Done
192.168.1.10:8443

License Unit Report

Status

Status: Ready

License Unit Distribution

Phone License Feature

License Server	Units Authorized	Units Used	Units Remaining
192.168.1.10	100	11	89
Total Units for Feature	**100**	**11**	**89**

CCM Node License Feature

License Server	Units Authorized	Units Used	Units Remaining
192.168.1.10	3	1	2
Total Units for Feature	**3**	**1**	**2**

Device Units authorized.

Device Units used.

Device Units remaining.

Node Units authorized.

Node Units used.

Node Units remaining.

Summary

- **Cisco Unified CallManager 5.0 has strict hardware requirements which need to be met.**
- **Additional information, e.g. IP address, DNS and NTP should be available prior to installation.**
- **The actual installation is done via a wizard.**
- **A license file needs to be obtained using the publisher MAC address.**
- **Install a license file prior to actual configuration.**

Deploying a Cisco Unified CallManager 5.0 Cluster

Upgrading to Cisco Unified CallManager 5.0

Objectives

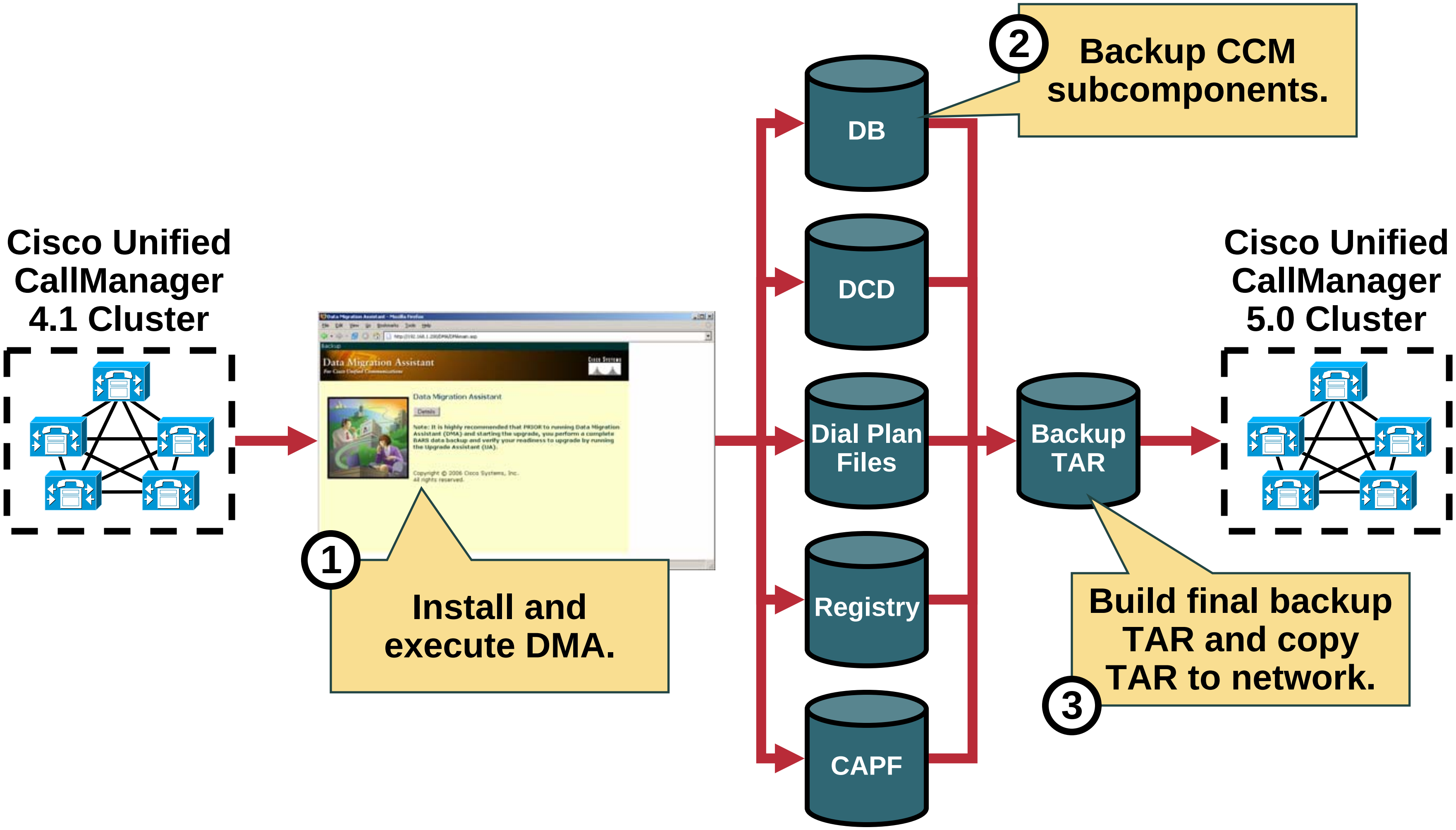
- Data Migration Assistant Overview
- Installing the Data Migration Assistant
- Backing up Cisco Unified CallManager 4.1 deployments
- Performing an Upgrade Installation

Data Migration Assistant Overview

The Data Migration Assistant (DMA) is used to back-up CCM 4.1 for migrations:

- Installed on a CCM 4.1 publisher.
- Similar to BARS
  - Same look and feel.
  - Same procedure.
- Back-up used during CCM 5.0 upgrade installation.
- DMA can be obtained from CCO: http://www.cisco.com/kobayashi/sw-center/sw-voice.shtml

Data Migration Assistant Overview



Cisco Unified CallManager 4.1 Cluster

Data Migration Assistant - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
Backup
Data Migration Assistant
For Cisco Unified Communications
Cisco Systems
Data Migration Assistant
Details

Note: It is highly recommended that PRIOR to running Data Migration Assistant (DMA) and starting the upgrade, you perform a complete BARS data backup and verify your readiness to upgrade by running the Upgrade Assistant (UA).

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① Install and execute DMA.

② Backup CCM subcomponents.

DB

DCD

Dial Plan Files

Registry

CAPF

Backup TAR

③ Build final backup TAR and copy TAR to network.

Cisco Unified CallManager 5.0 Cluster

Data Migration Assistant Overview: Caveats

DMA won’t back up:

- Custom TFTP phone loads and Music On Hold (MOH) files
- CCMUser password and PIN number
- Customer installed Third Party Products
- Customer installed Phone Background Images

User password is reset to ciscocisco

- Default can be configured during CCM5.0 Install

User EM / IPMA pin is reset to 12345

- Default can be configured during CCM5.0 Install

DMA Installation

DMA is installed on a publisher:

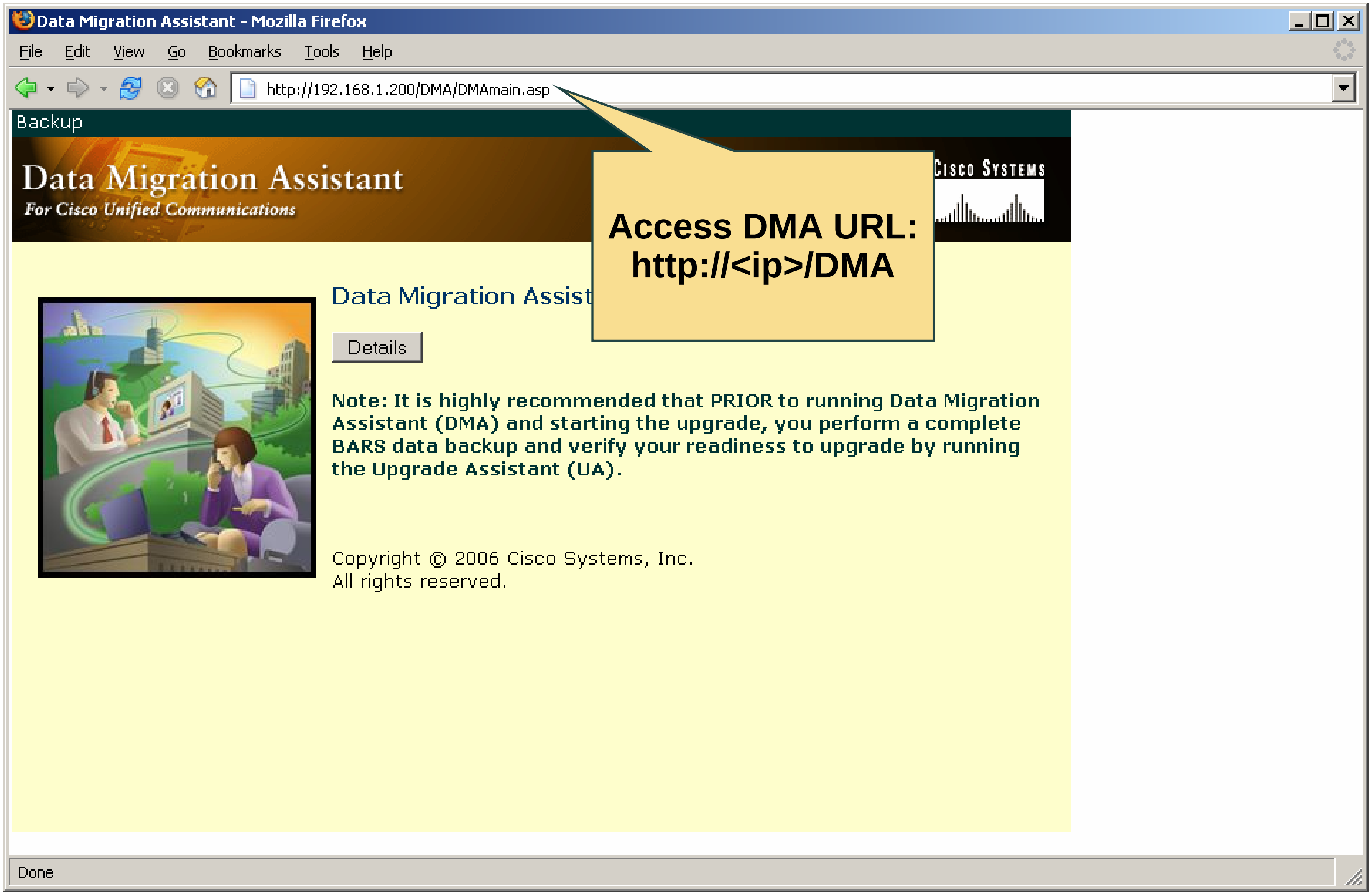
- Install DMA on a CCM 4.1 publisher.
- No installation options available.
- Server will require post-installation reboot:
  - Never install DMA during production hours.
- Access DMA via Web GUI:
  - http://<ip of CCM>/DMA
  - Same login as in CCM Administration.

DMA Back-Up Procedure

DMA back-up steps:

1. Backup the existing 4.x deployment using BARS.
2. Verify integrity using the Upgrade Assistant.
3. Access DMA GUI.
4. Specify back-up location.
5. Perform backup.
6. Copy TAR to a network directory (optional).

DMA Back-Up Procedure: Access DMA


Data Migration Assistant - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://192.168.1.200/DMA/DMAmain.asp
Backup
Data Migration Assistant
For Cisco Unified Communications
Cisco Systems
Data Migration Assist
Details
Done

Note: It is highly recommended that PRIOR to running Data Migration Assistant (DMA) and starting the upgrade, you perform a complete BARS data backup and verify your readiness to upgrade by running the Upgrade Assistant (UA).

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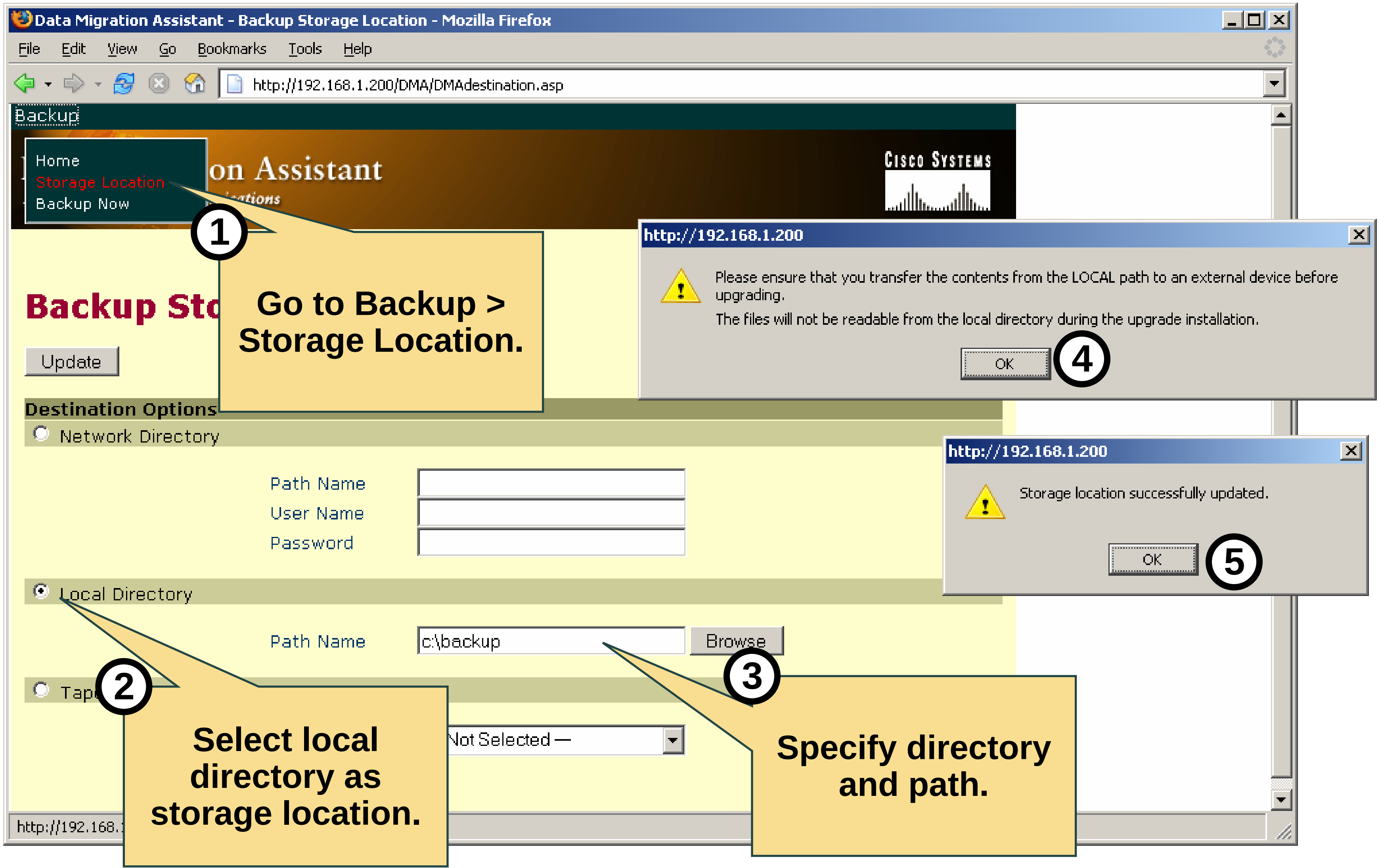
Access DMA URL: http://<ip>/DMA

DMA Back-Up Procedure: Specify Storage Location



Data Migration Assistant - Backup Storage Location - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://192.168.1.200/DMA/DMAdestination.asp
Backup
Home
Storage Location
Backup Now
on Assistant
Cisco Systems
Backup Sto
Update
Destination Options
Network Directory
Path Name
User Name
Password
Local Directory
Path Name
Browse
Tap
Not Selected —
http://192.168.

Path Name: c:\backup

http://192.168.1.200

Please ensure that you transfer the contents from the LOCAL path to an external device before upgrading.
The files will not be readable from the local directory during the upgrade installation.

OK

http://192.168.1.200

Storage location successfully updated.

OK

1 Go to Backup > Storage Location.

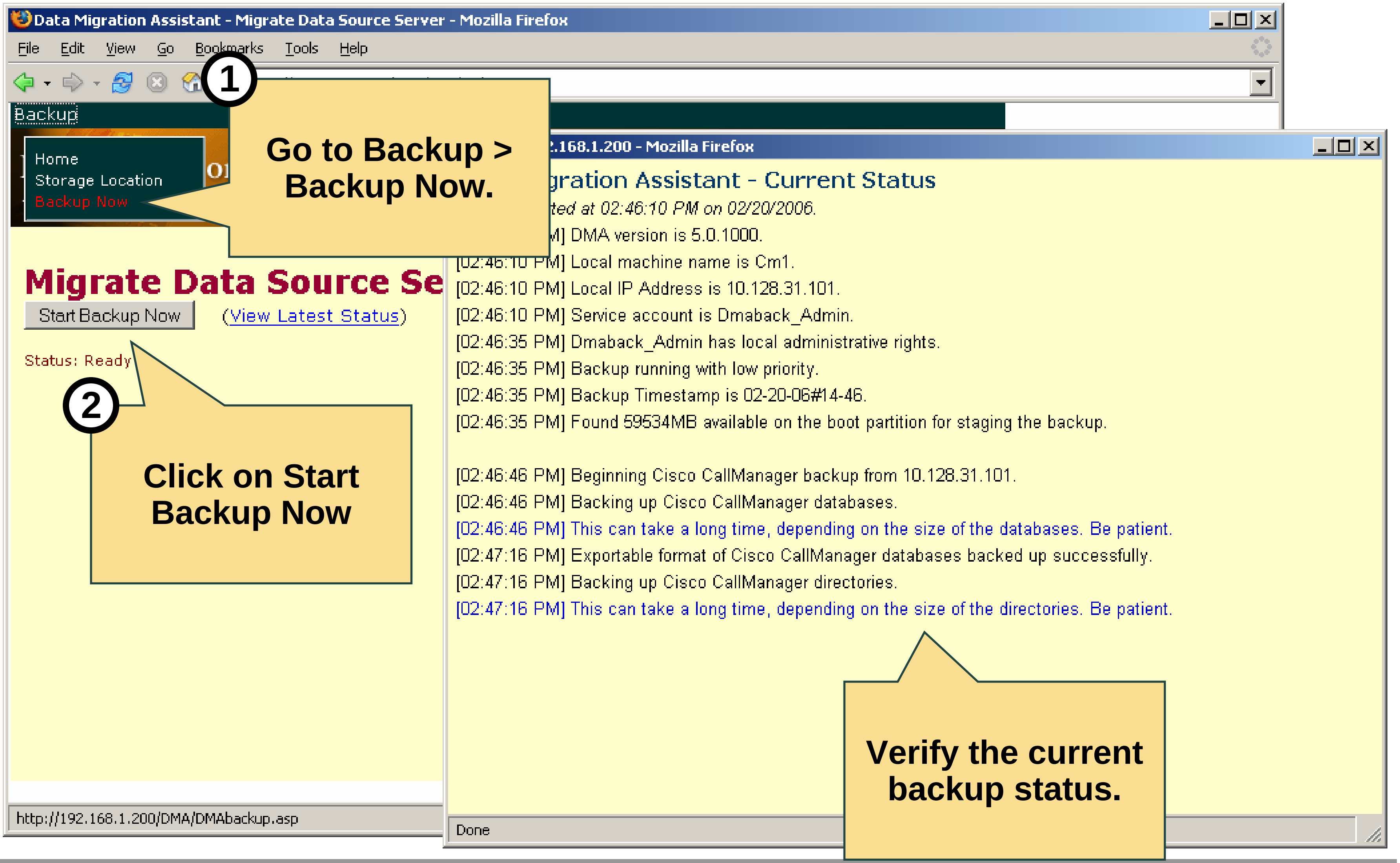
2 Select local directory as storage location.

3 Specify directory and path.

4

5

DMA Back-Up Procedure: Perform Backup Procedure


Data Migration Assistant - Migrate Data Source Server - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Backup
Home
Storage Location
Backup Now
Start Backup Now
(View Latest Status)
http://192.168.1.200/DMA/DMAbackup.asp
.168.1.200 - Mozilla Firefox
Done

Migrate Data Source Se

Status: Ready

gration Assistant - Current Status

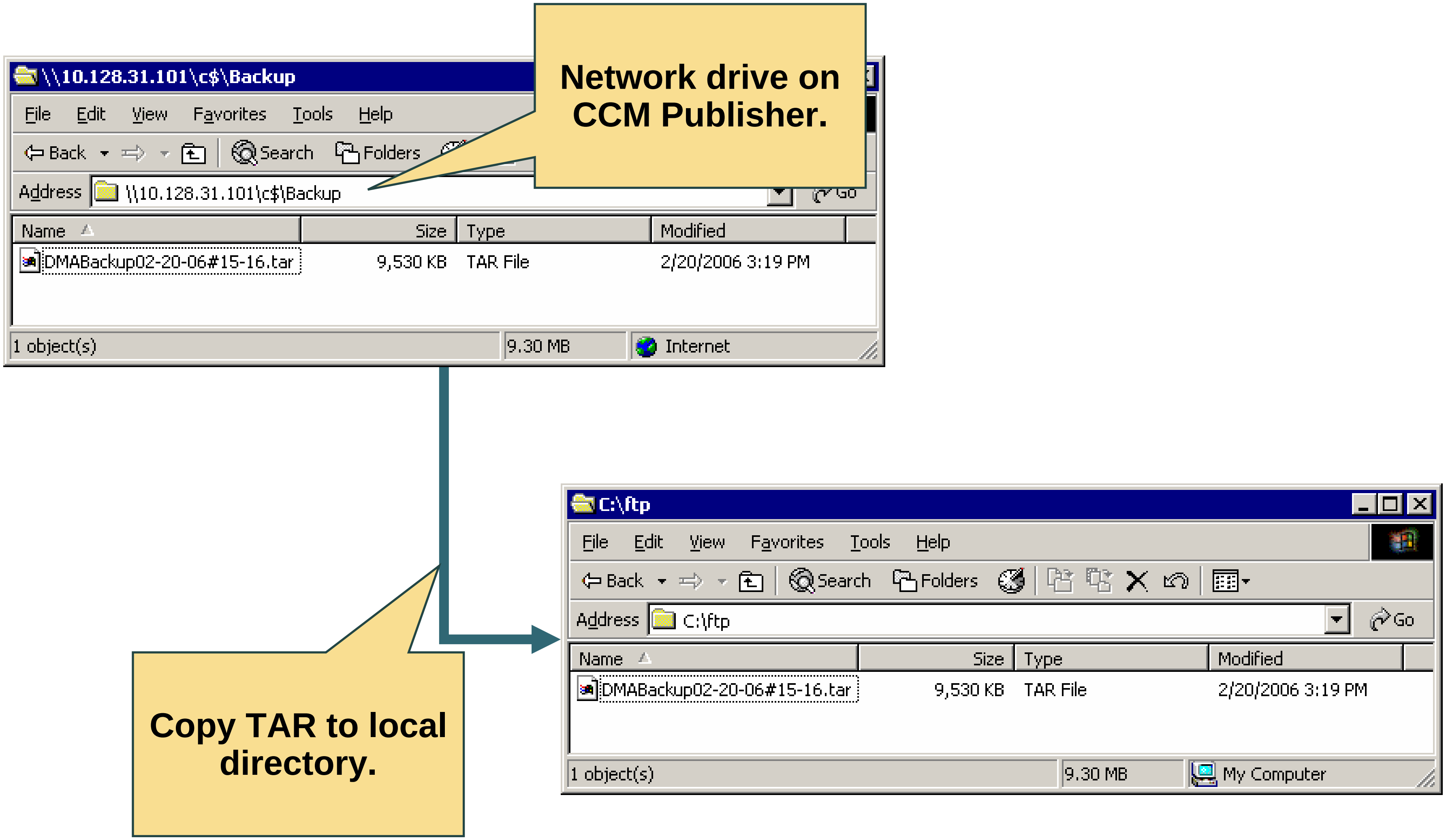
```
ted at 02:46:10 PM on 02/20/2006.
M] DMA version is 5.0.1000.
[02:46:10 PM] Local machine name is Cm1.
[02:46:10 PM] Local IP Address is 10.128.31.101.
[02:46:10 PM] Service account is Dmaback_Admin.
[02:46:35 PM] Dmaback_Admin has local administrative rights.
[02:46:35 PM] Backup running with low priority.
[02:46:35 PM] Backup Timestamp is 02-20-06#14-46.
[02:46:35 PM] Found 59534MB available on the boot partition for staging the backup.

[02:46:46 PM] Beginning Cisco CallManager backup from 10.128.31.101.
[02:46:46 PM] Backing up Cisco CallManager databases.
[02:46:46 PM] This can take a long time, depending on the size of the databases. Be patient.
[02:47:16 PM] Exportable format of Cisco CallManager databases backed up successfully.
[02:47:16 PM] Backing up Cisco CallManager directories.
[02:47:16 PM] This can take a long time, depending on the size of the directories. Be patient.
```

1 Go to Backup > Backup Now.

2 Click on Start Backup Now

Verify the current backup status.

DMA Back-Up Procedure: Copy TAR



\\10.128.31.101\c$\Backup

Address \\10.128.31.101\c$\Backup

Name	Size	Type	Modified
DMABackup02-20-06#15-16.tar	9,530 KB	TAR File	2/20/2006 3:19 PM

1 object(s) 9.30 MB Internet

Network drive on CCM Publisher.

C:\ftp

Address C:\ftp

Name	Size	Type	Modified
DMABackup02-20-06#15-16.tar	9,530 KB	TAR File	2/20/2006 3:19 PM

1 object(s) 9.30 MB My Computer

Copy TAR to local directory.

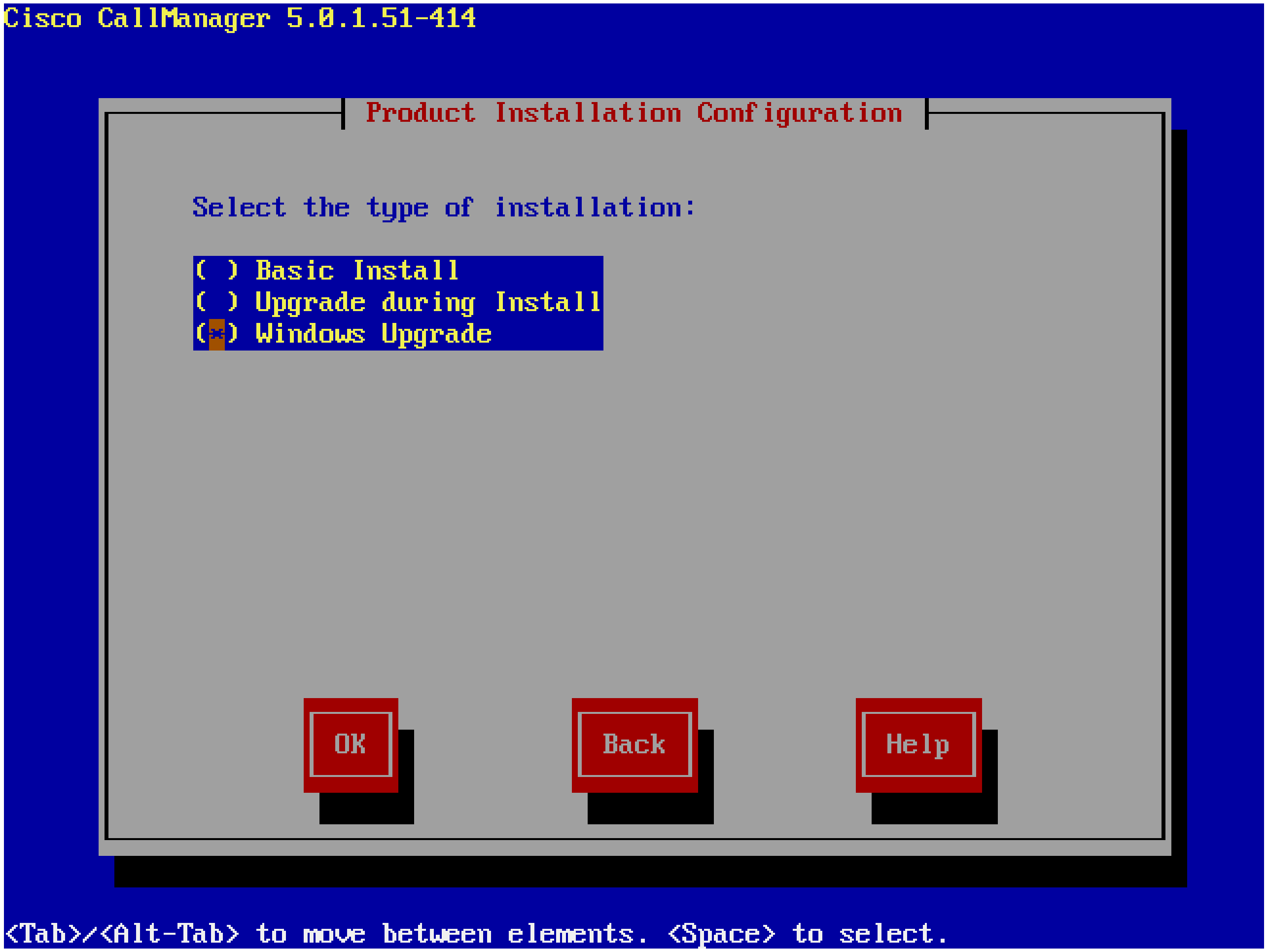
File
Edit
View
Favorites
Tools
Help
Back
Search
Folders
Go

Upgrade Procedure

Perform installation procedure using the upgrade option:

1. **Run installer with upgrade option.**
2. **When prompted, specify FTP location of TAR file.**

Upgrade Procedure



Cisco CallManager 5.0.1.51-414

Product Installation Configuration

Select the type of installation:

( ) Basic Install
( ) Upgrade during Install
(*) Windows Upgrade

<Tab>/<Alt-Tab> to move between elements. <Space> to select.

Summary

- DMA backs up existing CCM 4.1 deployments for migration and is similar to BARS.
- DMA is installed on the publisher server and requires a reboot.
- Backup can be stored on a network, local or tape drive.
- The DMA TAR is used during an upgrade installation to pre-provision the database.

Administering Cisco Unified CallManager 5.0

Performing General Administration

Objectives

- General Administration Overview
- Accessing Cisco Unified CallManager 5.0
- Cisco Unified CallManager 5.0 System Menu
- Cisco Unified CallManager 5.0 Call Routing Menu
- Cisco Unified CallManager 5.0 Media Resources Menu
- Cisco Unified CallManager 5.0 Voice Mail Menu
- Cisco Unified CallManager 5.0 Device Menu
- Cisco Unified CallManager 5.0 Application Menu
- Cisco Unified CallManager 5.0 User Management Menu
- Multi Level Admin

General Administration Overview

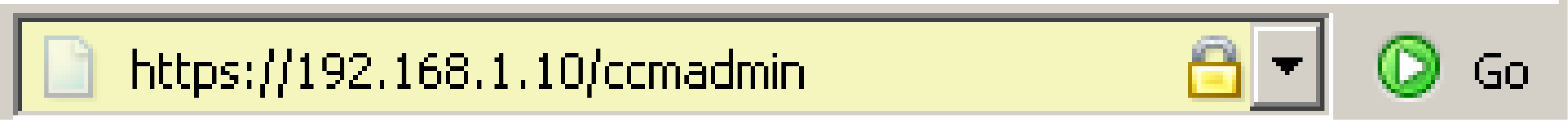
Administration of Cisco Unified CallManager 5.0

- Complete “Out of the box” system without direct access to the operating system.
- Web-based Cisco Unified CallManager administration using HTTPS to secure the session.
- SSH or web-based platform administration.

Accessing Cisco Unified CallManager 5.0

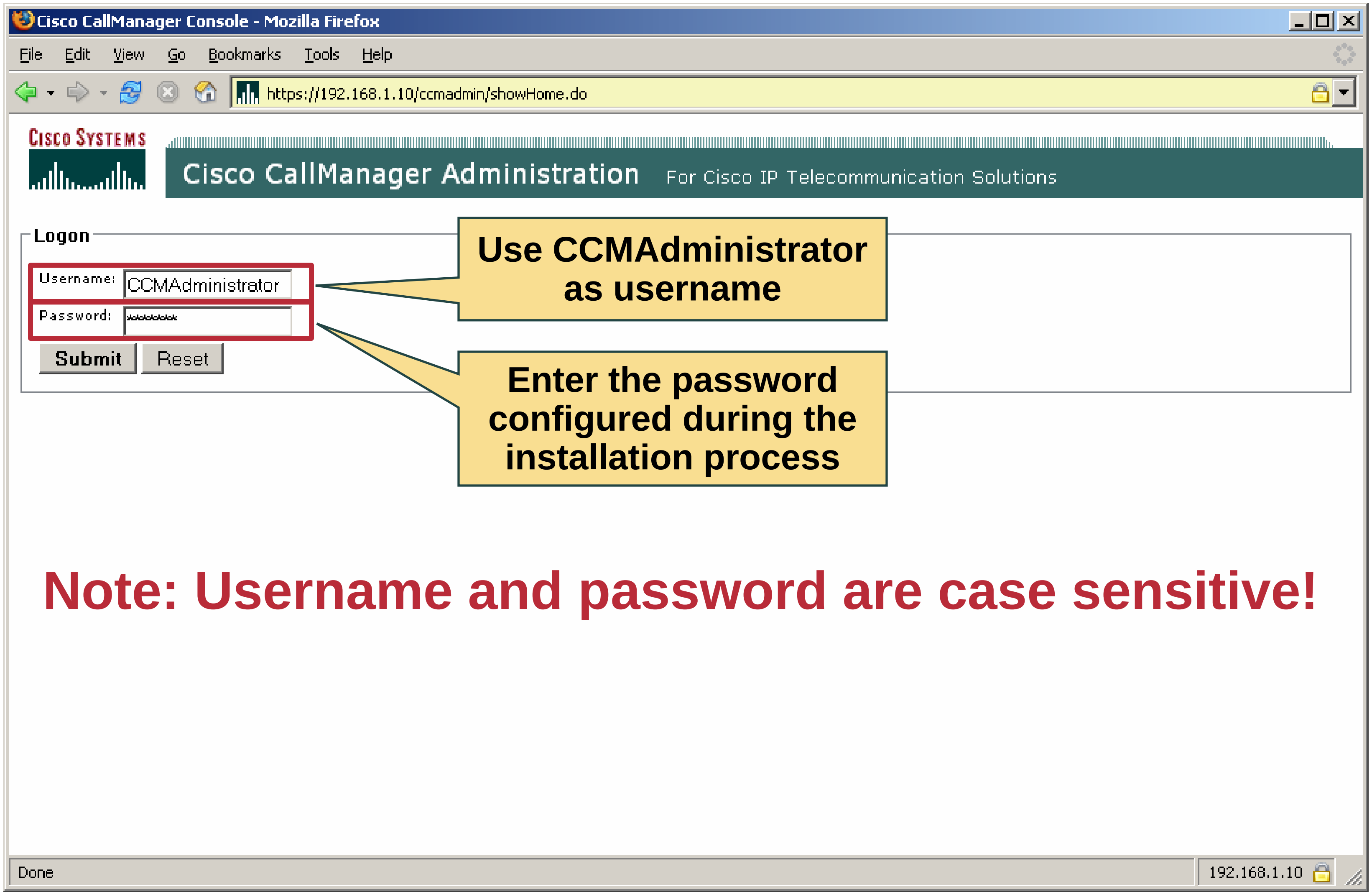
To enter the Cisco Unified CallManager administration page go to URL:

- **Directly access the log-in page by going to https://<CallManager IP>/ccmadmin**
- **Getting a link that leads to the log-in page by going to http://<CallManager IP>**



https://192.168.1.10/ccmadmin

Accessing Cisco Unified CallManager 5.0


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/showHome.do
Cisco Systems
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logon
Username:
CCMAdministrator
Password:
Submit
Reset
Done
192.168.1.10

Use CCMAdministrator as username

Enter the password configured during the installation process

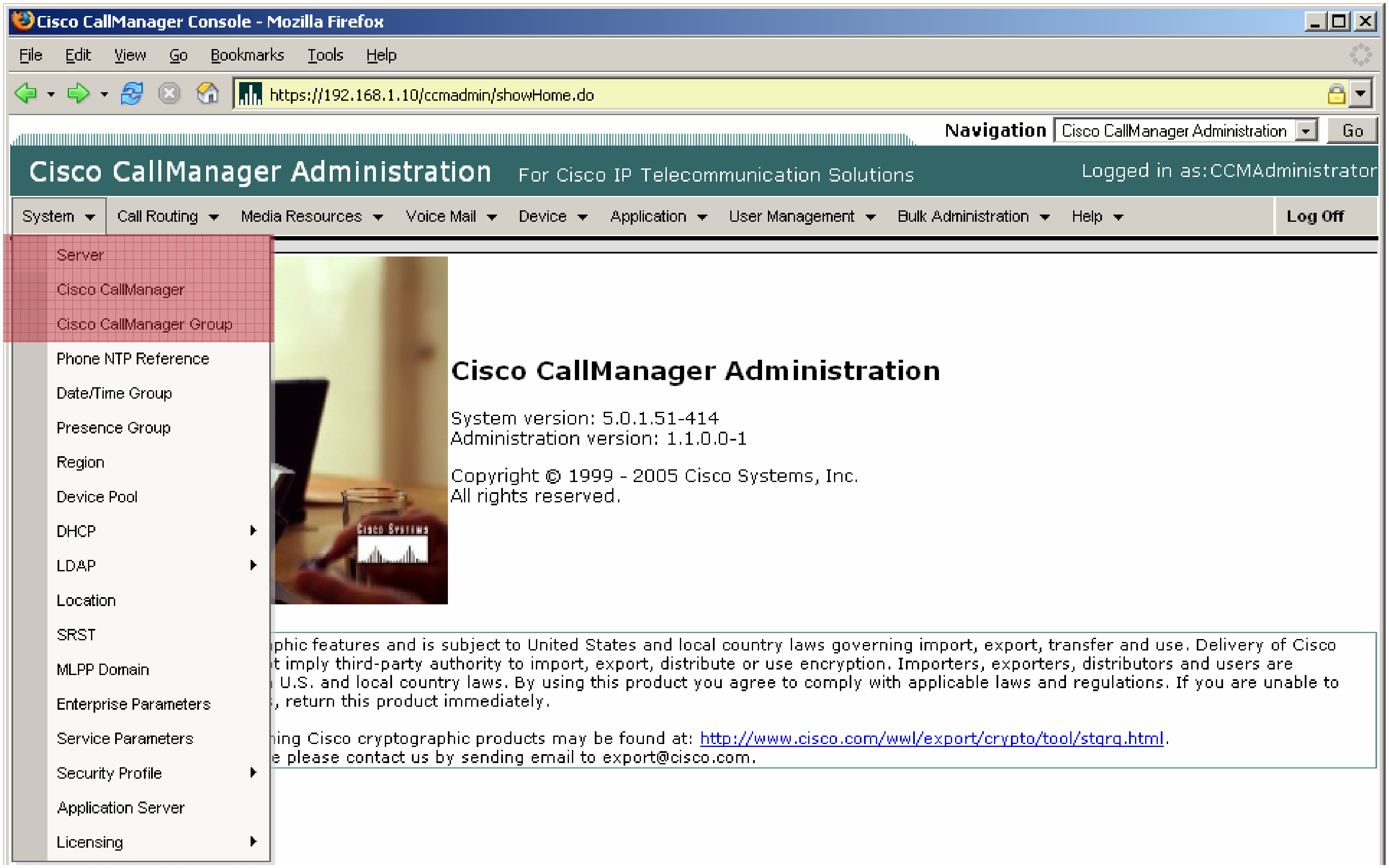
Note: Username and password are case sensitive!

Cisco Unified CallManager 5.0 System Menu

The system menu is used to configure:

- Overall server parameters.
- General device settings and groups.
- Locations and regions.
- Cluster wide settings and service parameters.

Cisco Unified CallManager 5.0
System Menu: Server Parameters


Cisco CallManager Console - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Server
Cisco CallManager
Cisco CallManager Group
Phone NTP Reference
Date/Time Group
Presence Group
Region
Device Pool
DHCP
LDAP
Location
SRST
MLPP Domain
Enterprise Parameters
Service Parameters
Security Profile
Application Server
Licensing

https://192.168.1.10/ccmadmin/showHome.do

Cisco CallManager Administration

System version: 5.0.1.51-414
Administration version: 1.1.0.0-1

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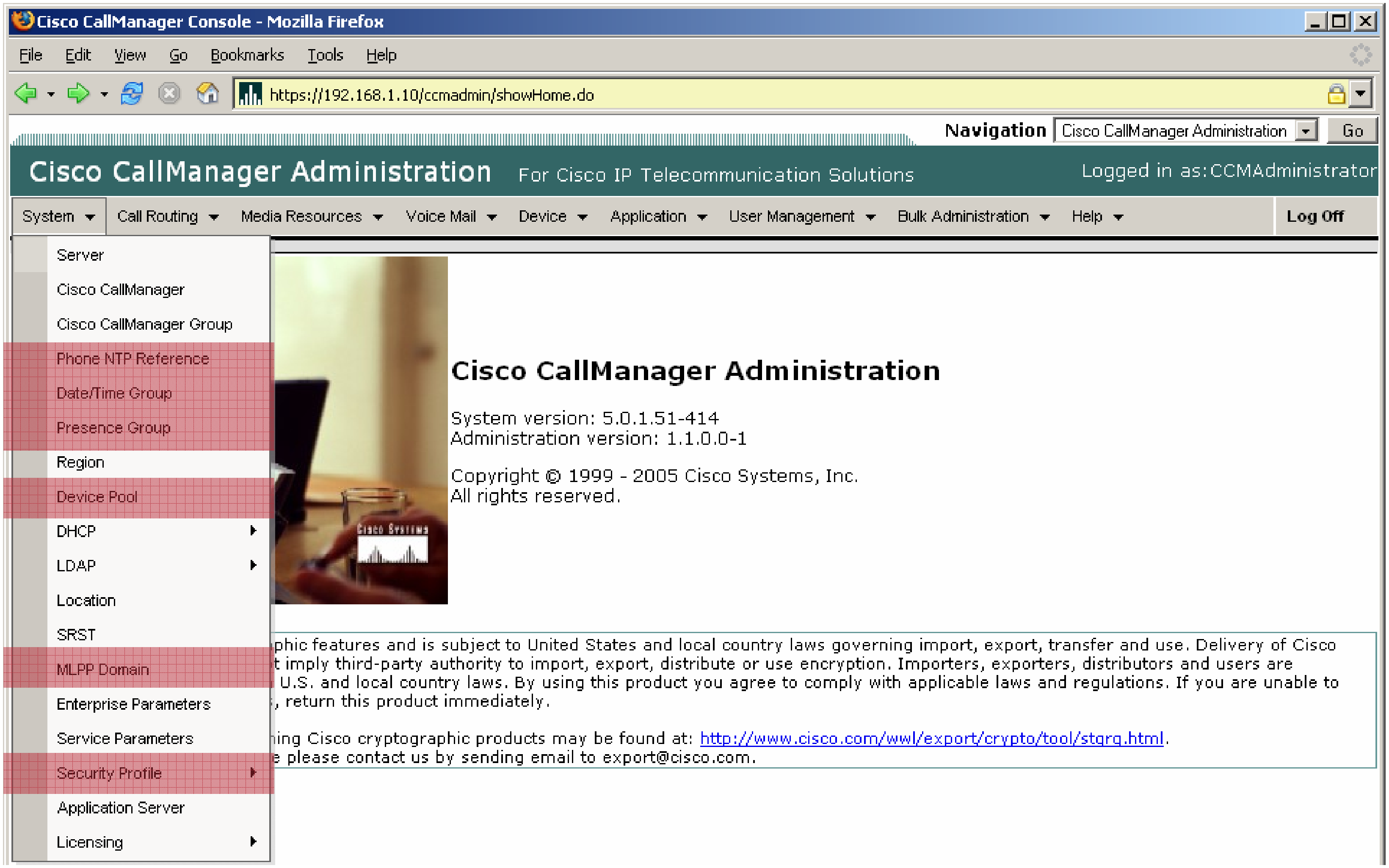
t imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are
U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to
, return this product immediately.

ing Cisco cryptographic products may be found at: http://www.cisco.com/wwl/export/crypto/tool/stqrg.html.
e please contact us by sending email to export@cisco.com.

Cisco Unified CallManager 5.0 System Menu: Device Settings


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/showHome.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Server
Cisco CallManager
Cisco CallManager Group
Phone NTP Reference
Date/Time Group
Presence Group
Region
Device Pool
DHCP
LDAP
Location
SRST
MLPP Domain
Enterprise Parameters
Service Parameters
Security Profile
Application Server
Licensing

Cisco CallManager Administration

System version: 5.0.1.51-414
Administration version: 1.1.0.0-1

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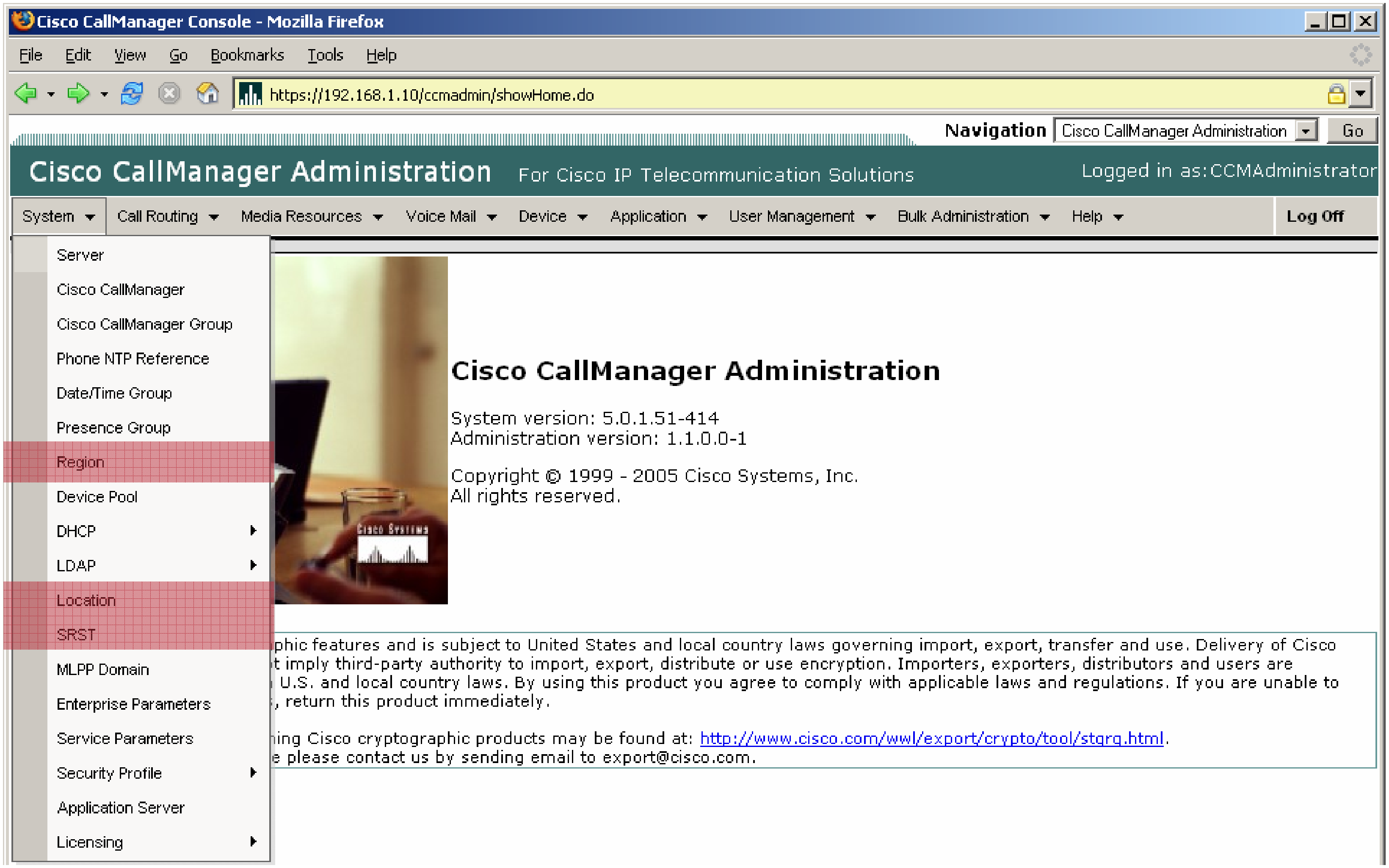
Cisco Unified CallManager 5.0
System Menu: Location Based Settings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Cisco CallManager Administration

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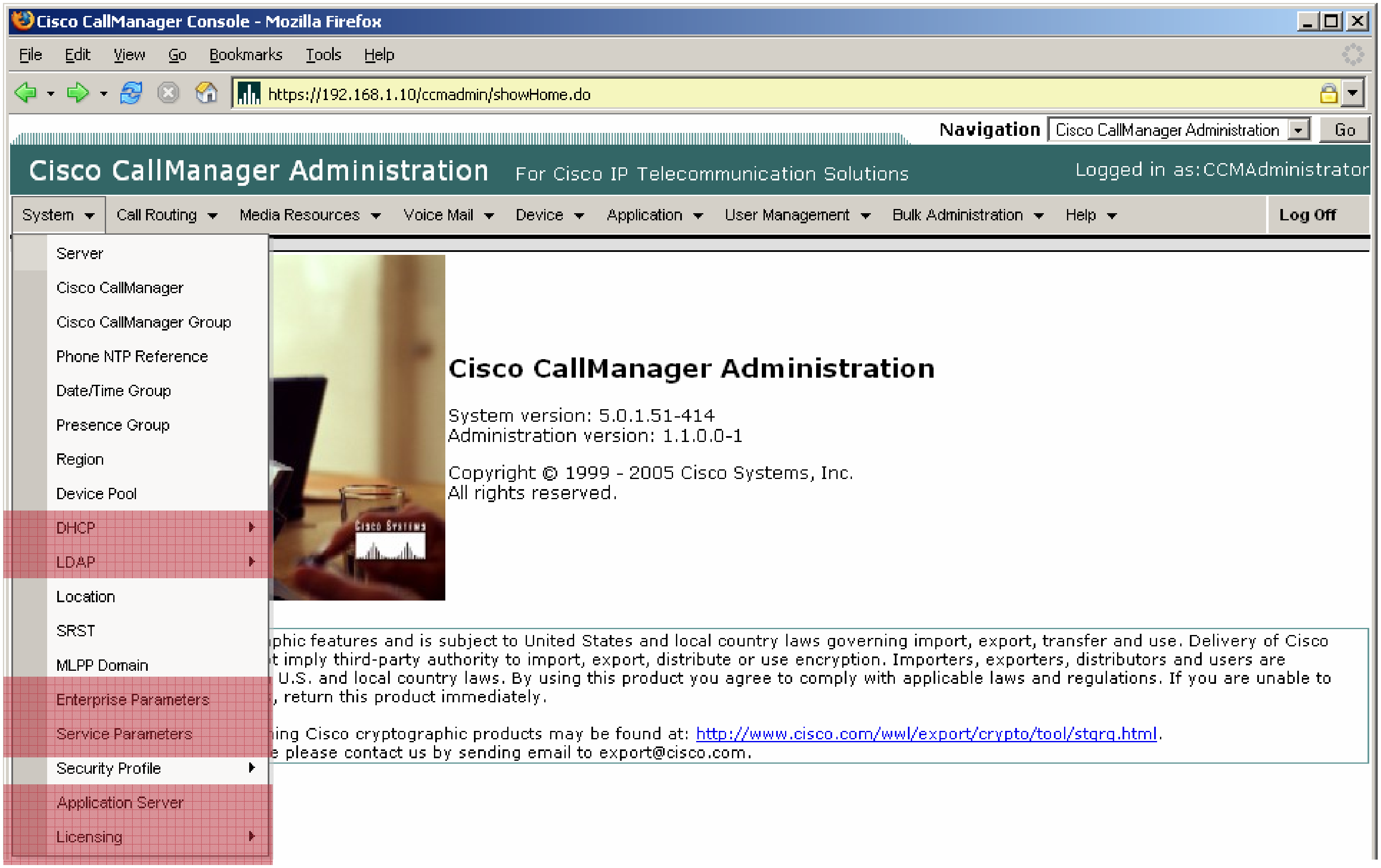
Cisco Unified CallManager 5.0 System Menu: Cluster Settings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Server
Cisco CallManager
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Phone NTP Reference
Date/Time Group
Presence Group
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Device Pool
DHCP
LDAP
Location
SRST
MLPP Domain
Enterprise Parameters
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Security Profile
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Cisco CallManager Administration

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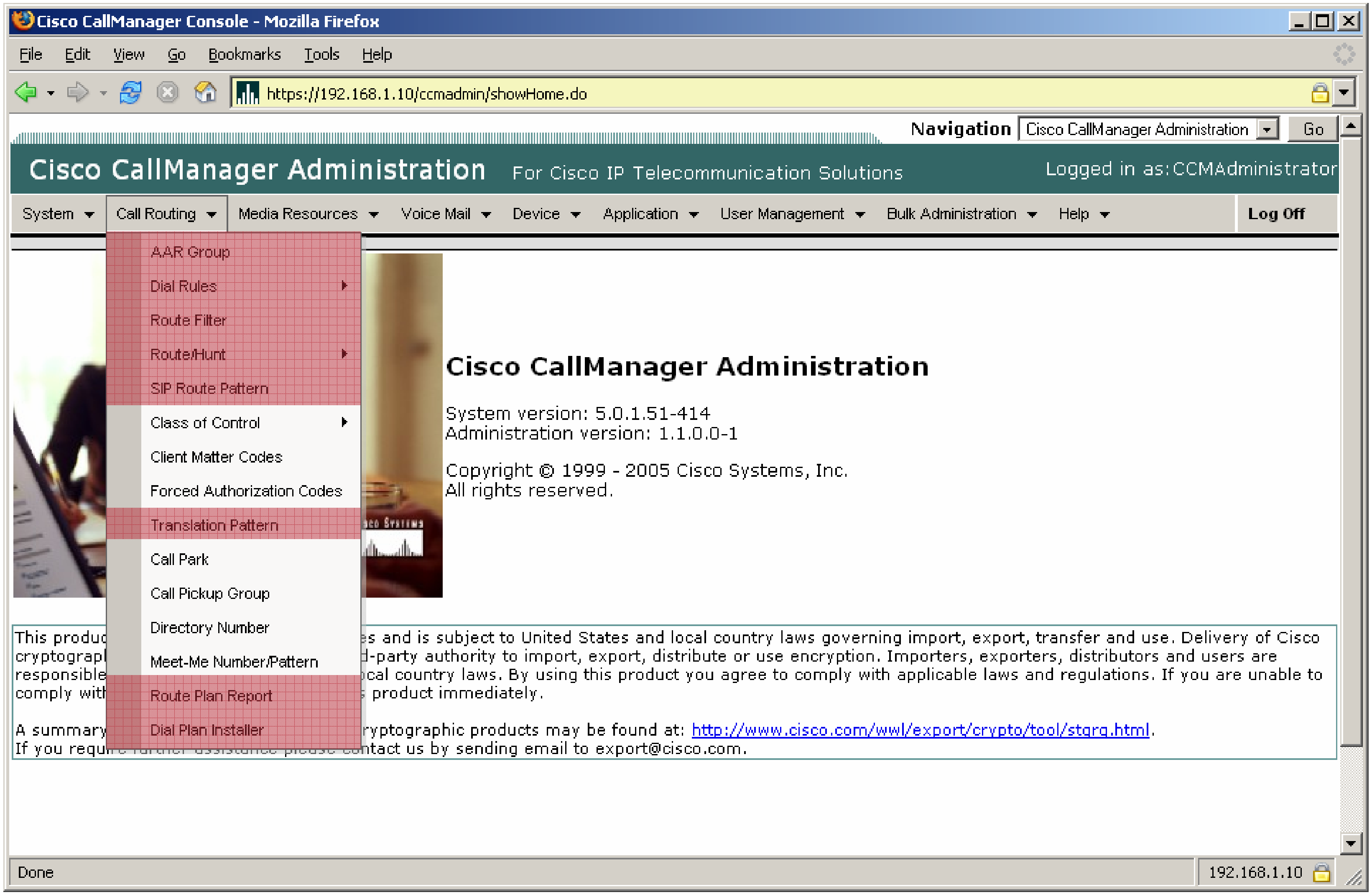
Cisco Unified CallManager 5.0 Call Routing Menu

The call routing menu includes these functionalities:

- **Dial plan and configuration.**
- **Call routing permission and restriction configuration.**
- **Number handling feature configuration.**
- **Tools to analyze and install dial plans.**

Cisco Unified CallManager 5.0
Call Routing Menu: Dial Plan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Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
AAR Group
Dial Rules
Route Filter
Route/Hunt
SIP Route Pattern
Class of Control
Client Matter Codes
Forced Authorization Codes
Translation Pattern
Call Park
Call Pickup Group
Directory Number
Meet-Me Number/Pattern
Route Plan Report
Dial Plan Installer
Done
192.168.1.10

Cisco CallManager Administration

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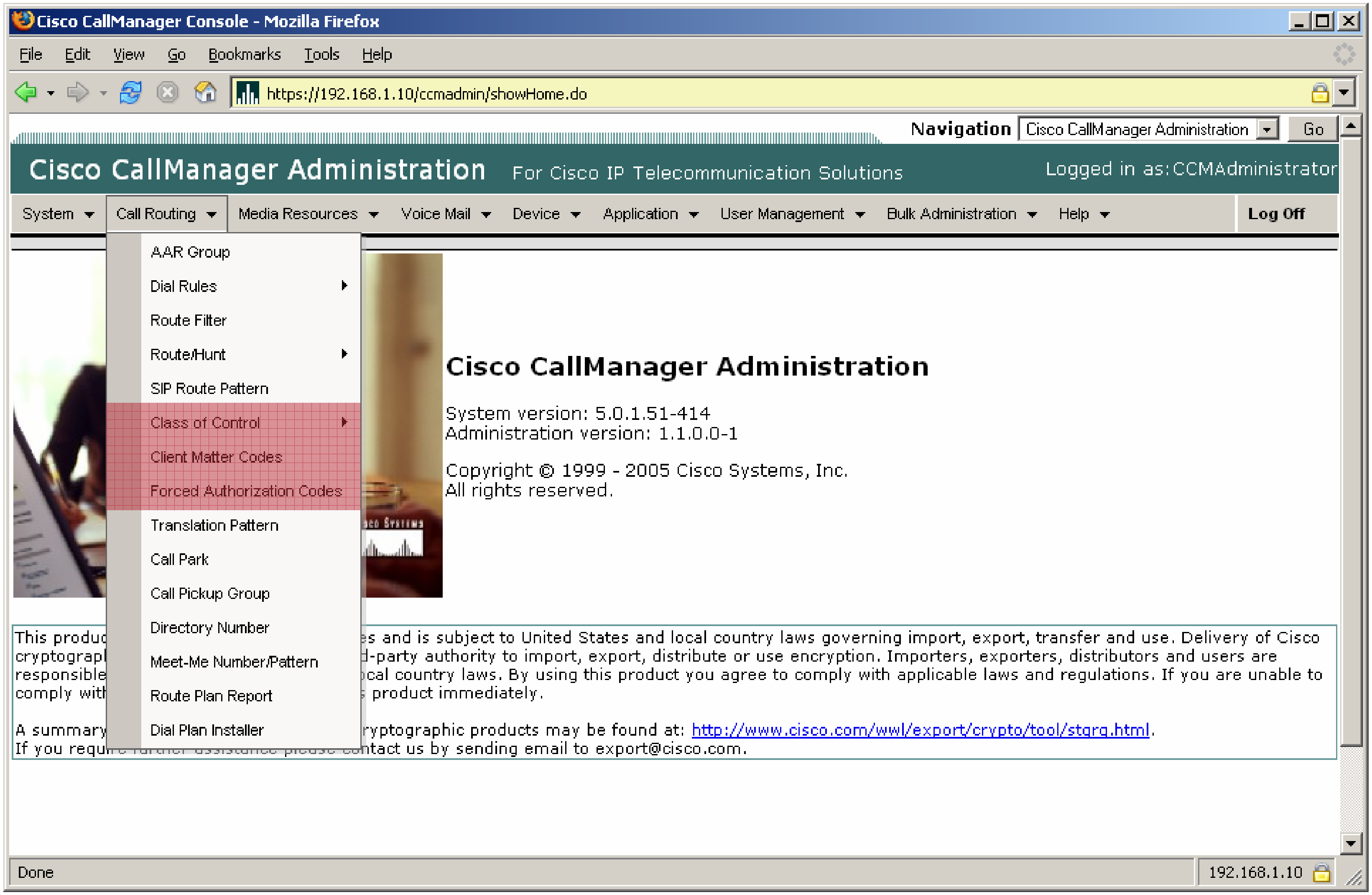
Cisco Unified CallManager 5.0
Call Routing Menu: Permissions


Cisco CallManager Console - Mozilla Firefox
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Tools
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https://192.168.1.10/ccmadmin/showHome.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
AAR Group
Dial Rules
Route Filter
Route/Hunt
SIP Route Pattern
Class of Control
Client Matter Codes
Forced Authorization Codes
Translation Pattern
Call Park
Call Pickup Group
Directory Number
Meet-Me Number/Pattern
Route Plan Report
Dial Plan Installer
Done
192.168.1.10

Cisco CallManager Administration

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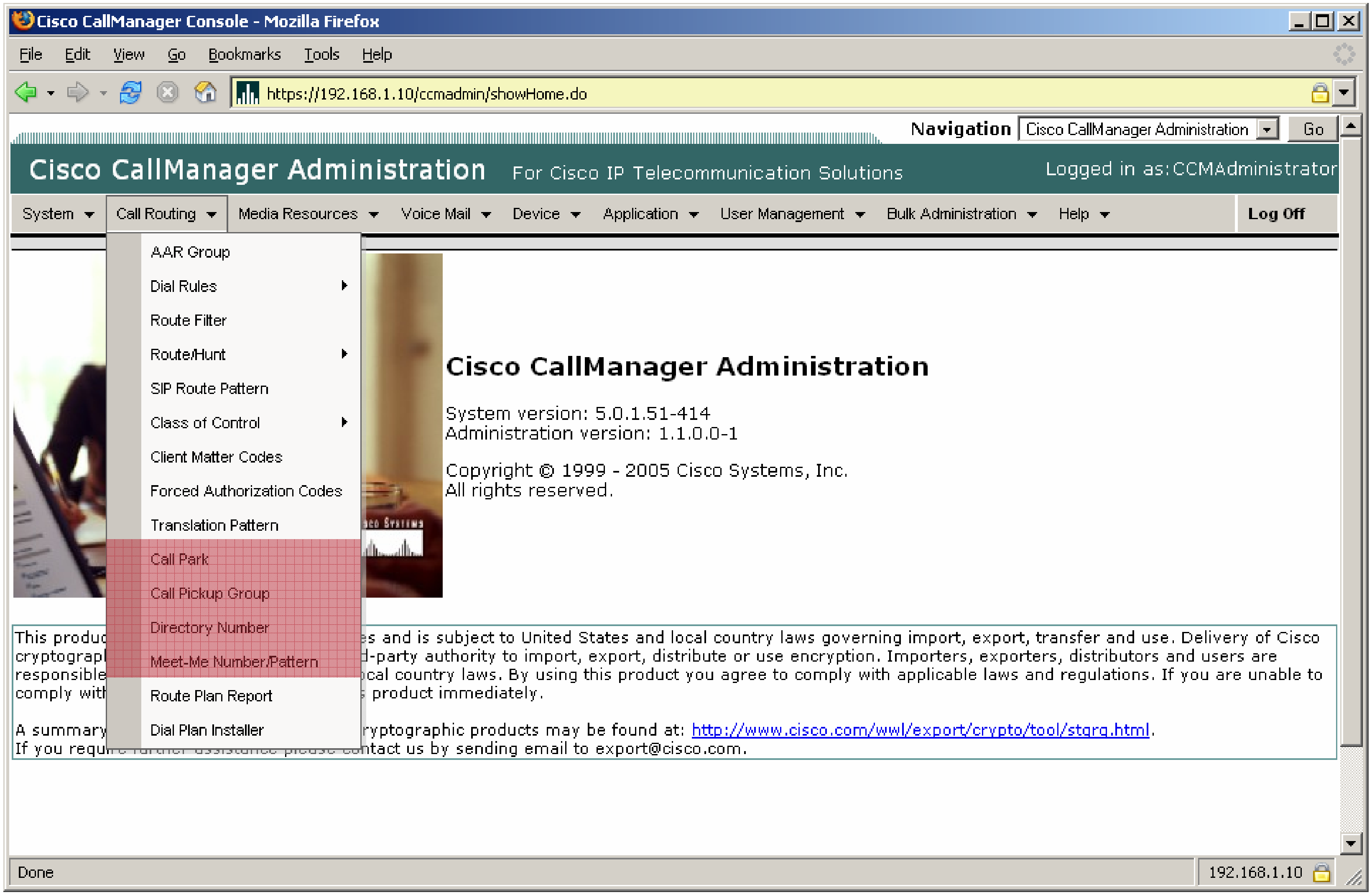
Cisco Unified CallManager 5.0
Call Routing Menu: Extension Handling


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/showHome.do
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Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
AAR Group
Dial Rules
Route Filter
Route/Hunt
SIP Route Pattern
Class of Control
Client Matter Codes
Forced Authorization Codes
Translation Pattern
Call Park
Call Pickup Group
Directory Number
Meet-Me Number/Pattern
Route Plan Report
Dial Plan Installer
Done
192.168.1.10

Cisco CallManager Administration

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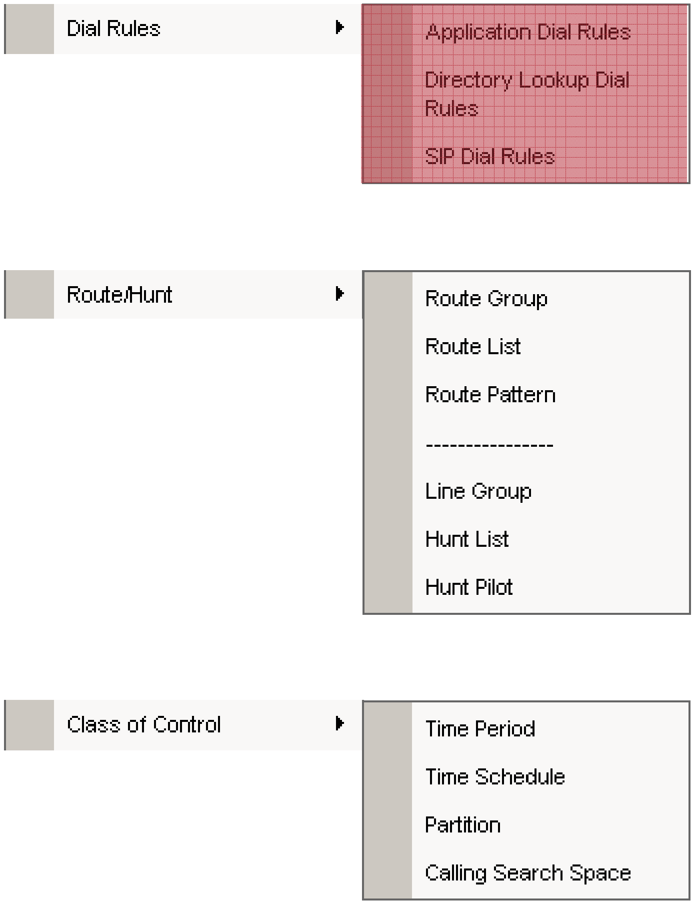
Cisco Unified CallManager 5.0 Call Routing Menu

Dial rules are used to modify numbers which are dialed using:

- External applications like IPMA.
- Directory lookup.
- A special SIP device.

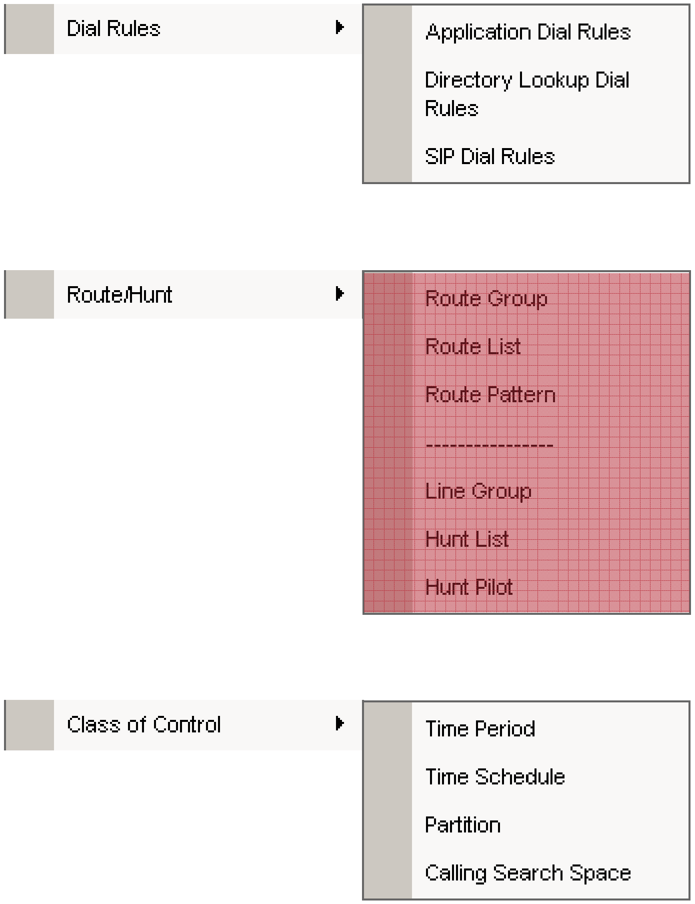

Dial Rules
Application Dial Rules
Directory Lookup Dial Rules
SIP Dial Rules
Route/Hunt
Route Group
Route List
Route Pattern

Line Group
Hunt List
Hunt Pilot
Class of Control
Time Period
Time Schedule
Partition
Calling Search Space

Cisco Unified CallManager 5.0
Call Routing Menu

The route/hunt sub menu includes two parts:

- **Route group/list/patterns to route calls outside the cluster.**
- **Line group and hunt list/pilot to distribute calls within the cluster.**

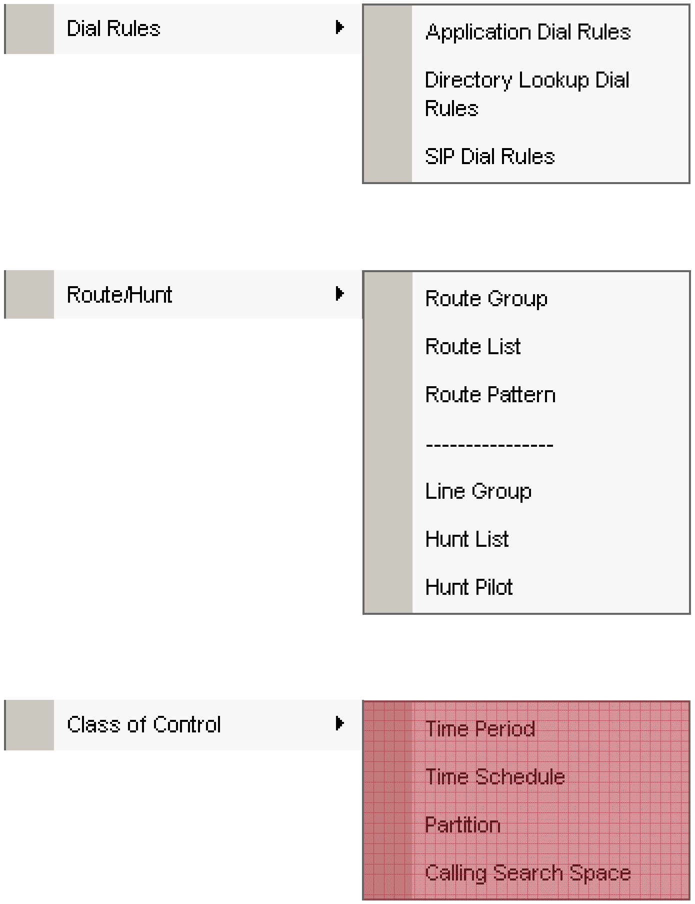

Dial Rules
Application Dial Rules
Directory Lookup Dial Rules
SIP Dial Rules
Route/Hunt
Route Group
Route List
Route Pattern

Line Group
Hunt List
Hunt Pilot
Class of Control
Time Period
Time Schedule
Partition
Calling Search Space

Cisco Unified CallManager 5.0 Call Routing Menu

The class of control sub menu is used to define:

- Time period/schedule for time based call routing.
- Partitions and calling search spaces to create Class of Restriction (COR) based dial plans.


Dial Rules
Application Dial Rules
Directory Lookup Dial Rules
SIP Dial Rules
Route/Hunt
Route Group
Route List
Route Pattern

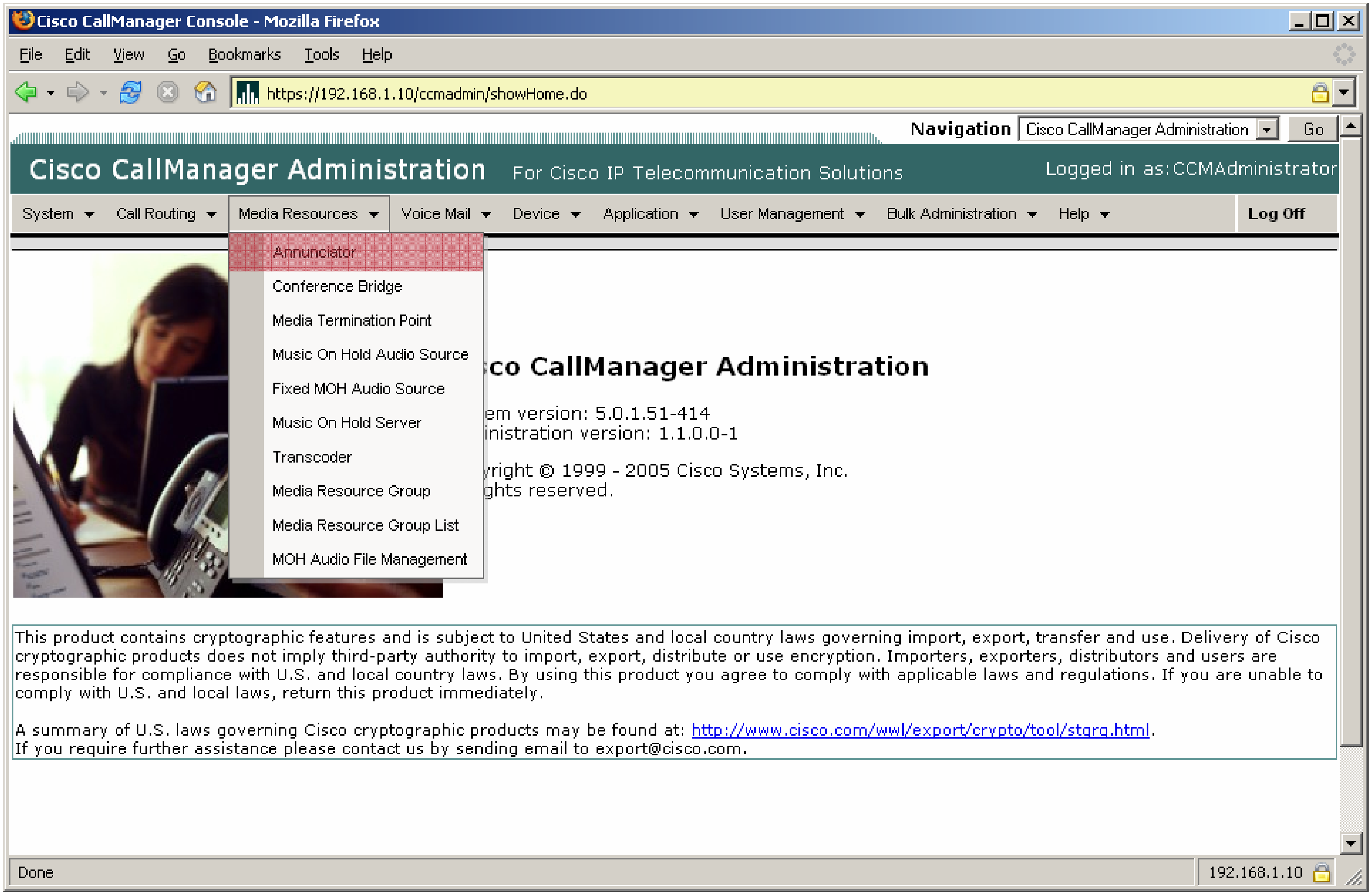
Line Group
Hunt List
Hunt Pilot
Class of Control
Time Period
Time Schedule
Partition
Calling Search Space

Cisco Unified CallManager 5.0 Media Resources Menu

The media resources menu is used to manage media applications and devices:

- Annunciators that are used to play back .wav files on phones and gateways.
- Software and hardware conference bridges.
- Media termination point (MTP) to terminate media e.g. for protocol translations between SIP and SCCP.
- MOH servers and sources.
- External transcoders to relieve MTP.
- Media resource groups and group lists to make media resources available to devices.
- MOH file management to upload/configure individual MOH.

Cisco Unified CallManager 5.0 Media Resources Menu: Annunciator


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/showHome.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Annunciator
Conference Bridge
Media Termination Point
Music On Hold Audio Source
Fixed MOH Audio Source
Music On Hold Server
Transcoder
Media Resource Group
Media Resource Group List
MOH Audio File Management
Done
192.168.1.10

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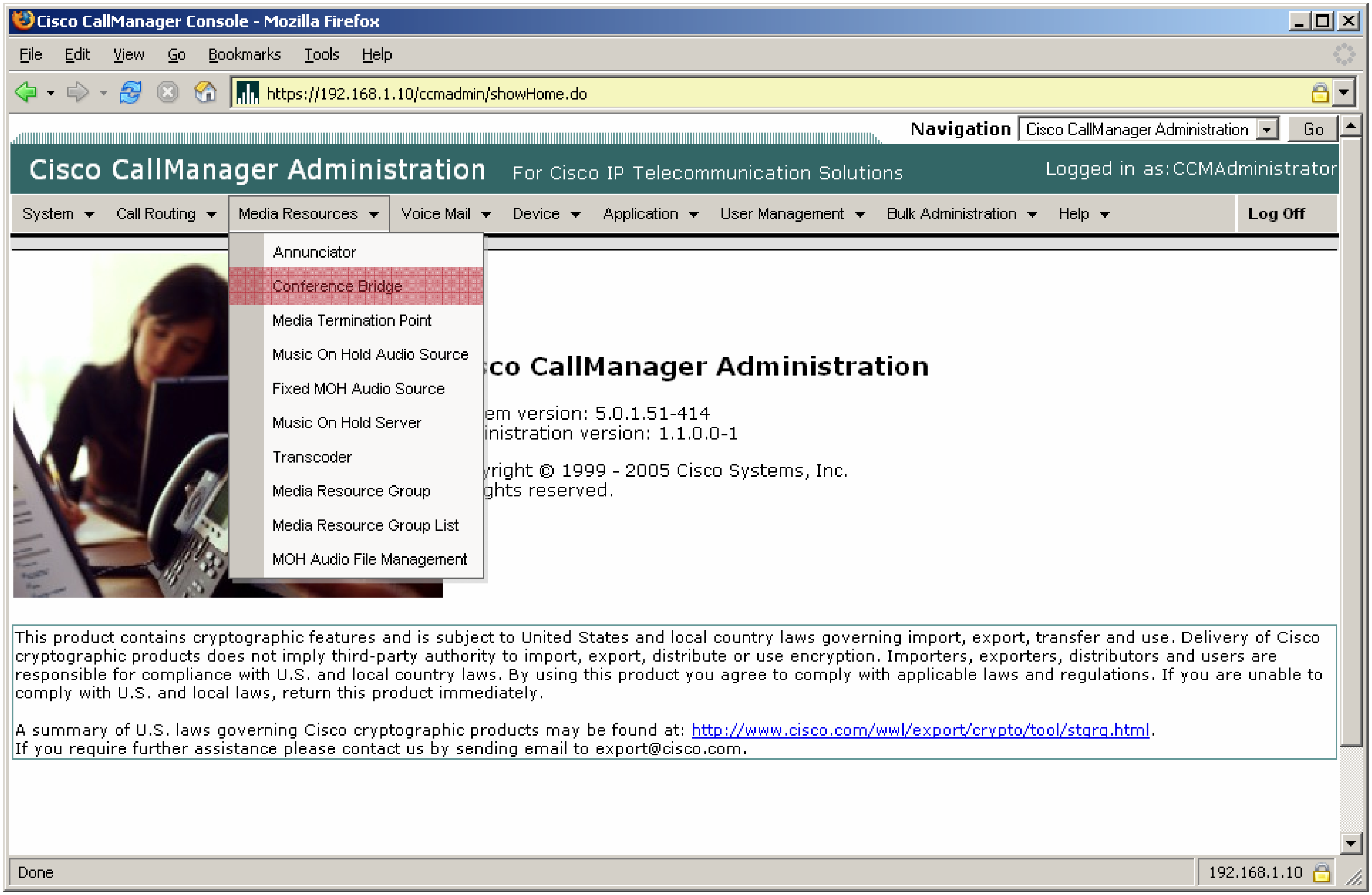
Cisco Unified CallManager 5.0 Media Resources Menu: Conference Bridge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System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Annunciator
Conference Bridge
Media Termination Point
Music On Hold Audio Source
Fixed MOH Audio Source
Music On Hold Server
Transcoder
Media Resource Group
Media Resource Group List
MOH Audio File Management
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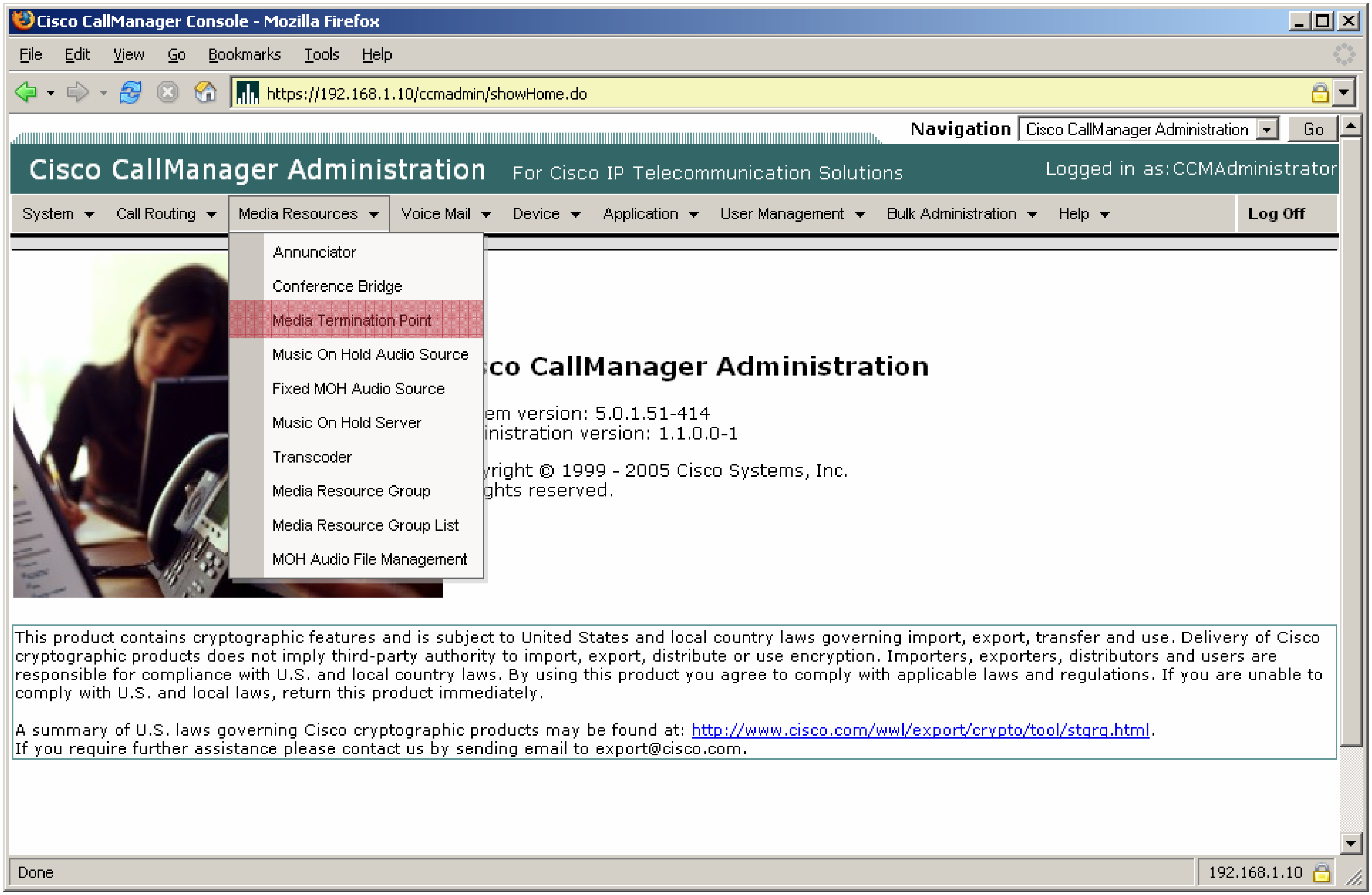
Cisco Unified CallManager 5.0 Media Resources Menu: Media Termination Point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Media Termination Point
Music On Hold Audio Source
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Music On Hold Server
Transcoder
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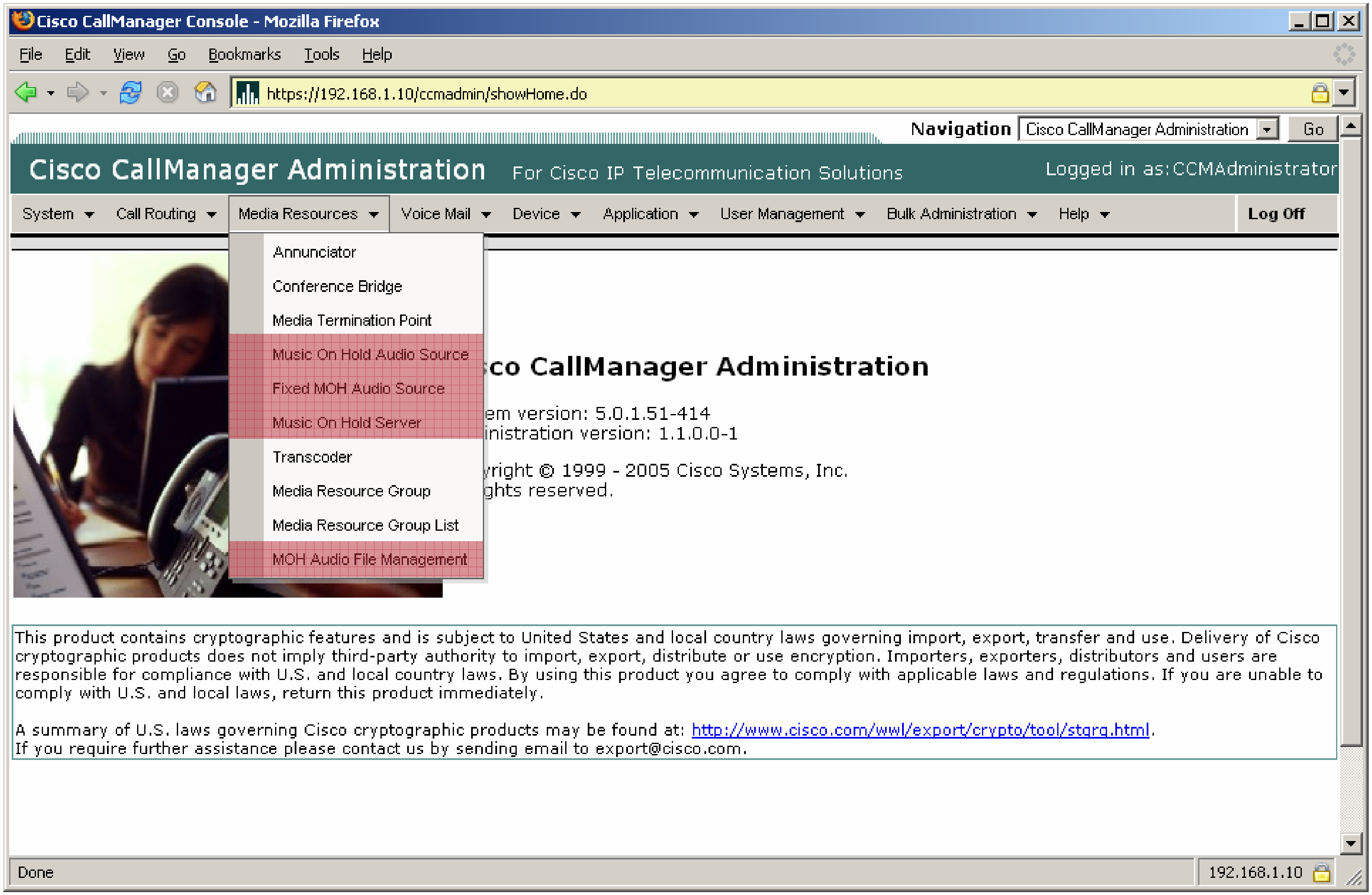
Cisco Unified CallManager 5.0 Media Resources Menu: Music On Hold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Application
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Bulk Administration
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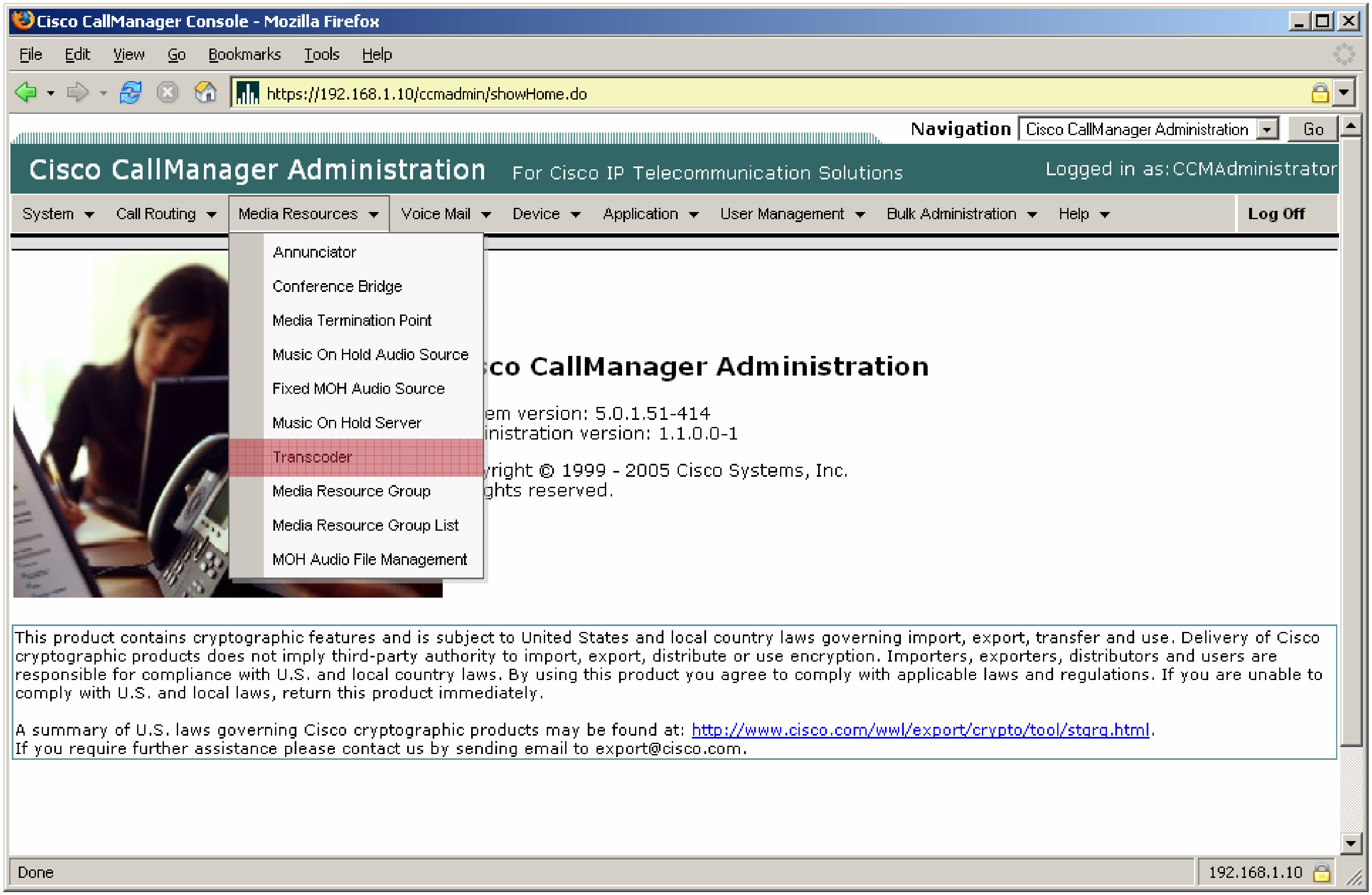
Cisco Unified CallManager 5.0 Media Resources Menu: Transcoder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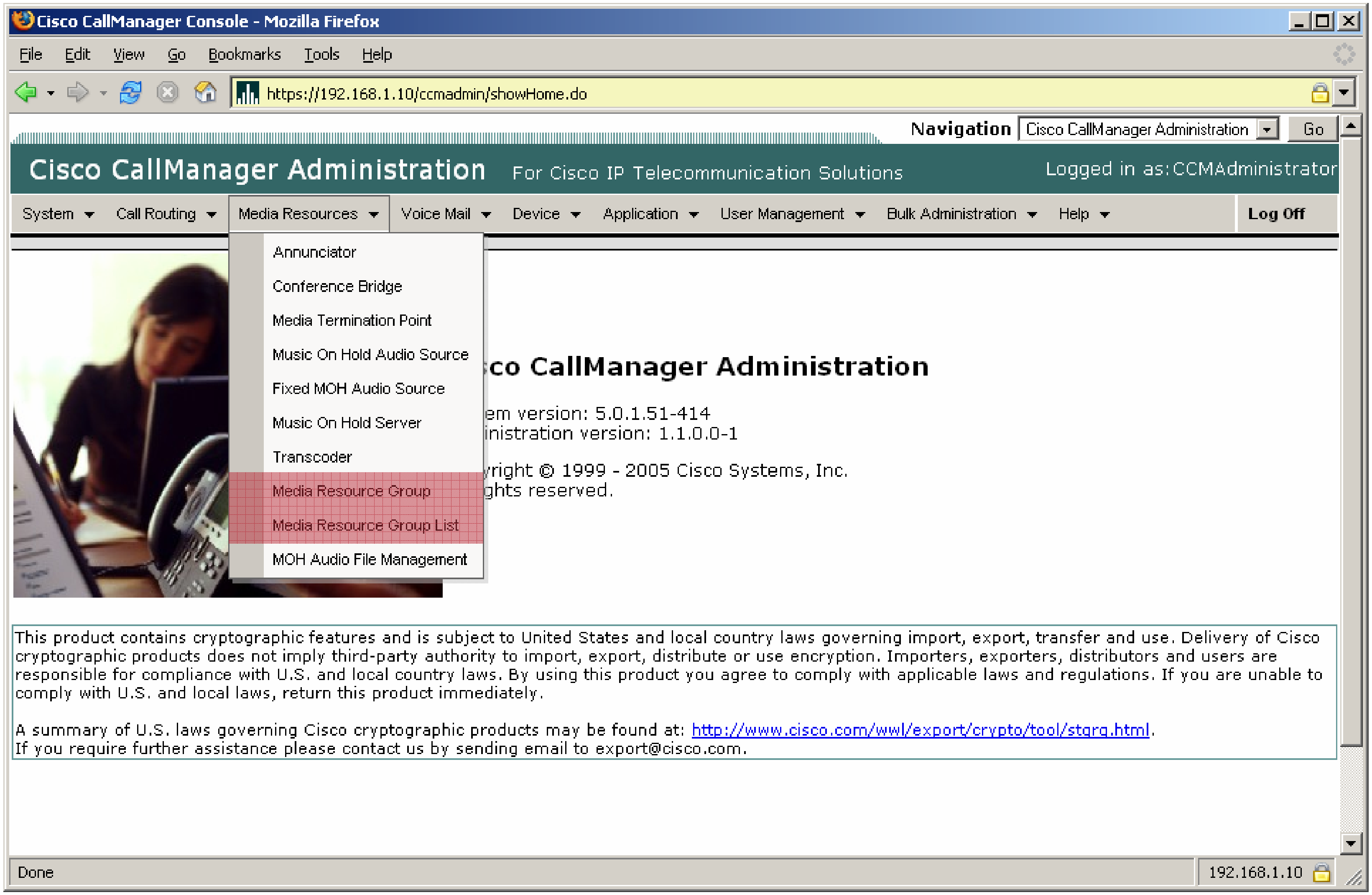
Cisco Unified CallManager 5.0 Media Resources Menu: Media Resources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Bulk Administration
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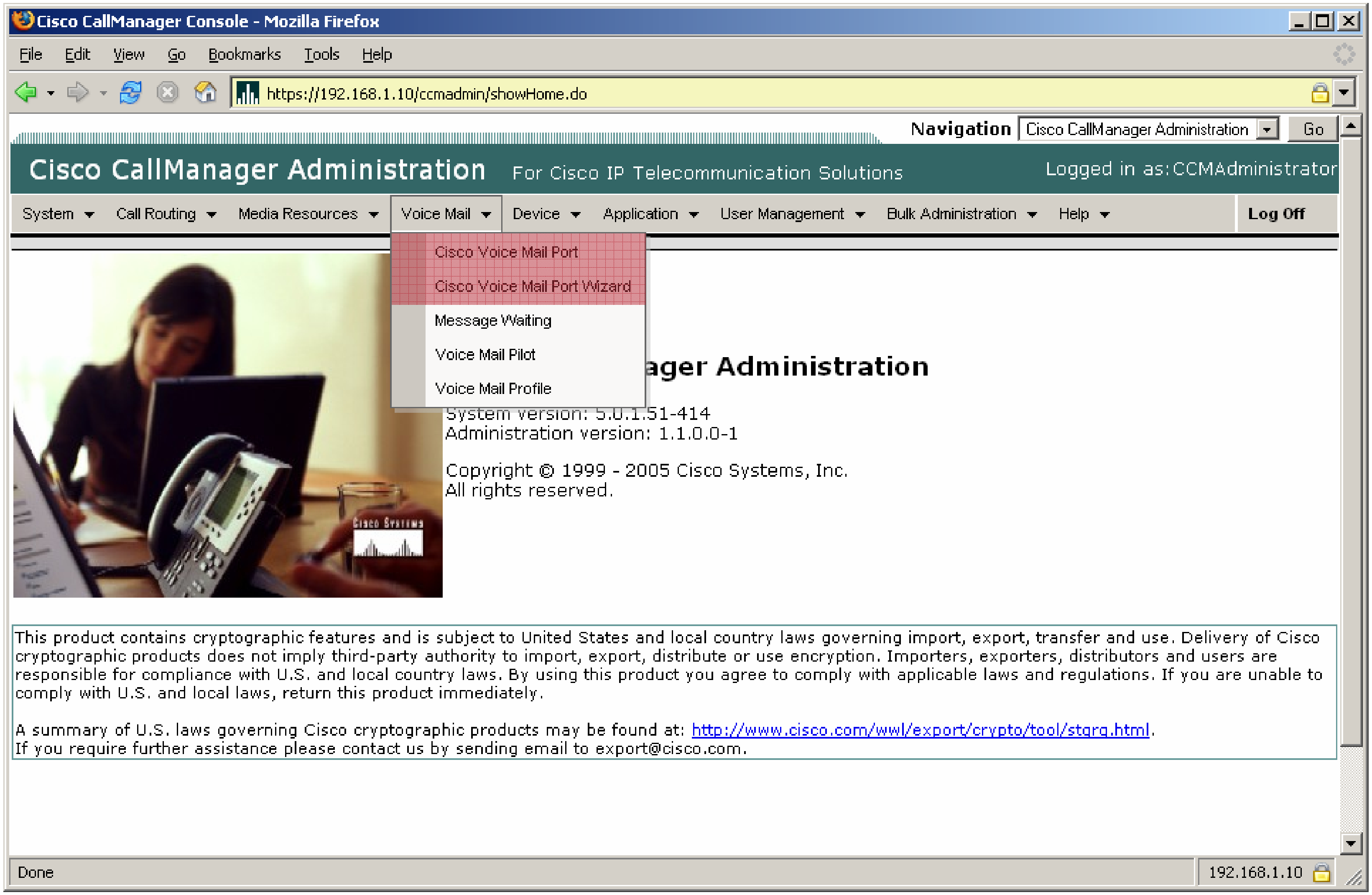
Cisco Unified CallManager 5.0 Voice Mail Menu

The voice mail menu is used to manage Voicemail integration including:

- **Unity voice mail ports.**
- **Massage Waiting Indication (MWI).**
- **Voice mail pilot number.**
- **Voice mail profiles.**

Cisco Unified CallManager 5.0
Voice Mail Menu: Voice Port Configuration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Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Cisco Voice Mail Port
Cisco Voice Mail Port Wizard
Message Waiting
Voice Mail Pilot
Voice Mail Profile
Done
192.168.1.10

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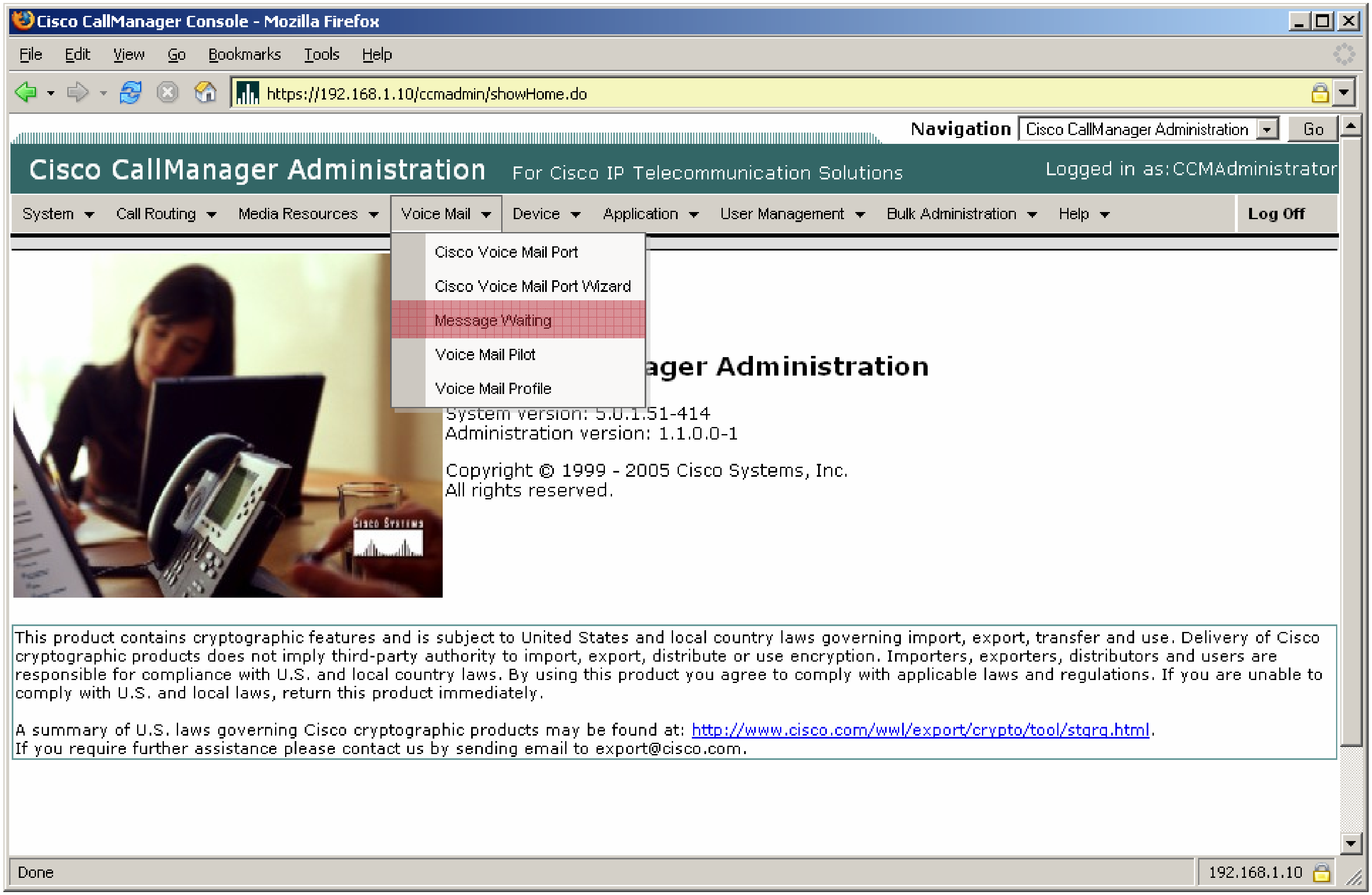
Cisco Unified CallManager 5.0 Voice Mail Menu: Message Waiting Indication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https://192.168.1.10/ccmadmin/showHome.do
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Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Cisco Voice Mail Port
Cisco Voice Mail Port Wizard
Message Waiting
Voice Mail Pilot
Voice Mail Profile
ager Administration
Done
192.168.1.10

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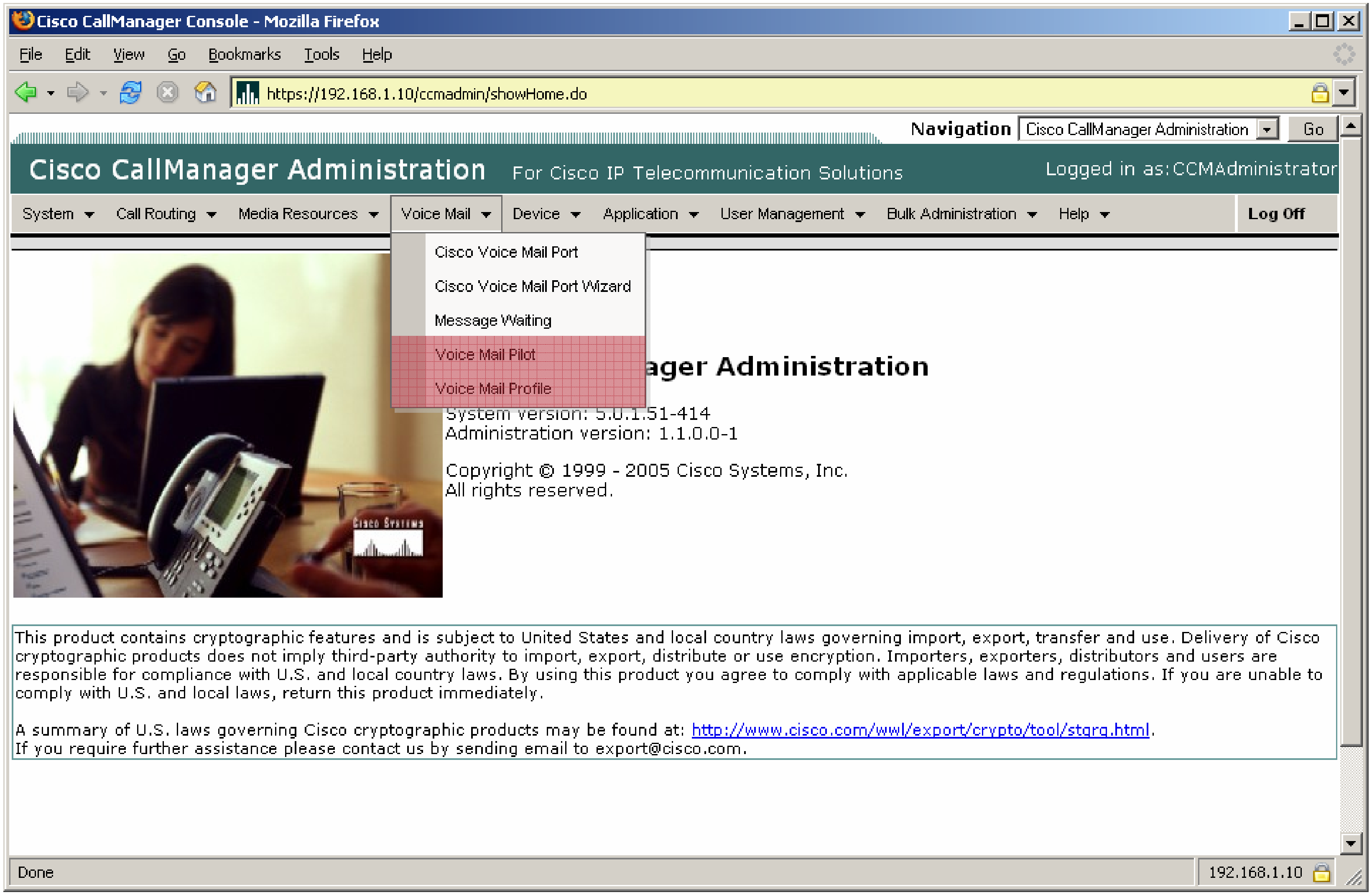
Cisco Unified CallManager 5.0
Voice Mail Menu: Voice Mail Access


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/showHome.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Cisco Voice Mail Port
Cisco Voice Mail Port Wizard
Message Waiting
Voice Mail Pilot
Voice Mail Profile
Cisco Systems
Done
192.168.1.10

ager Administration

System version: 5.0.1.51-414
Administration version: 1.1.0.0-1

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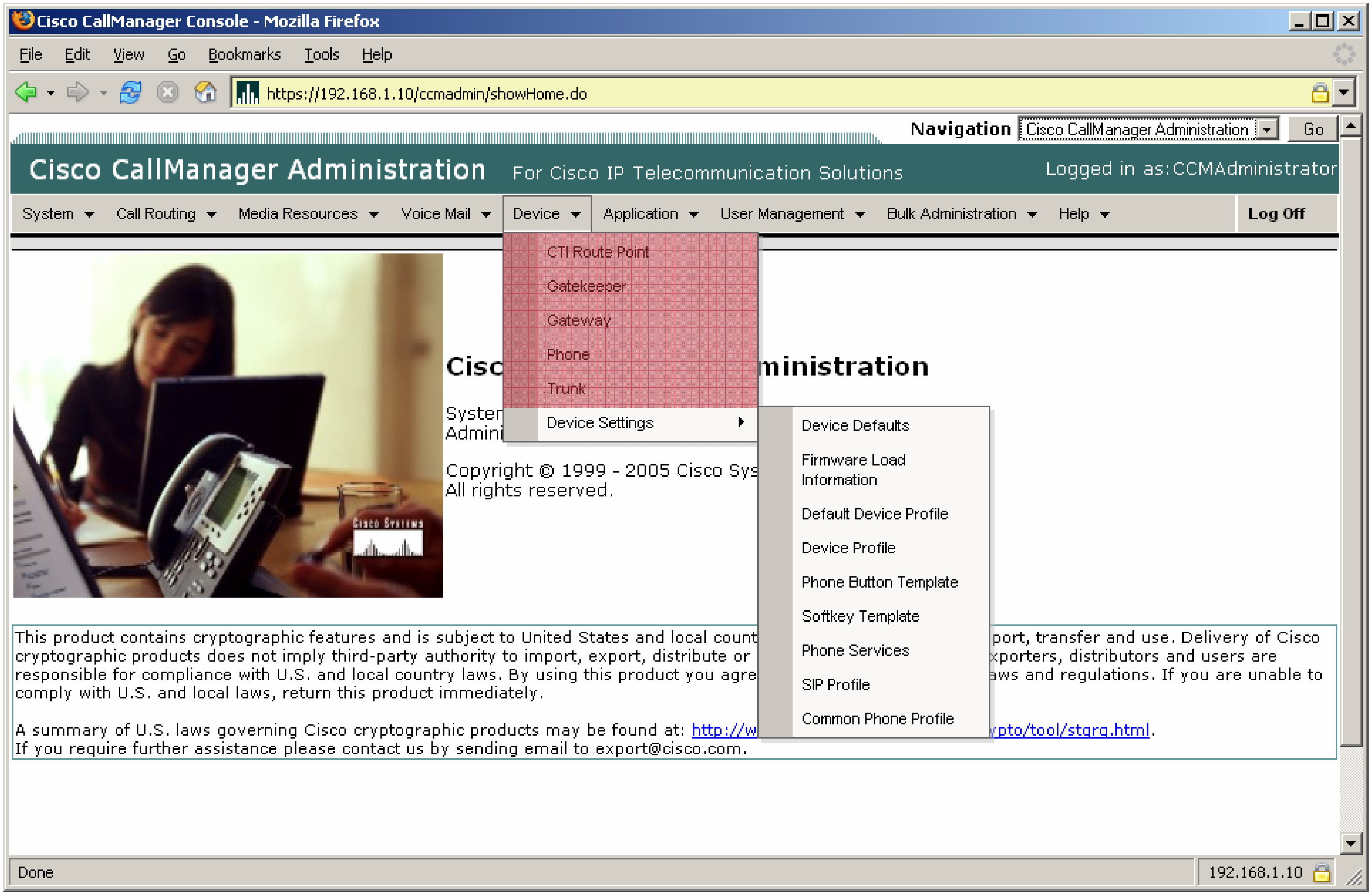
Cisco Unified CallManager 5.0 Device Menu

The device menu contains all necessary parts to configure devices:

- **Logical devices:**
  - **IP trunks to other systems.**
  - **CTI route points for CTI applications.**
- **Physical devices**
  - **Phones**
  - **Voice gateways**
  - **Gatekeepers**
- **Device defaults and templates.**

Cisco Unified CallManager 5.0
Device Menu: Physical and Logical Devices


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/showHome.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
CTI Route Point
Gatekeeper
Gateway
Phone
Trunk
Device Settings
Device Defaults
Firmware Load Information
Default Device Profile
Device Profile
Phone Button Template
Softkey Template
Phone Services
SIP Profile
Common Phone Profile
Cisc ministration
Systen
Admini
Copyright © 1999 - 2005 Cisco Sys
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Done
192.168.1.10

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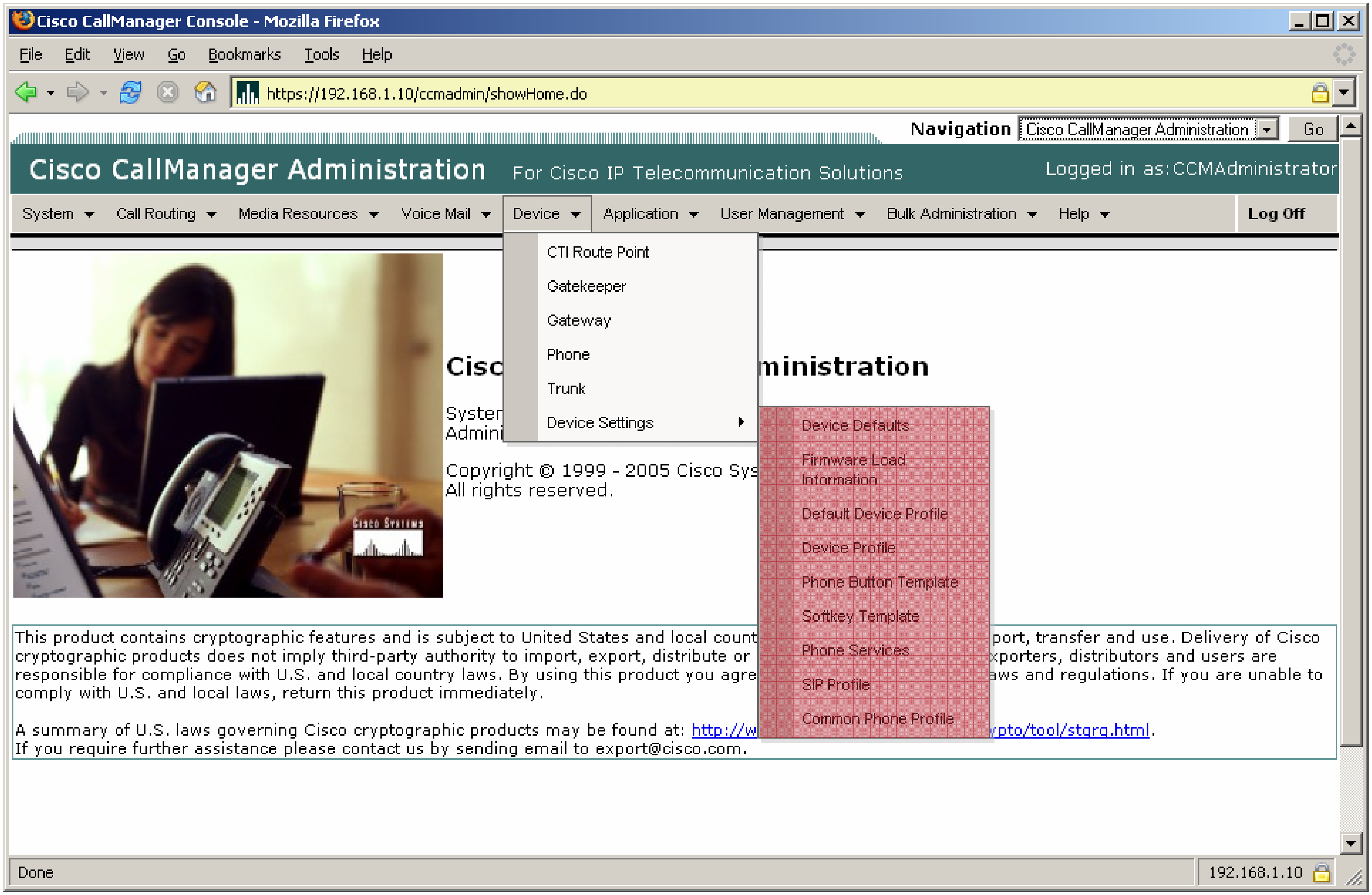
A summary of U.S. laws governing Cisco cryptographic products may be found at: http://w ypto/tool/stqrg.html.
If you require further assistance please contact us by sending email to export@cisco.com.

Cisco Unified CallManager 5.0 Device Menu: Profiles, Defaults, and Templates



Cisco CallManager Console - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
https://192.168.1.10/ccmadmin/showHome.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
CTI Route Point
Gatekeeper
Gateway
Phone
Trunk
Device Settings
Device Defaults
Firmware Load Information
Default Device Profile
Device Profile
Phone Button Template
Softkey Template
Phone Services
SIP Profile
Common Phone Profile
Cisc
ministration
Syster
Admini
Done
192.168.1.10

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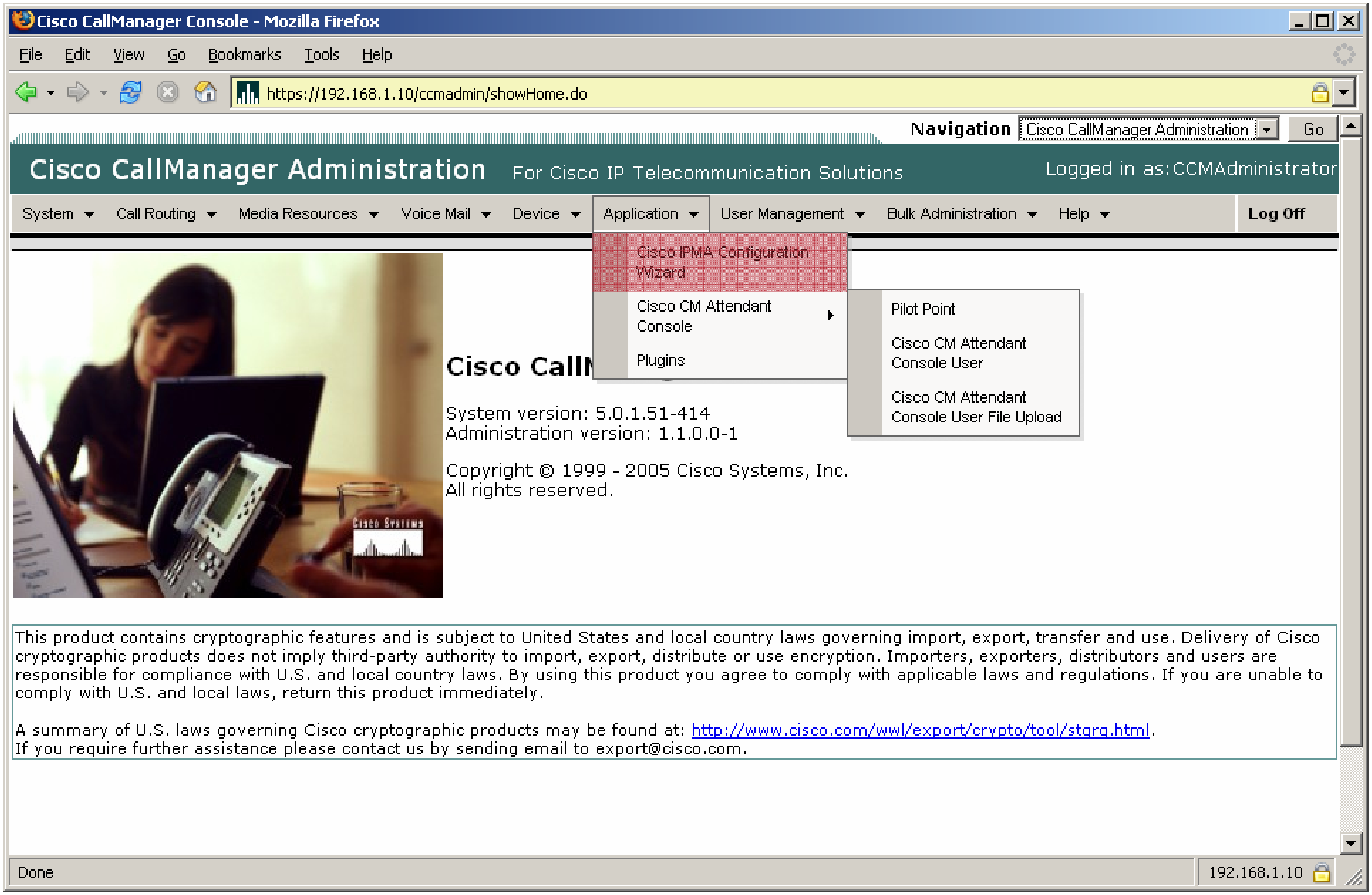
If you require further assistance please contact us by sending email to export@cisco.com.

Cisco Unified CallManager 5.0 Application Menu

The application menu is used to manage Cisco Unified CallManager 5.0 applications:

- **Configure Cisco IP Manager Assistant (IPMA).**
- **Configure Cisco Unified CallManager Attendant Console.**
- **Install Plugins.**

Cisco Unified CallManager 5.0 Application Menu: IPMA


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/showHome.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Cisco IPMA Configuration Wizard
Cisco CM Attendant Console
Plugins
Pilot Point
Cisco CM Attendant Console User
Cisco CM Attendant Console User File Upload
Cisco CallM
Done
192.168.1.10

System version: 5.0.1.51-414
Administration version: 1.1.0.0-1

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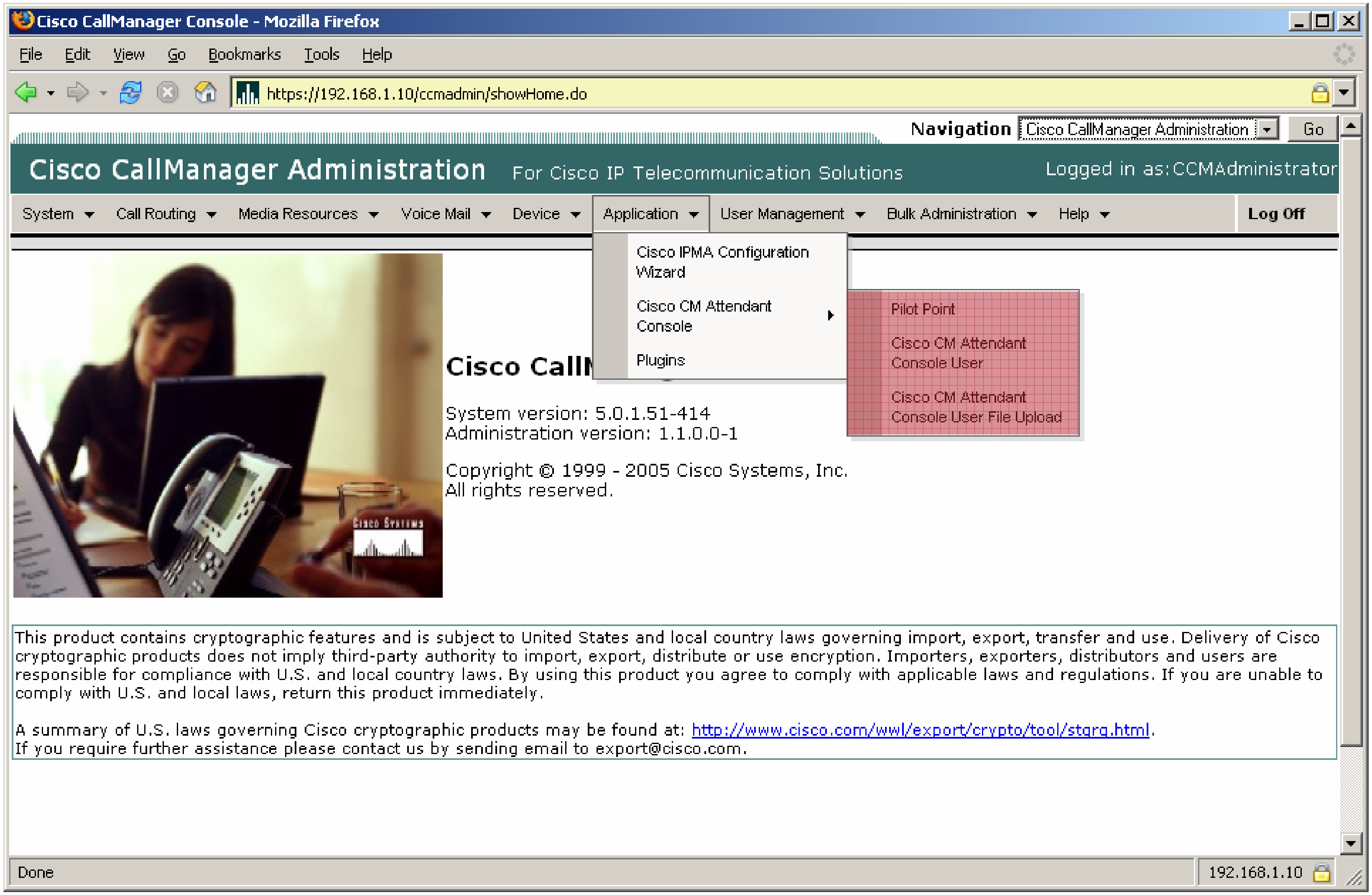
Cisco Unified CallManager 5.0 Application Menu: Attendant Console


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/showHome.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Cisco IPMA Configuration Wizard
Cisco CM Attendant Console
Plugins
Pilot Point
Cisco CM Attendant Console User
Cisco CM Attendant Console User File Upload
Cisco Call
Done
192.168.1.10

System version: 5.0.1.51-414
Administration version: 1.1.0.0-1

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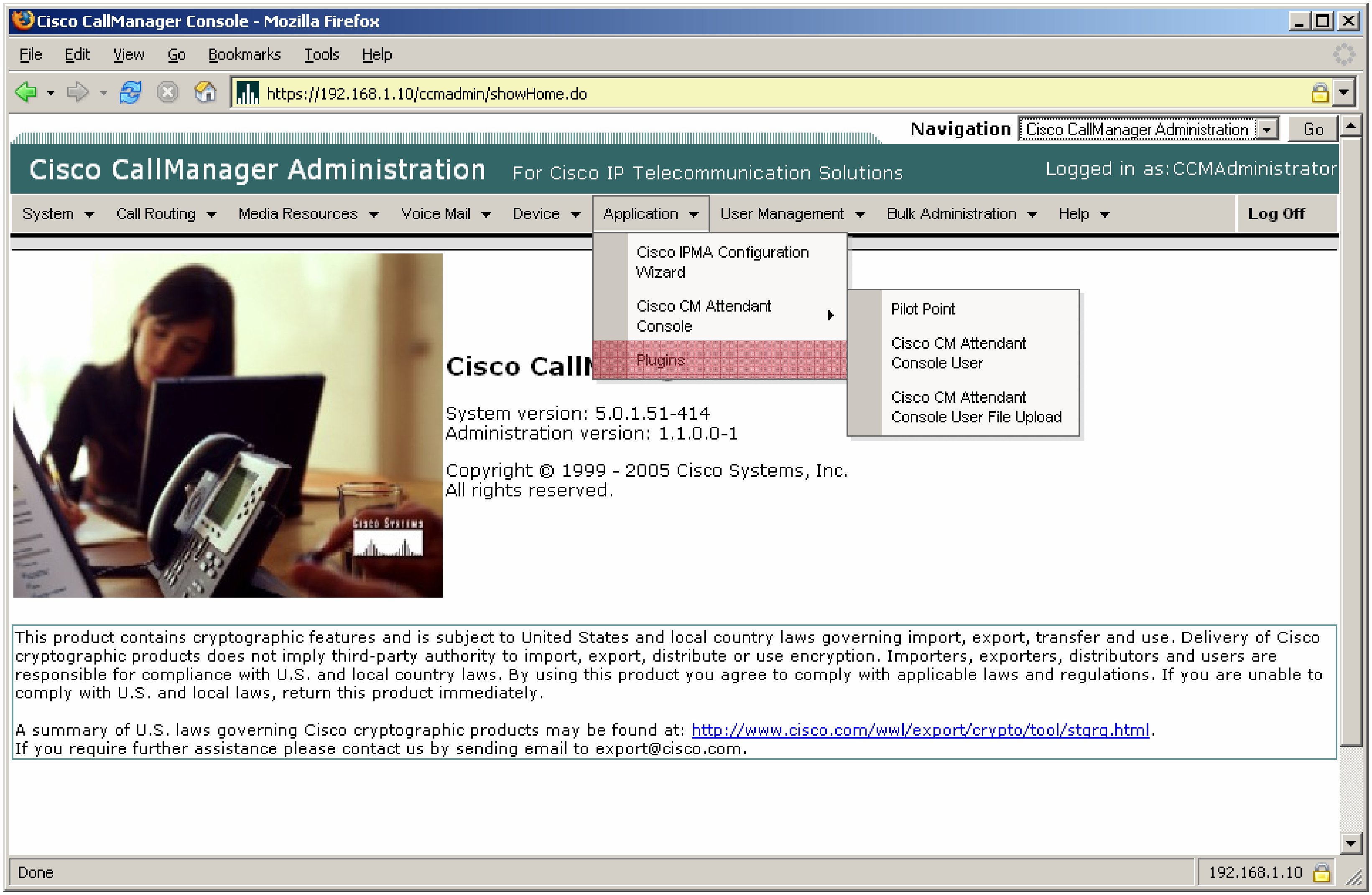
Cisco Unified CallManager 5.0 Application Menu: Plugins


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/showHome.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Cisco IPMA Configuration Wizard
Cisco CM Attendant Console
Plugins
Pilot Point
Cisco CM Attendant Console User
Cisco CM Attendant Console User File Upload
Cisco CallM
Done
192.168.1.10

System version: 5.0.1.51-414
Administration version: 1.1.0.0-1

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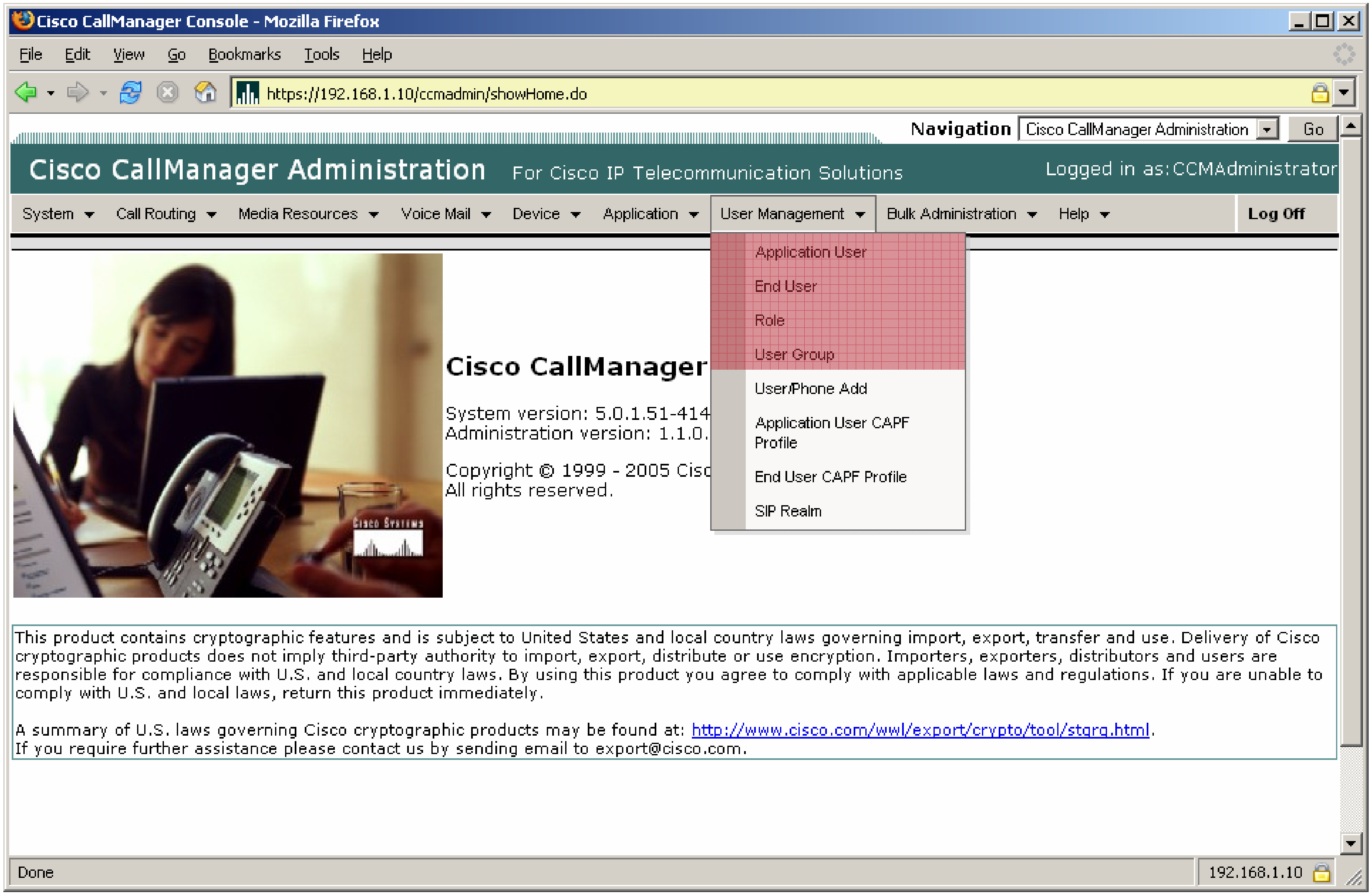
Cisco Unified CallManager 5.0 User Management Menu

The user management menu is used to configure user settings and rights:

- Users and rights for the Cisco Unified CallManager 5.0 system.
- Phone users for extension mobility and directory.
- Certification Authority Proxy Function (CAPF) for CTI, JTAPI and TAPI applications.
- SIP realm for SIP trunks to other systems.

Cisco Unified CallManager 5.0 User Management Menu: Users and Rights


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/showHome.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Application User
End User
Role
User Group
User/Phone Add
Application User CAPF Profile
End User CAPF Profile
SIP Realm
Done
192.168.1.10

Cisco CallManager

System version: 5.0.1.51-414
Administration version: 1.1.0.

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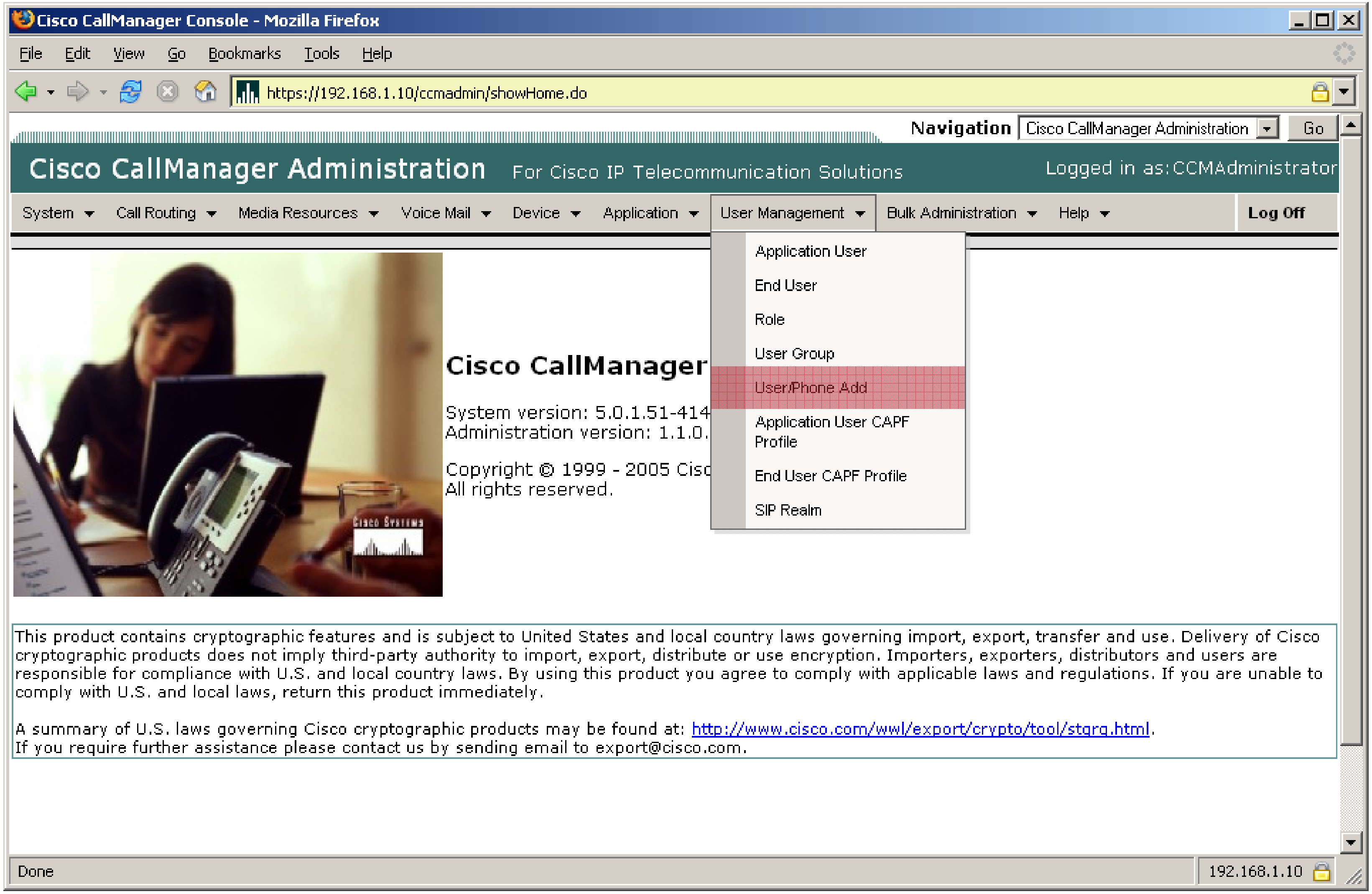
If you require further assistance please contact us by sending email to export@cisco.com.

Cisco Unified CallManager 5.0 User Management Menu: Associate Users with Phones


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/showHome.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Application User
End User
Role
User Group
User/Phone Add
Application User CAPF Profile
End User CAPF Profile
SIP Realm
Done
192.168.1.10

Cisco CallManager

System version: 5.0.1.51-414
Administration version: 1.1.0.

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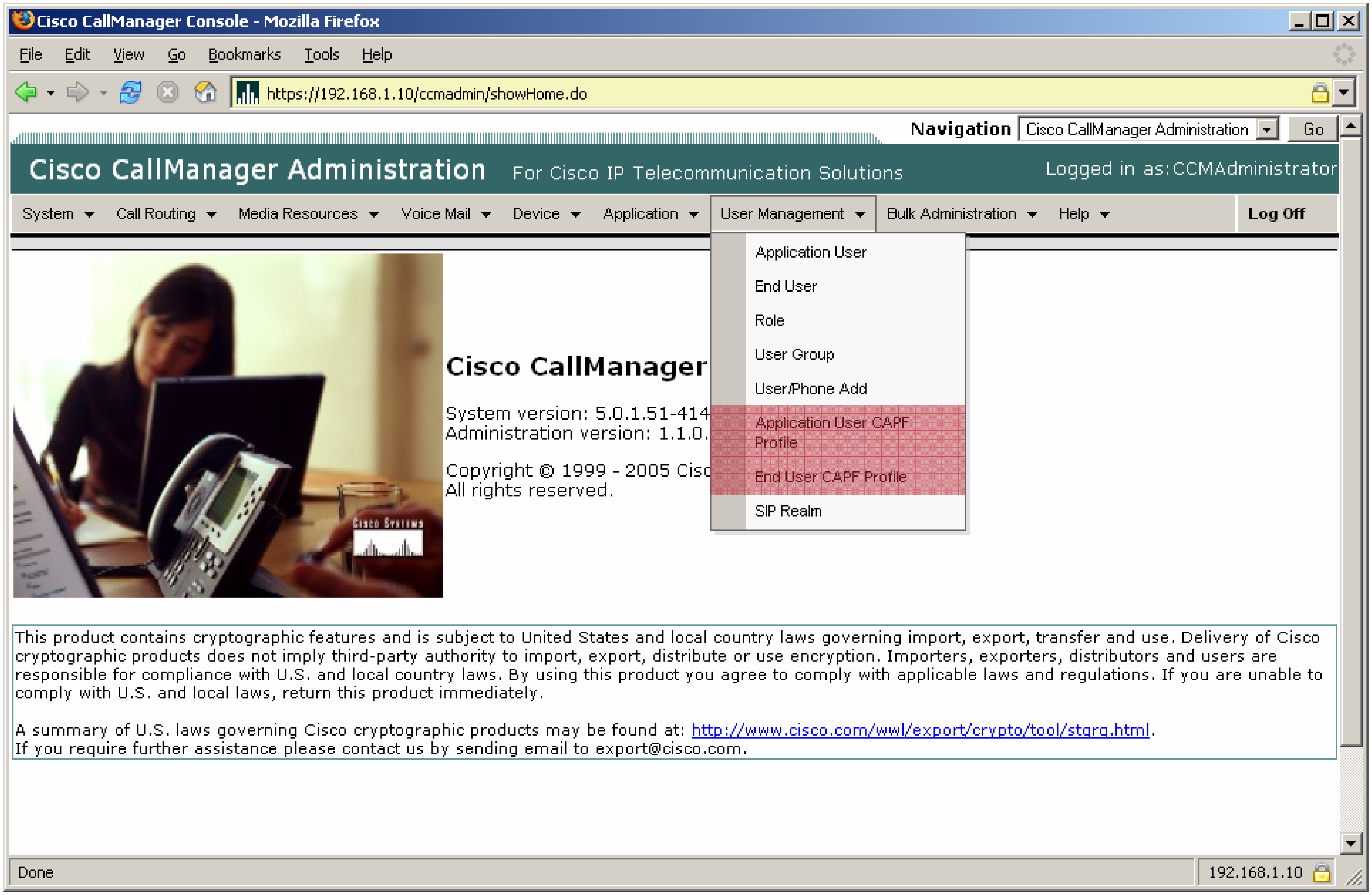
If you require further assistance please contact us by sending email to export@cisco.com.

Cisco Unified CallManager 5.0 User Management Menu: CAPF



Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/showHome.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Application User
End User
Role
User Group
User/Phone Add
Application User CAPF Profile
End User CAPF Profile
SIP Realm
Done
192.168.1.10

Cisco CallManager

System version: 5.0.1.51-414
Administration version: 1.1.0.

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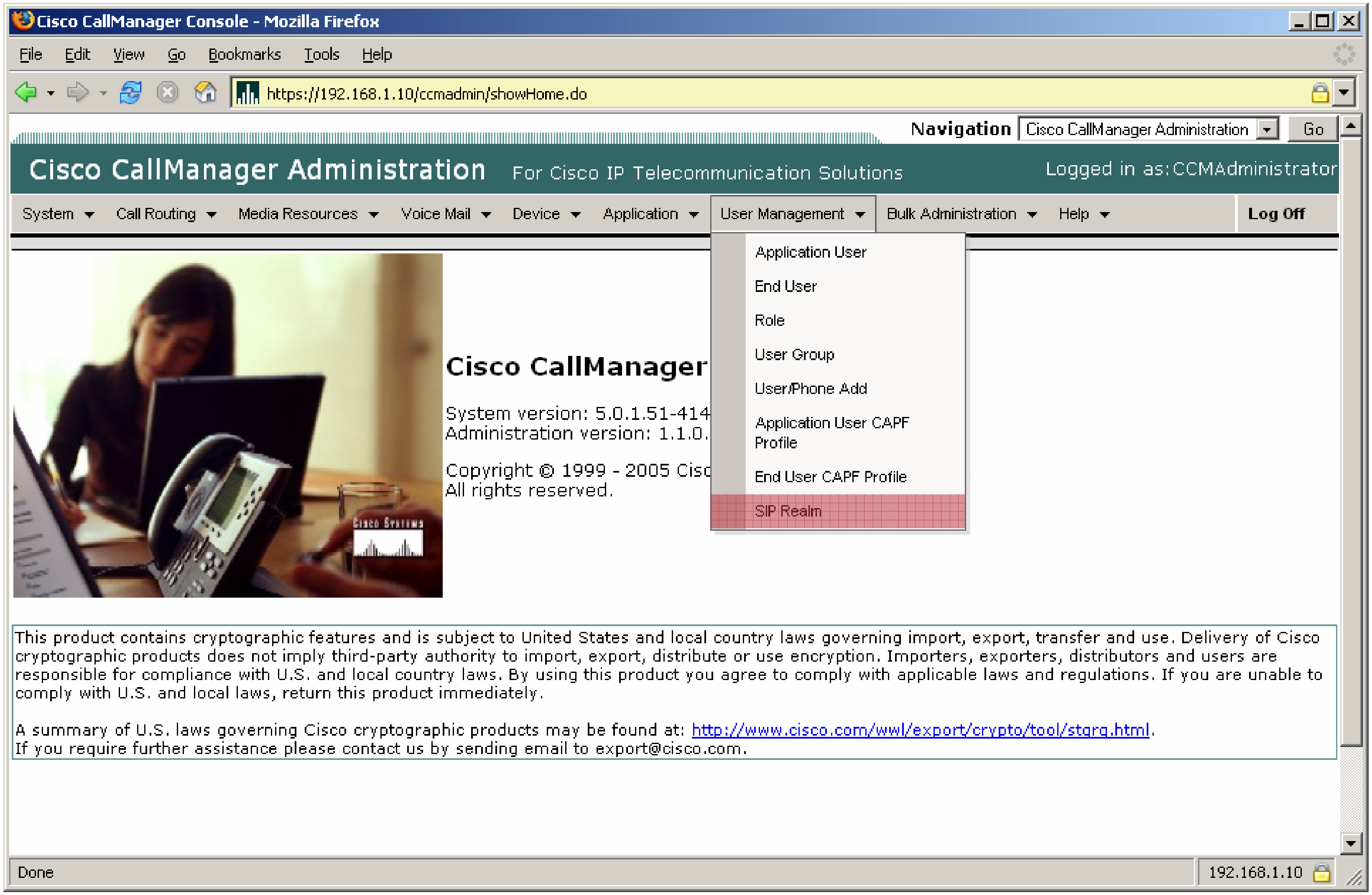
If you require further assistance please contact us by sending email to export@cisco.com.

Cisco Unified CallManager 5.0 User Management Menu: SIP Realm


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/showHome.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Application User
End User
Role
User Group
User/Phone Add
Application User CAPF Profile
End User CAPF Profile
SIP Realm
Done
192.168.1.10

Cisco CallManager

System version: 5.0.1.51-414
Administration version: 1.1.0.

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If you require further assistance please contact us by sending email to export@cisco.com.

Multi Level Admin

Cisco Unified CallManager 5.0 configuration menu can be restricted using Multi Level Admin (MLA) feature:

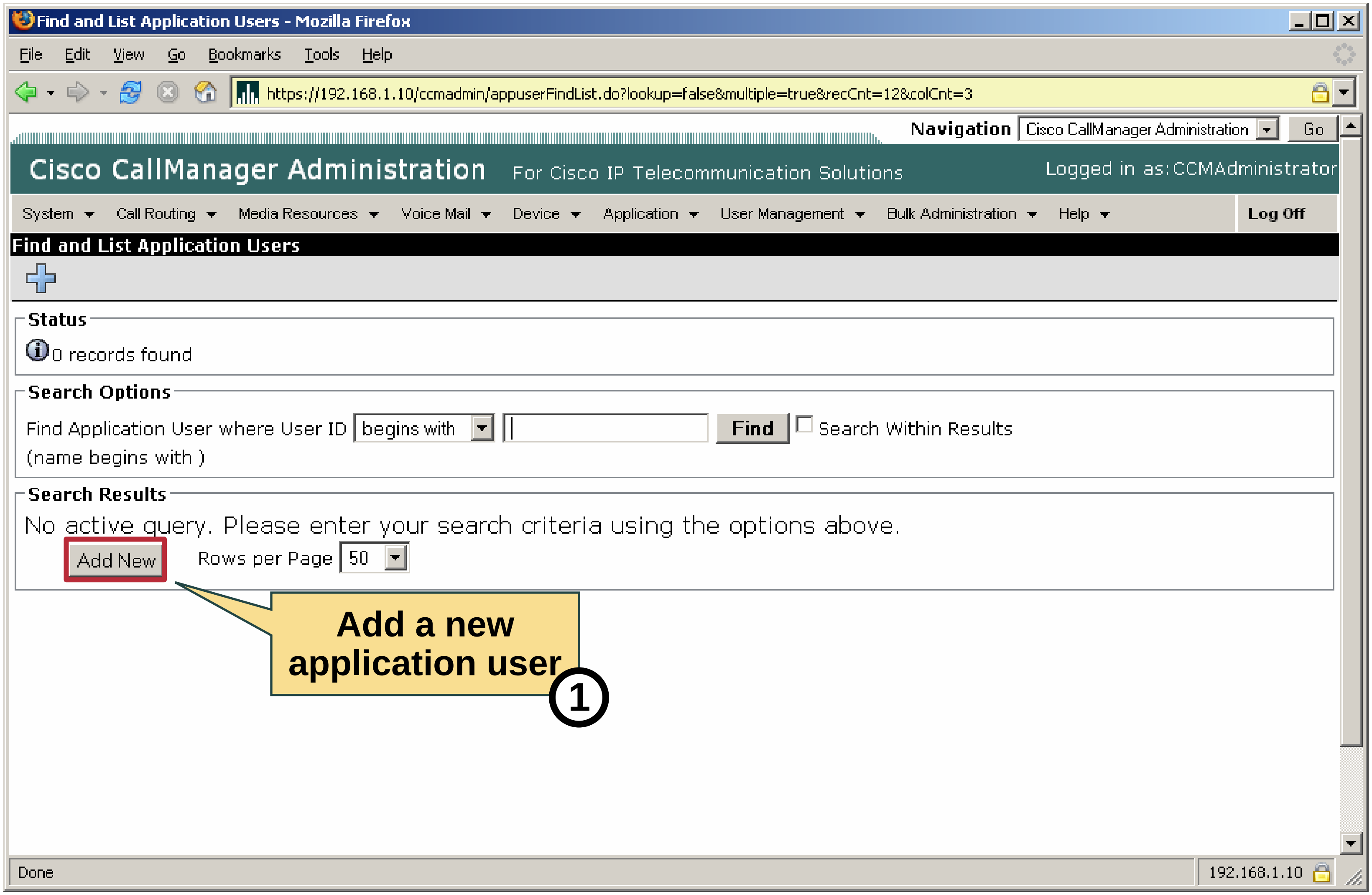
- **Groups can be used to give read or read/write access to menu and sub-menu content.**
- **Users can be assigned to groups to work with configured group rights.**

Multi Level Admin

To add a new user for MLA, the following tasks need to be performed:

- **Add a new application user**
- **Add the new user to the user group(s)**

Multi Level Admin


Find and List Application Users - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/appuserFindList.do?lookup=false&multiple=true&recCnt=12&colCnt=3
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Find and List Application Users
Find Application User where User ID begins with
Find
Search Within Results
Add New
Rows per Page 50
Done
192.168.1.10

Status

0 records found

Search Options

Find Application User where User ID: begins with

☐ Search Within Results

(name begins with)

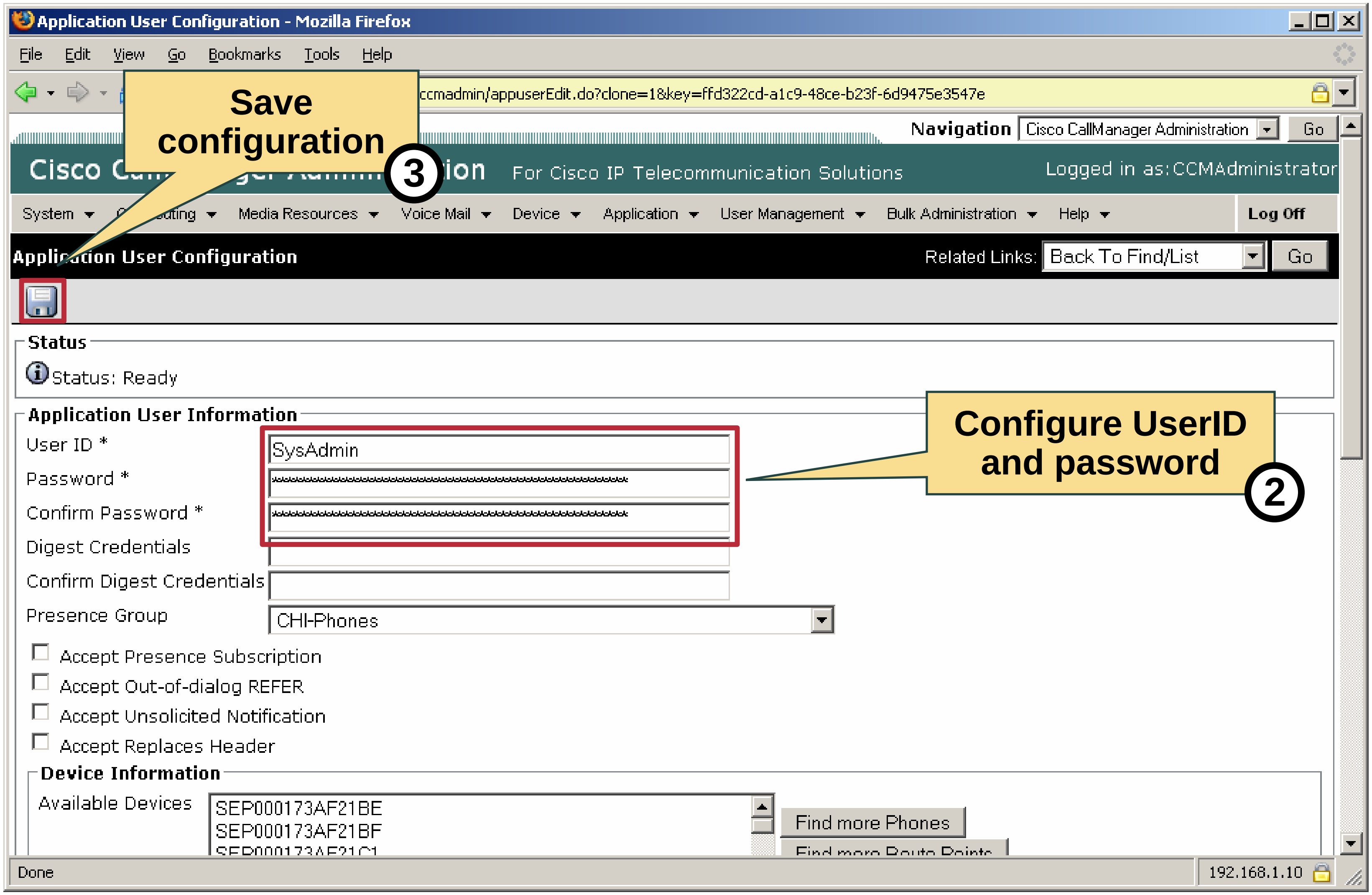
Search Results

No active query. Please enter your search criteria using the options above.

Rows per Page: 50

Add a new application user ①

Multi Level Admin


Application User Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
ccmadmin/appuserEdit.do?clone=1&key=ffd322cd-a1c9-48ce-b23f-6d9475e3547e
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Application User Configuration
Related Links: Back To Find/List Go
Find more Phones
Find more Route Points
Done
192.168.1.10

Save configuration ③

Configure UserID and password ②

Status

Status: Ready

Application User Information

User ID * SysAdmin

Password * **

Confirm Password * **

Digest Credentials

Confirm Digest Credentials

Presence Group CHI-Phones

☐ Accept Presence Subscription

☐ Accept Out-of-dialog REFER

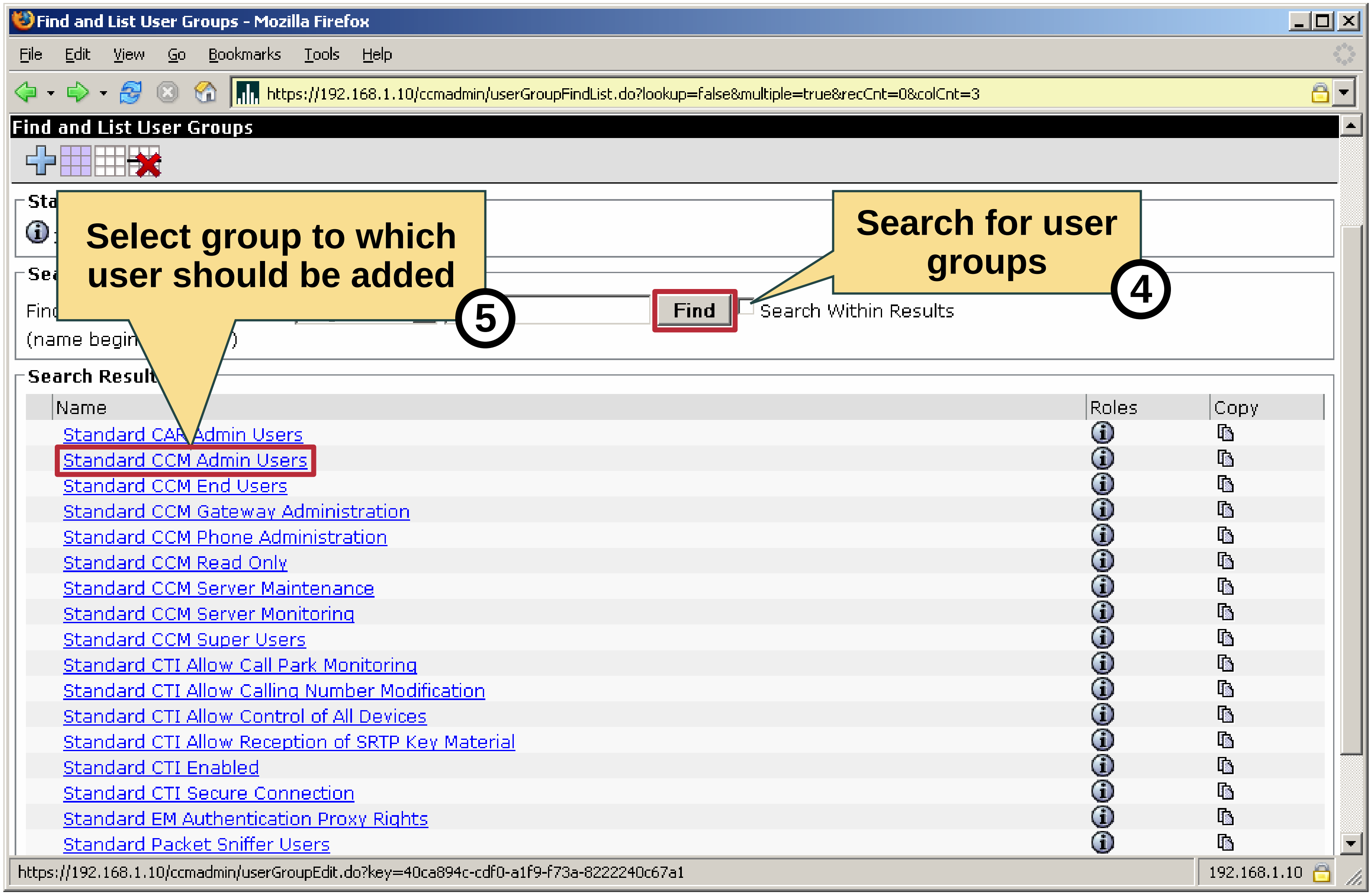
☐ Accept Unsolicited Notification

☐ Accept Replaces Header

Device Information

Available Devices
SEP000173AF21BE
SEP000173AF21BF

Multi Level Admin



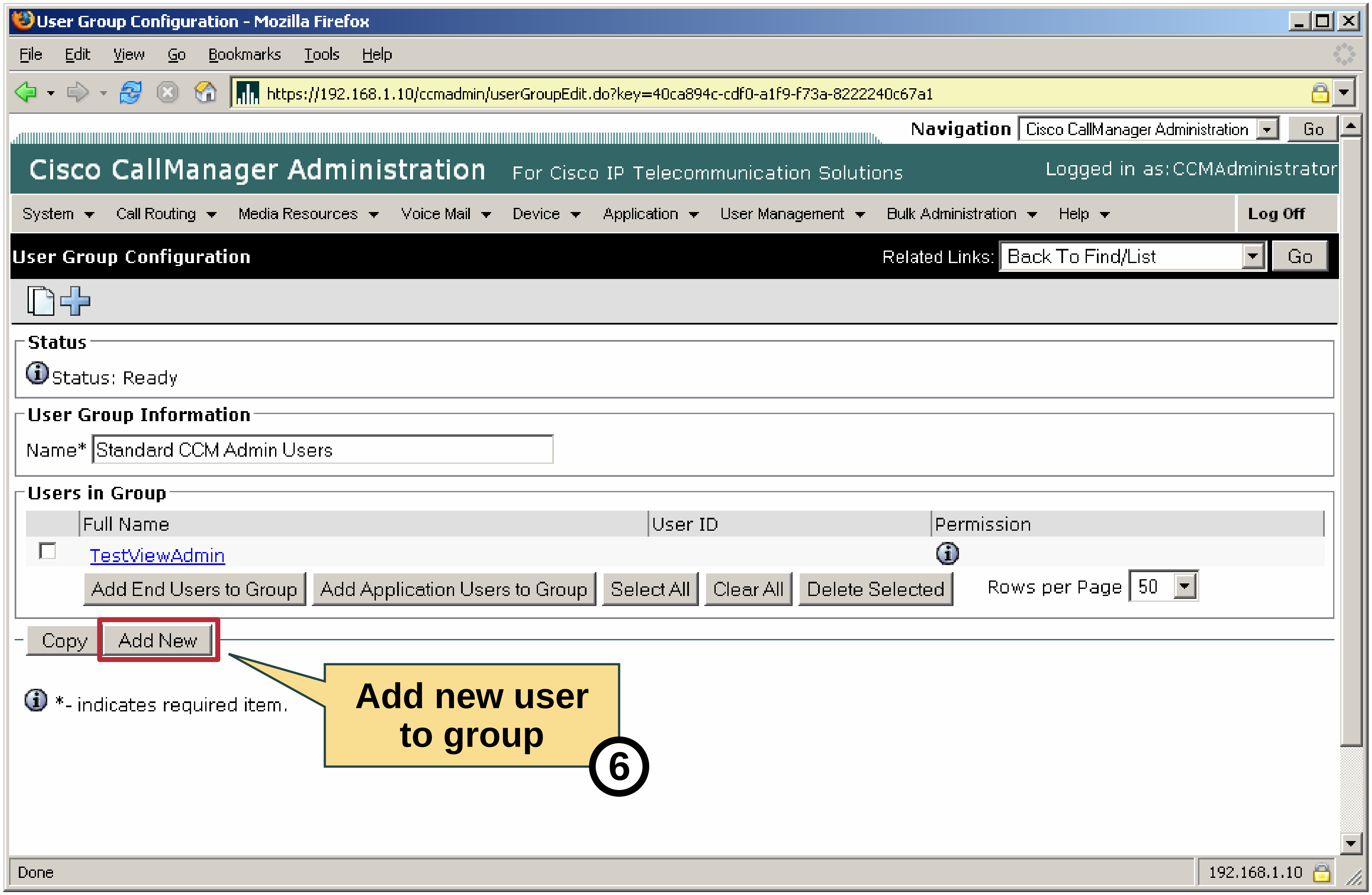
Find and List User Groups - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/userGroupFindList.do?lookup=false&multiple=true&recCnt=0&colCnt=3
Find and List User Groups
Sta
Sea
Fin
(name begin)
Find
☐ Search Within Results
Search Result
https://192.168.1.10/ccmadmin/userGroupEdit.do?key=40ca894c-cdf0-a1f9-f73a-8222240c67a1
192.168.1.10

Name	Roles	Copy
Standard CAR Admin Users	ⓘ	
Standard CCM Admin Users	ⓘ	
Standard CCM End Users	ⓘ	
Standard CCM Gateway Administration	ⓘ	
Standard CCM Phone Administration	ⓘ	
Standard CCM Read Only	ⓘ	
Standard CCM Server Maintenance	ⓘ	
Standard CCM Server Monitoring	ⓘ	
Standard CCM Super Users	ⓘ	
Standard CTI Allow Call Park Monitoring	ⓘ	
Standard CTI Allow Calling Number Modification	ⓘ	
Standard CTI Allow Control of All Devices	ⓘ	
Standard CTI Allow Reception of SRTP Key Material	ⓘ	
Standard CTI Enabled	ⓘ	
Standard CTI Secure Connection	ⓘ	
Standard EM Authentication Proxy Rights	ⓘ	
Standard Packet Sniffer Users	ⓘ	

④ Search for user groups

⑤ Select group to which user should be added

Multi Level Admin



User Group Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/userGroupEdit.do?key=40ca894c-cdf0-a1f9-f73a-8222240c67a1
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
User Group Configuration
Related Links: Back To Find/List Go
Status
Status: Ready
User Group Information
Users in Group
Add End Users to Group
Add Application Users to Group
Select All
Clear All
Delete Selected
Rows per Page 50
Copy
Add New
*- indicates required item.
Done
192.168.1.10

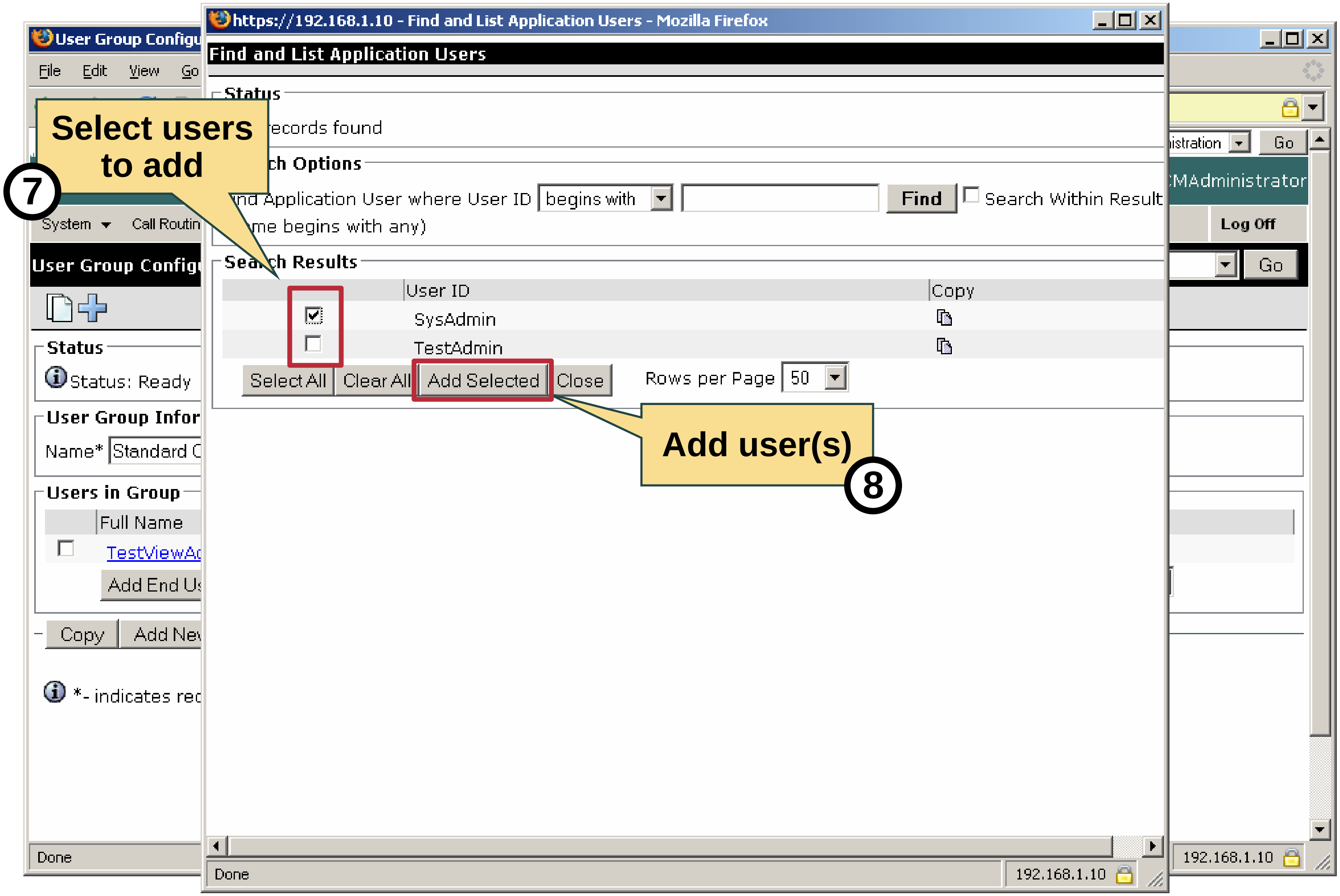
Name* Standard CCM Admin Users

	Full Name	User ID	Permission
☐	TestViewAdmin		ⓘ

Add new user to group

⑥

Multi Level Admin



User Group Configu
File Edit View Go
System
Call Routin
istration
Go
CMAdministrator
Log Off
Go

https://192.168.1.10 - Find and List Application Users - Mozilla Firefox

Find and List Application Users

Status

ecords found

ch Options

nd Application User where User ID begins with ▾ Find ☐ Search Within Results

me begins with any)

Search Results

	User ID	Copy
☑	SysAdmin	
☐	TestAdmin	

Select All | Clear All | Add Selected | Close — Rows per Page 50 ▾

Done — 192.168.1.10

User Group Config

Status

Status: Ready

User Group Infor

Name* Standard C

Users in Group

Full Name

☐ TestViewAd

Add End Us

Copy | Add Nev

*- indicates rec

Done

192.168.1.10

⑦ Select users to add

⑧ Add user(s)

Summary

- Cisco Unified CallManager 5.0 is an “out of the box” solution that can be administrated via a web interface.
- To access the Cisco Unified CallManager 5.0 administration page enter the IP of the system into your browser.
- The Cisco Unified CallManager 5.0 system menu is used to configure system and cluster settings.
- The call routing menu is used to configure the dial plan throughout the Cisco Unified CallManager 5.0 cluster.
- The media resources menu is used to manage Cisco Unified CallManager 5.0 media resources.
- The voice mail menu is used to configure the voice mail integration on Cisco Unified CallManager 5.0.

Summary (cont.)

- The device menu is used to manage devices on Cisco Unified CallManager 5.0.
- The application menu is used to configure and install Cisco Unified CallManager 5.0 applications.
- The user management menu is used to manage permissions and rights on Cisco Unified CallManager 5.0.
- MLA allows to manage access to Cisco Unified CallManager 5.0 web pages.

Administering Cisco Unified CallManager 5.0

Configuring CallManager 5.0 Basic Settings

Objectives

- Basic Settings Configuration Overview
- DNS vs. IP
- Service Activation
- Service Parameters
- Phone NTP Reference
- Time Zone
- Enterprise Parameters

Basic Settings Configuration Overview

Cisco Unified CallManager 5.0 should have a basic configuration before any device is configured:

- DNS vs. IP considerations should be made.
- Cisco Unified CallManager, TFTP server and CTI manager services need to be enabled.
- Service and enterprise parameters should be configured to meet the customers' criteria.
- Phone NTP Reference should be added to fully support SIP phones.
- At least the default time zone should be configured in order to use the correct local time and date.

DNS vs. IP

Cisco Unified CallManager 5.0 can use DNS names or IP addresses for system address values.

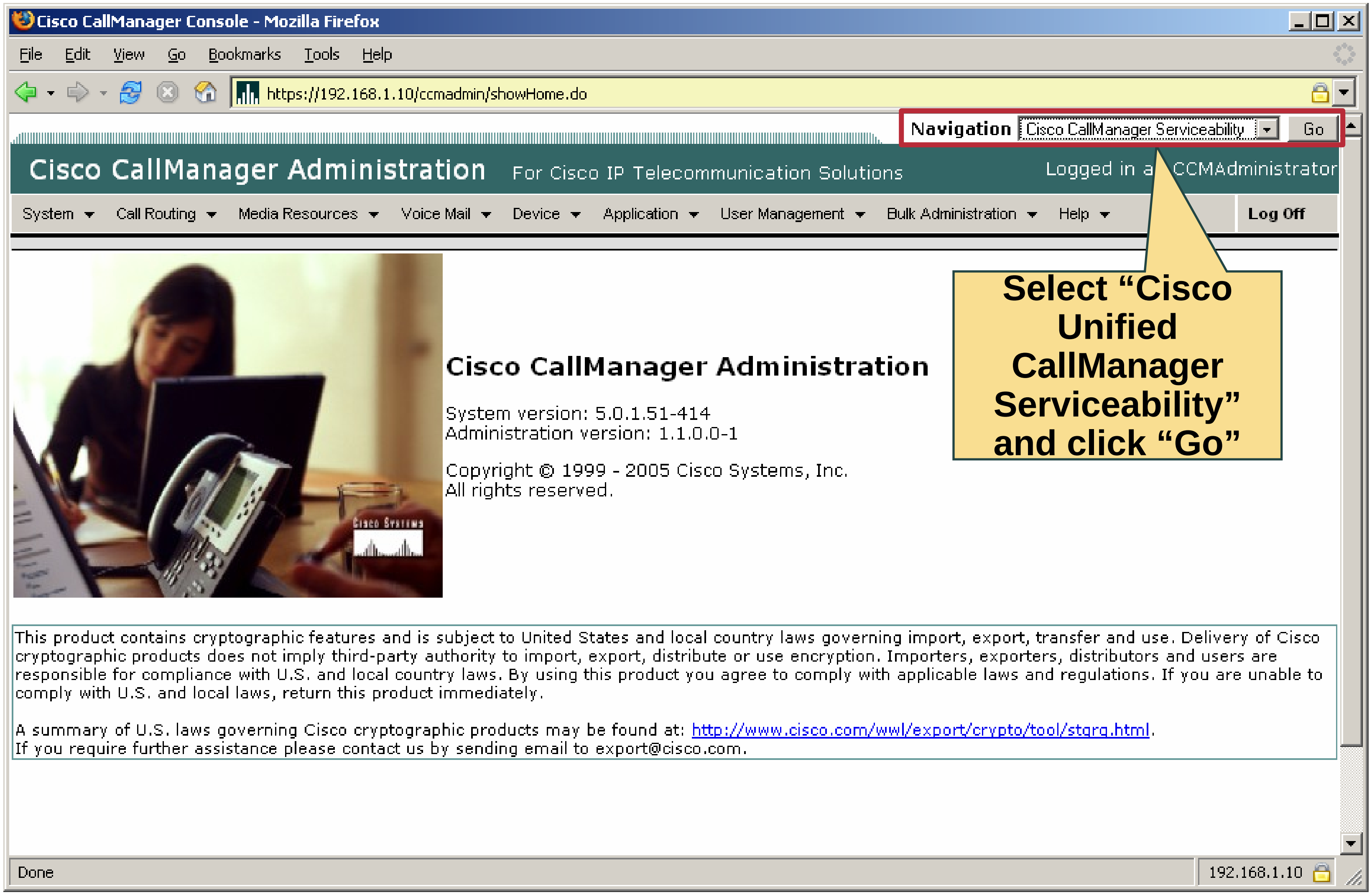
Advantages of IP addresses	Advantages of DNS
• No need of DNS server. • Reduces potential source of failure. • Simplifies troubleshooting.	• Simplified management because of names instead of numbers. • Easier IP address changes because of name based IP paths.

Service Activation

To enable Cisco Unified CallManager 5.0 services perform the following tasks:

- **Access the Cisco Unified CallManager Serviceability.**
- **Go to “Tools” > “Service Activation”.**
- **Select your server.**
- **Enable the necessary services.**
- **Go to “Tools” > “Control Center – Feature Services” and select your server.**
- **Verify that the configured services are up and running.**

Service Activation



Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/showHome.do
Navigation Cisco CallManager Serviceability Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in a CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Done
192.168.1.10

Cisco CallManager Administration

System version: 5.0.1.51-414
Administration version: 1.1.0.0-1

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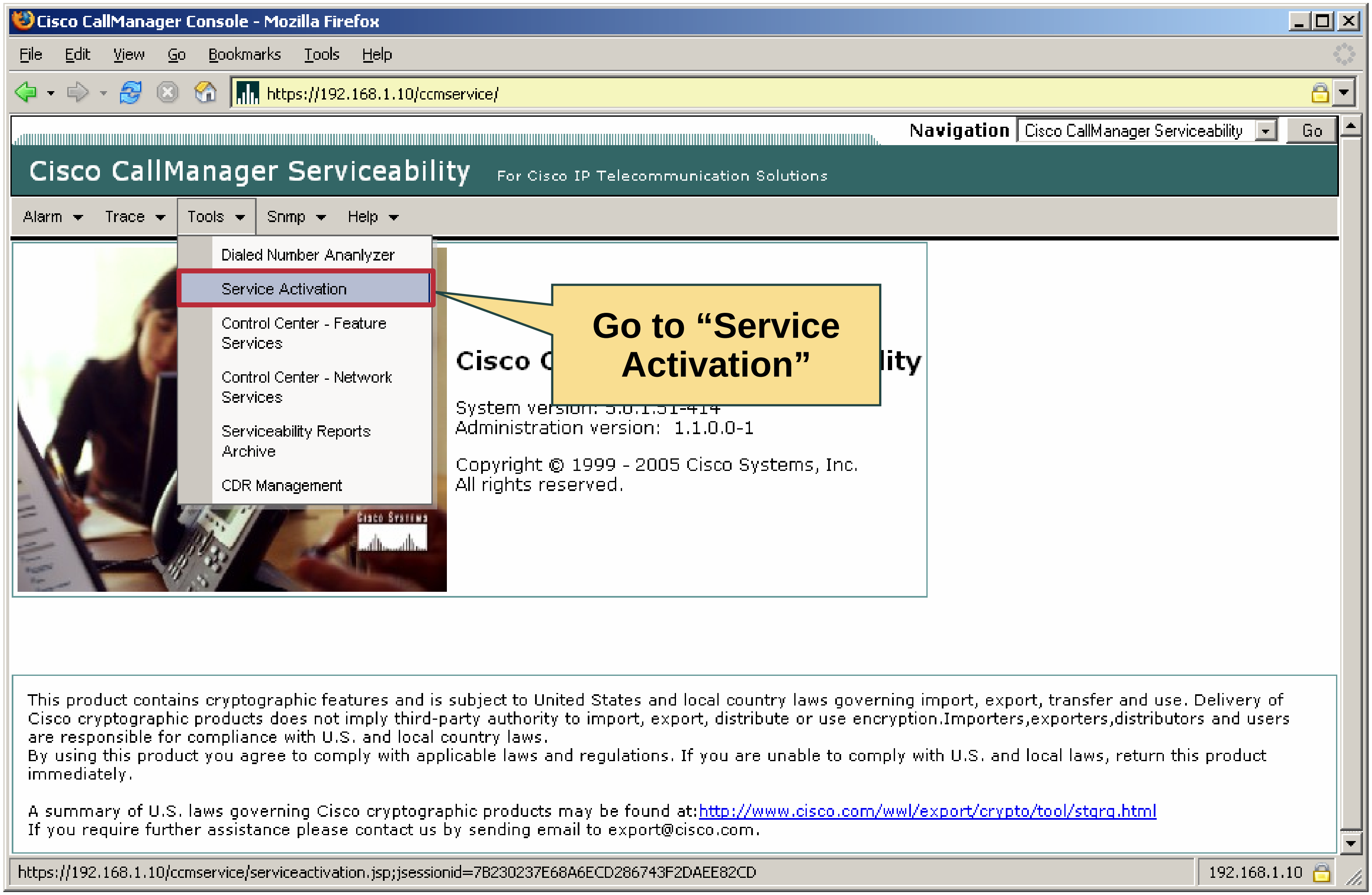
If you require further assistance please contact us by sending email to export@cisco.com.

Select "Cisco Unified CallManager Serviceability" and click "Go"

Service Activation


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmservice/
Navigation
Cisco CallManager Serviceability
Go
Cisco CallManager Serviceability
For Cisco IP Telecommunication Solutions
Alarm
Trace
Tools
Snmp
Help
Dialed Number Ananlyzer
Service Activation
Control Center - Feature Services
Control Center - Network Services
Serviceability Reports Archive
CDR Management
Cisco C
lity
Cisco Systems
https://192.168.1.10/ccmservice/serviceactivation.jsp;jsessionid=7B230237E68A6ECD286743F2DAEE82CD
192.168.1.10

System version: 5.0.1.51-414
Administration version: 1.1.0.0-1

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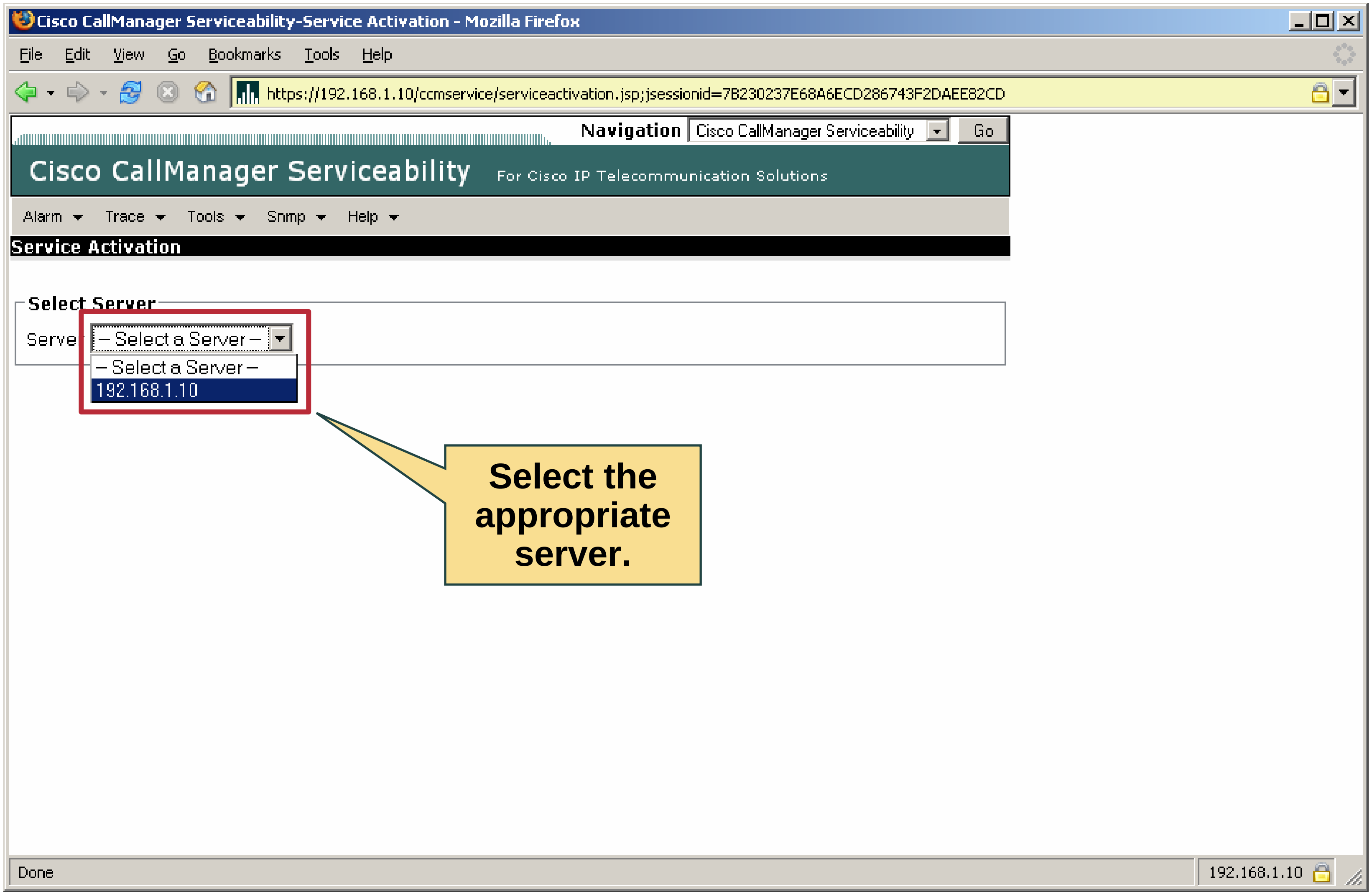
If you require further assistance please contact us by sending email to export@cisco.com.

Go to "Service Activation"

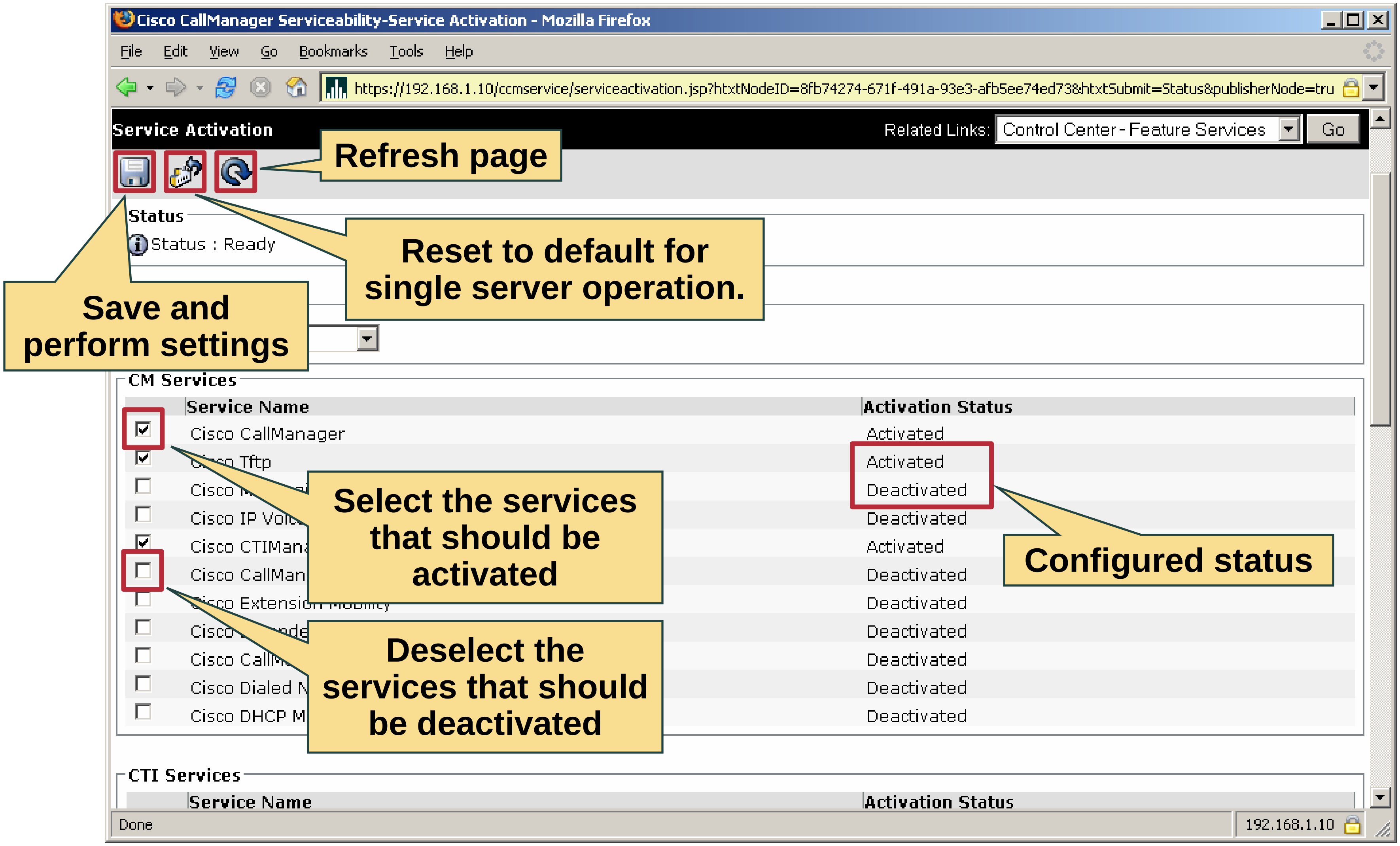
Service Activation



Cisco CallManager Serviceability-Service Activation - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmservice/serviceactivation.jsp;jsessionid=7B230237E68A6ECD286743F2DAEE82CD
Navigation
Cisco CallManager Serviceability
Go
Cisco CallManager Serviceability
For Cisco IP Telecommunication Solutions
Alarm
Trace
Tools
Snmp
Help
Service Activation
Select Server
Server
– Select a Server –
– Select a Server –
192.168.1.10
Done
192.168.1.10

Select the appropriate server.

Service Activation



Cisco CallManager Serviceability-Service Activation - Mozilla Firefox

https://192.168.1.10/ccmservice/serviceactivation.jsp?htxtNodeID=8fb74274-671f-491a-93e3-afb5ee74ed73&htxtSubmit=Status&publisherNode=tru

Service Activation

Related Links: Control Center - Feature Services Go

Refresh page

Reset to default for single server operation.

Save and perform settings

Status

Status : Ready

CM Services

	Service Name	Activation Status
☑	Cisco CallManager	Activated
☑	Cisco Tftp	Activated
☐	Cisco M	Deactivated
☐	Cisco IP Voic	Deactivated
☑	Cisco CTIMana	Activated
☐	Cisco CallMan	Deactivated
☐	Cisco Extension Mobility	Deactivated
☐	Cisco nde	Deactivated
☐	Cisco CallM	Deactivated
☐	Cisco Dialed N	Deactivated
☐	Cisco DHCP M	Deactivated

Select the services that should be activated

Deselect the services that should be deactivated

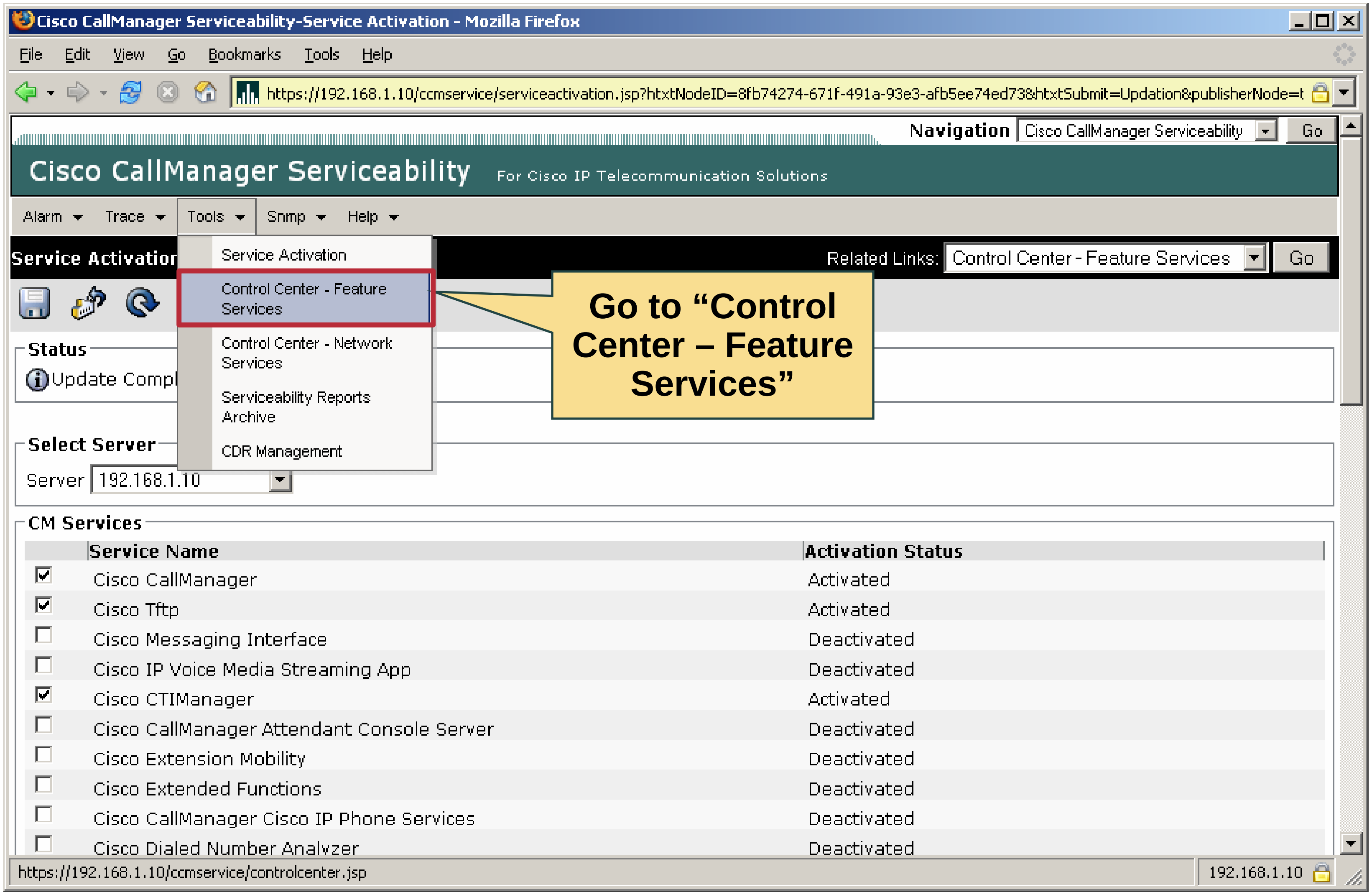
Configured status

CTI Services

Service Name	Activation Status

Done 192.168.1.10

Control Center

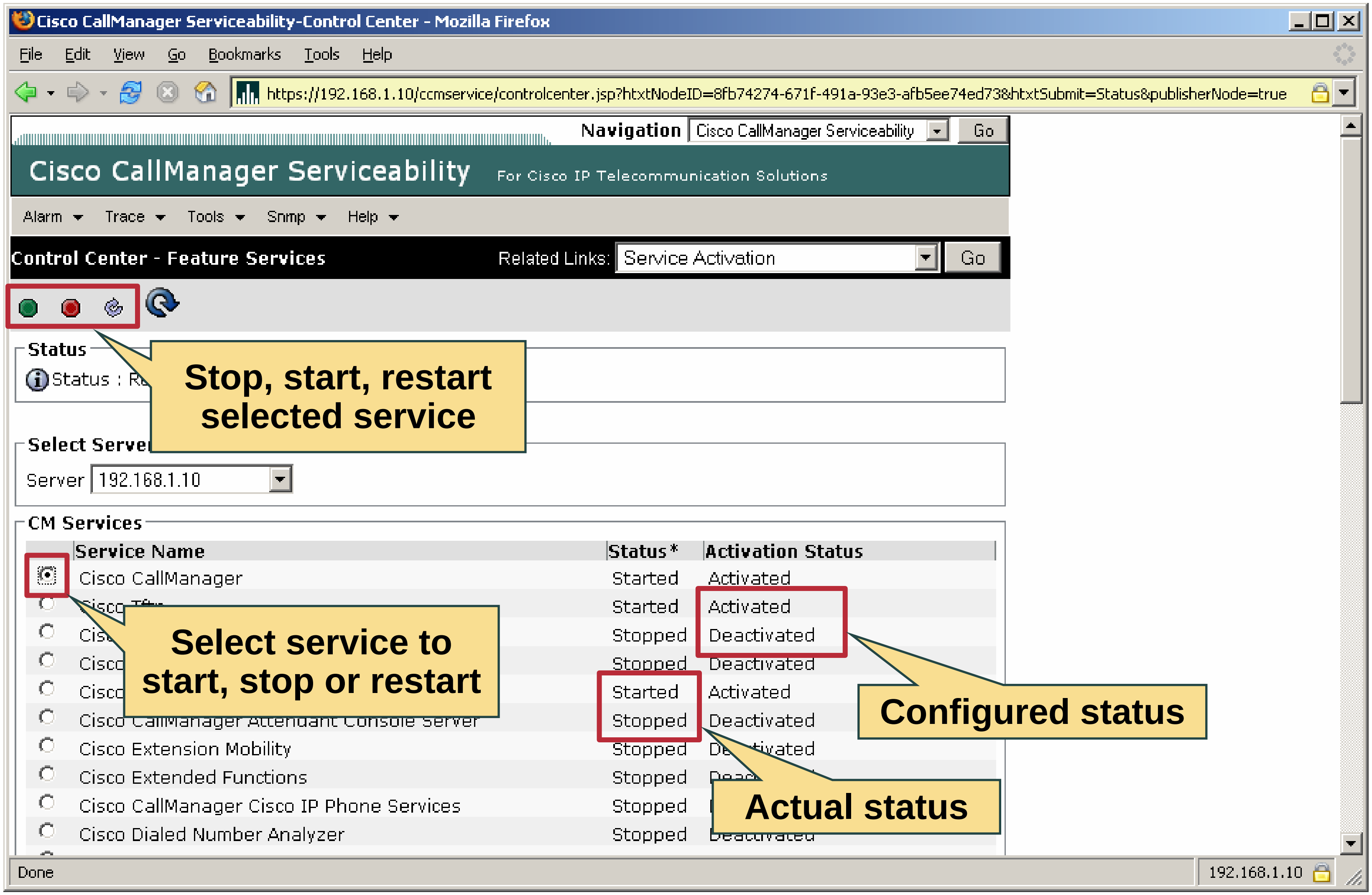

Cisco CallManager Serviceability-Service Activation - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmservice/serviceactivation.jsp?htxtNodeID=8fb74274-671f-491a-93e3-afb5ee74ed73&htxtSubmit=Updation&publisherNode=t
Navigation
Cisco CallManager Serviceability
Go
Cisco CallManager Serviceability
For Cisco IP Telecommunication Solutions
Alarm
Trace
Tools
Snmp
Help
Service Activation
Service Activation
Control Center - Feature Services
Control Center - Network Services
Serviceability Reports Archive
CDR Management
Related Links:
Control Center - Feature Services
Go
Status
Update Compl
Select Server
Server
192.168.1.10
https://192.168.1.10/ccmservice/controlcenter.jsp
192.168.1.10

Go to “Control Center – Feature Services”

CM Services

	Service Name	Activation Status
☑	Cisco CallManager	Activated
☑	Cisco Tftp	Activated
☐	Cisco Messaging Interface	Deactivated
☐	Cisco IP Voice Media Streaming App	Deactivated
☑	Cisco CTIManager	Activated
☐	Cisco CallManager Attendant Console Server	Deactivated
☐	Cisco Extension Mobility	Deactivated
☐	Cisco Extended Functions	Deactivated
☐	Cisco CallManager Cisco IP Phone Services	Deactivated
☐	Cisco Dialed Number Analyzer	Deactivated

Control Center


File
Edit
View
Go
Bookmarks
Tools
Help
Navigation
Cisco CallManager Serviceability
Go
Alarm
Trace
Tools
Snmp
Help
Go
Done

Cisco CallManager Serviceability-Control Center - Mozilla Firefox

https://192.168.1.10/ccmservice/controlcenter.jsp?htxtNodeID=8fb74274-671f-491a-93e3-afb5ee74ed73&htxtSubmit=Status&publisherNode=true

Cisco CallManager Serviceability For Cisco IP Telecommunication Solutions

Control Center - Feature Services

Related Links: Service Activation

Status

Status : R

Select Server

Server: 192.168.1.10

CM Services

	Service Name	Status*	Activation Status
●	Cisco CallManager	Started	Activated
○	Cisco Tftp	Started	Activated
○	Cis	Stopped	Deactivated
○	Cisco	Stopped	Deactivated
○	Cisco	Started	Activated
○	Cisco CallManager Attendant Console Server	Stopped	Deactivated
○	Cisco Extension Mobility	Stopped	Deactivated
○	Cisco Extended Functions	Stopped	Deac
○	Cisco CallManager Cisco IP Phone Services	Stopped	
○	Cisco Dialed Number Analyzer	Stopped	Deactivated

192.168.1.10

Stop, start, restart selected service

Select service to start, stop or restart

Configured status

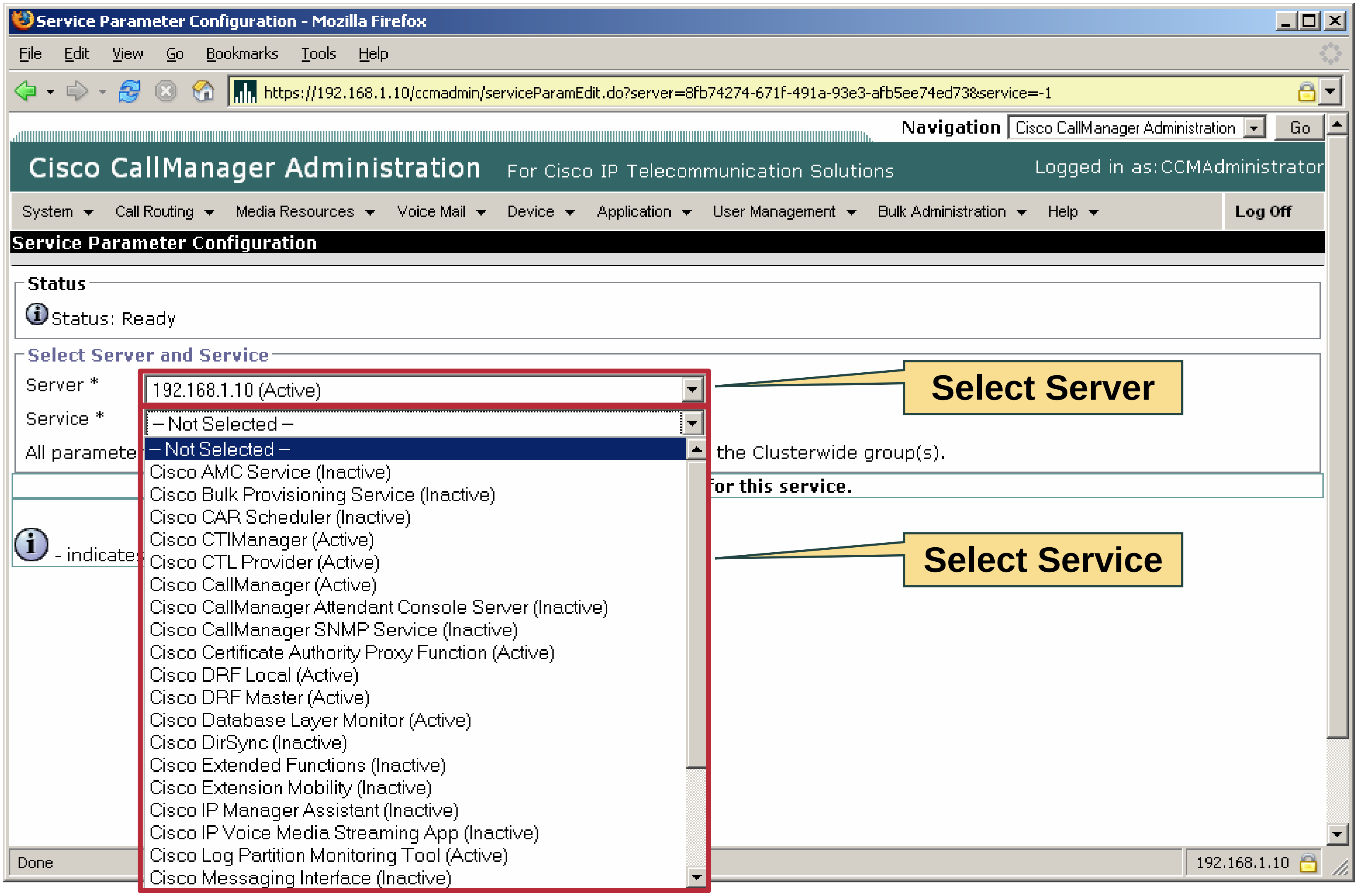
Actual status

Service Parameters

Service parameters on Cisco Unified CallManager 5.0 can be changed to fit special needs e.g.:

- **T302 timer to speed up dialing.**
- **SIP retry counts to relieve overloaded SIP proxy servers.**
- **Enable call detail records.**
- **Enable MGCP gateway overlap receiving.**
- **Define extension mobility maximum login time.**
- **Define attendant console username.**
- **Change extended functions connecting port.**
- **Define voice media streaming application supported codecs.**

Service Parameters


Service Parameter Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Done
192.168.1.10

https://192.168.1.10/ccmadmin/serviceParamEdit.do?server=8fb74274-671f-491a-93e3-afb5ee74ed73&service=-1

Service Parameter Configuration

Status

Status: Ready

Select Server and Service

Server * 192.168.1.10 (Active)

Service * – Not Selected –

- – Not Selected –
- Cisco AMC Service (Inactive)
- Cisco Bulk Provisioning Service (Inactive)
- Cisco CAR Scheduler (Inactive)
- Cisco CTIManager (Active)
- Cisco CTL Provider (Active)
- Cisco CallManager (Active)
- Cisco CallManager Attendant Console Server (Inactive)
- Cisco CallManager SNMP Service (Inactive)
- Cisco Certificate Authority Proxy Function (Active)
- Cisco DRF Local (Active)
- Cisco DRF Master (Active)
- Cisco Database Layer Monitor (Active)
- Cisco DirSync (Inactive)
- Cisco Extended Functions (Inactive)
- Cisco Extension Mobility (Inactive)
- Cisco IP Manager Assistant (Inactive)
- Cisco IP Voice Media Streaming App (Inactive)
- Cisco Log Partition Monitoring Tool (Active)
- Cisco Messaging Interface (Inactive)

All paramete … the Clusterwide group(s).

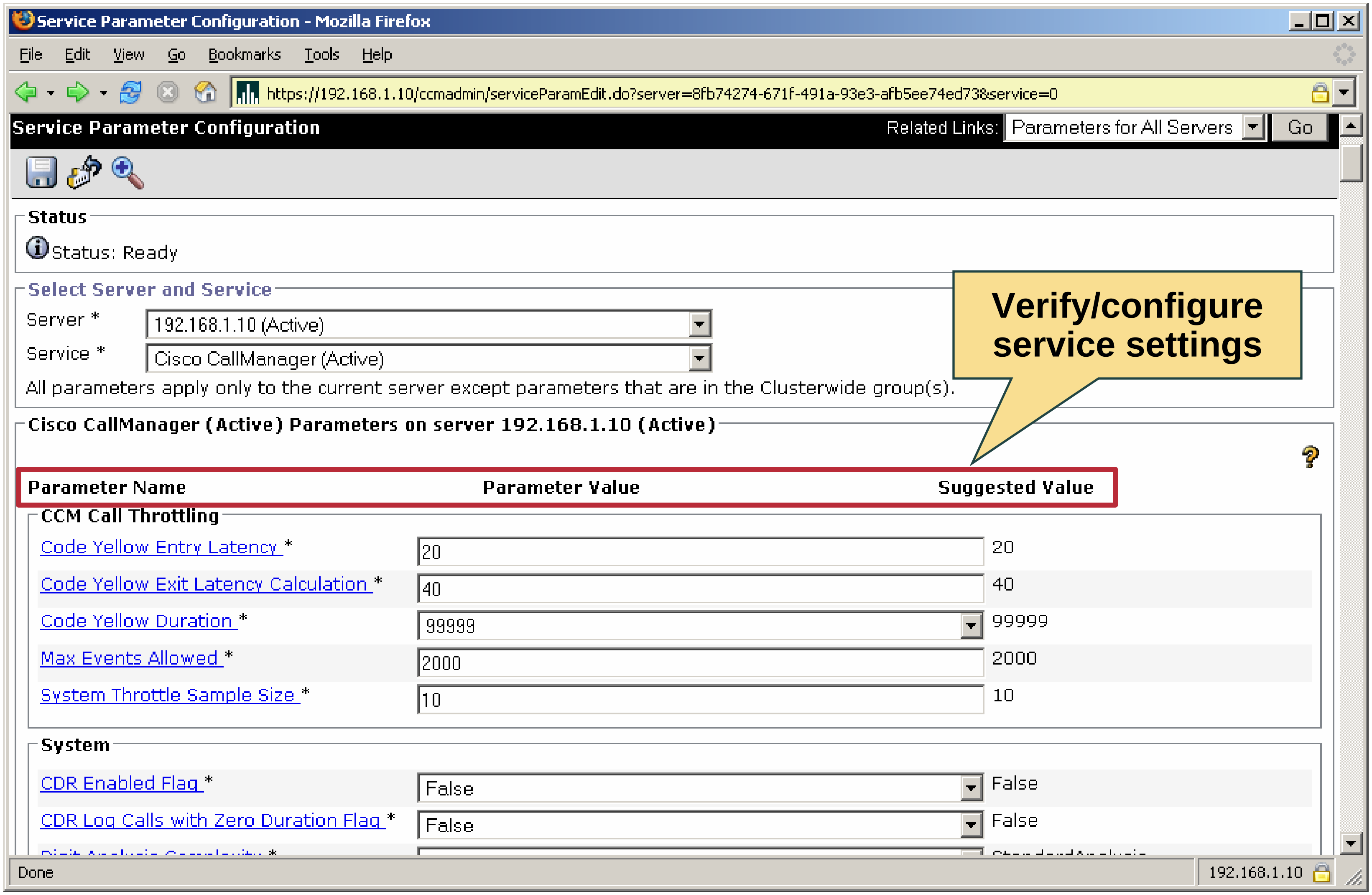
… for this service.

- indicate…

Select Server

Select Service

Service Parameters



Service Parameter Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/serviceParamEdit.do?server=8fb74274-671f-491a-93e3-afb5ee74ed73&service=0
Service Parameter Configuration
Related Links: Parameters for All Servers
Go
Done
192.168.1.10

Status

Status: Ready

Select Server and Service

Server * 192.168.1.10 (Active)

Service * Cisco CallManager (Active)

All parameters apply only to the current server except parameters that are in the Clusterwide group(s).

Cisco CallManager (Active) Parameters on server 192.168.1.10 (Active)

Parameter Name	Parameter Value	Suggested Value
CCM Call Throttling		
Code Yellow Entry Latency *	20	20
Code Yellow Exit Latency Calculation *	40	40
Code Yellow Duration *	99999	99999
Max Events Allowed *	2000	2000
System Throttle Sample Size *	10	10
System		
CDR Enabled Flag *	False	False
CDR Log Calls with Zero Duration Flag *	False	False

Verify/configure service settings

Phone NTP Reference

In Cisco Unified CallManager 5.0 SIP phones can have NTP references using the following options:

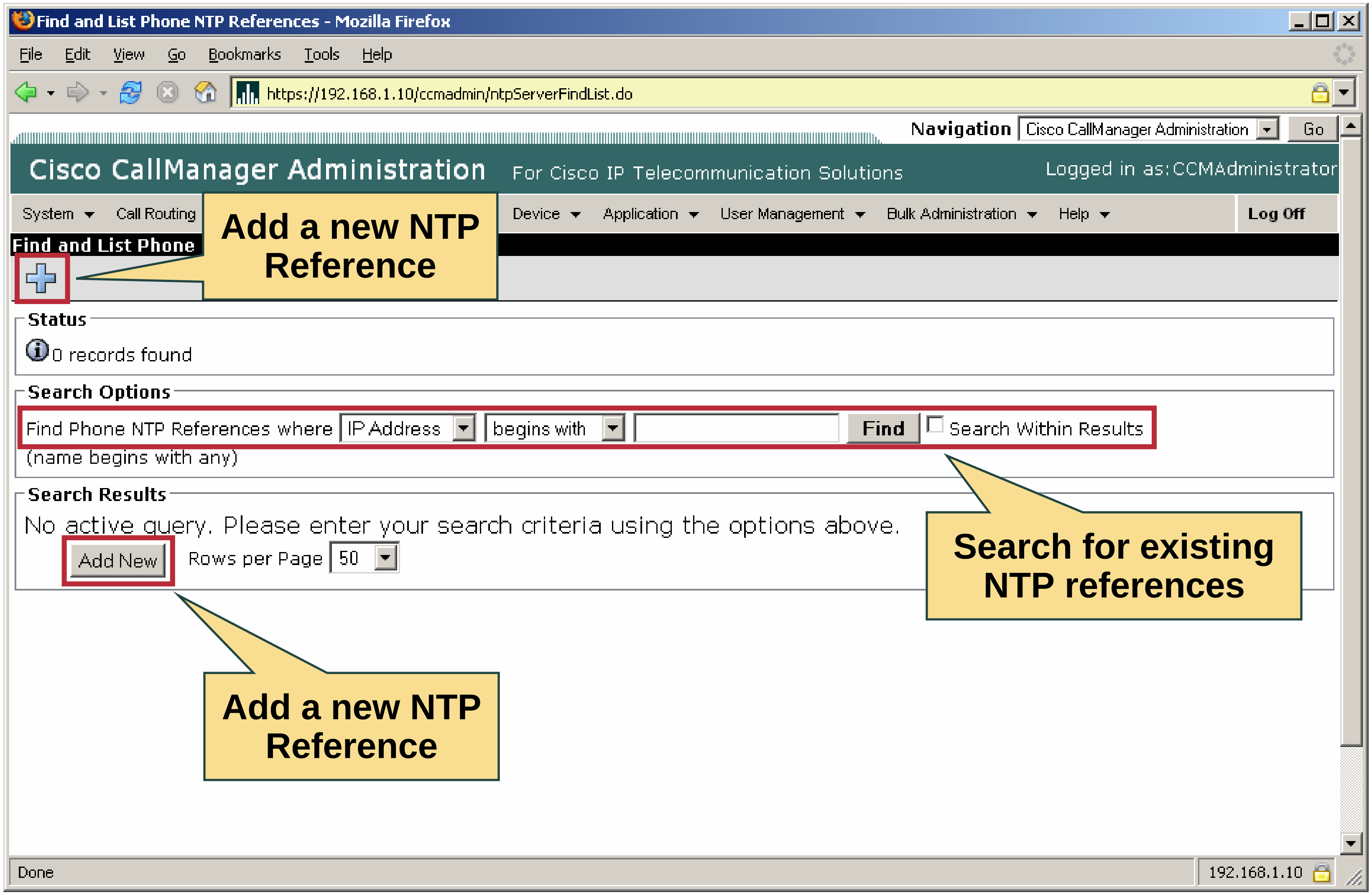
- Directed broadcast:
  - The phone can use information from any NTP server but gives the listed NTP servers priority.
- Unicast:
  - The phone will use information from configured NTP server.
  - If NTP server is unavailable, the phone will use Cisco Unified CallManager SIP registration information.

Phone NTP Reference

NTP server recommendations:

- If phones do not have access to the internet make sure that there are local NTP server(s) that can be used.
- If phones are able to access the internet, an alternative external NTP server can be configured.
- If there is no local NTP server an external NTP server on the Internet should be used.
- External NTP servers could be e.g.:
  - pool.ntp.org
  - ntp2.usno.navy.mil
  - ntp.colby.edu
  - ntp.alaska.edu

Phone NTP Reference



Find and List Phone NTP References - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/ntpServerFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Device Application User Management Bulk Administration Help Log Off
Find and List Phone
Status
Search Options
Search Results
Add New
Find
Done
192.168.1.10

ⓘ 0 records found

Find Phone NTP References where IP Address begins with Find ☐ Search Within Results

(name begins with any)

No active query. Please enter your search criteria using the options above.

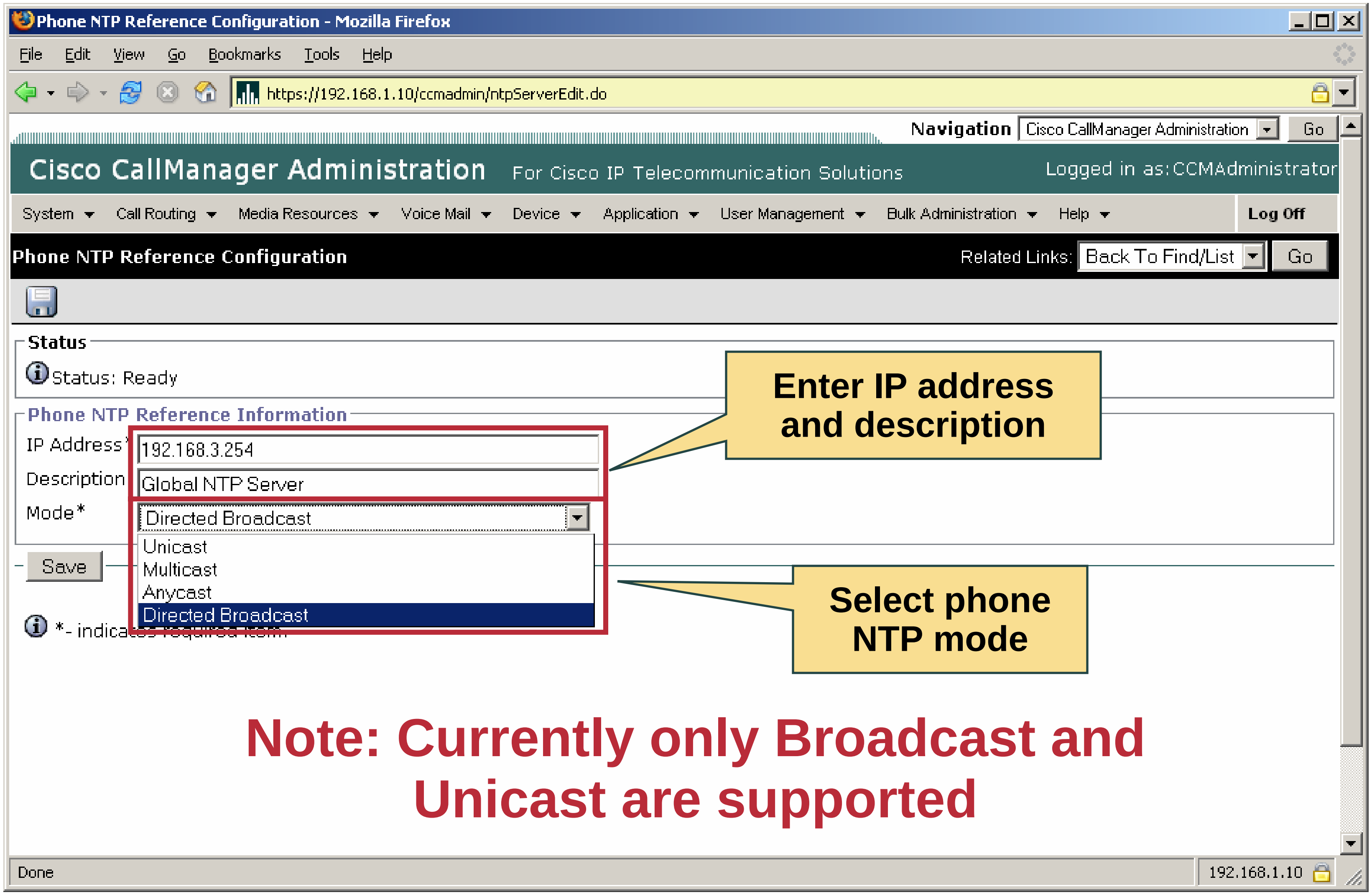
Rows per Page 50

Add a new NTP Reference

Search for existing NTP references

Add a new NTP Reference

Phone NTP Reference



Phone NTP Reference Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/ntpServerEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Phone NTP Reference Configuration
Related Links: Back To Find/List Go
Save
Unicast
Multicast
Anycast
Directed Broadcast
Done
192.168.1.10

Status

Status: Ready

Phone NTP Reference Information

IP Address* 192.168.3.254

Description Global NTP Server

Mode* Directed Broadcast

*- indicates required item

Enter IP address and description

Select phone NTP mode

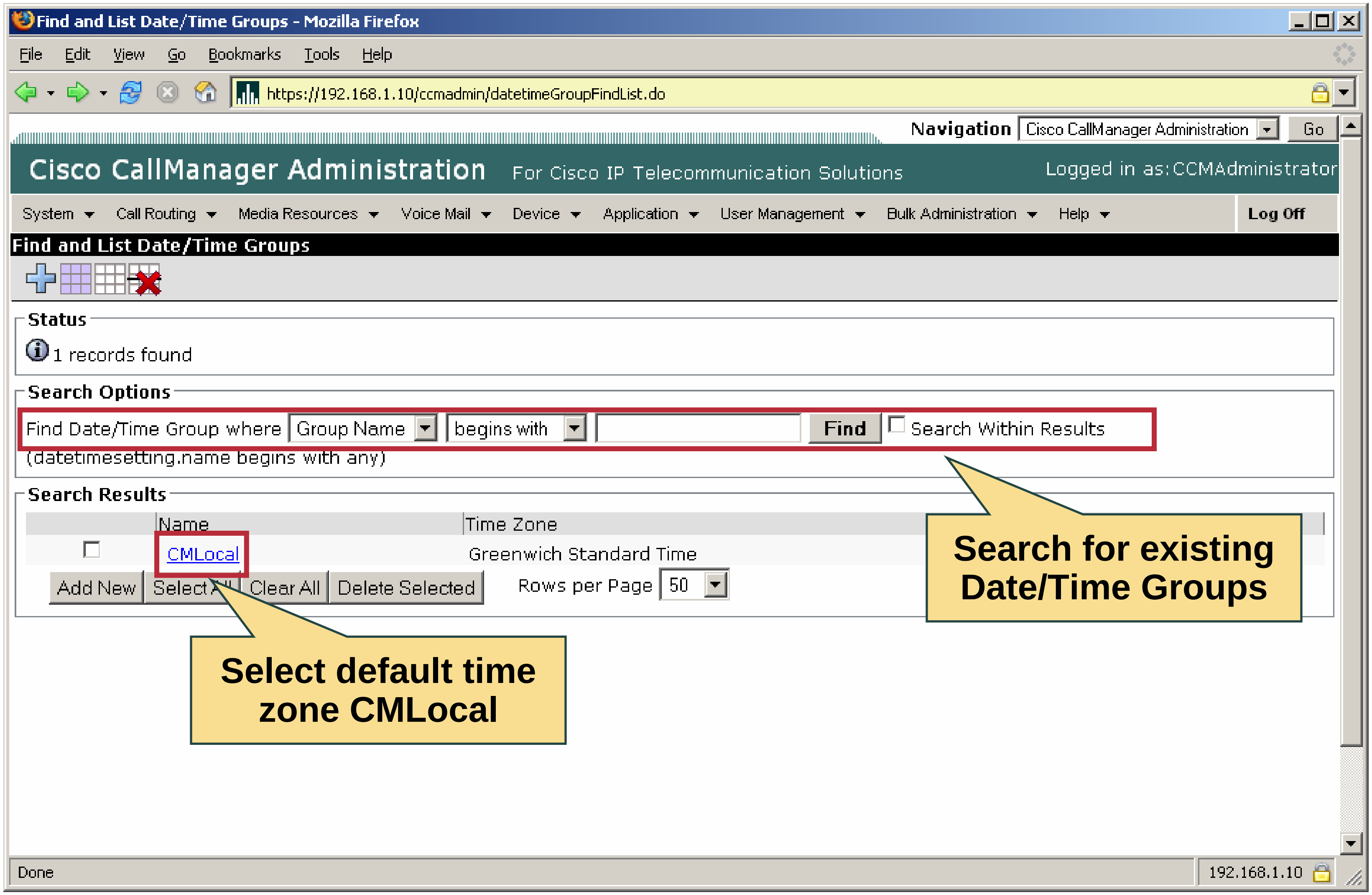
Note: Currently only Broadcast and Unicast are supported

Time Zone

Time groups on Cisco Unified CallManager 5.0 allow to:

- **Map devices to correct time zone in order to use correct local time.**
- **Define the time format to meet regional criteria.**
- **Define NTP servers that should be used by SIP phones.**

Time Zone



Find and List Date/Time Groups - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Administration Go
For Cisco IP Telecommunication Solutions
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Find Add New Select All Clear All Delete Selected
Done
192.168.1.10

https://192.168.1.10/ccmadmin/datetimeGroupFindList.do

Cisco CallManager Administration

Logged in as: CCMAdministrator

Find and List Date/Time Groups

Status

1 records found

Search Options

Find Date/Time Group where Group Name begins with ☐ Search Within Results

(datetimesetting.name begins with any)

Search Results

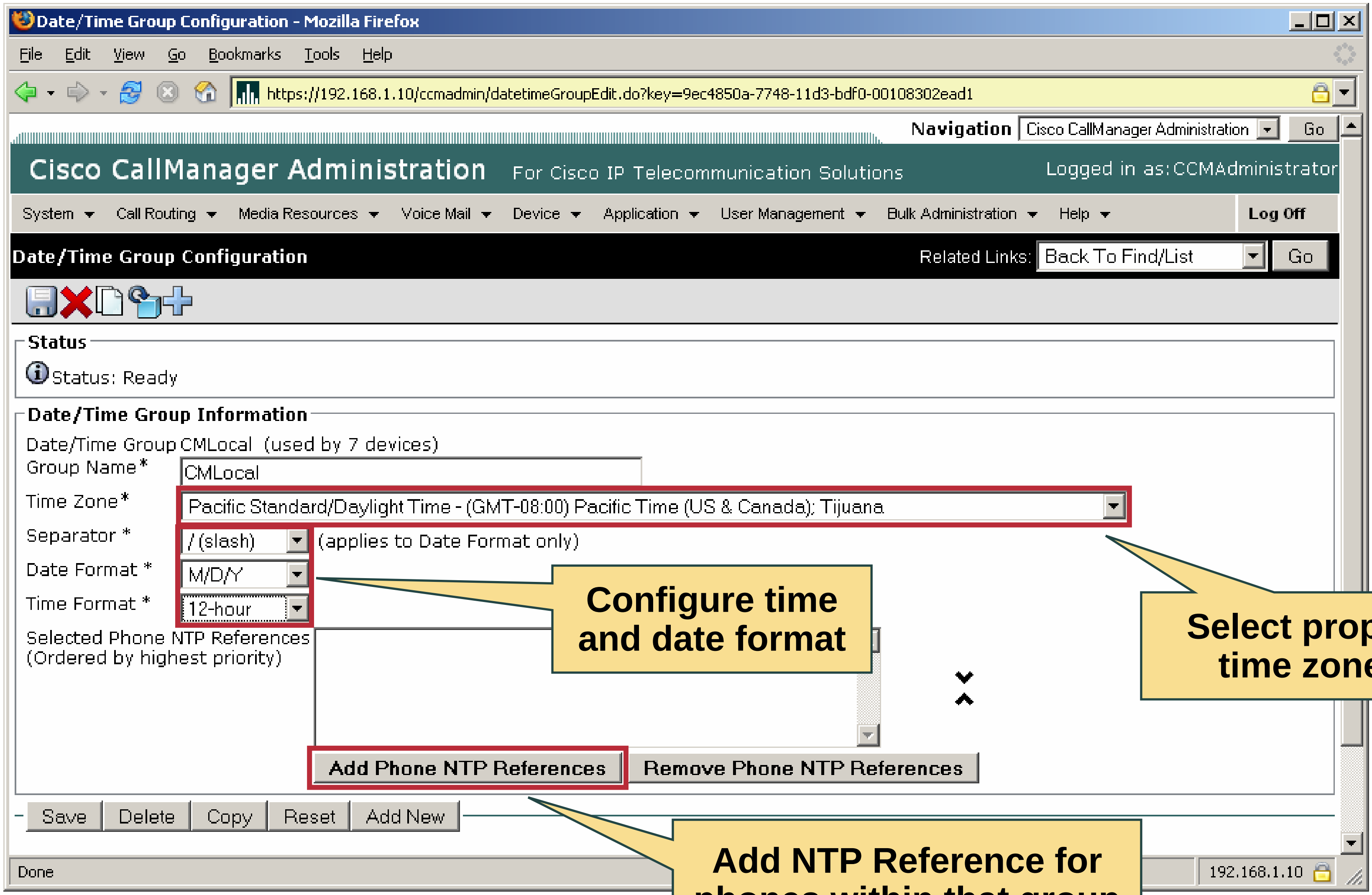
	Name	Time Zone
☐	CMLocal	Greenwich Standard Time

Rows per Page 50

Search for existing Date/Time Groups

Select default time zone CMLocal

Time Zone


Date/Time Group Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/datetimeGroupEdit.do?key=9ec4850a-7748-11d3-bdf0-00108302ead1
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Date/Time Group Configuration
Related Links: Back To Find/List Go
Add Phone NTP References
Remove Phone NTP References
Save Delete Copy Reset Add New
Done
192.168.1.10

Status

Status: Ready

Date/Time Group Information

Date/Time Group CMLocal (used by 7 devices)

Group Name* CMLocal

Time Zone* Pacific Standard/Daylight Time - (GMT-08:00) Pacific Time (US & Canada); Tijuana

Separator * / (slash) (applies to Date Format only)

Date Format * M/D/Y

Time Format * 12-hour

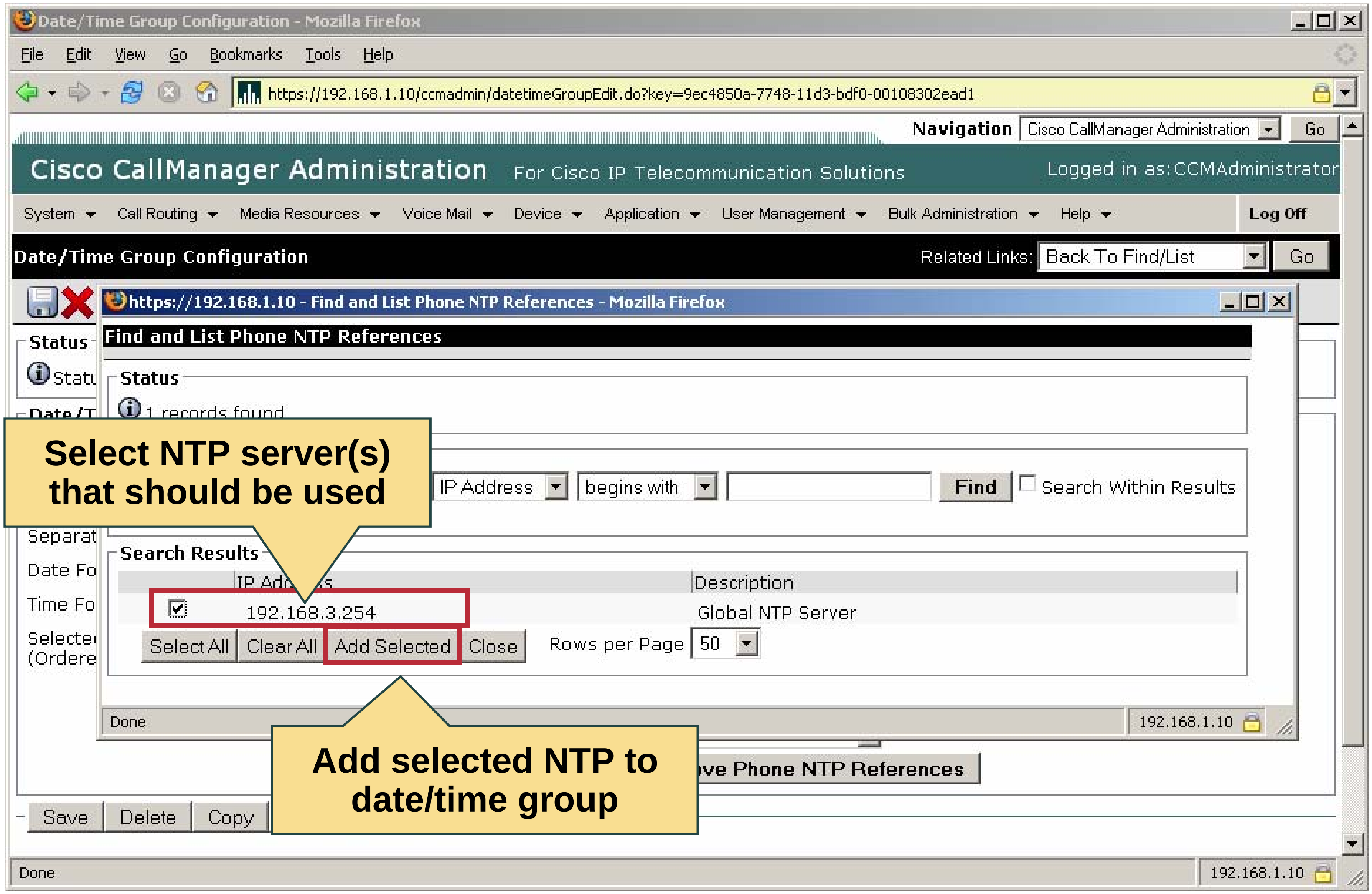
Selected Phone NTP References (Ordered by highest priority)

Configure time and date format

Select proper time zone

Add NTP Reference for phones within that group

Time Zone


Date/Time Group Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/datetimeGroupEdit.do?key=9ec4850a-7748-11d3-bdf0-00108302ead1
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Date/Time Group Configuration
Related Links: Back To Find/List Go
https://192.168.1.10 - Find and List Phone NTP References - Mozilla Firefox
Find and List Phone NTP References
Status
IP Address begins with Find
☐ Search Within Results
Search Results
Select All Clear All Add Selected Close
Rows per Page 50
Done
192.168.1.10
ve Phone NTP References
Save Delete Copy
Done
192.168.1.10

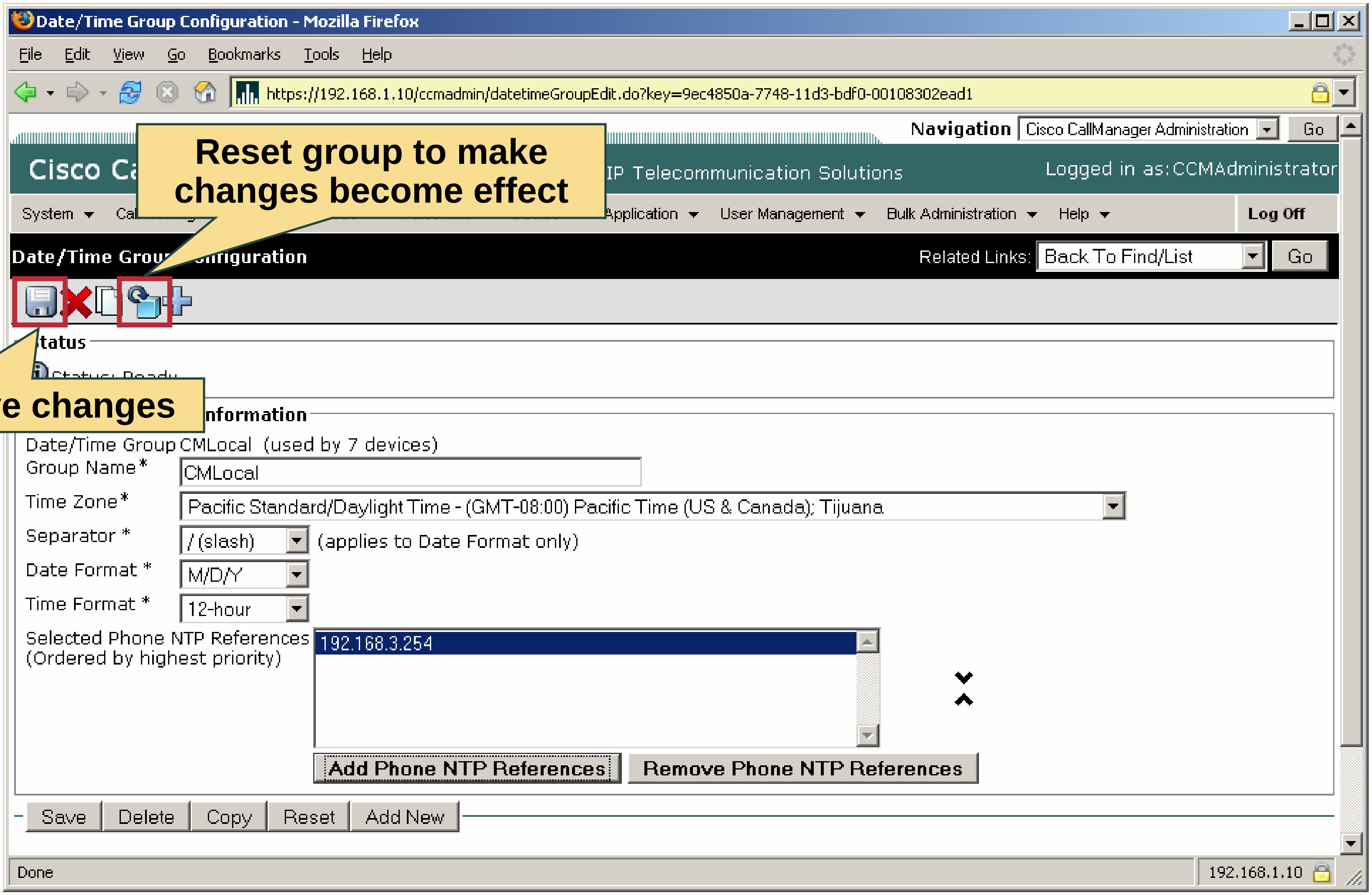
Status: 1 records found

	IP Address	Description
☑	192.168.3.254	Global NTP Server

Select NTP server(s) that should be used

Add selected NTP to date/time group

Time Zone


Date/Time Group Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/datetimeGroupEdit.do?key=9ec4850a-7748-11d3-bdf0-00108302ead1
Navigation Cisco CallManager Administration Go
Cisco Ca
IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Ca Application User Management Bulk Administration Help Log Off
Date/Time Grou onfiguration
Related Links: Back To Find/List Go
tatus
Status: Ready
nformation
Add Phone NTP References
Remove Phone NTP References
Save Delete Copy Reset Add New
Done
192.168.1.10

Reset group to make changes become effect

Save changes

Date/Time Group CMLocal (used by 7 devices)

Group Name* CMLocal

Time Zone* Pacific Standard/Daylight Time - (GMT-08:00) Pacific Time (US & Canada); Tijuana

Separator * / (slash) (applies to Date Format only)

Date Format * M/D/Y

Time Format * 12-hour

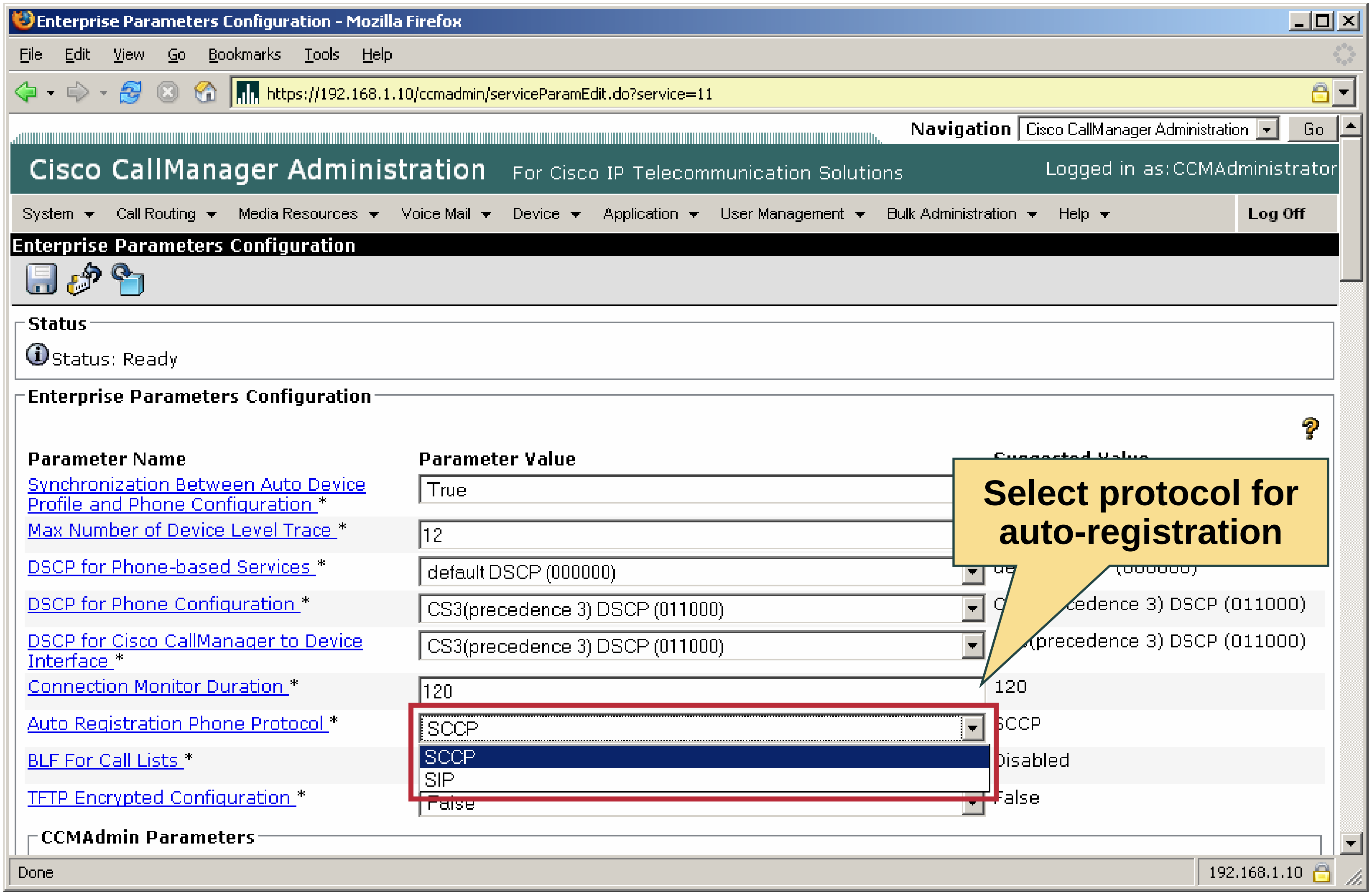
Selected Phone NTP References (Ordered by highest priority) 192.168.3.254

Enterprise Parameters

Enterprise parameters are used to define cluster wide system settings like:

- **Default phone protocol (SCCP or SIP).**
- **Cisco Unified CallManager user web-page content.**
- **System URLs used by Phones.**

Enterprise Parameters


Enterprise Parameters Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/serviceParamEdit.do?service=11
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Enterprise Parameters Configuration
Status
Done
192.168.1.10

Status: Ready

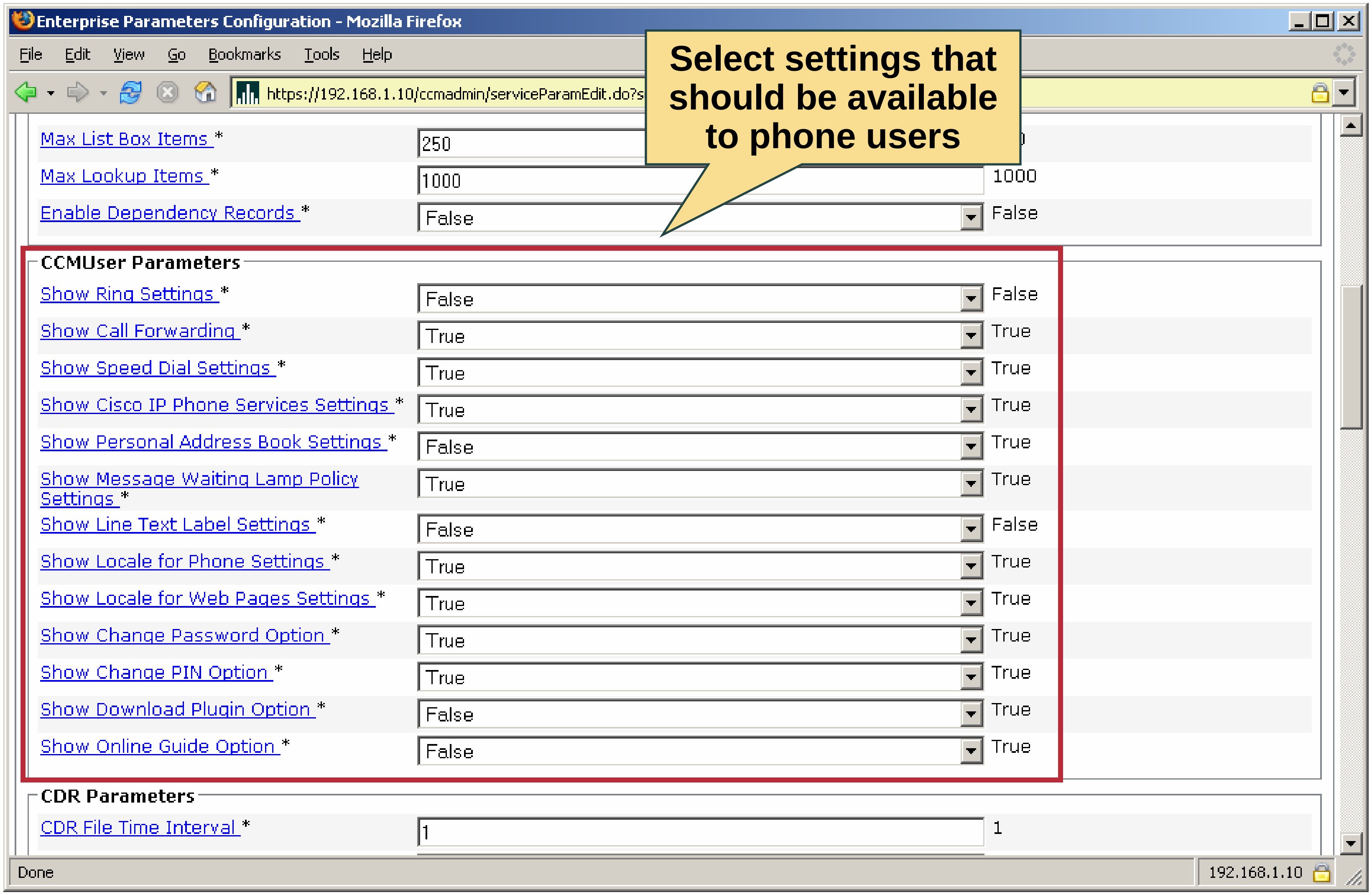
Enterprise Parameters Configuration

Parameter Name	Parameter Value	Suggested Value
Synchronization Between Auto Device Profile and Phone Configuration *	True	
Max Number of Device Level Trace *	12	
DSCP for Phone-based Services *	default DSCP (000000)	de (000000)
DSCP for Phone Configuration *	CS3(precedence 3) DSCP (011000)	C cedence 3) DSCP (011000)
DSCP for Cisco CallManager to Device Interface *	CS3(precedence 3) DSCP (011000)	(precedence 3) DSCP (011000)
Connection Monitor Duration *	120	120
Auto Registration Phone Protocol *	SCCP SCCP SIP	SCCP
BLF For Call Lists *		Disabled
TFTP Encrypted Configuration *	False	False

CCMAdmin Parameters

Select protocol for auto-registration

Enterprise Parameters


Enterprise Parameters Configuration - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
https://192.168.1.10/ccmadmin/serviceParamEdit.do?s
Done
192.168.1.10

Select settings that should be available to phone users

Max List Box Items *	250	
Max Lookup Items *	1000	1000
Enable Dependency Records *	False	False

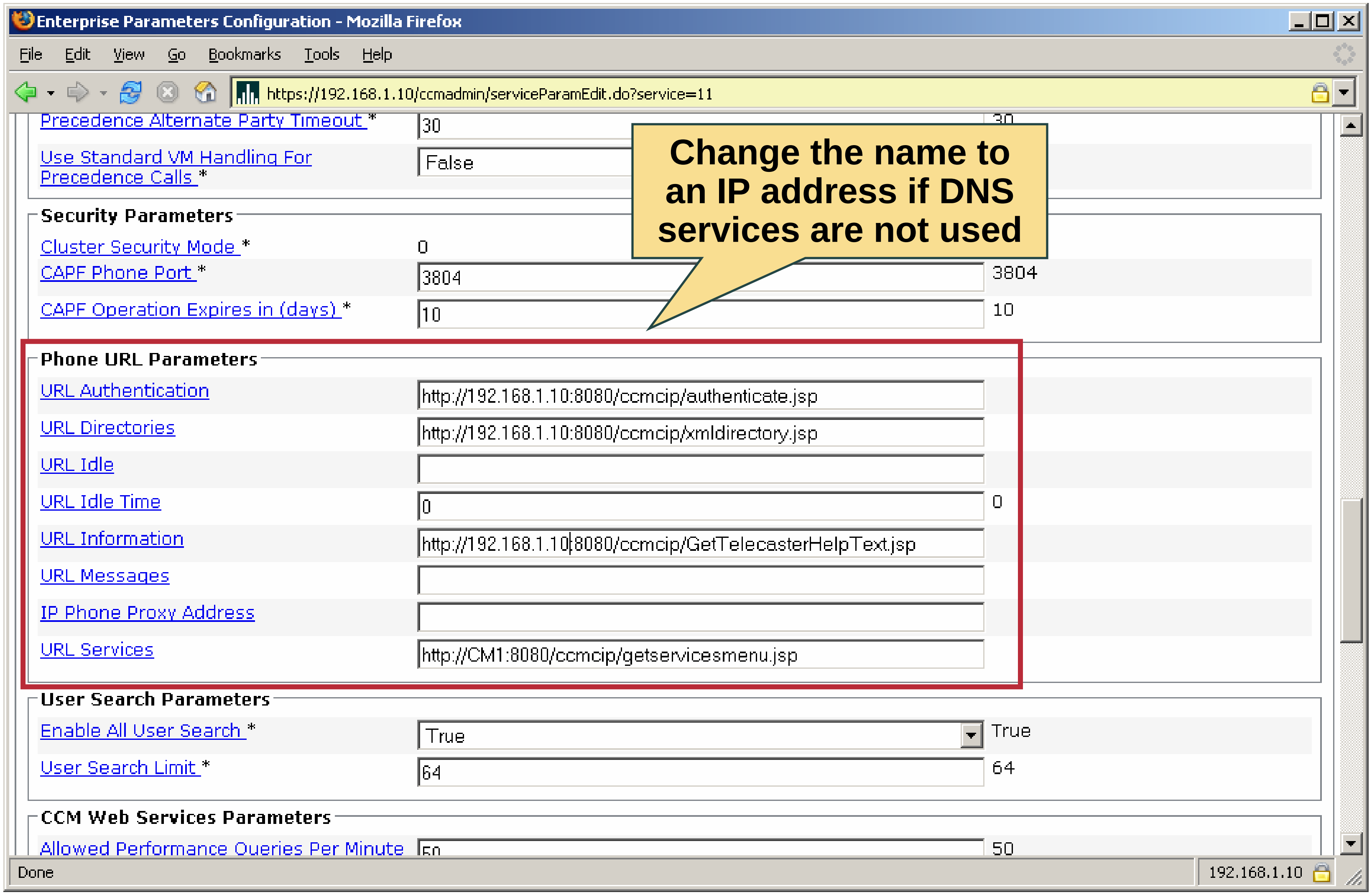
CCMUser Parameters

Show Ring Settings *	False	False
Show Call Forwarding *	True	True
Show Speed Dial Settings *	True	True
Show Cisco IP Phone Services Settings *	True	True
Show Personal Address Book Settings *	False	True
Show Message Waiting Lamp Policy Settings *	True	True
Show Line Text Label Settings *	False	False
Show Locale for Phone Settings *	True	True
Show Locale for Web Pages Settings *	True	True
Show Change Password Option *	True	True
Show Change PIN Option *	True	True
Show Download Plugin Option *	False	True
Show Online Guide Option *	False	True

CDR Parameters

CDR File Time Interval *	1	1

Enterprise Parameters


Enterprise Parameters Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/serviceParamEdit.do?service=11
Done
192.168.1.10

Precedence Alternate Party Timeout *	30	30
Use Standard VM Handling For Precedence Calls *	False	

Security Parameters

Cluster Security Mode *	0	
CAPF Phone Port *	3804	3804
CAPF Operation Expires in (days) *	10	10

Phone URL Parameters

URL Authentication	http://192.168.1.10:8080/ccmcip/authenticate.jsp	
URL Directories	http://192.168.1.10:8080/ccmcip/xmldirectory.jsp	
URL Idle		
URL Idle Time	0	0
URL Information	http://192.168.1.10:8080/ccmcip/GetTelecasterHelpText.jsp	
URL Messages		
IP Phone Proxy Address		
URL Services	http://CM1:8080/ccmcip/getservicesmenu.jsp	

User Search Parameters

Enable All User Search *	True	True
User Search Limit *	64	64

CCM Web Services Parameters

Allowed Performance Queries Per Minute	50	50

Change the name to an IP address if DNS services are not used

Summary

- Cisco Unified CallManager 5.0 needs a basic configuration before any device is being added.
- Use IP addresses for Cisco Unified CallManager 5.0 to avoid dependencies on DNS servers.
- Services are activated through the service activation within the Cisco Unified CallManager serviceability.
- Service parameters are used to configure Cisco Unified CallManager services to apply individual needs.
- Time zones guarantee the correct time settings throughout multi-site networks.
- Enterprise parameters are used to define cluster wide parameter values.

Administering Cisco Unified CallManager 5.0

Serviceability and Platform Administration

Objectives

- Serviceability and Platform Administration Overview
- Cisco Unified CallManager 5.0 Alarms
- Cisco Unified CallManager 5.0 Traces
- Tools Menu
- SNMP Configuration
- CLI Commands and Platform Administration
- Additional Tools to Manage Cisco Unified CallManager 5.0

Serviceability and Platform Administration Overview

Cisco Unified CallManager system and platform management are done via the web, CLI, and management tools:

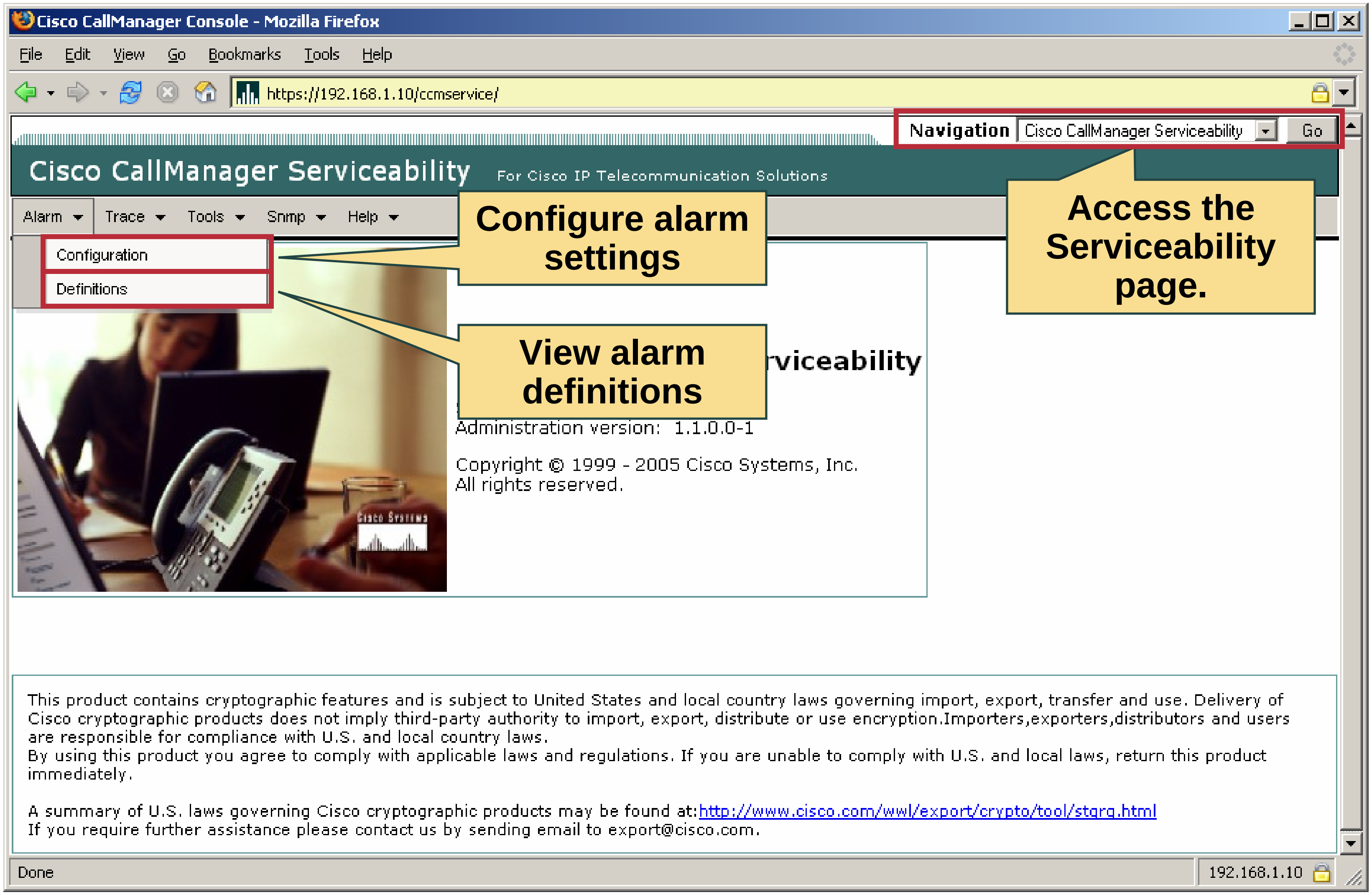
- **Cisco Unified CallManager Serviceability allows to configure necessary alarms and traces for Cisco Unified CallManager 5.0.**
- **Cisco Unified CallManager Platform Administration is used to manage the Cisco Unified CallManager 5.0 Linux platform.**
- **Cisco Unified CallManager SSH access allows to manage the system using CLI commands.**
- **Cisco Unified CallManager 5.0 can be monitored with Network Management applications.**

Cisco Unified CallManager 5.0 Alarms

Alarms on Cisco Unified CallManager 5.0:

- Alarms are configured via the Cisco Unified CallManager Serviceability.
- Alarms can be defined for each service individually.
- Alarms can be stored locally on the system and/or a syslog server.
- The alarm level can be defined individually for every destination.
- Use alarms to pinpoint problem areas in your network.

Cisco Unified CallManager 5.0 Alarms



Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmservice/
Navigation
Cisco CallManager Serviceability
Go
Cisco CallManager Serviceability
For Cisco IP Telecommunication Solutions
Alarm
Trace
Tools
Snmp
Help
Configuration
Definitions
rviceability
Done
192.168.1.10

Configure alarm settings

View alarm definitions

Access the Serviceability page.

Administration version: 1.1.0.0-1

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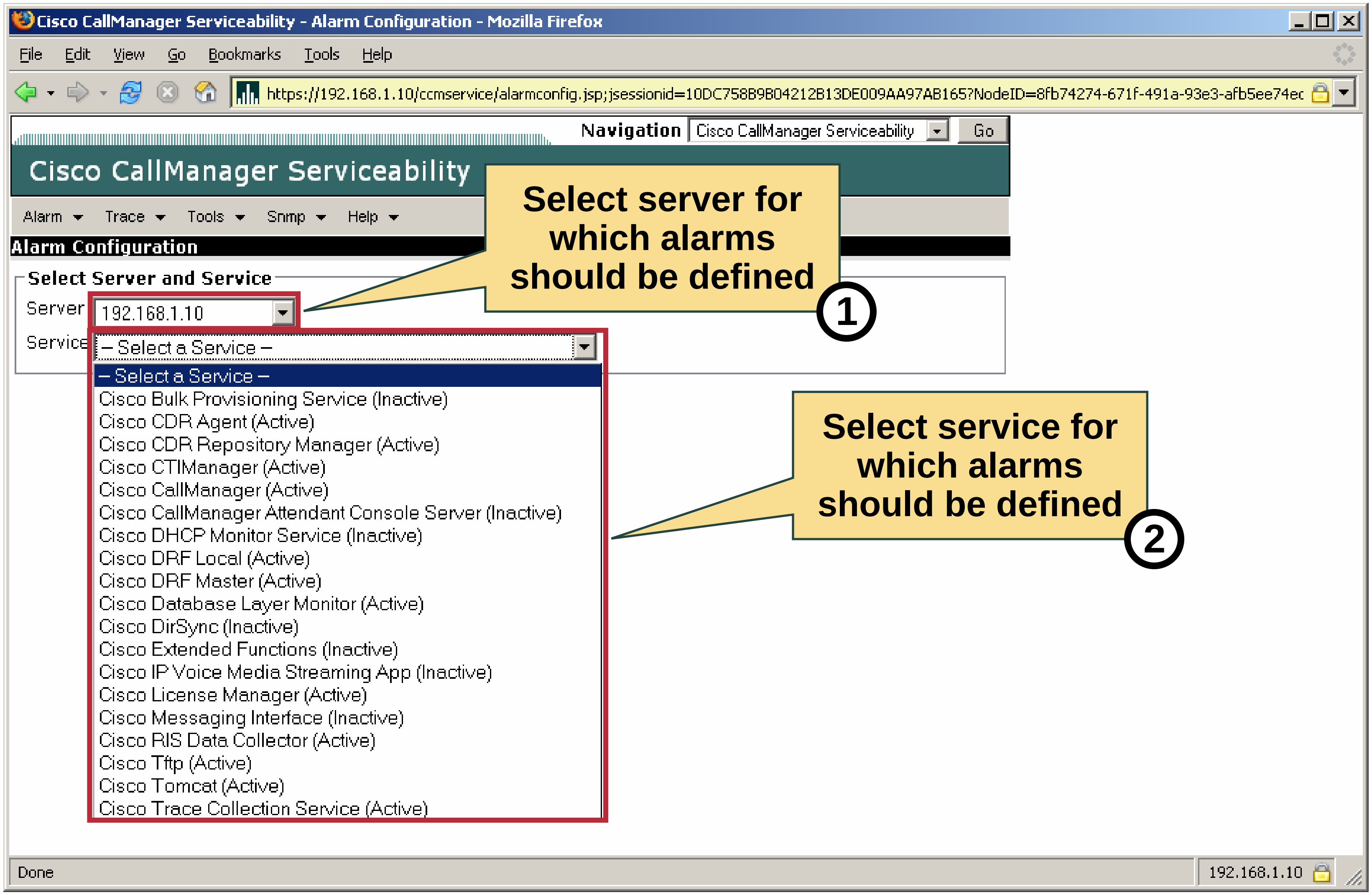
Cisco Unified CallManager 5.0 Alarms


Cisco CallManager Serviceability - Alarm Configuration - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
Navigation
Cisco CallManager Serviceability
Go
Cisco CallManager Serviceability
Alarm
Trace
Tools
Snmp
Help
Alarm Configuration
Done
192.168.1.10

https://192.168.1.10/ccmservice/alarmconfig.jsp;jsessionid=10DC758B9B04212B13DE009AA97AB165?NodeID=8fb74274-671f-491a-93e3-afb5ee74ec

Select Server and Service

Server: 192.168.1.10

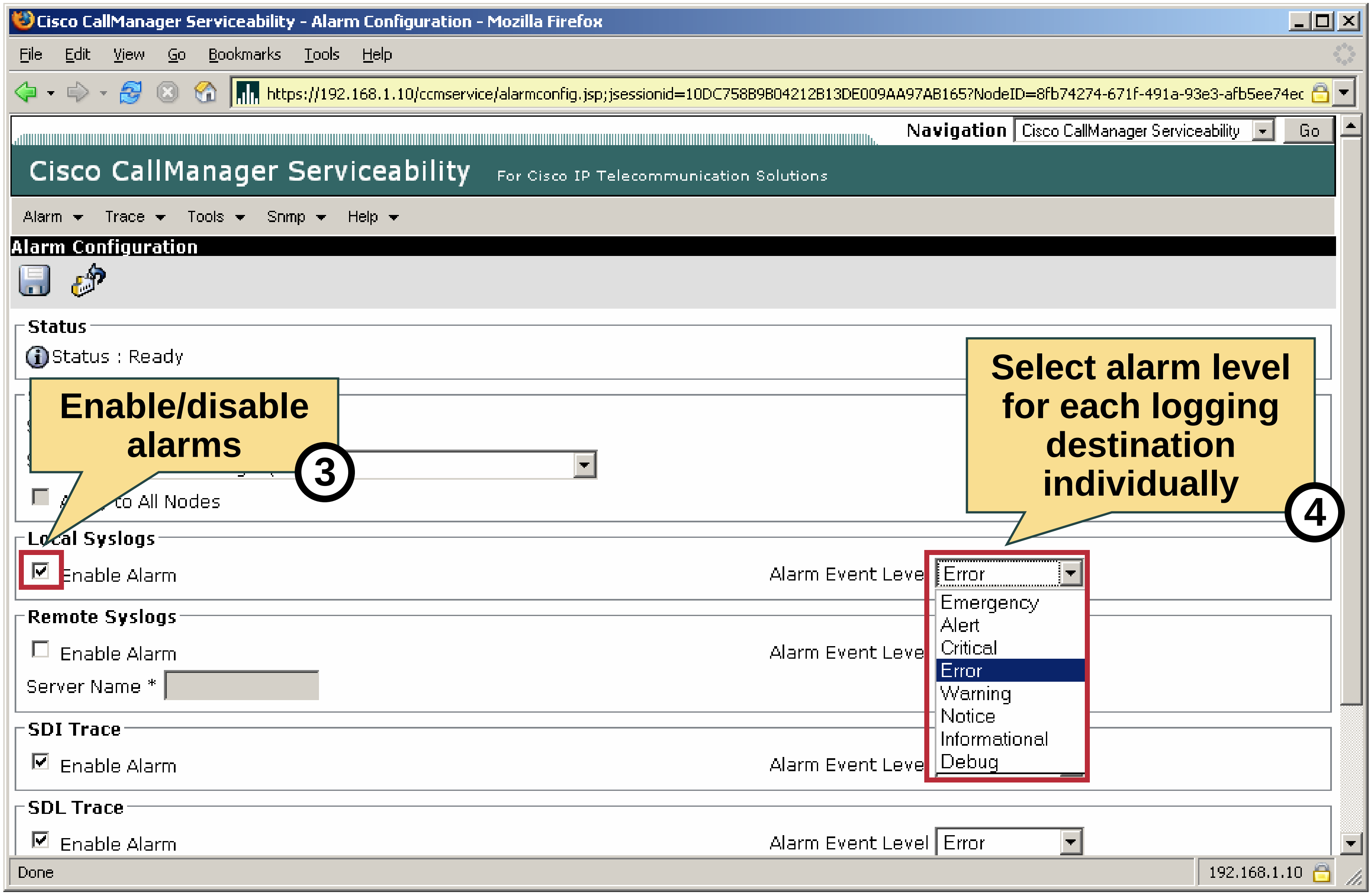
Service: -- Select a Service --

- -- Select a Service --
- Cisco Bulk Provisioning Service (Inactive)
- Cisco CDR Agent (Active)
- Cisco CDR Repository Manager (Active)
- Cisco CTIManager (Active)
- Cisco CallManager (Active)
- Cisco CallManager Attendant Console Server (Inactive)
- Cisco DHCP Monitor Service (Inactive)
- Cisco DRF Local (Active)
- Cisco DRF Master (Active)
- Cisco Database Layer Monitor (Active)
- Cisco DirSync (Inactive)
- Cisco Extended Functions (Inactive)
- Cisco IP Voice Media Streaming App (Inactive)
- Cisco License Manager (Active)
- Cisco Messaging Interface (Inactive)
- Cisco RIS Data Collector (Active)
- Cisco Tftp (Active)
- Cisco Tomcat (Active)
- Cisco Trace Collection Service (Active)

① Select server for which alarms should be defined

② Select service for which alarms should be defined

Cisco Unified CallManager 5.0 Alarms


Cisco CallManager Serviceability - Alarm Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Serviceability Go
Cisco CallManager Serviceability For Cisco IP Telecommunication Solutions
Alarm Trace Tools Snmp Help
Alarm Configuration

https://192.168.1.10/ccmservice/alarmconfig.jsp;jsessionid=10DC758B9B04212B13DE009AA97AB165?NodeID=8fb74274-671f-491a-93e3-afb5ee74ec

Status

Status : Ready

☐ to All Nodes

Local Syslogs

☑ Enable Alarm — Alarm Event Level: Error

Emergency
Alert
Critical
Error
Warning
Notice
Informational
Debug

Remote Syslogs

☐ Enable Alarm — Alarm Event Level

Server Name *

SDI Trace

☑ Enable Alarm — Alarm Event Level

SDL Trace

☑ Enable Alarm — Alarm Event Level: Error

Done — 192.168.1.10

③ Enable/disable alarms

④ Select alarm level for each logging destination individually

Cisco Unified CallManager 5.0 Alarms

Alarm Event Levels:

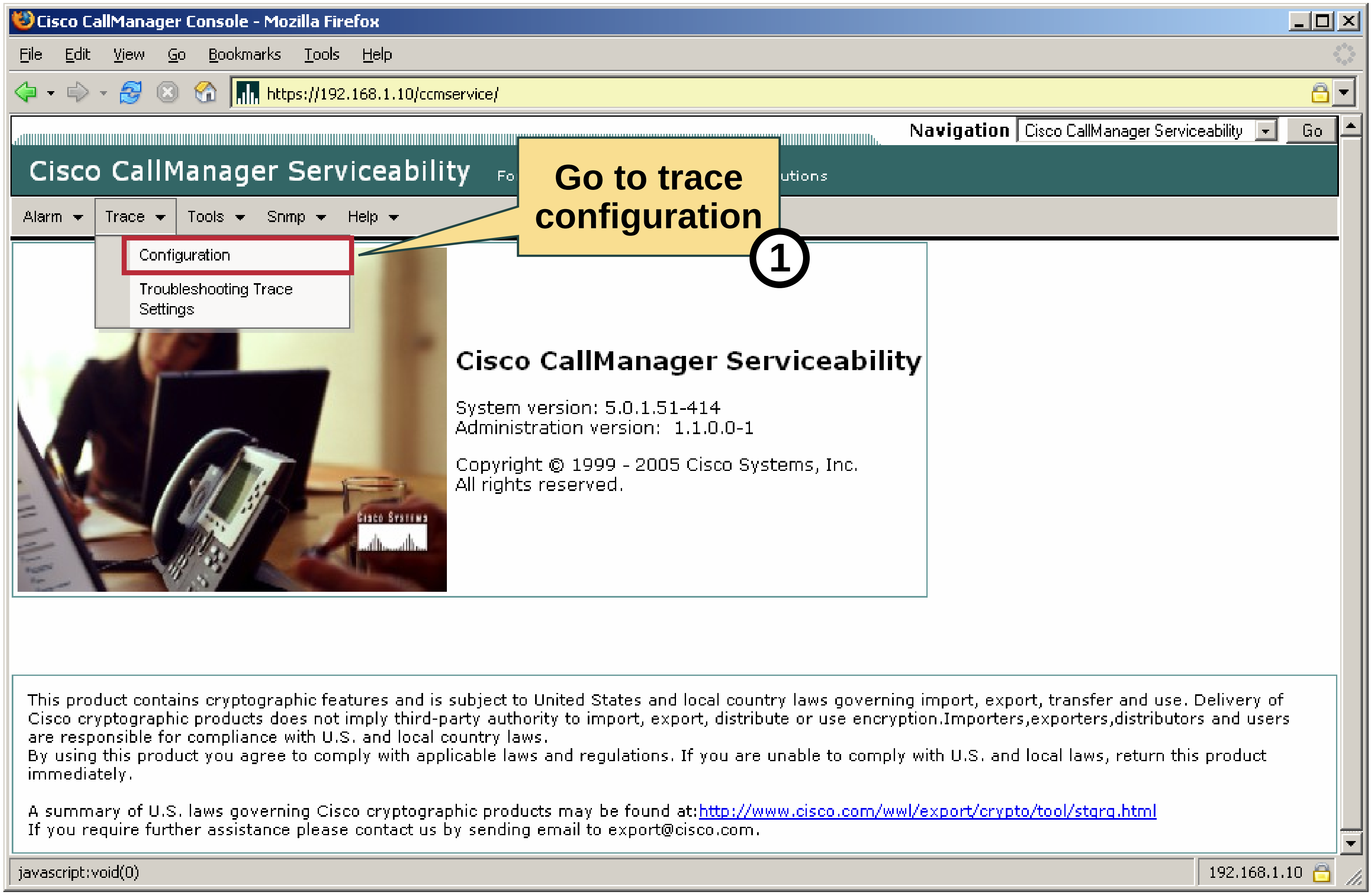
Level	Name	Description
7	Emergency	System is unusable.
6	Alert	Immediate action is needed.
5	Critical	Critical condition is detected.
4	Error	Error condition exists.
3	Warning	Warning condition is detected.
2	Notice	Normal but significant condition.
1	Informational	Information messages only.
0	Debug	Detailed event information used for debugging by Cisco TAC engineers.

Cisco Unified CallManager 5.0 Traces

Traces on Cisco Unified CallManager 5.0:

- Traces are configured via the Cisco Unified CallManager Serviceability.
- Traces can be defined for each Cisco Unified CallManager server individually.
- Tracing can be enabled/disabled for each parameter of a service individually.
- Traces are stored locally on the system.

Cisco Unified CallManager 5.0 Traces


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmservice/
Navigation
Cisco CallManager Serviceability
Go
Cisco CallManager Serviceability
Fo
utions
Alarm
Trace
Tools
Snmp
Help
Configuration
Troubleshooting Trace Settings
javascript:void(0)
192.168.1.10

Go to trace configuration ①

Cisco CallManager Serviceability

System version: 5.0.1.51-414
Administration version: 1.1.0.0-1

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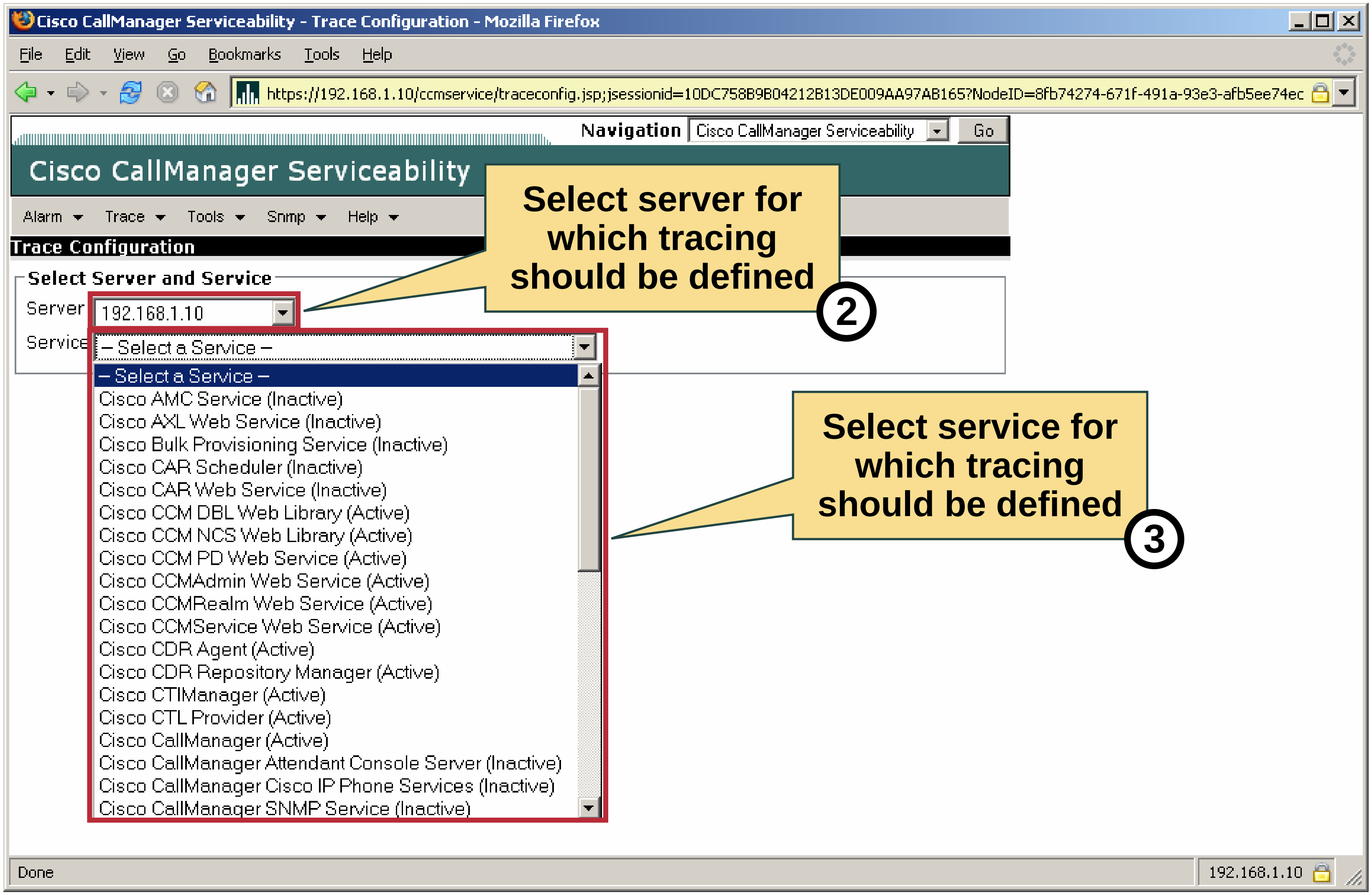
Cisco Unified CallManager 5.0 Traces

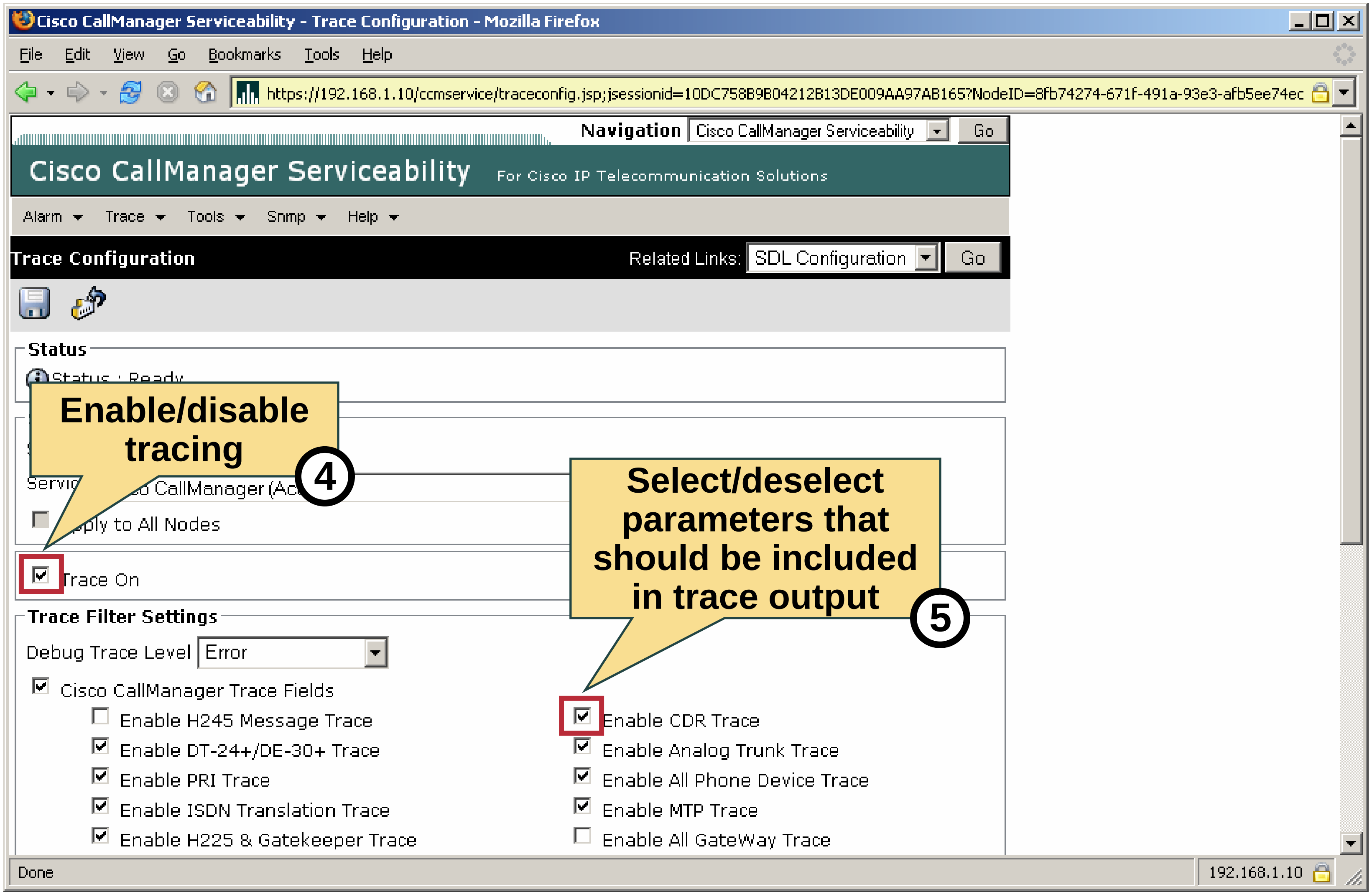


Cisco CallManager Serviceability - Trace Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmservice/traceconfig.jsp;jsessionid=10DC758B9B04212B13DE009AA97AB165?NodeID=8fb74274-671f-491a-93e3-afb5ee74ec
Navigation Cisco CallManager Serviceability Go
Cisco CallManager Serviceability
Alarm Trace Tools Snmp Help
Trace Configuration
Select Server and Service
Server 192.168.1.10
Service – Select a Service –
– Select a Service –
Cisco AMC Service (Inactive)
Cisco AXL Web Service (Inactive)
Cisco Bulk Provisioning Service (Inactive)
Cisco CAR Scheduler (Inactive)
Cisco CAR Web Service (Inactive)
Cisco CCM DBL Web Library (Active)
Cisco CCM NCS Web Library (Active)
Cisco CCM PD Web Service (Active)
Cisco CCMAdmin Web Service (Active)
Cisco CCMRealm Web Service (Active)
Cisco CCMService Web Service (Active)
Cisco CDR Agent (Active)
Cisco CDR Repository Manager (Active)
Cisco CTIManager (Active)
Cisco CTL Provider (Active)
Cisco CallManager (Active)
Cisco CallManager Attendant Console Server (Inactive)
Cisco CallManager Cisco IP Phone Services (Inactive)
Cisco CallManager SNMP Service (Inactive)
Done
192.168.1.10

Select server for which tracing should be defined ②

Select service for which tracing should be defined ③

Cisco Unified CallManager 5.0 Traces


Cisco CallManager Serviceability - Trace Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmservice/traceconfig.jsp;jsessionid=10DC758B9B04212B13DE009AA97AB165?NodeID=8fb74274-671f-491a-93e3-afb5ee74ec
Navigation Cisco CallManager Serviceability Go
Cisco CallManager Serviceability For Cisco IP Telecommunication Solutions
Alarm Trace Tools Snmp Help
Trace Configuration
Related Links: SDL Configuration Go
Done
192.168.1.10

Status

Status : Ready

Servic… …o CallManager (Ac…

☐ …ply to All Nodes

☑ Trace On

Trace Filter Settings

Debug Trace Level: Error

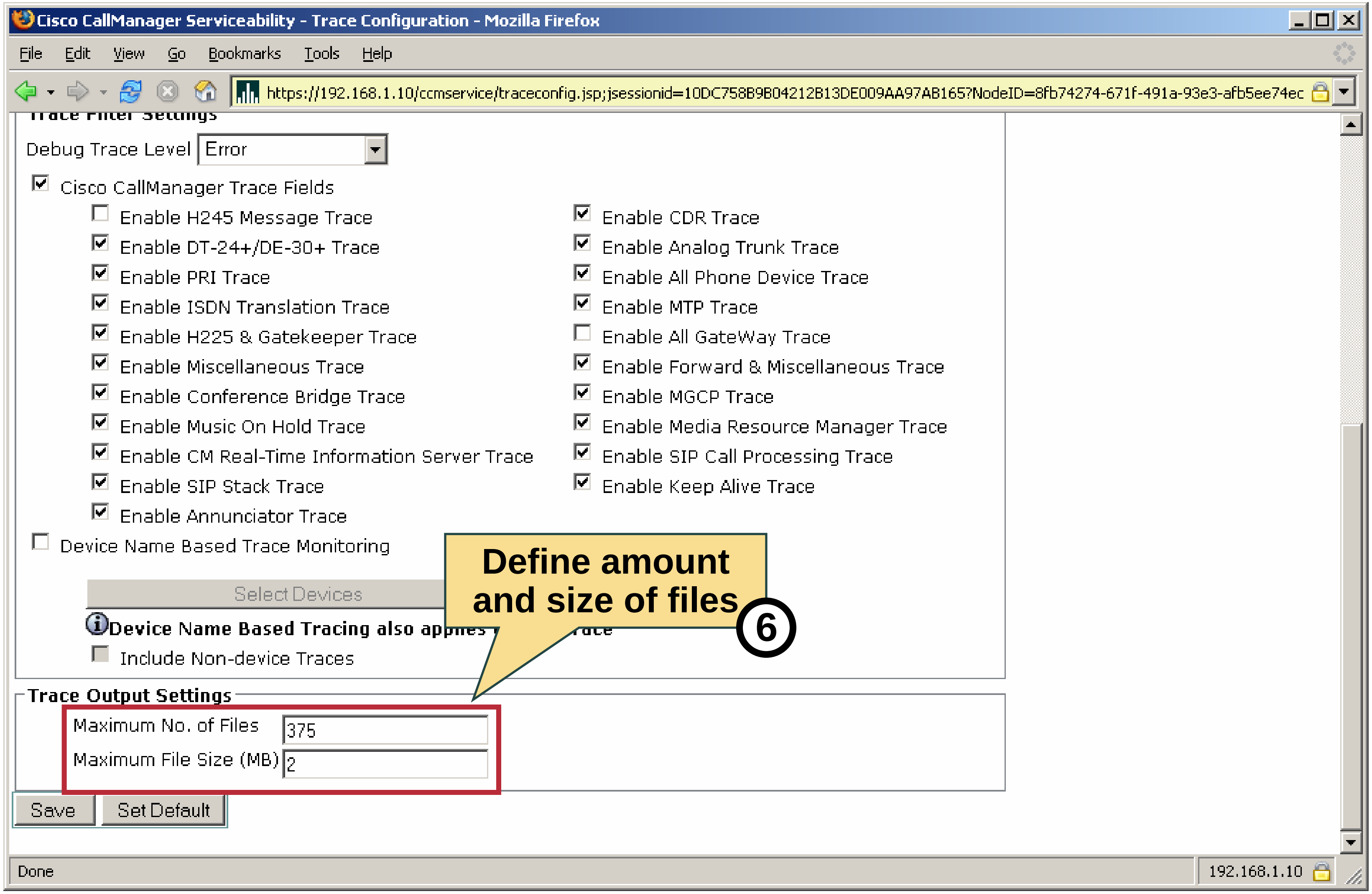
☑ Cisco CallManager Trace Fields

☐ Enable H245 Message Trace	☑ Enable CDR Trace
☑ Enable DT-24+/DE-30+ Trace	☑ Enable Analog Trunk Trace
☑ Enable PRI Trace	☑ Enable All Phone Device Trace
☑ Enable ISDN Translation Trace	☑ Enable MTP Trace
☑ Enable H225 & Gatekeeper Trace	☐ Enable All GateWay Trace

④ Enable/disable tracing

⑤ Select/deselect parameters that should be included in trace output

Cisco Unified CallManager 5.0 Traces



Cisco CallManager Serviceability - Trace Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmservice/traceconfig.jsp;jsessionid=10DC758B9B04212B13DE009AA97AB165?NodeID=8fb74274-671f-491a-93e3-afb5ee74ec

Trace Filter Settings

Debug Trace Level: Error

☑ Cisco CallManager Trace Fields

☐ Enable H245 Message Trace	☑ Enable CDR Trace
☑ Enable DT-24+/DE-30+ Trace	☑ Enable Analog Trunk Trace
☑ Enable PRI Trace	☑ Enable All Phone Device Trace
☑ Enable ISDN Translation Trace	☑ Enable MTP Trace
☑ Enable H225 & Gatekeeper Trace	☐ Enable All GateWay Trace
☑ Enable Miscellaneous Trace	☑ Enable Forward & Miscellaneous Trace
☑ Enable Conference Bridge Trace	☑ Enable MGCP Trace
☑ Enable Music On Hold Trace	☑ Enable Media Resource Manager Trace
☑ Enable CM Real-Time Information Server Trace	☑ Enable SIP Call Processing Trace
☑ Enable SIP Stack Trace	☑ Enable Keep Alive Trace
☑ Enable Annunciator Trace	

☐ Device Name Based Trace Monitoring

Select Devices

Device Name Based Tracing also applies ... race

☐ Include Non-device Traces

Trace Output Settings

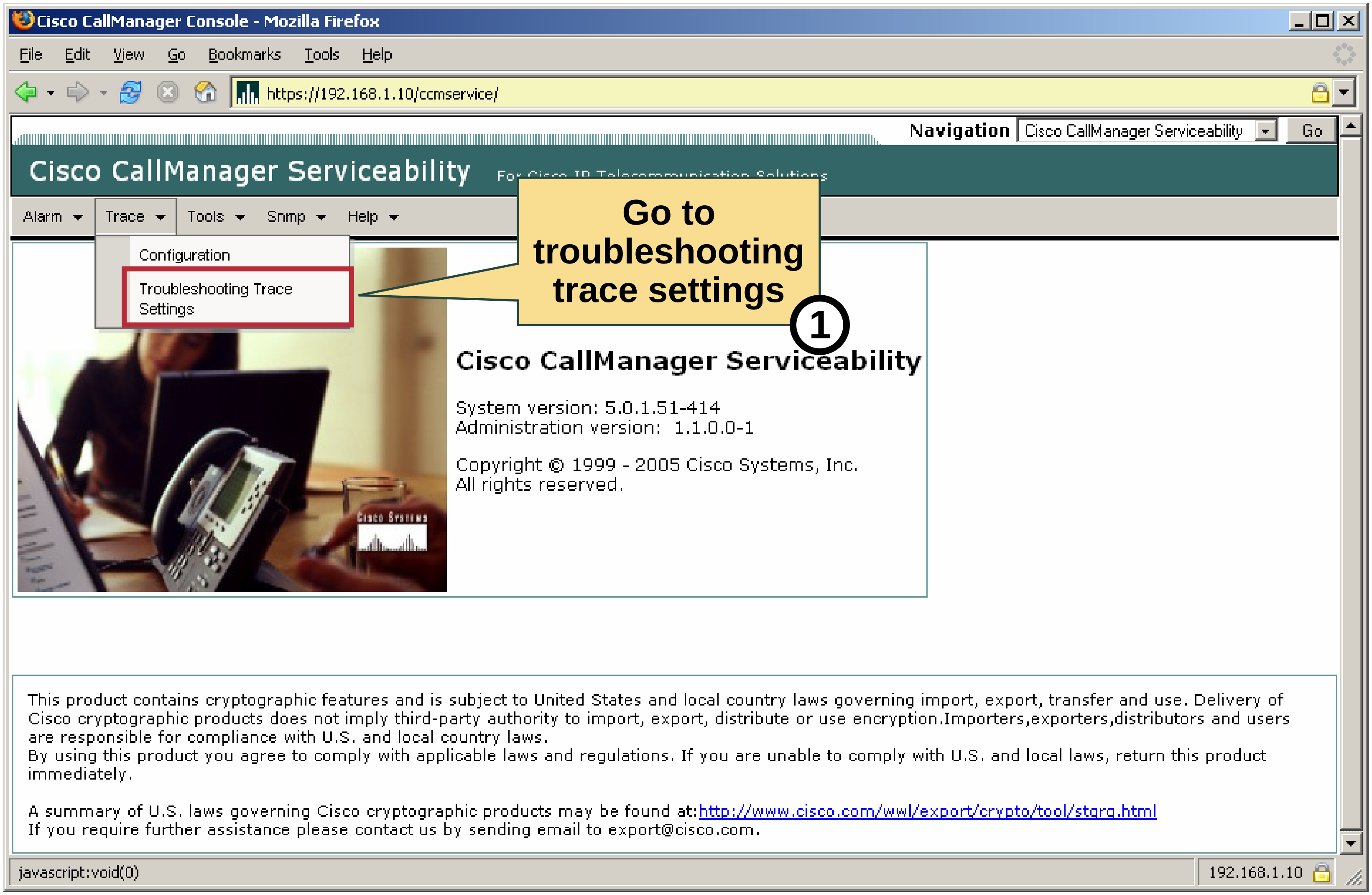
Maximum No. of Files: 375

Maximum File Size (MB): 2

Save
Set Default
Done
192.168.1.10

Define amount and size of files ⑥

Cisco Unified CallManager 5.0 Traces


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmservice/
Navigation Cisco CallManager Serviceability Go
Cisco CallManager Serviceability For Cisco IP Telecommunication Solutions
Alarm Trace Tools Snmp Help
Configuration
Troubleshooting Trace Settings
javascript:void(0)
192.168.1.10

Go to troubleshooting trace settings ①

Cisco CallManager Serviceability

System version: 5.0.1.51-414
Administration version: 1.1.0.0-1

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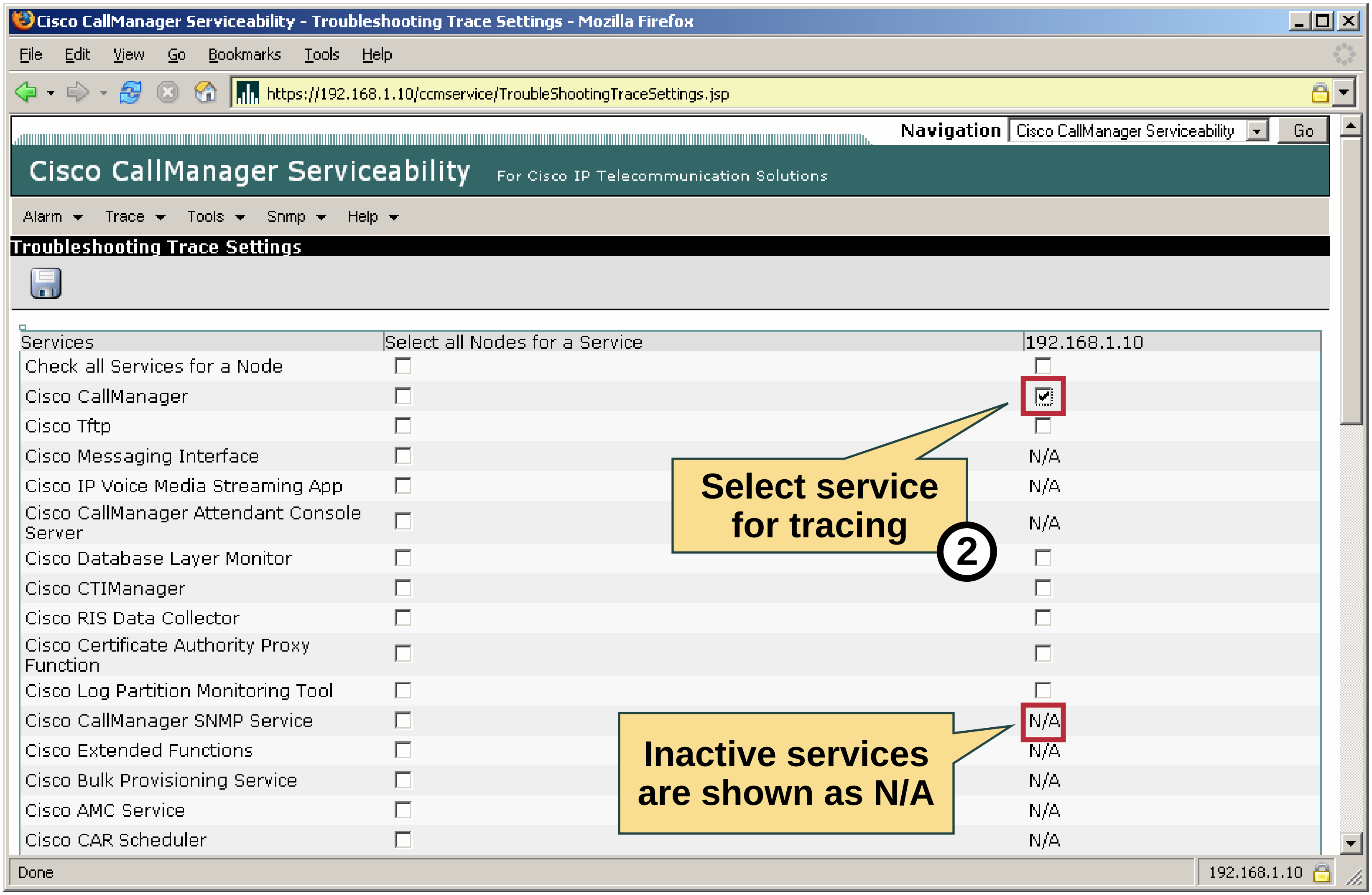
Cisco Unified CallManager 5.0 Traces


Cisco CallManager Serviceability - Troubleshooting Trace Settings - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmservice/TroubleShootingTraceSettings.jsp
Navigation Cisco CallManager Serviceability Go
Cisco CallManager Serviceability For Cisco IP Telecommunication Solutions
Alarm Trace Tools Snmp Help
Done
192.168.1.10

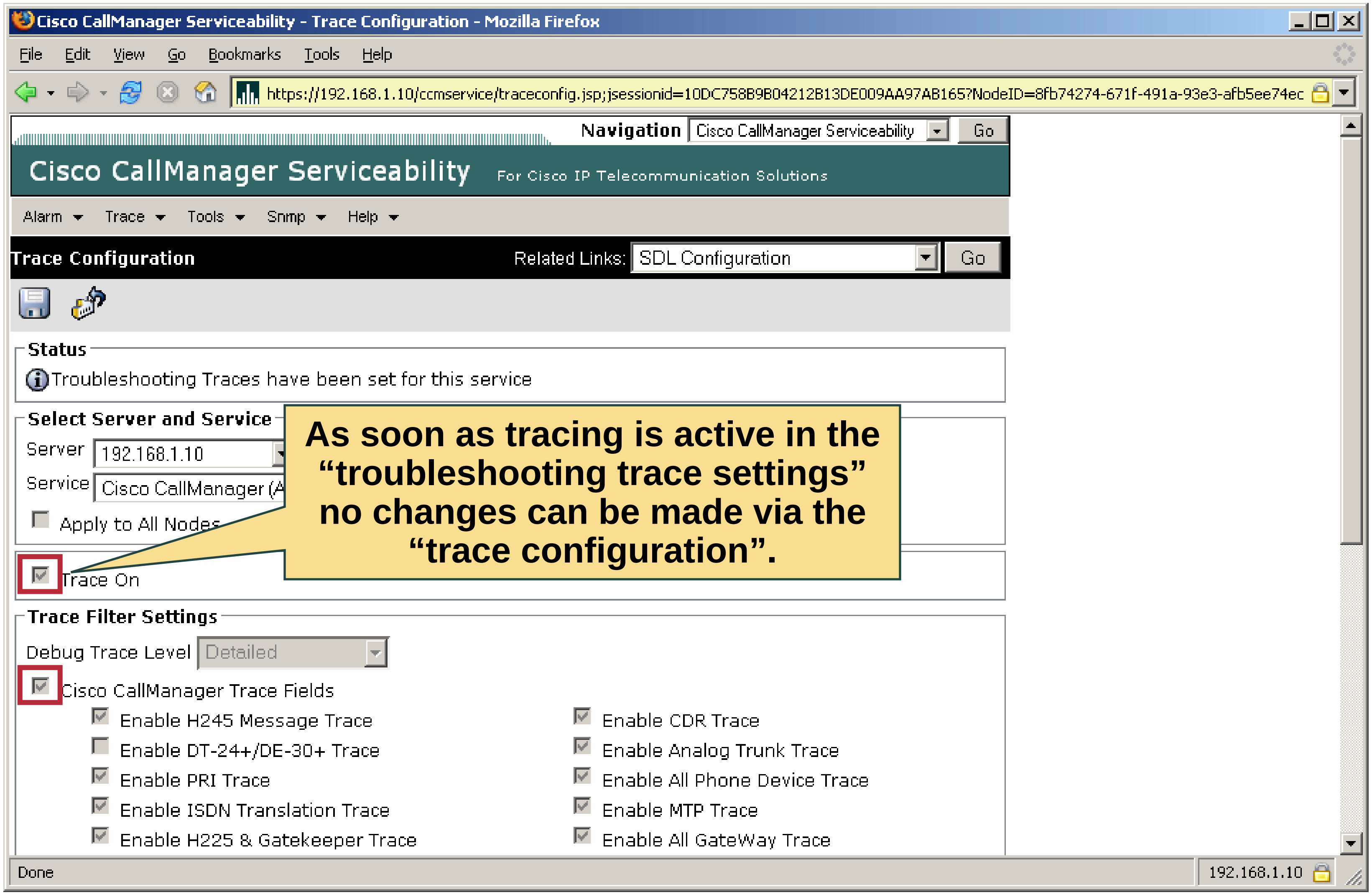
Troubleshooting Trace Settings

Services	Select all Nodes for a Service	192.168.1.10
Check all Services for a Node	☐	☐
Cisco CallManager	☐	☑
Cisco Tftp	☐	☐
Cisco Messaging Interface	☐	N/A
Cisco IP Voice Media Streaming App	☐	N/A
Cisco CallManager Attendant Console Server	☐	N/A
Cisco Database Layer Monitor	☐	☐
Cisco CTIManager	☐	☐
Cisco RIS Data Collector	☐	☐
Cisco Certificate Authority Proxy Function	☐	☐
Cisco Log Partition Monitoring Tool	☐	☐
Cisco CallManager SNMP Service	☐	N/A
Cisco Extended Functions	☐	N/A
Cisco Bulk Provisioning Service	☐	N/A
Cisco AMC Service	☐	N/A
Cisco CAR Scheduler	☐	N/A

Select service for tracing ②

Inactive services are shown as N/A

Cisco Unified CallManager 5.0 Traces


Cisco CallManager Serviceability - Trace Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmservice/traceconfig.jsp;jsessionid=10DC758B9B04212B13DE009AA97AB165?NodeID=8fb74274-671f-491a-93e3-afb5ee74ec
Navigation Cisco CallManager Serviceability Go
Cisco CallManager Serviceability For Cisco IP Telecommunication Solutions
Alarm Trace Tools Snmp Help
Trace Configuration
Related Links: SDL Configuration Go
Done
192.168.1.10

Status

Troubleshooting Traces have been set for this service

Select Server and Service

Server 192.168.1.10

Service Cisco CallManager (A

☐ Apply to All Nodes

☑ Trace On

Trace Filter Settings

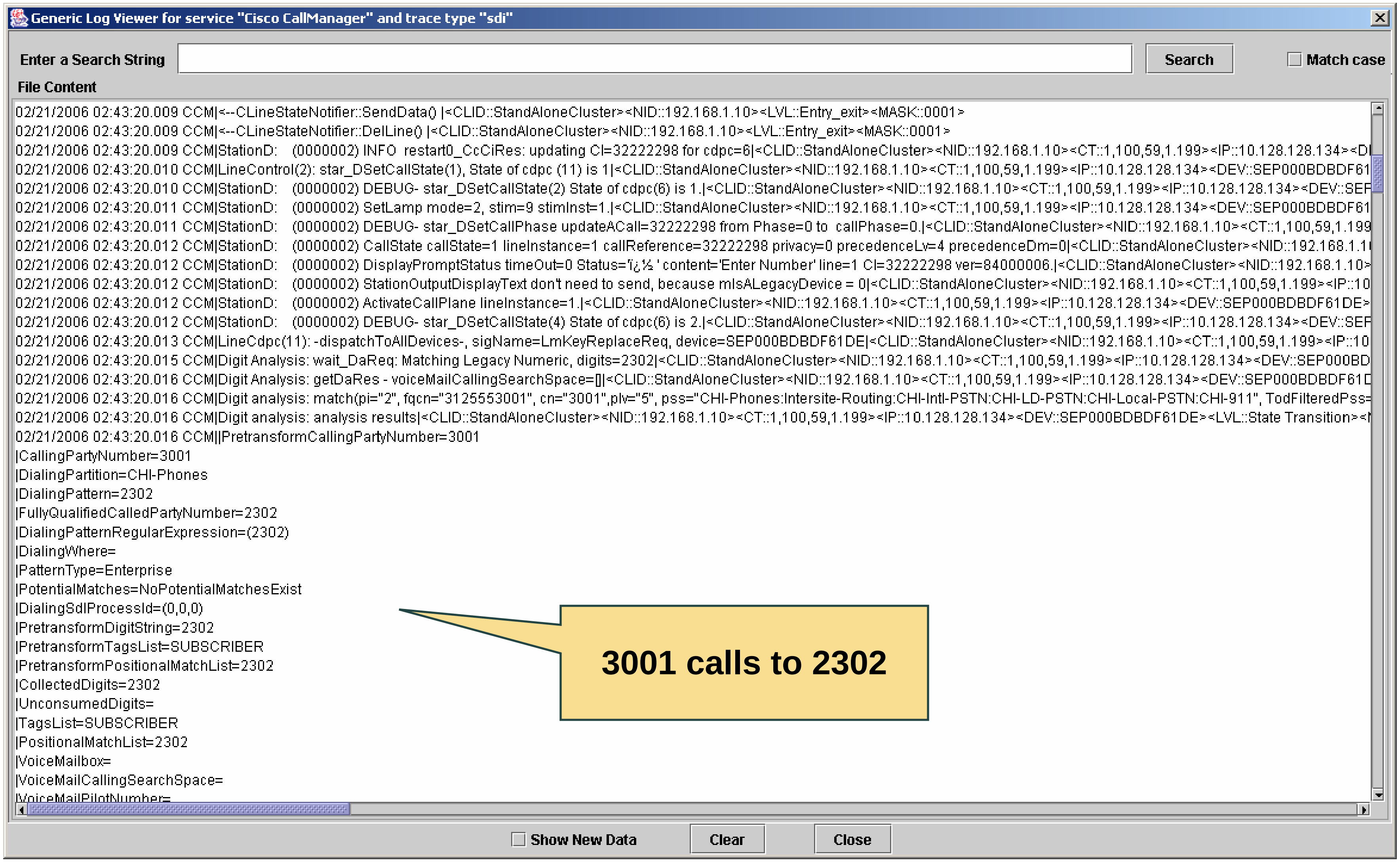
Debug Trace Level Detailed

☑ Cisco CallManager Trace Fields

☑ Enable H245 Message Trace	☑ Enable CDR Trace
☐ Enable DT-24+/DE-30+ Trace	☑ Enable Analog Trunk Trace
☑ Enable PRI Trace	☑ Enable All Phone Device Trace
☑ Enable ISDN Translation Trace	☑ Enable MTP Trace
☑ Enable H225 & Gatekeeper Trace	☑ Enable All GateWay Trace

As soon as tracing is active in the “troubleshooting trace settings” no changes can be made via the “trace configuration”.

Cisco Unified CallManager 5.0 Traces



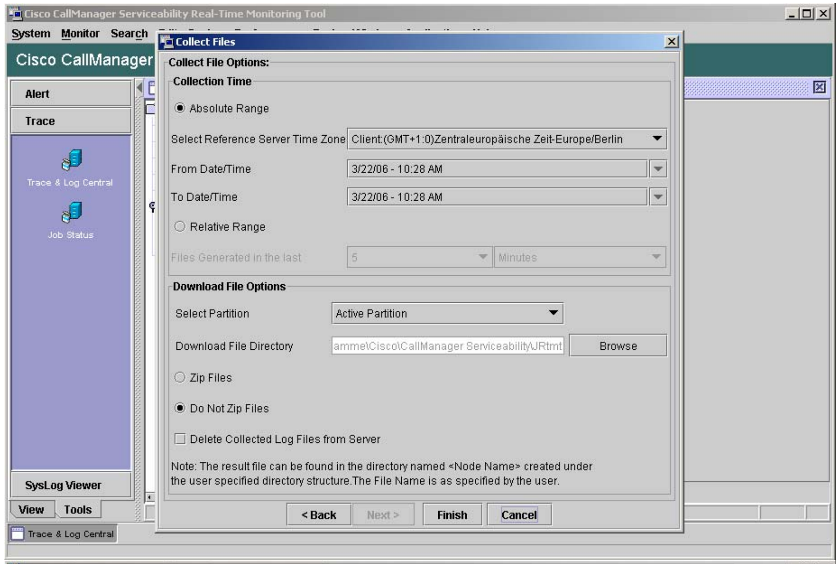
```
02/21/2006 02:43:20.009 CCM|<--CLineStateNotifier::SendData() |<CLID::StandAloneCluster><NID::192.168.1.10><LVL::Entry_exit><MASK::0001>
02/21/2006 02:43:20.009 CCM|<--CLineStateNotifier::DelLine() |<CLID::StandAloneCluster><NID::192.168.1.10><LVL::Entry_exit><MASK::0001>
02/21/2006 02:43:20.009 CCM|StationD:   (0000002) INFO  restart0_CcCiRes: updating CI=32222298 for cdpc=6|<CLID::StandAloneCluster><NID::192.168.1.10><CT::1,100,59,1.199><IP::10.128.128.134><D
02/21/2006 02:43:20.010 CCM|LineControl(2): star_DSetCallState(1), State of cdpc (11) is 1|<CLID::StandAloneCluster><NID::192.168.1.10><CT::1,100,59,1.199><IP::10.128.128.134><DEV::SEP000BDBDF61
02/21/2006 02:43:20.010 CCM|StationD:   (0000002) DEBUG- star_DSetCallState(2) State of cdpc(6) is 1.|<CLID::StandAloneCluster><NID::192.168.1.10><CT::1,100,59,1.199><IP::10.128.128.134><DEV::SE
02/21/2006 02:43:20.011 CCM|StationD:   (0000002) SetLamp mode=2, stim=9 stimInst=1.|<CLID::StandAloneCluster><NID::192.168.1.10><CT::1,100,59,1.199><IP::10.128.128.134><DEV::SEP000BDBDF61
02/21/2006 02:43:20.011 CCM|StationD:   (0000002) DEBUG- star_DSetCallPhase updateACall=32222298 from Phase=0 to  callPhase=0.|<CLID::StandAloneCluster><NID::192.168.1.10><CT::1,100,59,1.199
02/21/2006 02:43:20.012 CCM|StationD:   (0000002) CallState callState=1 lineInstance=1 callReference=32222298 privacy=0 precedenceLv=4 precedenceDm=0|<CLID::StandAloneCluster><NID::192.168.1.1
02/21/2006 02:43:20.012 CCM|StationD:   (0000002) DisplayPromptStatus timeOut=0 Status=ï¿½ ' content='Enter Number' line=1 CI=32222298 ver=84000006.|<CLID::StandAloneCluster><NID::192.168.1.10>
02/21/2006 02:43:20.012 CCM|StationD:   (0000002) StationOutputDisplayText don't need to send, because mIsALegacyDevice = 0|<CLID::StandAloneCluster><NID::192.168.1.10><CT::1,100,59,1.199><IP::10
02/21/2006 02:43:20.012 CCM|StationD:   (0000002) ActivateCallPlane lineInstance=1.|<CLID::StandAloneCluster><NID::192.168.1.10><CT::1,100,59,1.199><IP::10.128.128.134><DEV::SEP000BDBDF61DE>
02/21/2006 02:43:20.012 CCM|StationD:   (0000002) DEBUG- star_DSetCallState(4) State of cdpc(6) is 2.|<CLID::StandAloneCluster><NID::192.168.1.10><CT::1,100,59,1.199><IP::10.128.128.134><DEV::SE
02/21/2006 02:43:20.013 CCM|LineCdpc(11): -dispatchToAllDevices-, sigName=LmKeyReplaceReq, device=SEP000BDBDF61DE|<CLID::StandAloneCluster><NID::192.168.1.10><CT::1,100,59,1.199><IP::10
02/21/2006 02:43:20.015 CCM|Digit Analysis: wait_DaReq: Matching Legacy Numeric, digits=2302|<CLID::StandAloneCluster><NID::192.168.1.10><CT::1,100,59,1.199><IP::10.128.128.134><DEV::SEP000BD
02/21/2006 02:43:20.016 CCM|Digit Analysis: getDaRes - voiceMailCallingSearchSpace=[]|<CLID::StandAloneCluster><NID::192.168.1.10><CT::1,100,59,1.199><IP::10.128.128.134><DEV::SEP000BDBDF61D
02/21/2006 02:43:20.016 CCM|Digit analysis: match(pi="2", fqcn="3125553001", cn="3001",plv="5", pss="CHI-Phones:Intersite-Routing:CHI-Intl-PSTN:CHI-LD-PSTN:CHI-Local-PSTN:CHI-911", TodFilteredPss=
02/21/2006 02:43:20.016 CCM|Digit analysis: analysis results|<CLID::StandAloneCluster><NID::192.168.1.10><CT::1,100,59,1.199><IP::10.128.128.134><DEV::SEP000BDBDF61DE><LVL::State Transition><
02/21/2006 02:43:20.016 CCM||PretransformCallingPartyNumber=3001
|CallingPartyNumber=3001
|DialingPartition=CHI-Phones
|DialingPattern=2302
|FullyQualifiedCalledPartyNumber=2302
|DialingPatternRegularExpression=(2302)
|DialingWhere=
|PatternType=Enterprise
|PotentialMatches=NoPotentialMatchesExist
|DialingSdlProcessId=(0,0,0)
|PretransformDigitString=2302
|PretransformTagsList=SUBSCRIBER
|PretransformPositionalMatchList=2302
|CollectedDigits=2302
|UnconsumedDigits=
|TagsList=SUBSCRIBER
|PositionalMatchList=2302
|VoiceMailbox=
|VoiceMailCallingSearchSpace=
|VoiceMailPilotNumber=
```

3001 calls to 2302

Cisco Unified CallManager 5.0 Traces: Trace Collection Tool

Significant Enhancements:

- Scheduled trace collection
- Download trace on Alert Central
- Real time view
- Real time events
- Search strings
- Download & delete
- Absolute & relative time query
- Generic queries
- SFTP push
- Job status screen


Cisco CallManager Serviceability Real-Time Monitoring Tool
System
Monitor
Search
Cisco CallManager
Alert
Trace
Trace & Log Central
Job Status
SysLog Viewer
View
Tools
Trace & Log Central
Collect Files
Browse
< Back
Next >
Finish
Cancel

Collect File Options:

Collection Time

● Absolute Range

Select Reference Server Time Zone: Client:(GMT+1:0)Zentraleuropäische Zeit-Europe/Berlin

From Date/Time: 3/22/06 - 10:28 AM

To Date/Time: 3/22/06 - 10:28 AM

○ Relative Range

Files Generated in the last: 5 Minutes

Download File Options

Select Partition: Active Partition

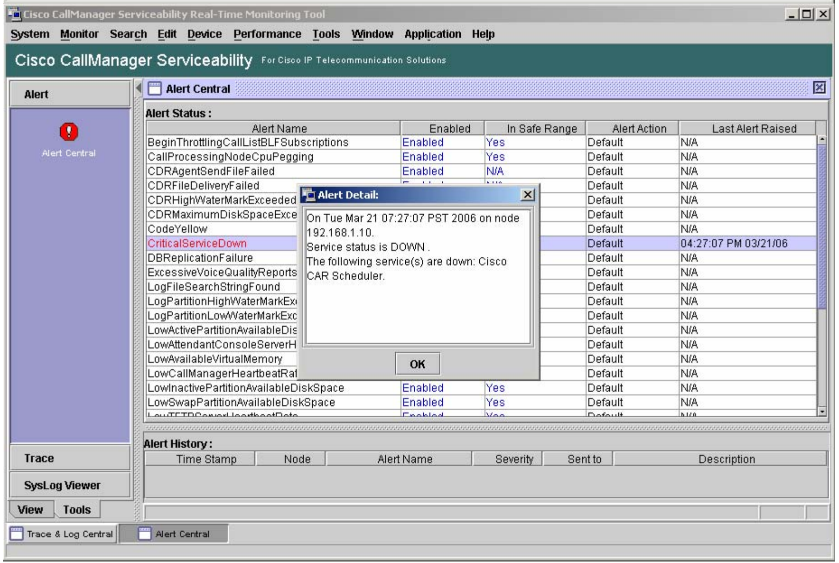
Download File Directory: amme\Cisco\CallManager Serviceability\JRtmt

○ Zip Files

● Do Not Zip Files

☐ Delete Collected Log Files from Server

Note: The result file can be found in the directory named <Node Name> created under the user specified directory structure.The File Name is as specified by the user.


Cisco CallManager Serviceability Real-Time Monitoring Tool
System
Monitor
Search
Edit
Device
Performance
Tools
Window
Application
Help
Cisco CallManager Serviceability
For Cisco IP Telecommunication Solutions
Alert
Alert Central
Trace
SysLog Viewer
View
Tools
Trace & Log Central
Alert Central
OK

Alert Central

Alert Status :

Alert Name	Enabled	In Safe Range	Alert Action	Last Alert Raised
BeginThrottlingCallListBLFSubscriptions	Enabled	Yes	Default	N/A
CallProcessingNodeCpuPegging	Enabled	Yes	Default	N/A
CDRAgentSendFileFailed	Enabled	N/A	Default	N/A
CDRFileDeliveryFailed			Default	N/A
CDRHighWaterMarkExceeded			Default	N/A
CDRMaximumDiskSpaceExce			Default	N/A
CodeYellow			Default	N/A
CriticalServiceDown			Default	04:27:07 PM 03/21/06
DBReplicationFailure			Default	N/A
ExcessiveVoiceQualityReports			Default	N/A
LogFileSearchStringFound			Default	N/A
LogPartitionHighWaterMarkEx			Default	N/A
LogPartitionLowWaterMarkExc			Default	N/A
LowActivePartitionAvailableDis			Default	N/A
LowAttendantConsoleServerH			Default	N/A
LowAvailableVirtualMemory			Default	N/A
LowCallManagerHeartbeatRat			Default	N/A
LowInactivePartitionAvailableDiskSpace	Enabled	Yes	Default	N/A
LowSwapPartitionAvailableDiskSpace	Enabled	Yes	Default	N/A

Alert Detail:

On Tue Mar 21 07:27:07 PST 2006 on node 192.168.1.10.
Service status is DOWN .
The following service(s) are down: Cisco CAR Scheduler.

Alert History :

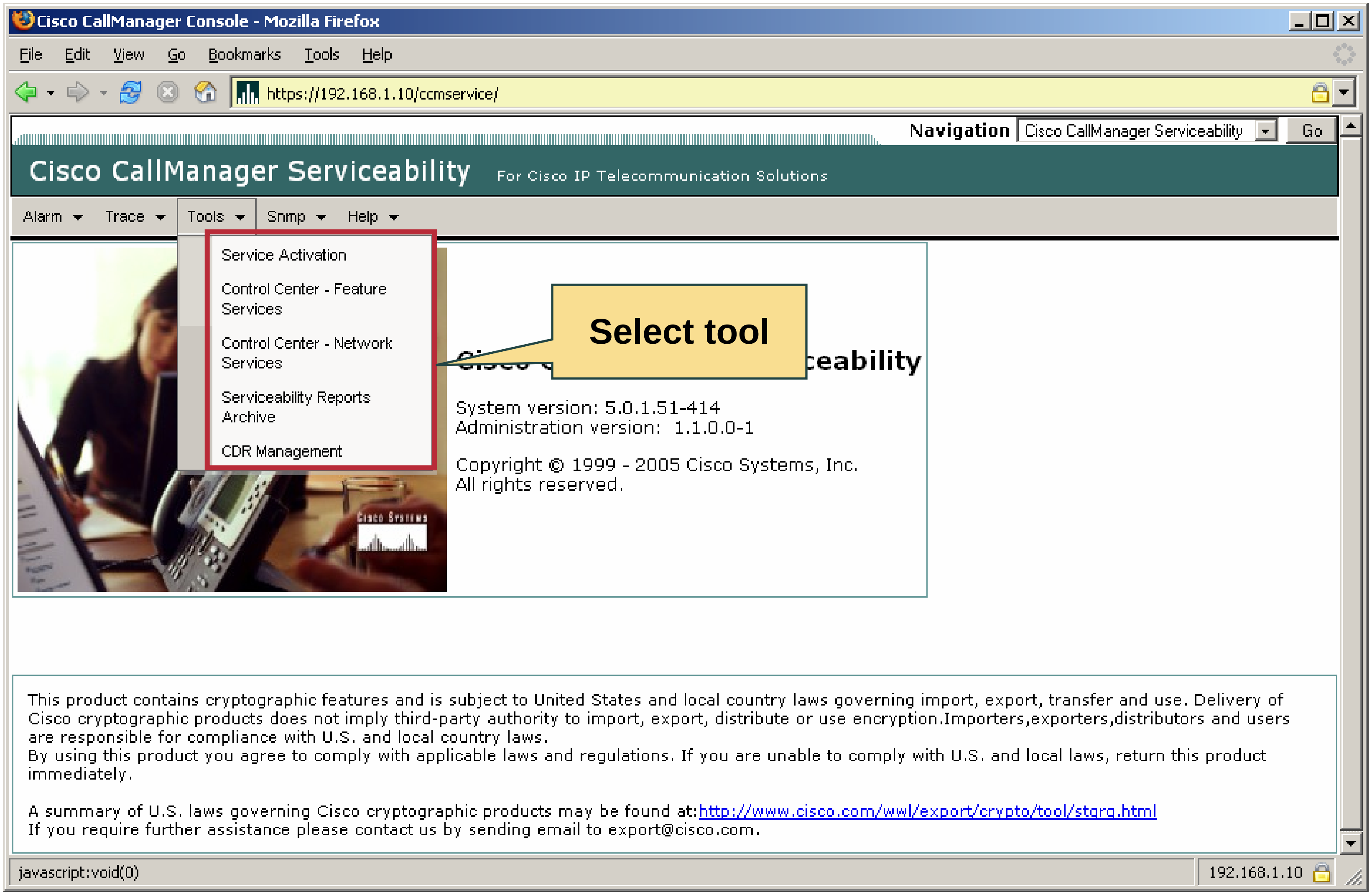
Time Stamp	Node	Alert Name	Severity	Sent to	Description

Tools Menu

The Cisco Unified CallManager 5.0 serviceability tools menu contains the following tools:

Name	Description
Service Activation	Activate and deactivate Cisco Unified CallManager 5.0 services.
Control Center – Feature Services	View status and to start, stop, and restart Cisco Unified CallManager 5.0 feature services.
Control Center – Network Services	View status and to start, stop, and restart Cisco Unified CallManager 5.0 network services.
Serviceability Reports Archive	View reports generated by the serviceability reporter service.
CDR Management	Manage call detail record functionality on Cisco Unified CallManager 5.0.

Tools Menu



Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmservice/
Navigation Cisco CallManager Serviceability Go
Cisco CallManager Serviceability For Cisco IP Telecommunication Solutions
Alarm Trace Tools Snmp Help
Service Activation
Control Center - Feature Services
Control Center - Network Services
Serviceability Reports Archive
CDR Management
javascript:void(0)
192.168.1.10

Select tool

System version: 5.0.1.51-414
Administration version: 1.1.0.0-1

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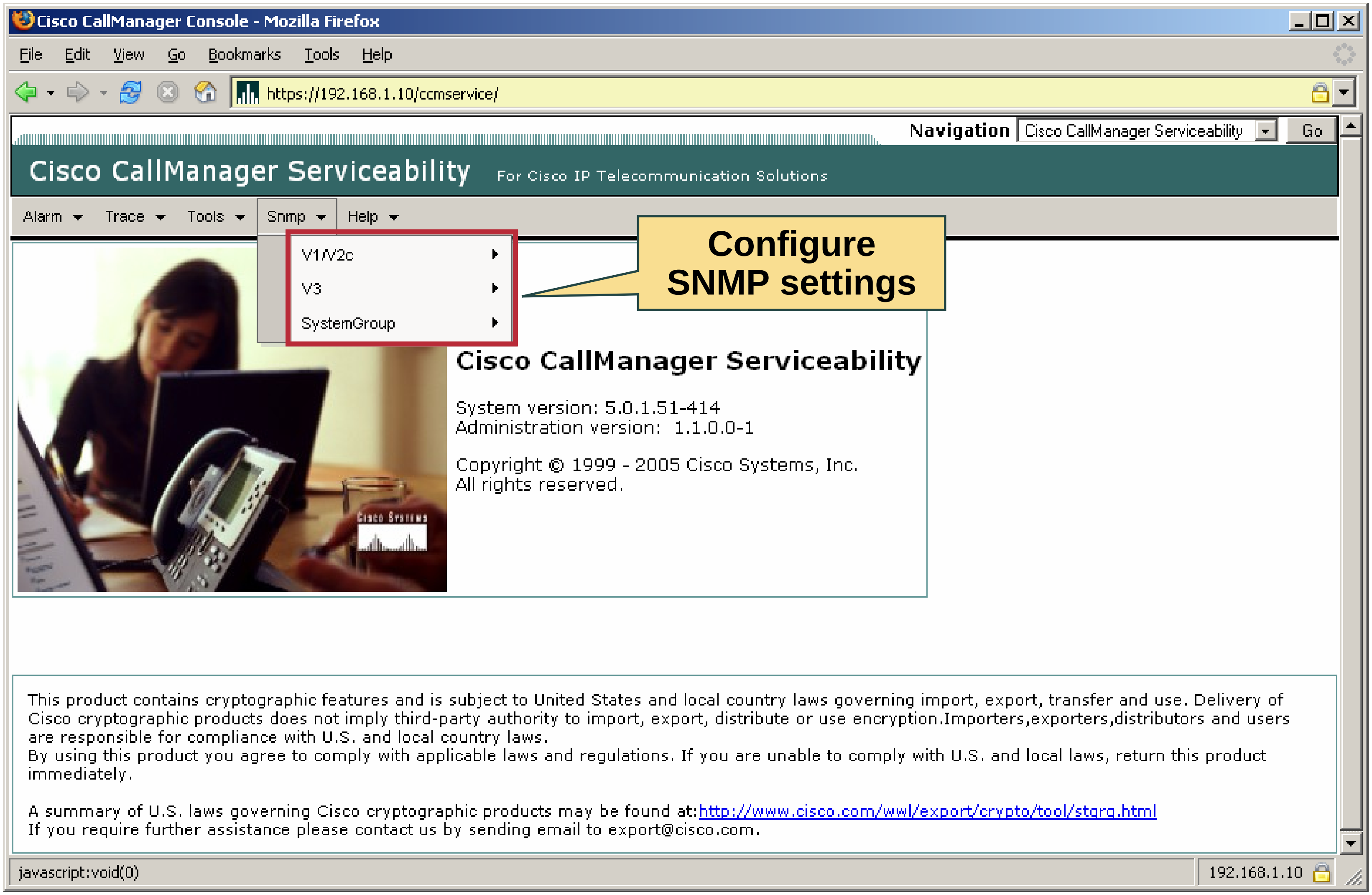
SNMP Configuration

Simple Network Management Protocol (SNMP) support on Cisco Unified CallManager 5.0:

- **SNMP V1 and V2 including community string.**
- **SNMP V3 user.**
- **System group MIB-II table.**

SNMP Configuration


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmservice/
Navigation
Cisco CallManager Serviceability
Go
Cisco CallManager Serviceability
For Cisco IP Telecommunication Solutions
Alarm
Trace
Tools
Snmp
Help
V1/V2c
V3
SystemGroup
javascript:void(0)
192.168.1.10

Configure SNMP settings

Cisco CallManager Serviceability

System version: 5.0.1.51-414
Administration version: 1.1.0.0-1

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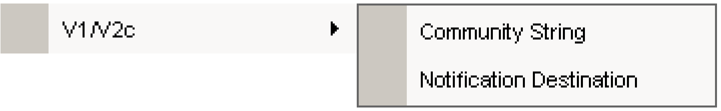
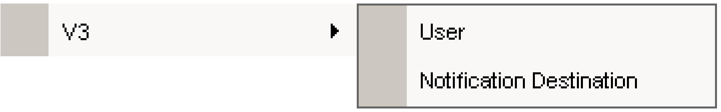
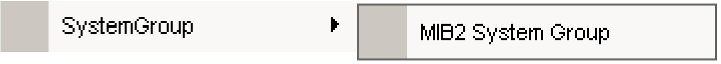
SNMP Configuration

- The V1/V2c menu is used to configure SNMP community string and notification destination.
- The V3 sub-menu is used to configure SNMP V3 parameters.
- The system group sub-menu is used to configure the MIB-II system group system contact and system location objects.


V1/V2c
Community String
Notification Destination


V3
User
Notification Destination

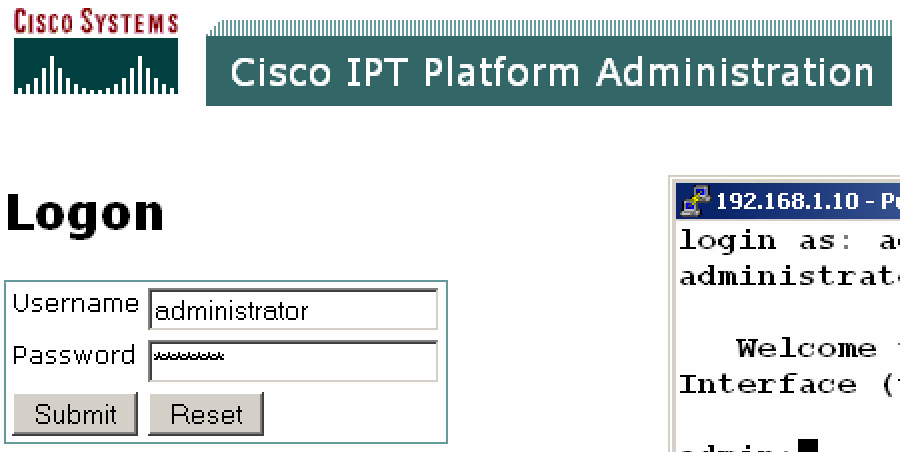

SystemGroup
MIB2 System Group

Platform Administration

There are two ways on Cisco Unified CallManager 5.0 to manage platform and system:

- Platform administration web GUI
- Platform administration CLI

Username and password are case sensitive

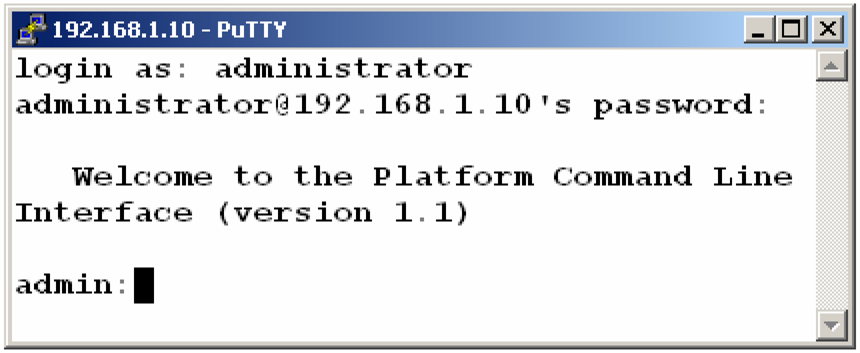


Cisco IPT Platform Administration

Logon

Username: administrator

Password: *******



```
login as: administrator
administrator@192.168.1.10's password:

   Welcome to the Platform Command Line
Interface (version 1.1)

admin:
```

Platform Administration

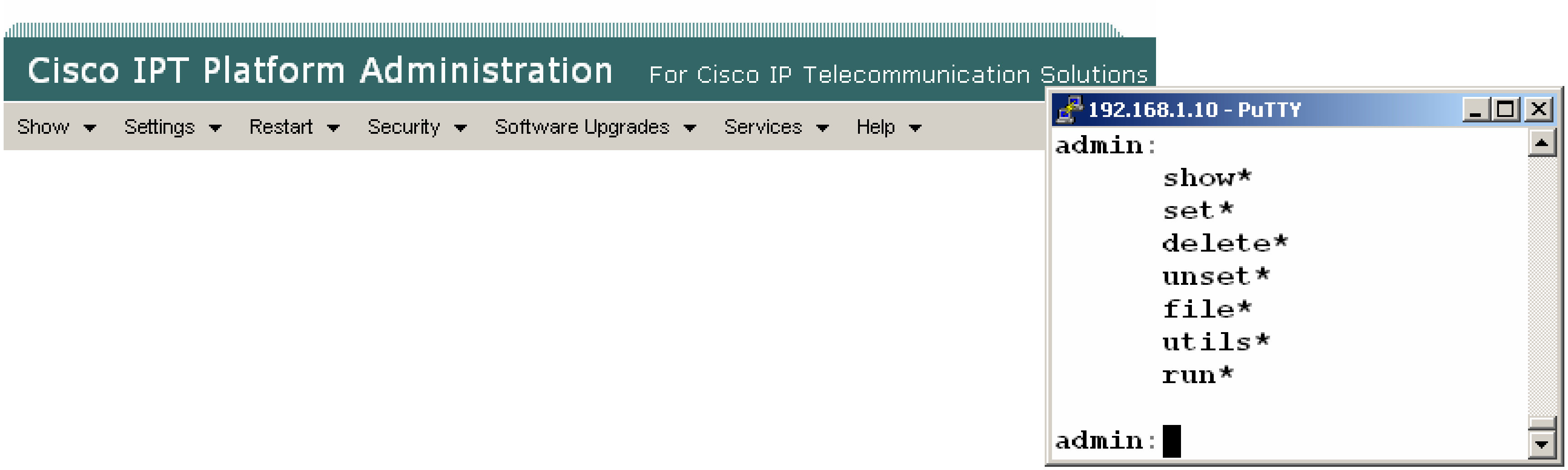
CLI commands:

Name	Description
show*	Show system parameters.
set*	Set system parameters and enable functionality.
delete*	Delete parameters.
unset*	Disable functionality.
file*	Manage files on the system.
utils*	Use system utilities.
run*	Start processes on the system.

Platform Administration

On the Platform administration web page most CLI commands can be used:

- Some are identical like web based ping and CLI utils network ping.
- Some are condensed on web page like network setting.


Cisco IPT Platform Administration
For Cisco IP Telecommunication Solutions
Show
Settings
Restart
Security
Software Upgrades
Services
Help
192.168.1.10 - PuTTY

```
admin:
        show*
        set*
        delete*
        unset*
        file*
        utils*
        run*

admin:
```

Additional Tools to Manage Cisco Unified CallManager 5.0

Real-Time Monitoring Tool (RTMT):

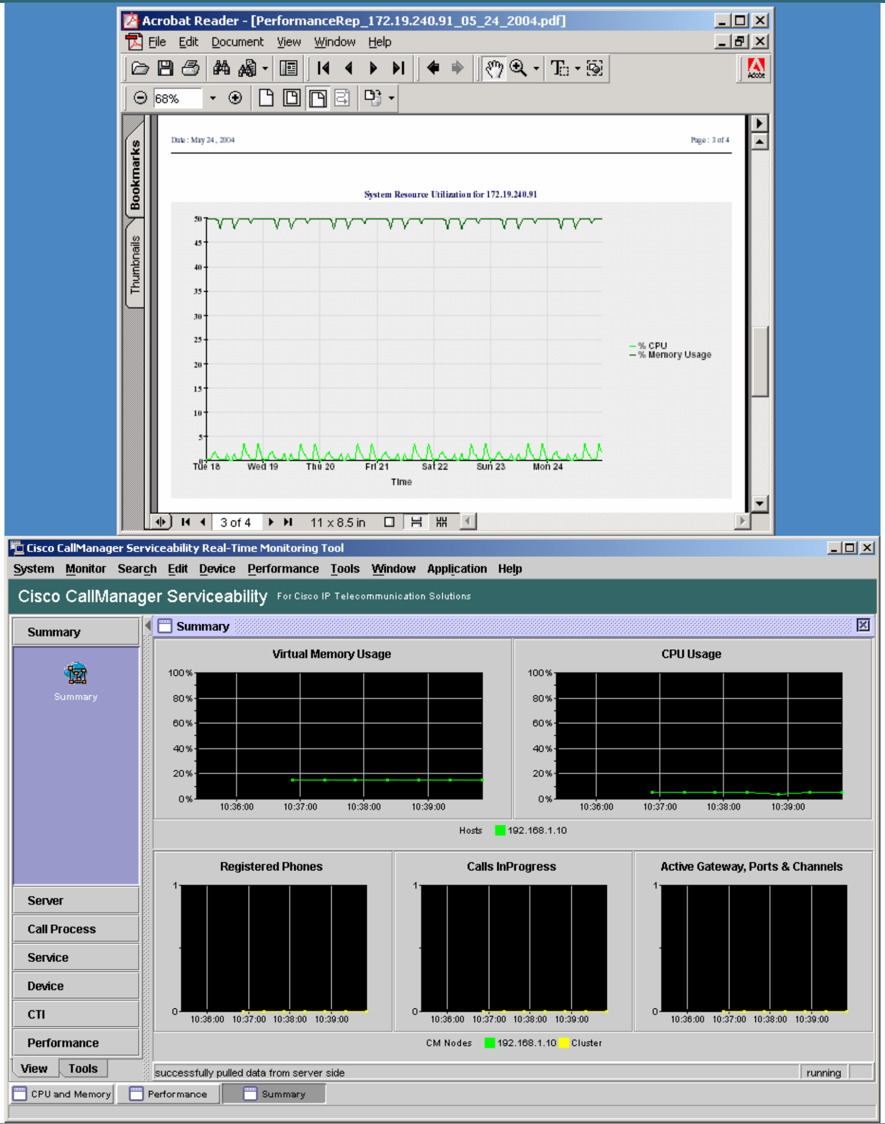
- Provides a real time information about the Cisco Unified CallManager 5.0 system status.
- Provides real time access to Cisco Unified CallManager system traces.
- Java based console available for Linux and Windows systems.

CiscoWorks IP Communications Operations Manager:

- Provides a unified view of the entire IP Communications infrastructure.
- Presents the current operational status of each element of the IP Communications network.

Additional Tools to Manage Cisco Unified CallManager 5.0: RTMT

- **Win and Linux client**
- **Integrated TCT, syslog viewer and QRT viewer**
- **HTTPS support**
- **OS monitoring**
- **Cisco Unified CallManager pre-canned DB activity**
- **SIP phone/protocol activity**
- **Server based PerfmonCollection (AMC)**


Acrobat Reader - [PerformanceRep_172.19.240.91_05_24_2004.pdf]
File Edit Document View Window Help
68%
Bookmarks
Thumbnails
Date : May 24 , 2004
Page : 3 of 4
System Resource Utilization for 172.19.240.91
50
45
40
35
30
25
20
15
10
5
Tue 18
Wed 19
Thu 20
Fri 21
Sat 22
Sun 23
Mon 24
Time
% CPU
% Memory Usage
3 of 4
11 x 8.5 in
Cisco CallManager Serviceability Real-Time Monitoring Tool
System Monitor Search Edit Device Performance Tools Window Application Help
Cisco CallManager Serviceability For Cisco IP Telecommunication Solutions
Summary
Summary
Summary
Virtual Memory Usage
CPU Usage
100%
80%
60%
40%
20%
0%
10:36:00
10:37:00
10:38:00
10:39:00
Hosts
192.168.1.10
Registered Phones
Calls InProgress
Active Gateway, Ports & Channels
1
0
CM Nodes
192.168.1.10
Cluster
Server
Call Process
Service
Device
CTI
Performance
View
Tools
running
CPU and Memory
Performance
Summary

successfully pulled data from server side

Summary

- Platform and system management is done via the Cisco Unified CallManager web GUI and network management applications.
- Alarms can be stored on different locations.
- Traces can be defined on a parameter basis.
- The tools menu contains
- SNMP Configuration contains tools to manage Cisco Unified CallManager services.
- Many CLI commands can be used similar onto the platform administration web GUI.
- To manage Cisco Unified CallManager 5.0 are the RTMT and the IP Communications Operations Manager can be used.

Administering Cisco Unified CallManager 5.0

Backing Up and Restoring Cisco Unified CallManager 5.0

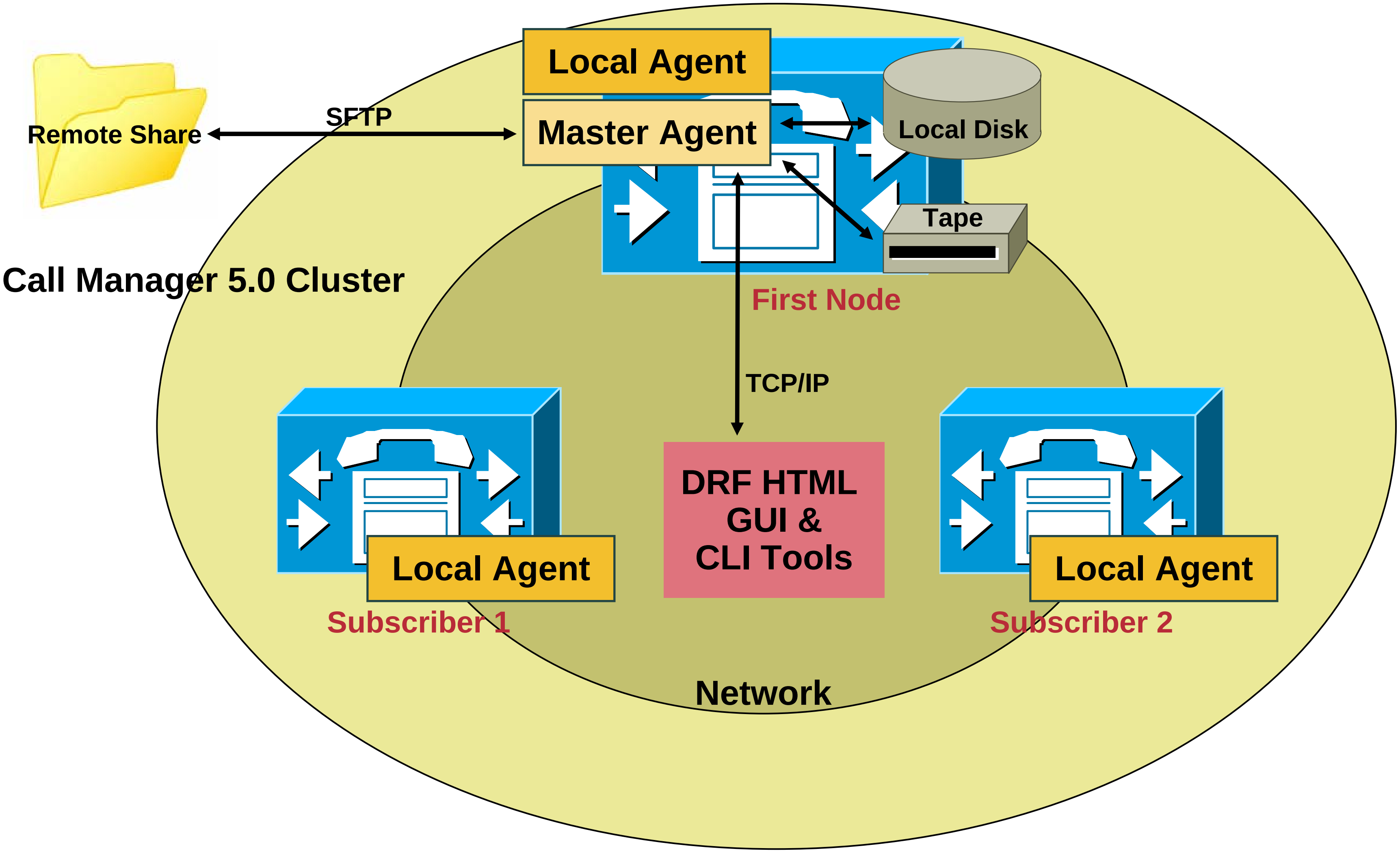
Objectives

- Backing Up and Restoring Cisco Unified CallManager 5.0 Overview
- CallManager 5.0 Architecture
- Backup Menu
- Restore Menu
- Backup and Restore Procedure
- Disaster Recovery
- Dual Partitions (Switch Version)

Backing Up and Restoring Cisco Unified CallManager 5.0 Overview

- The Disaster Recovery Framework (DRF) provides backup and restore functionality for Cisco Unified CallManager 5.0.
- DRF replaces Backup and Restore System (BARS).
  - Like BARS, DRF only backups the publisher.
  - Subscribers will be rebuilt polling their DB from the publisher.
- With the dual partition system it is possible to switch between to versions of Cisco Unified CallManager 5.0.
- On the web GUI DRF is called Disaster Recovery System (DRS).

CallManager 5.0 Architecture



Local Agent

Master Agent

Remote Share

SFTP

Local Disk

Tape

First Node

Call Manager 5.0 Cluster

TCP/IP

DRF HTML GUI & CLI Tools

Local Agent

Subscriber 1

Local Agent

Subscriber 2

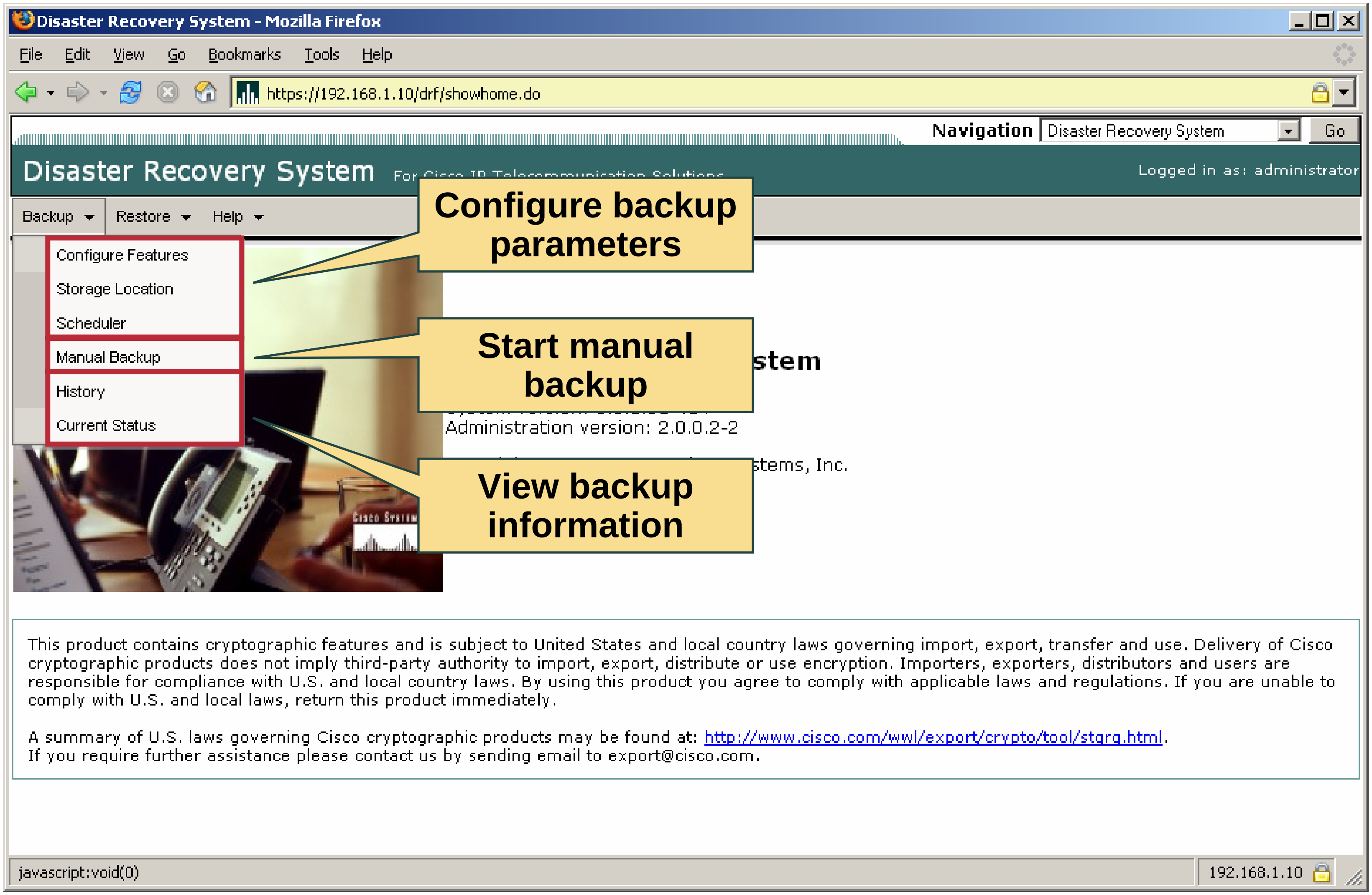
Network

CallManager 5.0 Architecture

Disaster Recovery Framework (DRF) backs up features:

- By selecting a feature all components will be backed up
  - Features
    - CCM
    - CDR_CAR
  - Components
    - CCM – CCMDB, PLATFORM, MOH, and others…
    - CDRM – CAR, CDR

Backup Menu



Disaster Recovery System - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/drf/showhome.do
Navigation Disaster Recovery System Go
Disaster Recovery System For Cisco IP Telecommunication Solutions
Logged in as: administrator
Backup Restore Help
Configure Features
Storage Location
Scheduler
Manual Backup
History
Current Status
Administration version: 2.0.0.2-2
javascript:void(0)
192.168.1.10

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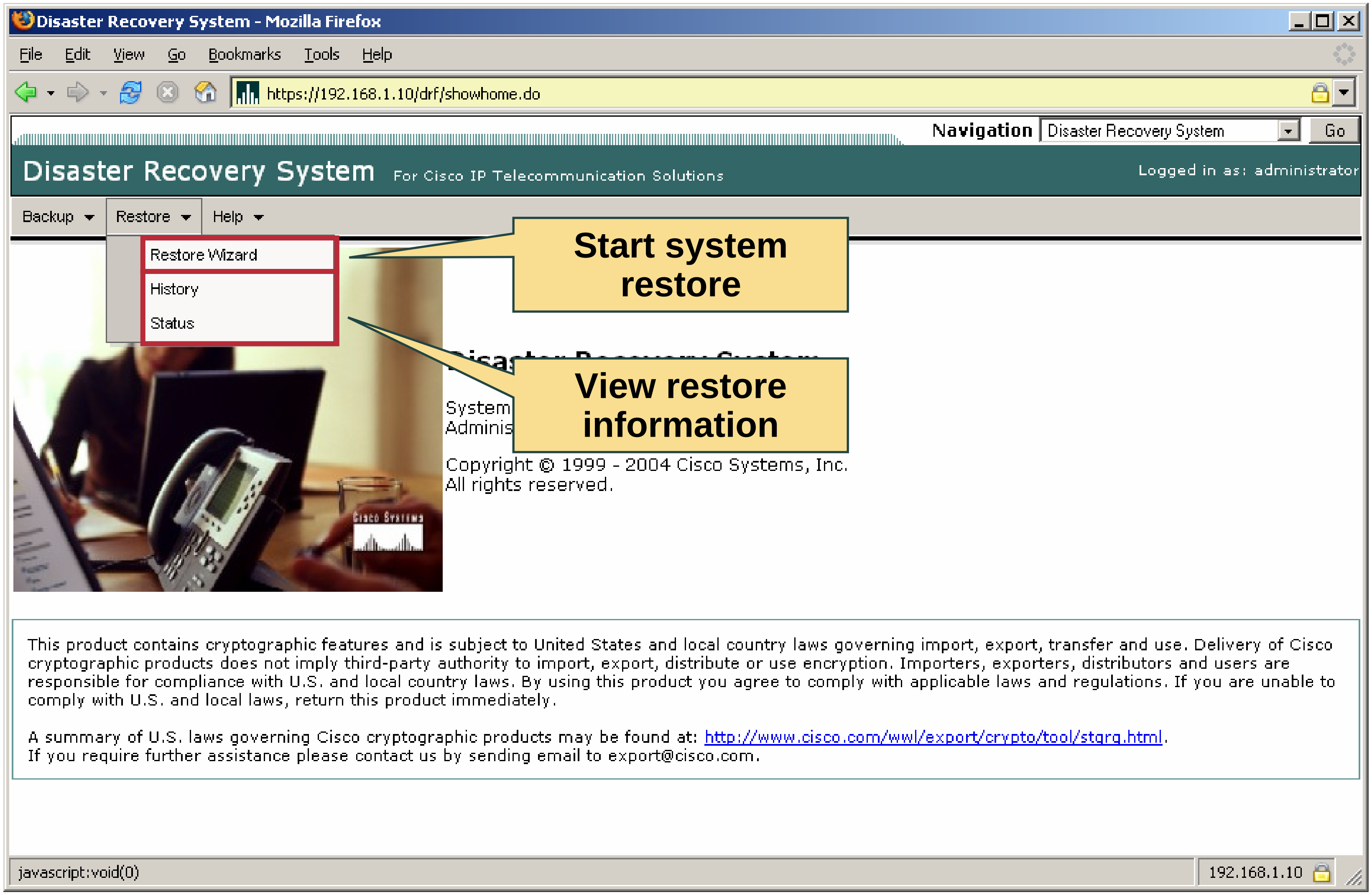
Configure backup parameters

Start manual backup

View backup information

Restore Menu


Disaster Recovery System - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/drf/showhome.do
Navigation Disaster Recovery System Go
Disaster Recovery System For Cisco IP Telecommunication Solutions
Logged in as: administrator
Backup
Restore
Help
Restore Wizard
History
Status
javascript:void(0)
192.168.1.10

Start system restore

View restore information

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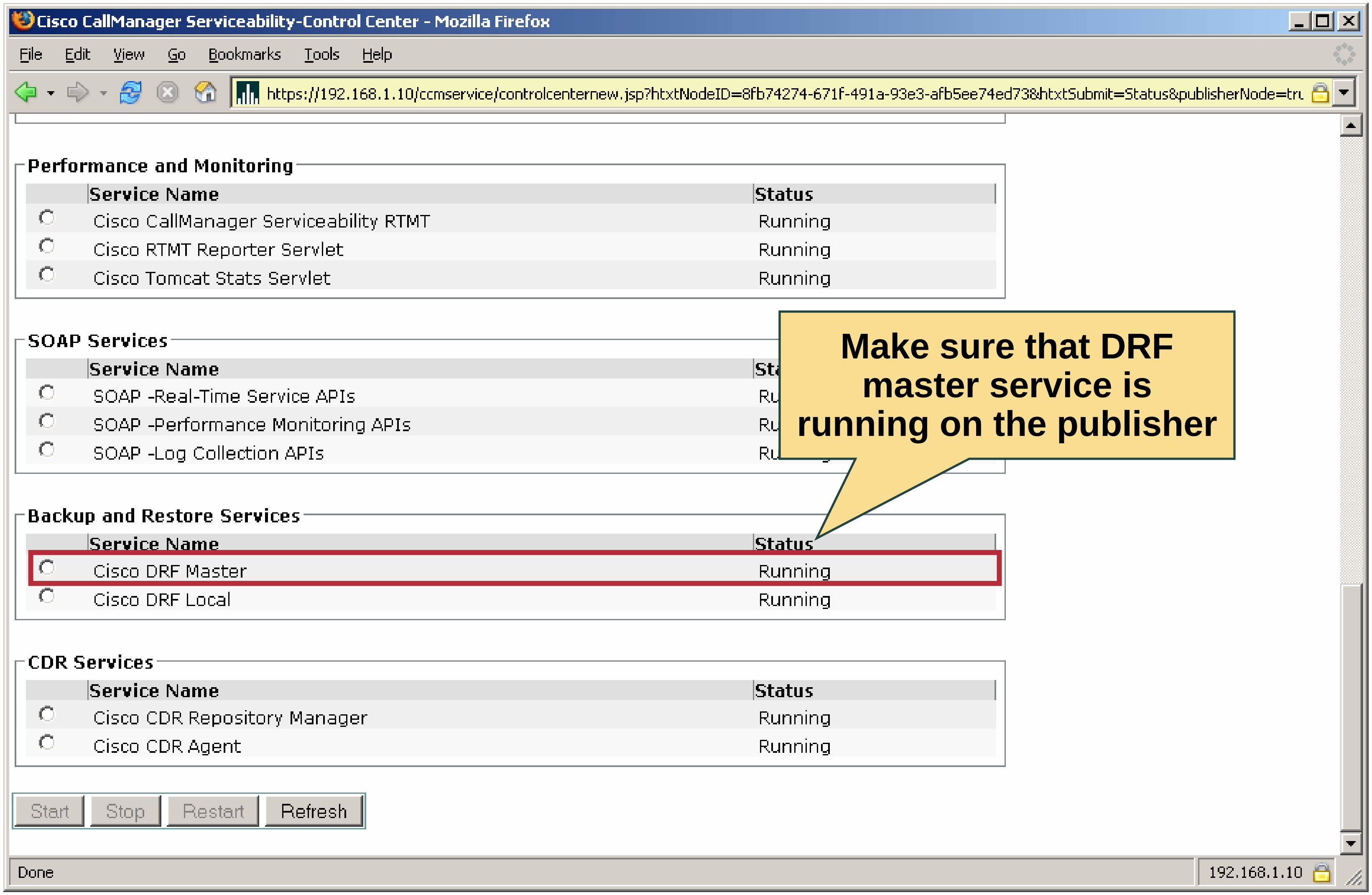
Backup and Restore Procedure

To backup and restore a Cisco Unified CallManager 5.0 system, the following steps are necessary:

1. Verify that the DRF Master Service is running.
2. Configure backup parameters.
3. Define storage location.
4. Either perform a scheduled or manual backup.
5. Use the restore wizard to restore the system from a backup file.

Backup and Restore Procedure: Service Verification



Cisco CallManager Serviceability-Control Center - Mozilla Firefox

https://192.168.1.10/ccmservice/controlcenternew.jsp?htxtNodeID=8fb74274-671f-491a-93e3-afb5ee74ed73&htxtSubmit=Status&publisherNode=tru

Performance and Monitoring

	Service Name	Status
○	Cisco CallManager Serviceability RTMT	Running
○	Cisco RTMT Reporter Servlet	Running
○	Cisco Tomcat Stats Servlet	Running

SOAP Services

	Service Name	Sta
○	SOAP -Real-Time Service APIs	Ru
○	SOAP -Performance Monitoring APIs	Ru
○	SOAP -Log Collection APIs	Ru

Backup and Restore Services

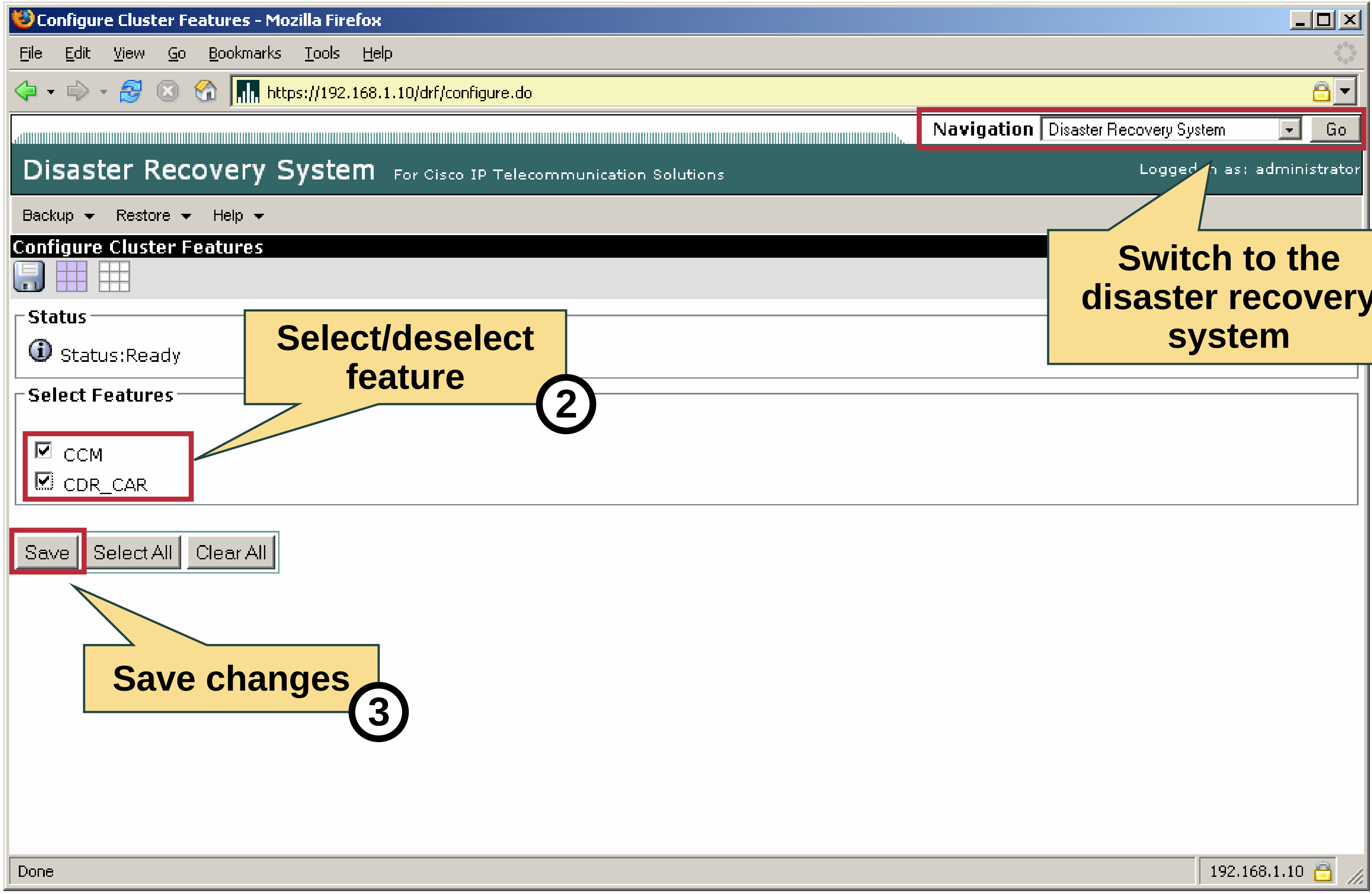
	Service Name	Status
○	Cisco DRF Master	Running
○	Cisco DRF Local	Running

CDR Services

	Service Name	Status
○	Cisco CDR Repository Manager	Running
○	Cisco CDR Agent	Running

Make sure that DRF master service is running on the publisher

Backup and Restore Procedure: Feature Backup Selection


Configure Cluster Features - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/drf/configure.do
Navigation
Disaster Recovery System
Go
Disaster Recovery System For Cisco IP Telecommunication Solutions
Logged in as: administrator
Backup
Restore
Help
Configure Cluster Features
Status
Select Features
Save
Select All
Clear All
Done
192.168.1.10

Status:Ready

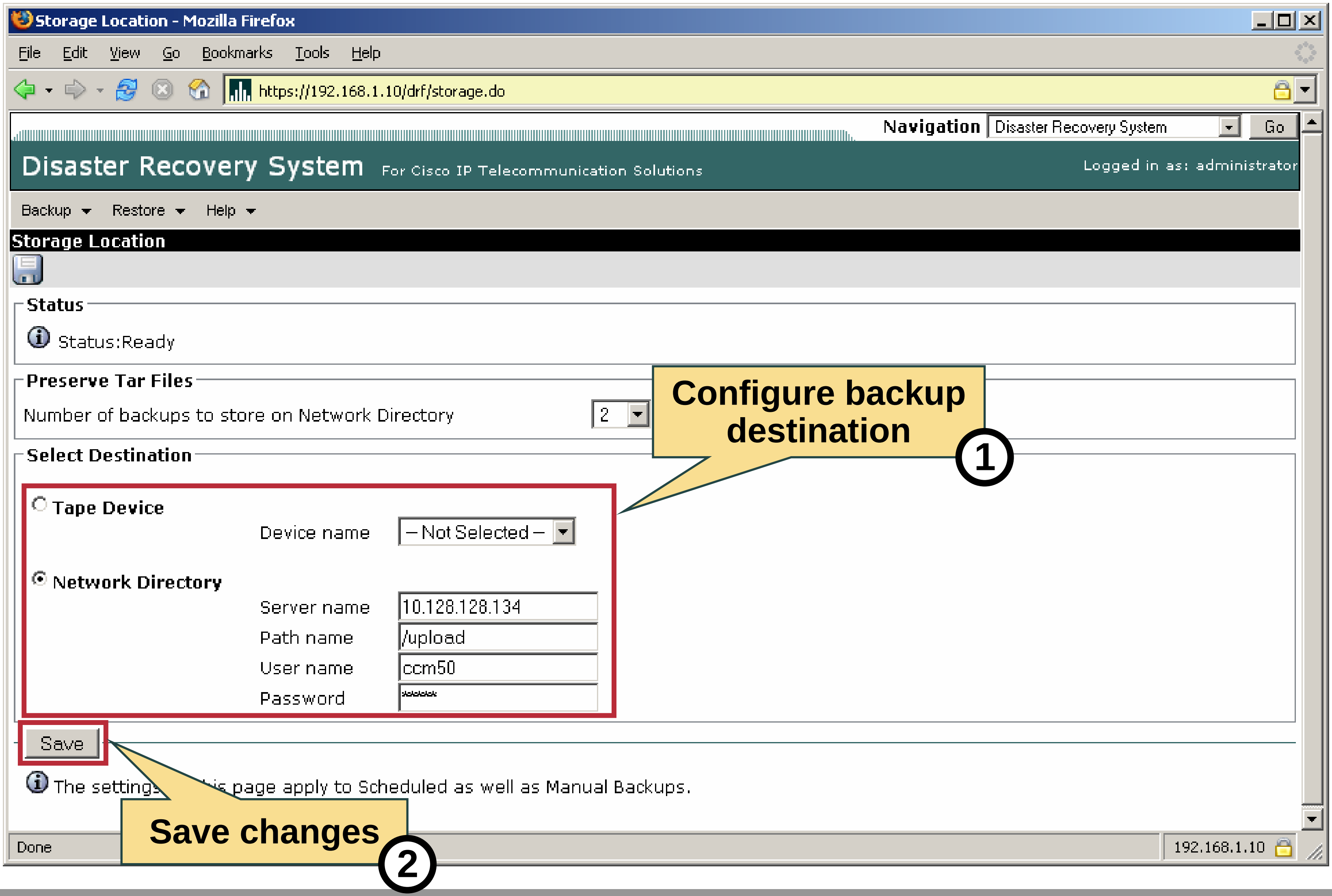
☑ CCM
☑ CDR_CAR

Switch to the disaster recovery system ①

Select/deselect feature ②

Save changes ③

Backup and Restore Procedure: Backup Target Configuration


Storage Location - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/drf/storage.do
Navigation
Disaster Recovery System
Go
Disaster Recovery System For Cisco IP Telecommunication Solutions
Logged in as: administrator
Backup
Restore
Help
Storage Location
Save
Done
192.168.1.10

Status

Status:Ready

Preserve Tar Files

Number of backups to store on Network Directory: 2

Select Destination

○ **Tape Device**

Device name: – Not Selected –

● **Network Directory**

Server name: 10.128.128.134

Path name: /upload

User name: ccm50

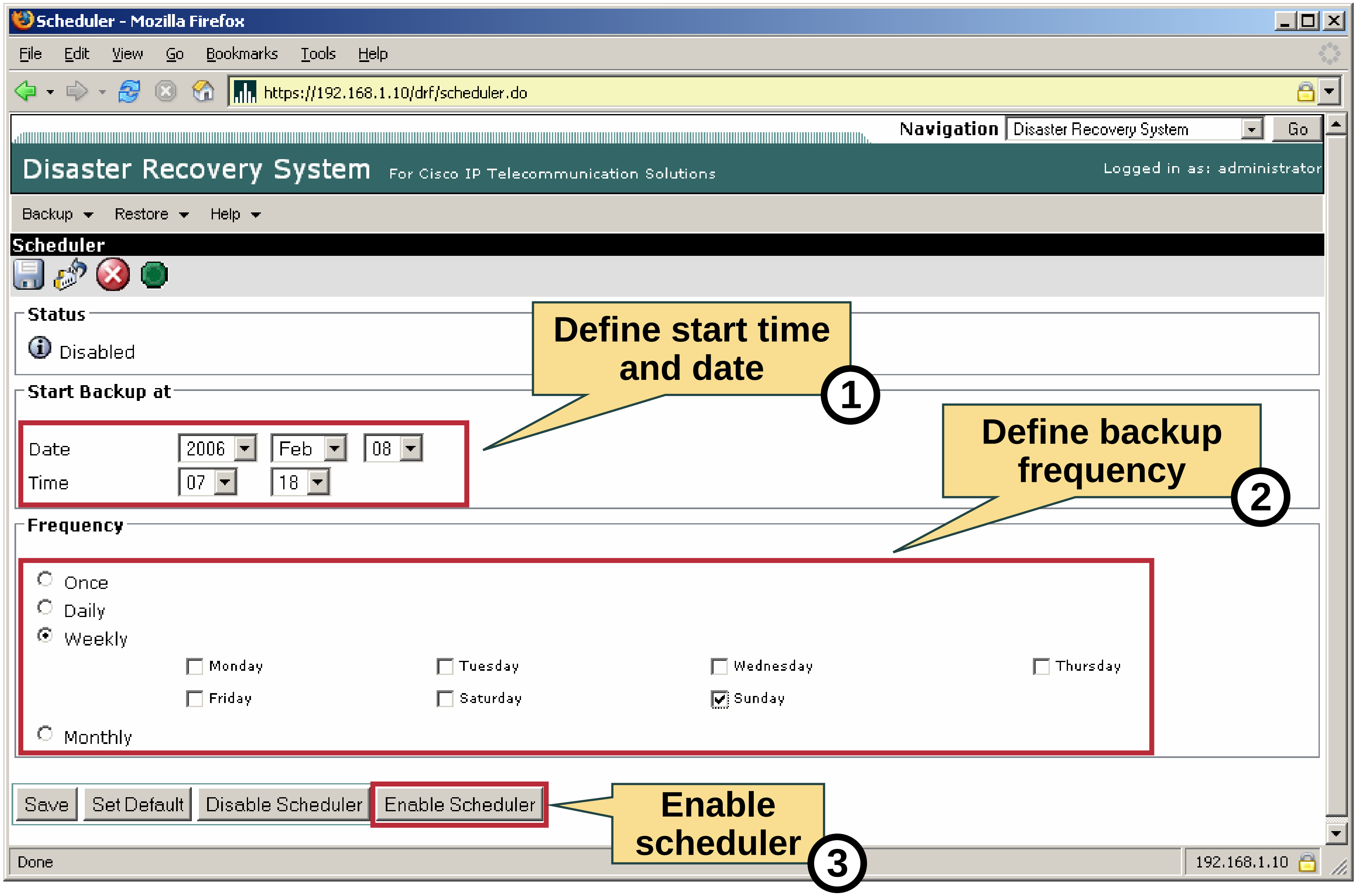
Password: *****

The settings on this page apply to Scheduled as well as Manual Backups.

Configure backup destination ①

Save changes ②

Backup and Restore Procedure: Backup Scheduler Configuration



Scheduler - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/drf/scheduler.do
Navigation Disaster Recovery System Go
Disaster Recovery System For Cisco IP Telecommunication Solutions
Logged in as: administrator
Backup Restore Help
Scheduler
Save Set Default Disable Scheduler Enable Scheduler
Done
192.168.1.10

Status

Disabled

Start Backup at

Date 2006 Feb 08

Time 07 18

Frequency

○ Once
○ Daily
● Weekly

☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday
☐ Friday ☐ Saturday ☑ Sunday

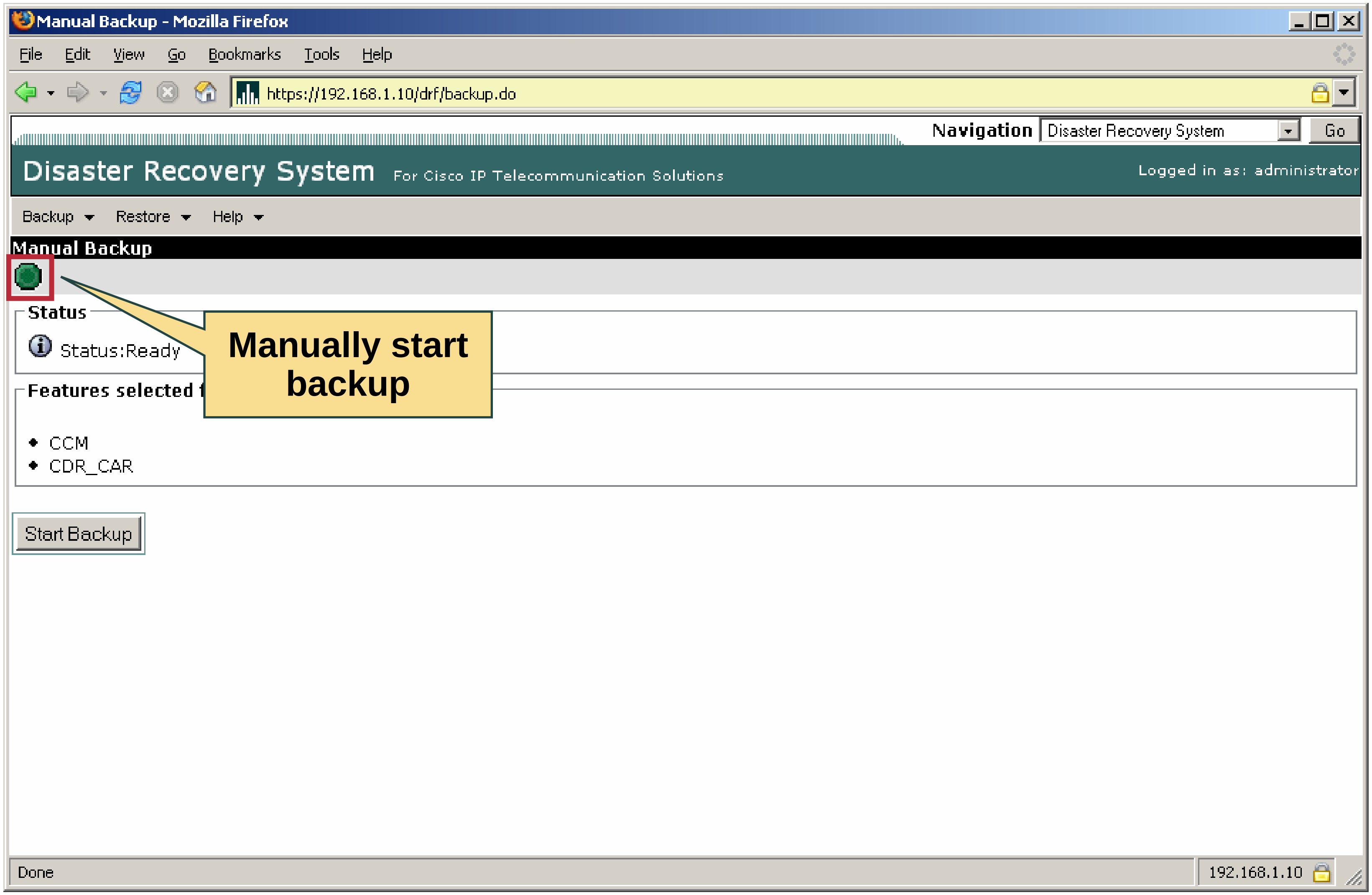
○ Monthly

① Define start time and date

② Define backup frequency

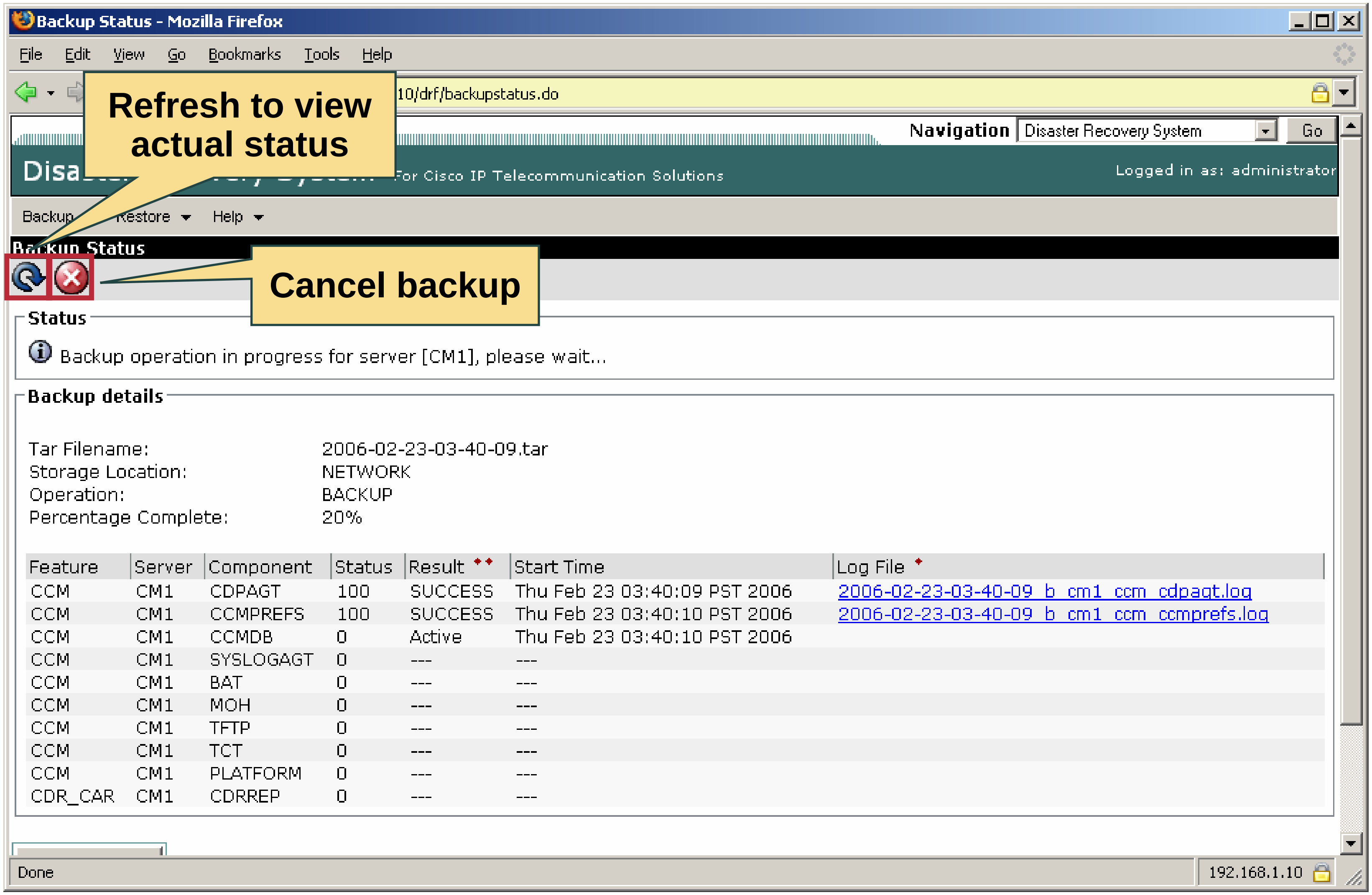
③ Enable scheduler

Backup and Restore Procedure: Manual Backup


Manual Backup - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/drf/backup.do
Navigation
Disaster Recovery System
Go
Disaster Recovery System
For Cisco IP Telecommunication Solutions
Logged in as: administrator
Backup
Restore
Help
Manual Backup
Status
Status:Ready
Features selected f
CCM
CDR_CAR
Start Backup
Done
192.168.1.10

Manually start backup

Backup and Restore Procedure: Manual Backup


Backup Status - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
10/drf/backupstatus.do
Navigation
Disaster Recovery System
Go
Disa
For Cisco IP Telecommunication Solutions
Logged in as: administrator
Backup
Restore
Help
Backup Status
Done
192.168.1.10

Refresh to view actual status

Cancel backup

Status

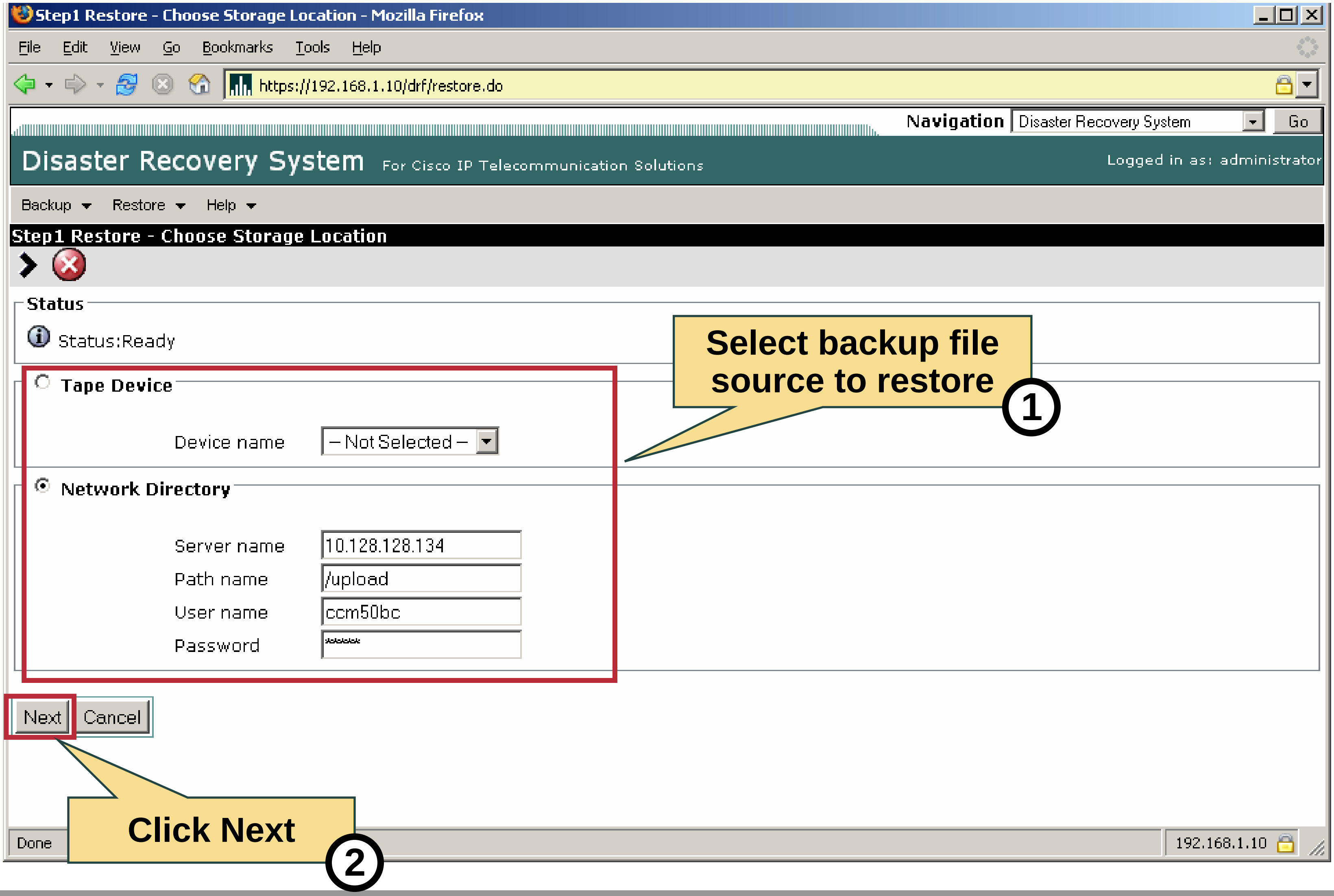
Backup operation in progress for server [CM1], please wait...

Backup details

Tar Filename:	2006-02-23-03-40-09.tar
Storage Location:	NETWORK
Operation:	BACKUP
Percentage Complete:	20%

Feature	Server	Component	Status	Result **	Start Time	Log File *
CCM	CM1	CDPAGT	100	SUCCESS	Thu Feb 23 03:40:09 PST 2006	2006-02-23-03-40-09_b_cm1_ccm_cdpagt.log
CCM	CM1	CCMPREFS	100	SUCCESS	Thu Feb 23 03:40:10 PST 2006	2006-02-23-03-40-09_b_cm1_ccm_ccmprefs.log
CCM	CM1	CCMDB	0	Active	Thu Feb 23 03:40:10 PST 2006	
CCM	CM1	SYSLOGAGT	0	---	---	
CCM	CM1	BAT	0	---	---	
CCM	CM1	MOH	0	---	---	
CCM	CM1	TFTP	0	---	---	
CCM	CM1	TCT	0	---	---	
CCM	CM1	PLATFORM	0	---	---	
CDR_CAR	CM1	CDRREP	0	---	---	

Backup and Restore Procedure: Restore Wizard



Step1 Restore - Choose Storage Location - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/drf/restore.do
Navigation Disaster Recovery System Go
Disaster Recovery System For Cisco IP Telecommunication Solutions
Logged in as: administrator
Backup Restore Help
Step1 Restore - Choose Storage Location
Status
Next Cancel
Done
192.168.1.10

Status:Ready

○ Tape Device

Device name – Not Selected –

● Network Directory

Server name 10.128.128.134

Path name /upload

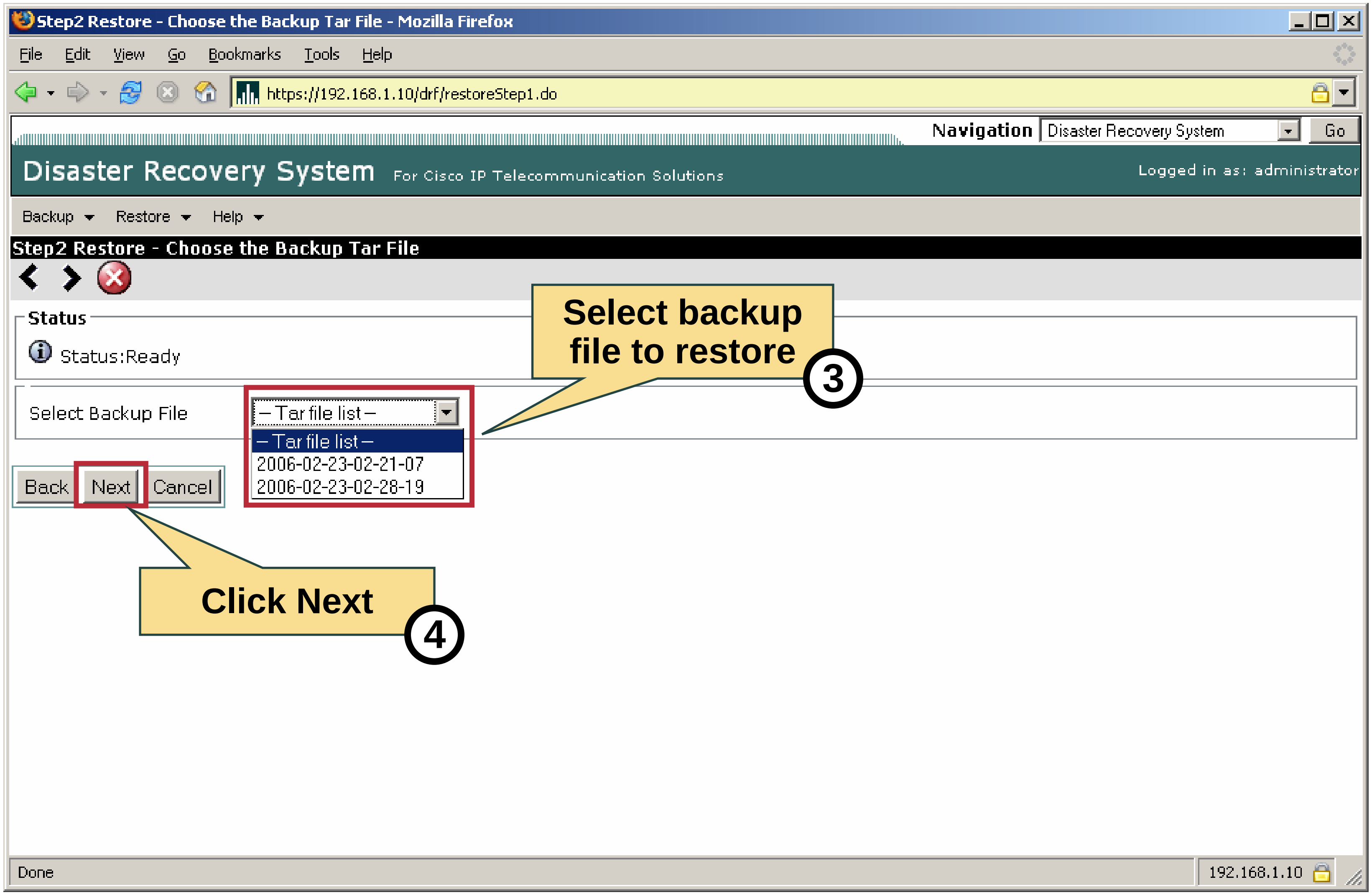
User name ccm50bc

Password *****

Select backup file source to restore ①

Click Next ②

Backup and Restore Procedure: Restore Wizard

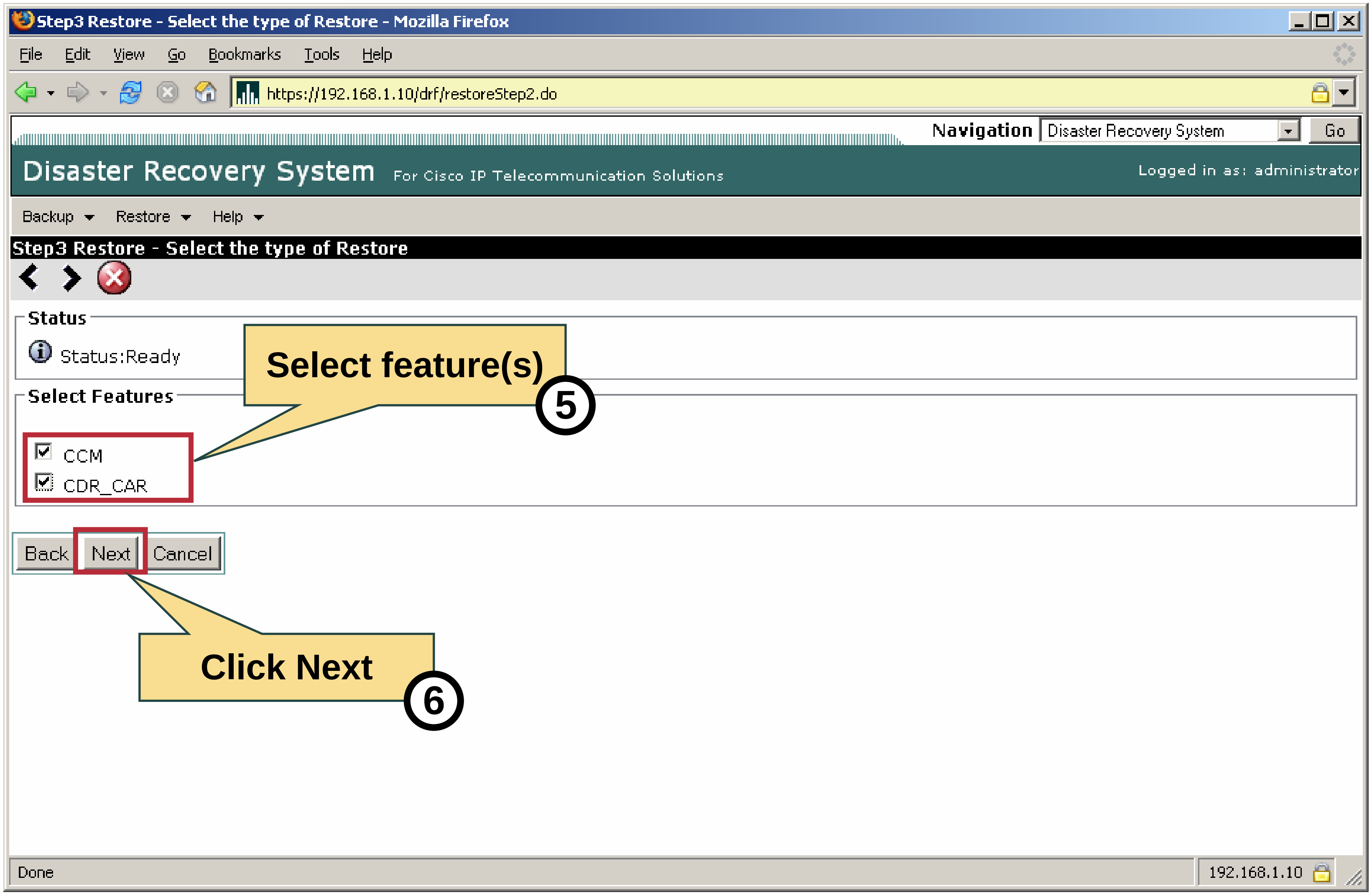


Step2 Restore - Choose the Backup Tar File - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/drf/restoreStep1.do
Navigation Disaster Recovery System Go
Disaster Recovery System For Cisco IP Telecommunication Solutions
Logged in as: administrator
Backup Restore Help
Step2 Restore - Choose the Backup Tar File
Status
Status:Ready
Select Backup File
– Tar file list –
– Tar file list –
2006-02-23-02-21-07
2006-02-23-02-28-19
Back Next Cancel
Done
192.168.1.10

Select backup file to restore ③

Click Next ④

Backup and Restore Procedure: Restore Wizard


Step3 Restore - Select the type of Restore - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/drf/restoreStep2.do
Navigation Disaster Recovery System Go
Disaster Recovery System For Cisco IP Telecommunication Solutions
Logged in as: administrator
Backup Restore Help

Step3 Restore - Select the type of Restore

Status

Status:Ready

Select Features

☑ CCM

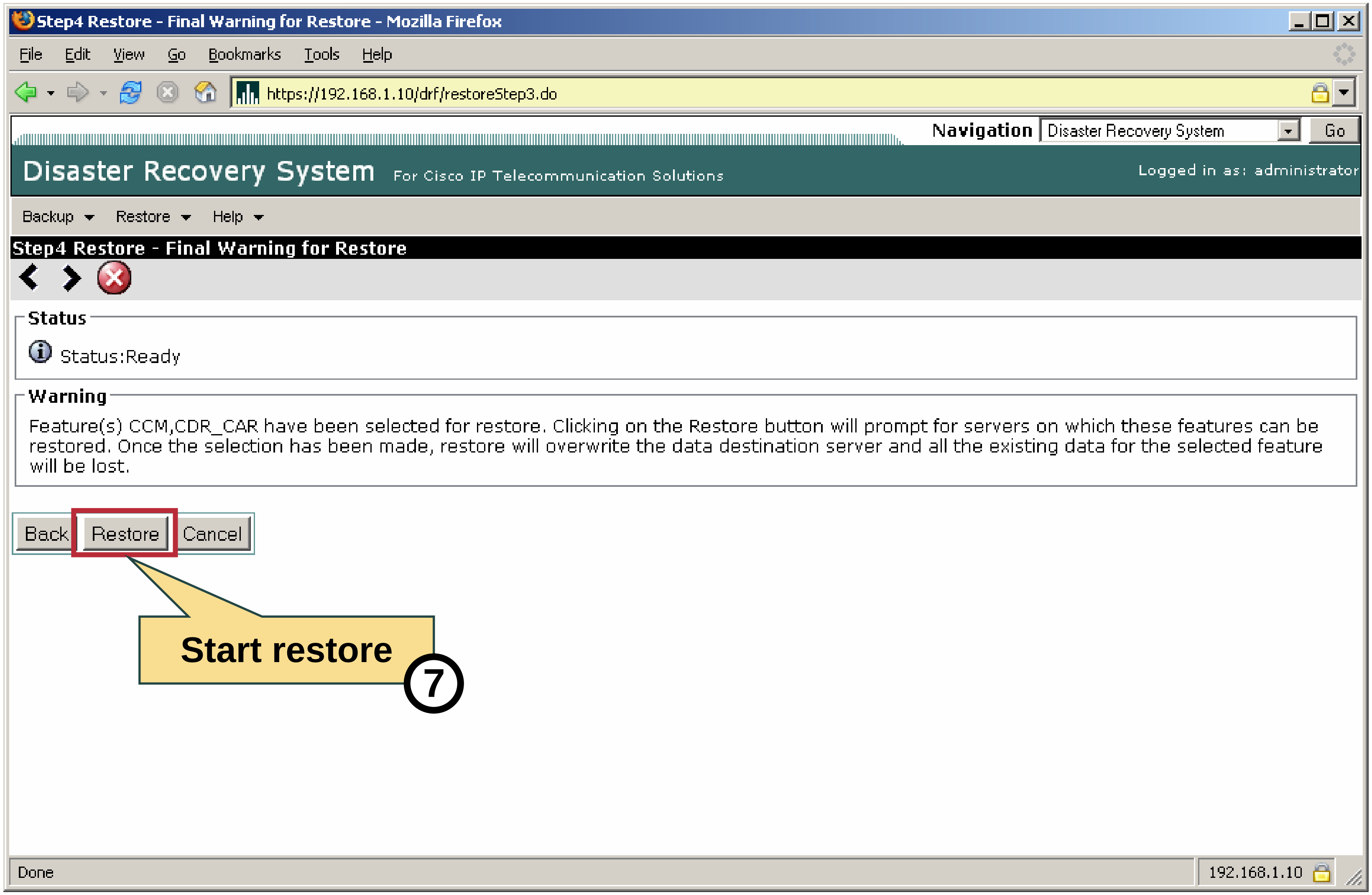
☑ CDR_CAR

Back
Next
Cancel
Done
192.168.1.10

Select feature(s) ⑤

Click Next ⑥

Backup and Restore Procedure: Restore Wizard



Step4 Restore - Final Warning for Restore - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/drf/restoreStep3.do
Navigation
Disaster Recovery System
Go
Disaster Recovery System
For Cisco IP Telecommunication Solutions
Logged in as: administrator
Backup
Restore
Help

Step4 Restore - Final Warning for Restore

Status

Status:Ready

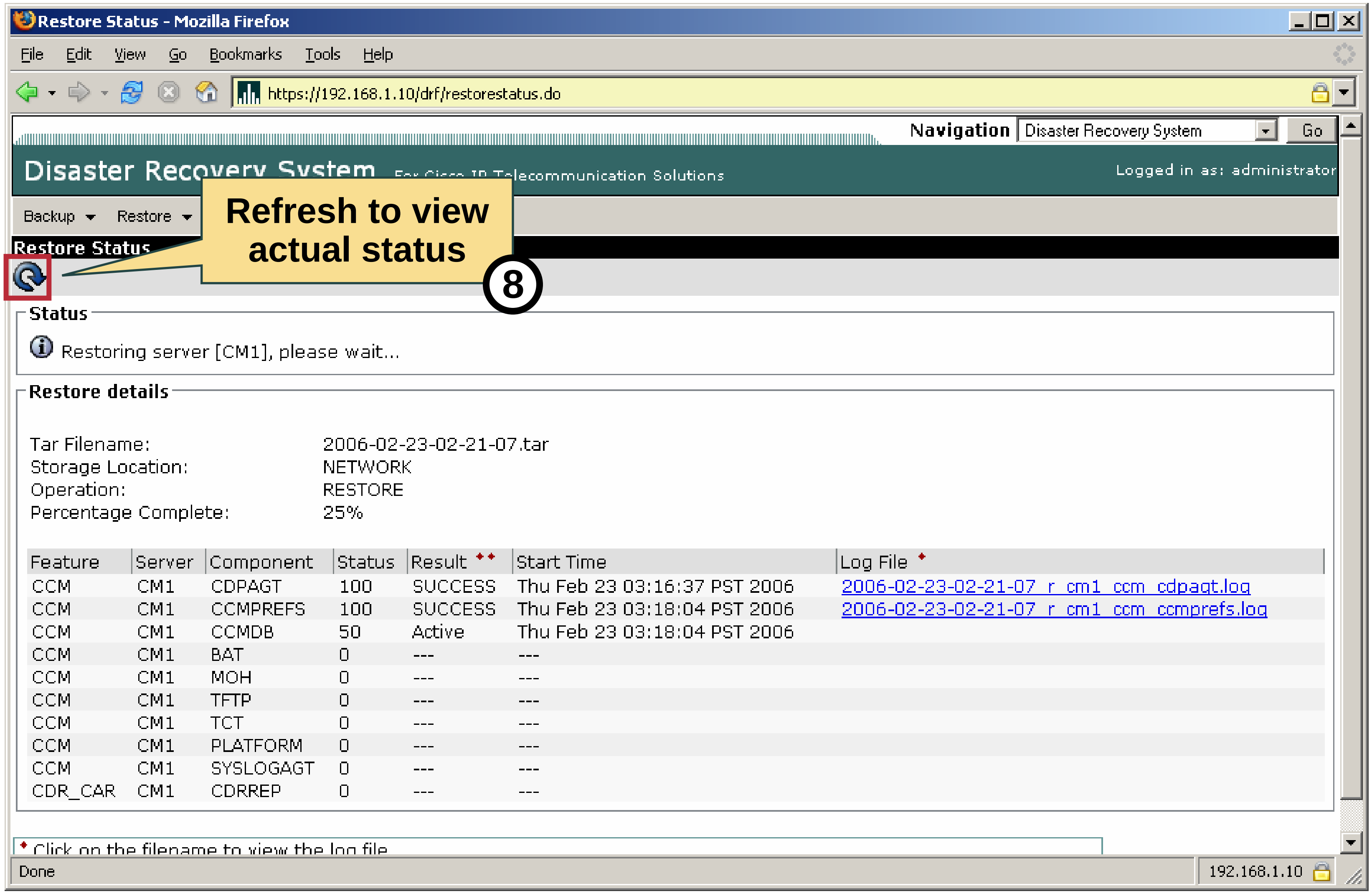
Warning

Feature(s) CCM,CDR_CAR have been selected for restore. Clicking on the Restore button will prompt for servers on which these features can be restored. Once the selection has been made, restore will overwrite the data destination server and all the existing data for the selected feature will be lost.

Back
Restore
Cancel
Done
192.168.1.10

Start restore ⑦

Backup and Restore Procedure:
Restore Wizard


Restore Status - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/drf/restorestatus.do
Navigation
Disaster Recovery System
Go
Disaster Recovery System
For Cisco IP Telecommunication Solutions
Logged in as: administrator
Backup
Restore
Restore Status
Done
192.168.1.10

Refresh to view actual status

8

Status

Restoring server [CM1], please wait...

Restore details

Tar Filename:	2006-02-23-02-21-07.tar
Storage Location:	NETWORK
Operation:	RESTORE
Percentage Complete:	25%

Feature	Server	Component	Status	Result **	Start Time	Log File *
CCM	CM1	CDPAGT	100	SUCCESS	Thu Feb 23 03:16:37 PST 2006	2006-02-23-02-21-07_r_cm1_ccm_cdpagt.log
CCM	CM1	CCMPREFS	100	SUCCESS	Thu Feb 23 03:18:04 PST 2006	2006-02-23-02-21-07_r_cm1_ccm_ccmprefs.log
CCM	CM1	CCMDB	50	Active	Thu Feb 23 03:18:04 PST 2006	
CCM	CM1	BAT	0	---	---	
CCM	CM1	MOH	0	---	---	
CCM	CM1	TFTP	0	---	---	
CCM	CM1	TCT	0	---	---	
CCM	CM1	PLATFORM	0	---	---	
CCM	CM1	SYSLOGAGT	0	---	---	
CDR_CAR	CM1	CDRREP	0	---	---	

* Click on the filename to view the log file

Disaster Recovery

The following disaster recovery commands are available on the Cisco Unified CallManager 5.0 CLI:

```
admin:utils disaster_recovery ?
      utils disaster_recovery status
      utils disaster_recovery cancel_backup
      utils disaster_recovery show_tapeid
      utils disaster_recovery show_registration
      utils disaster_recovery show_backupfiles*
      utils disaster_recovery backup*
      utils disaster_recovery restore*

admin:utils disaster_recovery
```

Disaster Recovery

admin:

```
utils disaster_recovery show_tapeid
```

- **This command will display a list of available tape devices on the publisher running the Master Agent.**
- **This device name must be used when backing up or restoring from tape.**
- **The format of the name will be:**
  - **/dev/nst0**

Disaster Recovery

`admin:`

```
utils disaster_recovery backup tape <tapeid>
utils disaster_recovery backup <path> <sftp server> <userid>
```

- **The CLI backup command backs up all features.**
- **This command will initiate a backup to tape or network sftp server.**
- **The <tapeid> parameter is obtained from the show_tapeid command.**
- **When backing up to the network the following information is required:**
  - **Network path**
  - **UserID to access network path**

Disaster Recovery

`admin:`

```
disaster_recovery cancel_backup Y
```

- **This command will cancel an active backup after the current component completes its’ backup.**

`admin:`

```
utils disaster_recovery status Restore
utils disaster_recovery status Backup
```

- **This command will display current backup or restore status.**

Disaster Recovery

```
admin:
```

```
utils disaster_recovery show_backupfiles tape <tapeid>
utils disaster_recovery show_backupfiles <path> <sftp server> <userid>
```

- This command is used to list all backup sets on tape, local disk, or network SFTP server.
- The output of this command is required by the “restore” command.

Disaster Recovery

`admin:`

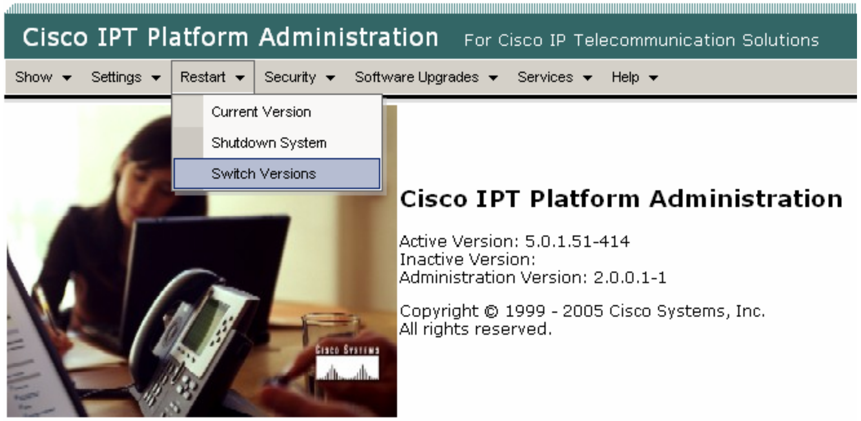
```
utils disaster_recovery restore tape server tarfile <tapeid>
utils disaster_recovery restore network <server> <tarfilename>
<path> <sftp server> <userid>
```

- **This command is used to restore all features to a specific server.**
- **The <tapeid> parameter can be obtained from the “show_tapeid” command.**
- **The first <server> parameter indicates which server should be restored.**

Dual Partitions and Switch Version

Cisco Unified CallManager supports dual partitions to switch versions:

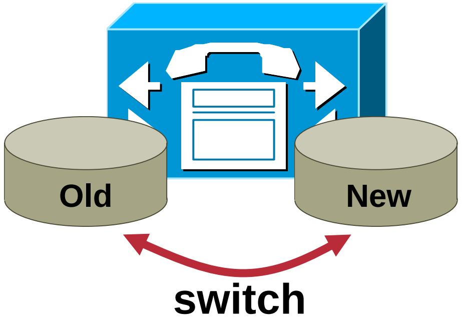
- **When upgrading to a new version, the actual version is stored on the second partition.**
- **The system can be switches between those two partitions.**
- **It is necessary to reload the system to switch to the other partition.**


Cisco IPT Platform Administration
For Cisco IP Telecommunication Solutions
Show
Settings
Restart
Security
Software Upgrades
Services
Help
Current Version
Shutdown System
Switch Versions
Cisco Systems

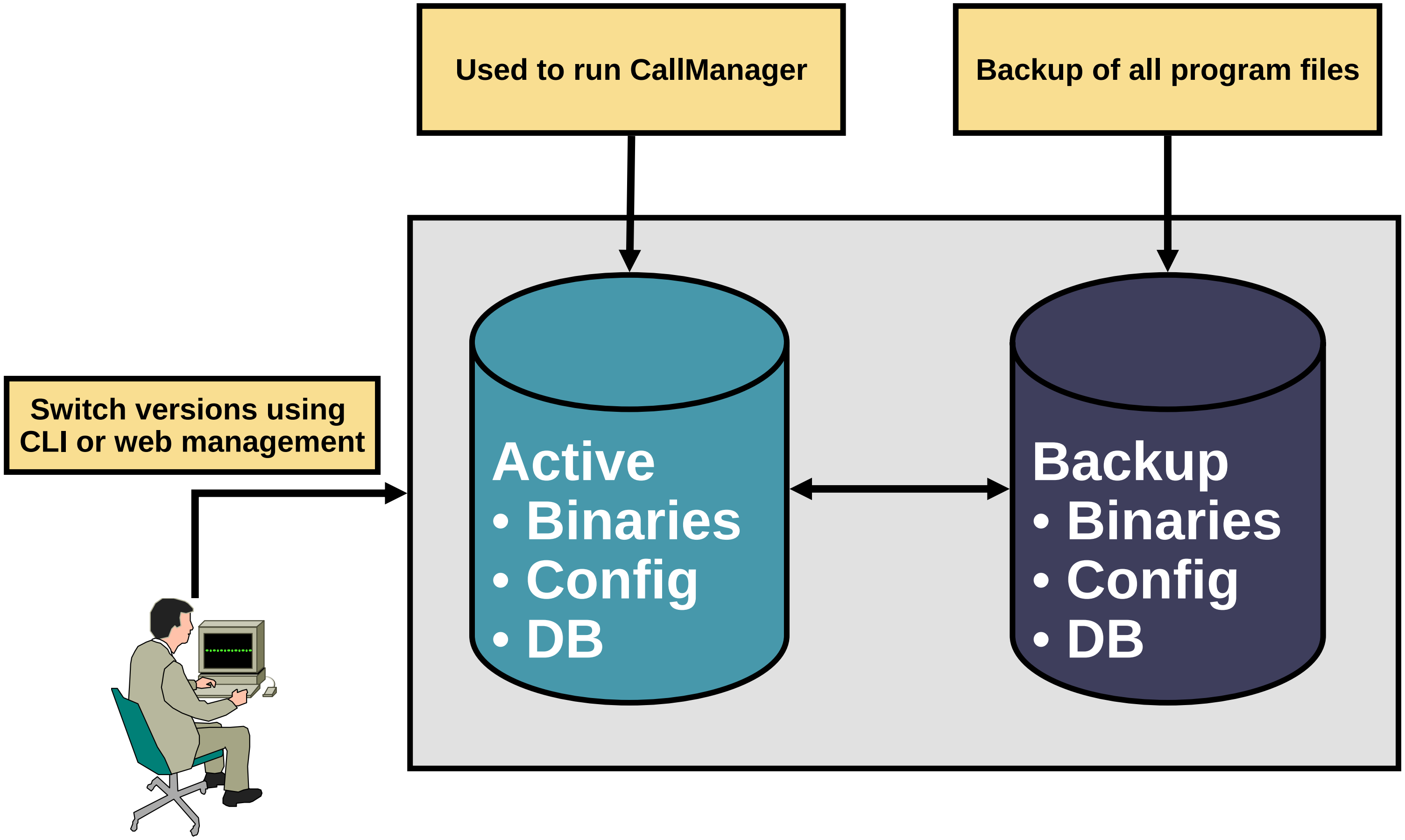
Cisco IPT Platform Administration

Active Version: 5.0.1.51-414
Inactive Version:
Administration Version: 2.0.0.1-1

Copyright © 1999 - 2005 Cisco Systems, Inc.
All rights reserved.


Old
New
switch

Dual Partitions (Switch Version)



Used to run CallManager

Backup of all program files

Switch versions using CLI or web management

Active
- Binaries
- Config
- DB

Backup
- Binaries
- Config
- DB

Summary

- Cisco Unified CallManager 5.0 uses DRF and dual partitions for recovery purposes.
- The master agent runs on the publisher and performs the actual backup.
- The backup menu contains all necessary parts to backup the system using DRF.
- The restore menu contains all necessary parts to restore the system using DRF.
- To backup and restore a Cisco Unified CallManager 5.0 system backup files are used.
- The disaster recovery allows to backup a system using the Cisco Unified CallManager 5.0 CLI.
- Dual partitions allow to switch between two Cisco Unified CallManager versions.

Deploying Cisco Unified CallManager 5.0 Endpoints

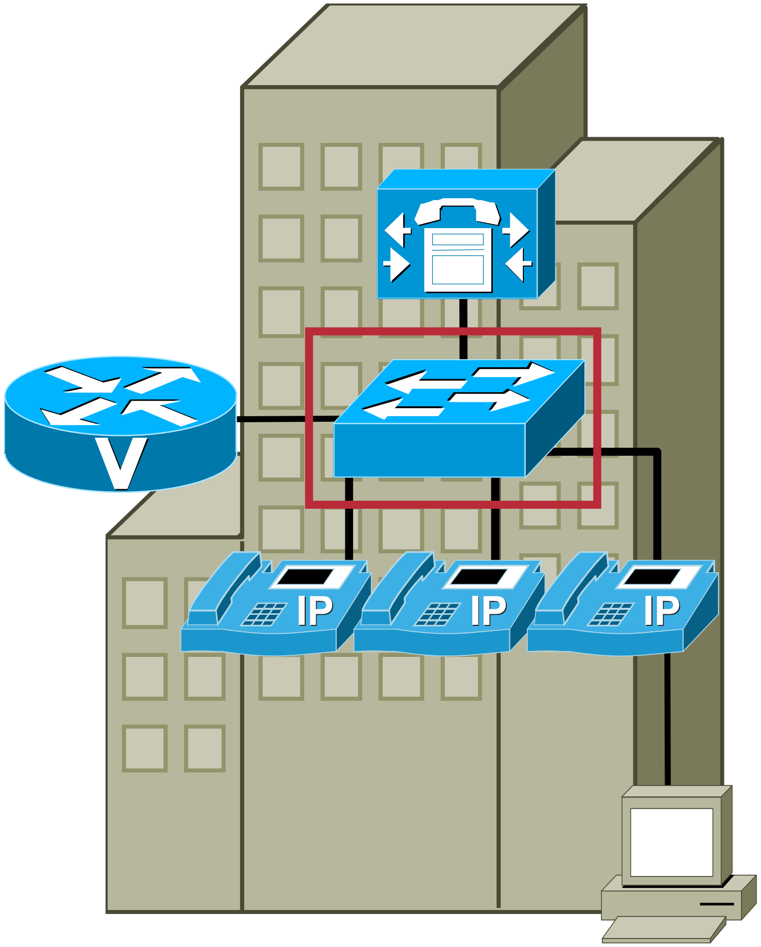
Configuring Catalyst Switches for Endpoints

Objectives

- Catalyst Switch Role in IP Telephony
- Powering the Cisco IP Phone
- Types of PoE Delivery
- Catalyst Family of PoE Switches
- Configuring PoE
- Configuring Dual VLANs
- Configuring Class of Service

Catalyst Switch Role in IP Telephony

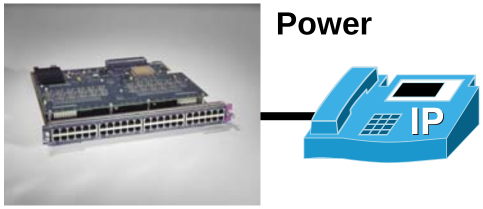
- Supplies inline power to IP Phones
- Supports voice and data VLANs on a single port
- Prioritizes voice traffic with Class of Service (CoS) marking



Powering the Cisco IP Phone

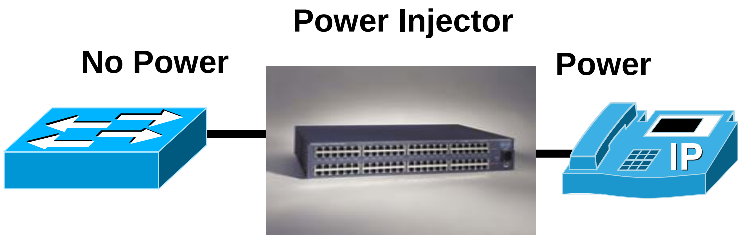
Power over Ethernet (PoE):

- Need PoE line cards or PoE ports for Cisco Catalyst switches
- Delivers -48 V DC over data pairs (pins 1, 2, 3, and 6)



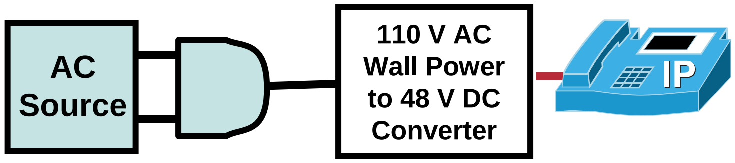
Midspan power injection:

- Needs external power source equipment
- Delivers -48 V DC over spare pairs (pins 4, 5, 7, and 8)


Power Injector
No Power
Power
IP

Wall power:

- Needs DC converter for connecting IP Phone to wall outlet


AC Source
110 V AC Wall Power to 48 V DC Converter
IP

Types of PoE Delivery

Cisco original implementation:

- Provides -48 V DC at up to 6.3 to 7.7 W per port over data pins 1, 2, 3, and 6.
- Supports most Cisco devices (IP Phones and wireless access points).
- Uses a Cisco proprietary method to determine if an attached device requires power. Power is delivered only to devices that require power.

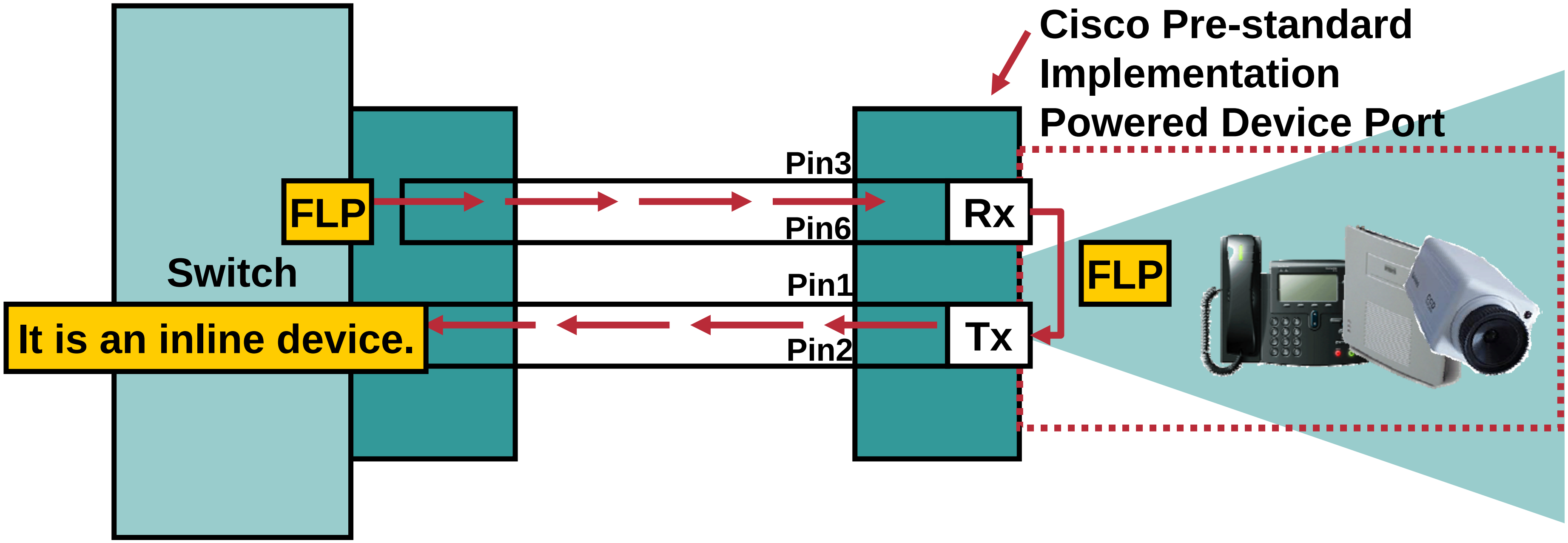
Types of PoE Delivery

IEEE 802.3af Power over Ethernet:

- Specifies -48 V DC at up to 15.4 W per port over data pins 1, 2, 3, and 6 or spare pins 4, 5, 7, and 8.
- Enables a new range of Ethernet-powered devices because of increased power.
- Standardizes the method to determine if an attached device requires power. Power is delivered only to devices that require power.
- Has several optional elements, including power classification.
- Caution: Verify that the deployed switch actually can supply enough power to the deployed number and types of IP phones.

Types of PoE Delivery

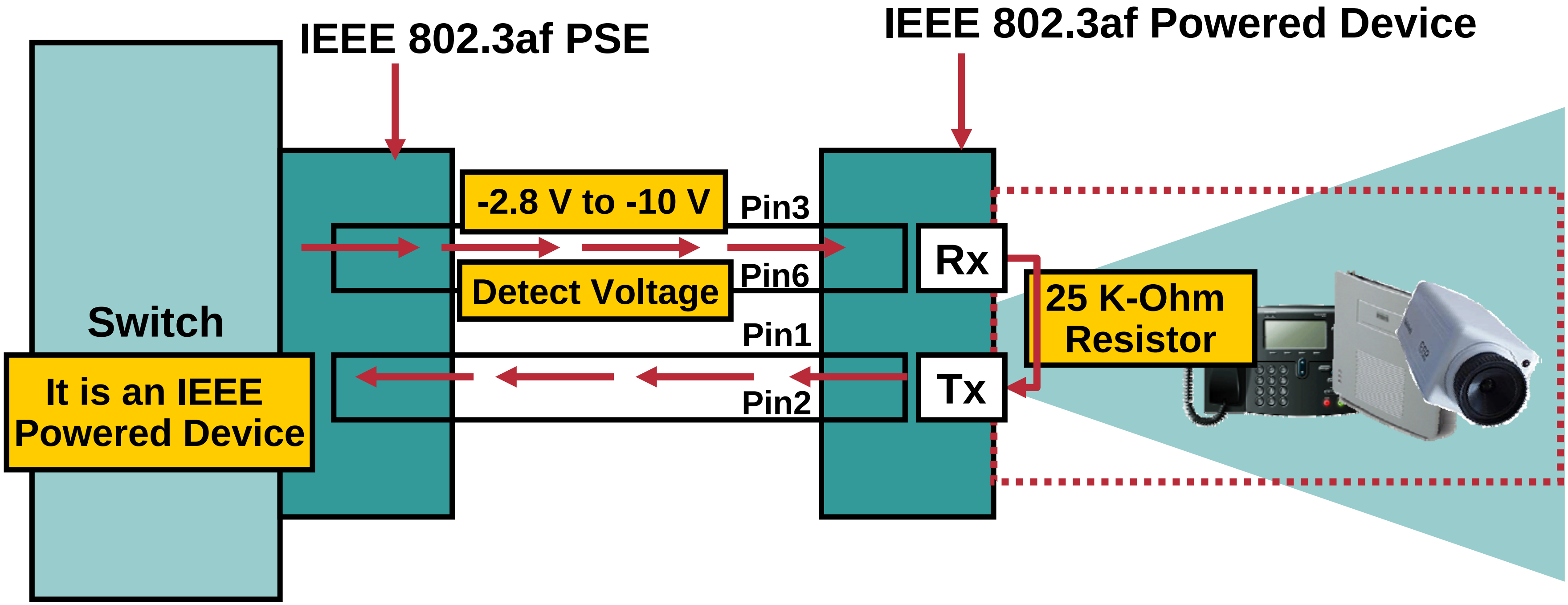
Cisco pre-standard device detection:


Cisco Pre-standard
Implementation
Powered Device Port
Pin3
Pin6
Pin1
Pin2
FLP
Switch
Rx
Tx
FLP

It is an inline device.

Types of PoE Delivery

IEEE 802.3af device detection:


IEEE 802.3af PSE
IEEE 802.3af Powered Device
-2.8 V to -10 V
Pin3
Detect Voltage
Pin6
Pin1
Pin2
Rx
Tx
Switch
It is an IEEE Powered Device
25 K-Ohm Resistor

Configuring PoE

`CatOS>(enable)`

```
set port inlinepower <mod/port> ?
  auto    Port inline power auto mode
  off     Port inline power off mode
```

- **Enable/disable PoE on Cisco CatOS switches**

`IOS(config-if)#`

```
power inline ?
  auto    Automatically detect and power inline devices
  delay   Inline power delay timer setting
  never   Never apply inline power
```

- **Enable/disable PoE on native Cisco IOS switches**

Configuring PoE

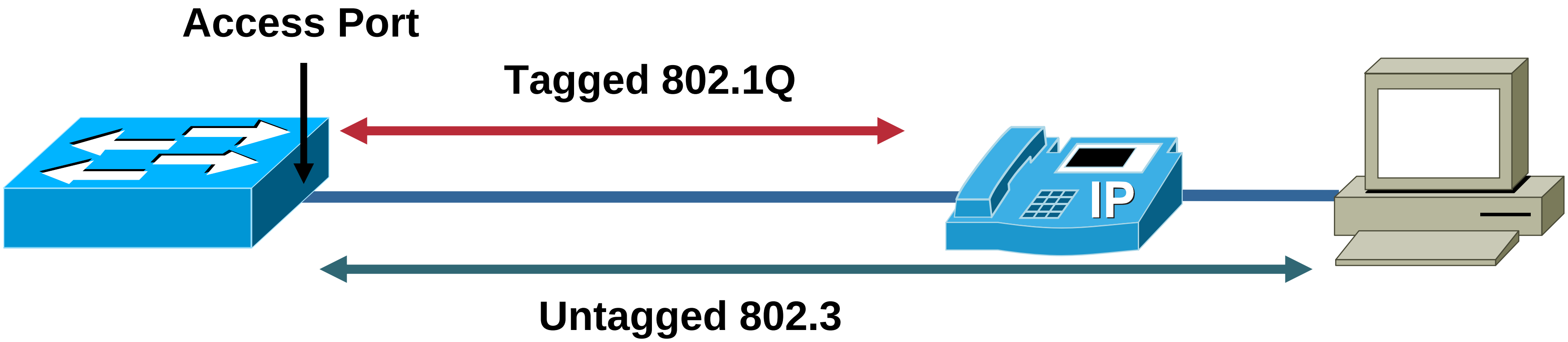
```
CatOS>(enable) show port inline power 7
Default Inline Power allocation per port: 10.000 Watts (0.23 Amps @42V)
Total inline power drawn by module 7: 75.60 Watts (1.80 Amps @42V)
Port     InlinePowered     PowerAllocated
         Admin    Oper     Detected         mWatt            mA @42V
----     -----    ----     --------         ---------        -----------
7/1      auto     off      no               0                0
7/2      auto     on       yes              6300             150
7/3      auto     on       yes              6300             150
7/4      auto     off      no               0                0
7/5      auto     off      no               0                0
7/6      auto     off      no               0                0
7/7      auto     off      no               0                0
```

```
IOS> show power inline
Interface        Admin    Oper     Power ( mWatt )  Device
----------       -----    ----     ---------------  ------
FastEthernet9/1  auto     on       6300             Cisco 6500 IP Phone
FastEthernet9/2  auto     on       6300             Cisco 6500 IP Phone
FastEthernet9/3  auto     off      0                n/a
```

Configuring Dual VLANs

A Multi-VLAN Access Port:

- Access ports that are able to handle two types of VLANs.
- Configured with an access (data) VLAN and a voice (auxiliary) VLAN.



Access Port

Tagged 802.1Q

Untagged 802.3

Configuring Dual VLANs

Configuring voice VLANs on native Cisco IOS using Catalyist 3560, 3750, Catalyst 4500, Catalyst 6500:

```
IOS(config)#interface FastEthernet0/1
IOS(config-if)#switchport mode access
IOS(config-if)#switchport voice vlan 261
IOS(config-if)#switchport access vlan 262
IOS(config-if)#spanning-tree portfast
IOS(config-if)#
IOS(config)#show interfaces fa0/4 switchport
Name: Fa0/4
Switchport: Enabled
Administrative Mode: static access
Operational Mode: static access
Administrative Trunking Encapsulation: negotiate
Operational Trunking Encapsulation: native
Negotiation of Trunking: Off
Access Mode VLAN: 262 (VLAN0262)
Trunking Native Mode VLAN: 1 (default)
Voice VLAN: 261 (VLAN0261)
```

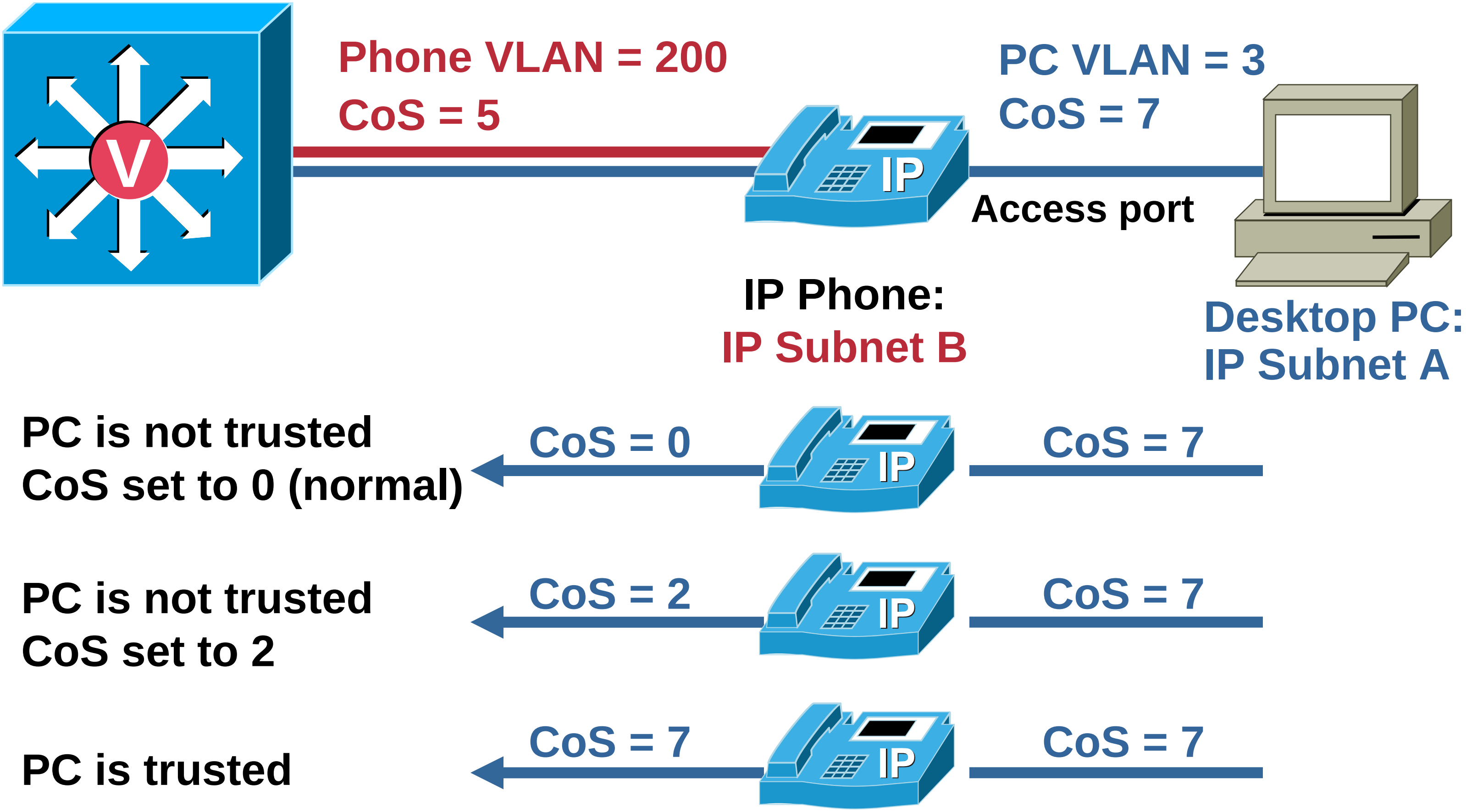
Configuring Dual VLANs

Configuring voice VLANs on Cisco CatOS:

```
Console>(enable) set port auxiliaryvlan 2/1-3 222
Auxiliaryvlan 222 configuration successful.
AuxiliaryVlan AuxVlanStatus Mod/Ports
------------- ------------- ----------------------
222           active        1/2,2/1-3
Console> (enable)
Console> (enable) show port auxiliaryvlan 222
AuxiliaryVlan AuxVlanStatus Mod/Ports
------------- ------------- ----------
222           active        1/2,2/1-3
Console> (enable)
Console> (enable) show port 2/1
...
Port  AuxiliaryVlan AuxVlan-Status
----- ------------- --------------
 2/1  222           active
...
```

Configuring Class of Service

Extension of the trusted boundary to the IP Phone:



Phone VLAN = 200
CoS = 5

PC VLAN = 3
CoS = 7

Access port

IP Phone:
IP Subnet B

Desktop PC:
IP Subnet A

PC is not trusted
CoS set to 0 (normal)

CoS = 0 ← CoS = 7

PC is not trusted
CoS set to 2

CoS = 2 ← CoS = 7

PC is trusted

CoS = 7 ← CoS = 7

Configuring Class of Service

CatOS>(enable)

```
set port qos mod/port cos cos-value
```

- Set the default value for all packets that have arrived through an untrusted port.

CatOS>(enable)

```
set port qos mod/ports... trust-ext {trusted | untrusted}
```

- Allows you to trust or not trust (set to 0) the CoS assigned to the device attached to the IP Phone.

IOS(config-if)#

```
switchport priority extend {cos value | trust}
```

- Choose to modify, ignore, or trust the CoS of the attached device.

Summary

- Cisco voice-capable switches support three primary feature sets that can assist with an IP telephony deployment: POE, dual VLANs, and CoS.
- Most Cisco IP Phone models are capable of using three different options for power.
- Two types of inline power delivery are the Cisco pre-standard implementation and IEEE 802.3af PoE.
- The Cisco Catalyst 6500, 4500, 3750, and 3560 switches support 802.3af, Cisco PoE, dual VLANs, and CoS.
- Inline power can be enabled or disabled using IOS or CatOS commands.
- Using dual VLANs on a single-port Cisco Catalyst switch improves network scalability.
- QoS can be used to mark traffic on voice/data ports individually.

Deploying Cisco Unified CallManager 5.0 Endpoints

Configuring SCCP Endpoints in Cisco Unified CallManager 5.0

Objectives

- **Endpoint Configuration Overview**
- **Configuring Device Pools**
- **IP Phone Button Templates**
- **Manual IP Phone Configuration**
- **Line Configuration**
- **Configuring IP Phone Auto-Registration**
- **Verify Endpoint Configuration**

Endpoint Configuration Overview

SCCP Phones on Cisco Unified CallManager 5.0 are configured by using the following functionality:

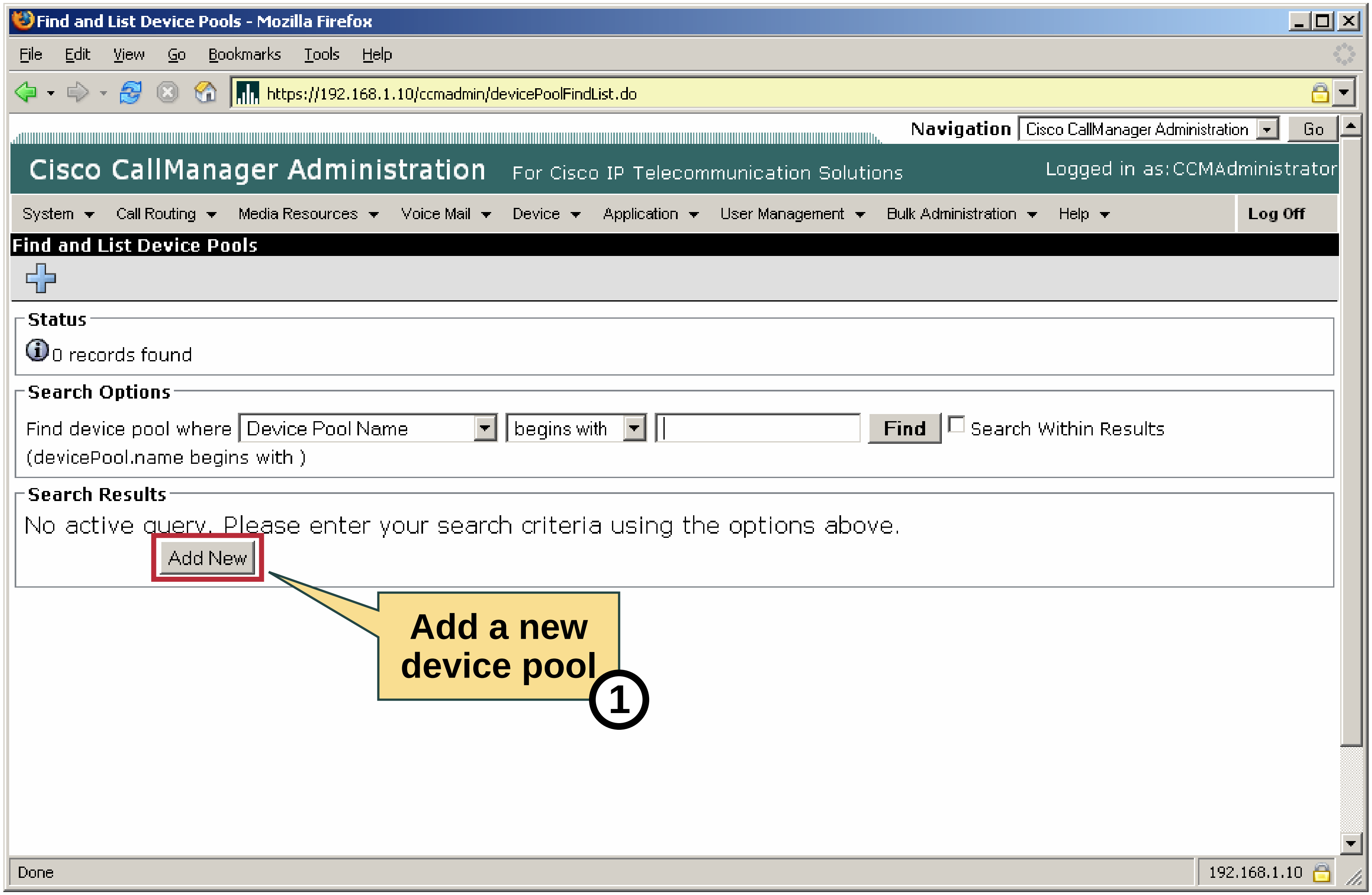
- Cisco Unified CallManager device pools allow configuration of global settings for all devices within that pool.
- IP phone button templates define the function of phone buttons.
- IP phones and IP phone lines can be configured manually.
- Auto-registration allows automatic phone registration and configuration.

Configuring Device Pools

These steps are necessary to configure device pools:

- Add a new device pool.
- Enter a name for the device pool.
- Configure Cisco Unified CallManager values for the device pool.
- Select a default or individually configured softkey template that is used by phones within that device pool.
- Define SRST reference
  - Select SRST reference should be used by phones within that device pool.
  - If the phones should not use SRST select “disable”.
- Save changes and reset the device pool.

Configuring Device Pools



Find and List Device Pools - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/devicePoolFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Find and List Device Pools
Find
Add New
Done
192.168.1.10

Status

0 records found

Search Options

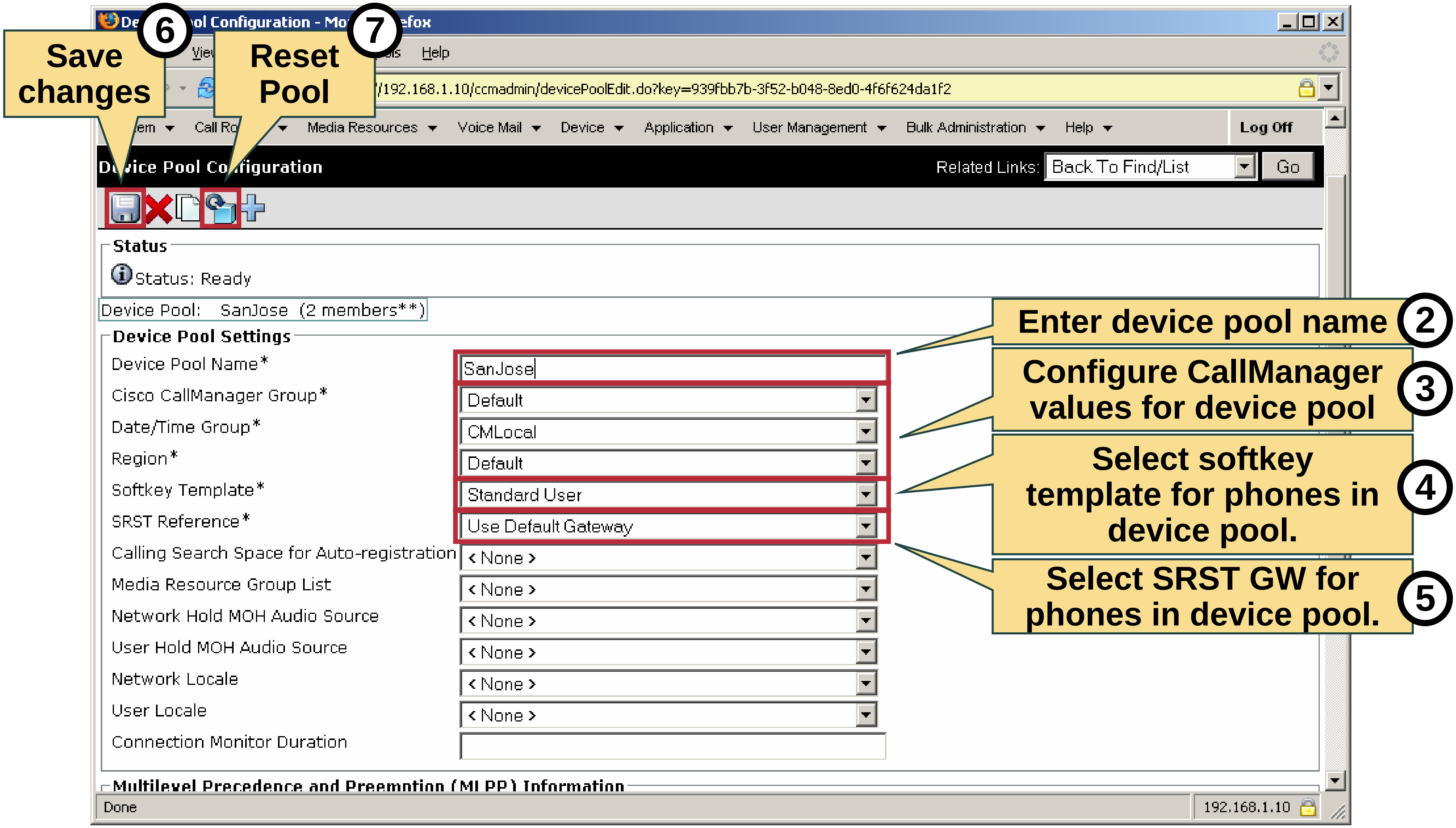
Find device pool where Device Pool Name begins with ☐ Search Within Results
(devicePool.name begins with)

Search Results

No active query. Please enter your search criteria using the options above.

Add a new device pool ①

Configuring Device Pools



Help
/192.168.1.10/ccmadmin/devicePoolEdit.do?key=939fbb7b-3f52-b048-8ed0-4f6f624da1f2
Call Ro
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Related Links: Back To Find/List
Go

Device Pool Configuration

Status

Status: Ready

Device Pool: SanJose (2 members**)

Device Pool Settings

Device Pool Name*	SanJose
Cisco CallManager Group*	Default
Date/Time Group*	CMLocal
Region*	Default
Softkey Template*	Standard User
SRST Reference*	Use Default Gateway
Calling Search Space for Auto-registration	< None >
Media Resource Group List	< None >
Network Hold MOH Audio Source	< None >
User Hold MOH Audio Source	< None >
Network Locale	< None >
User Locale	< None >
Connection Monitor Duration	

Multilevel Precedence and Preemption (MLPP) Information

Done 192.168.1.10

⑥ Save changes

⑦ Reset Pool

② Enter device pool name

③ Configure CallManager values for device pool

④ Select softkey template for phones in device pool.

⑤ Select SRST GW for phones in device pool.

IP Phone Button Templates

- Default 7960/7961 template is 2 lines, 4 speed dials.
- Buttons can be configured for
  - Line
  - Speed dial
  - Service URL
  - Privacy on/off
  - Speed dial Busy Lamp Field (BLF)
- The first phone button needs to be a line button.
- All other phone buttons can be configured individually for any possible function.

IP Phone Button Templates

Handling IP phone button template names:

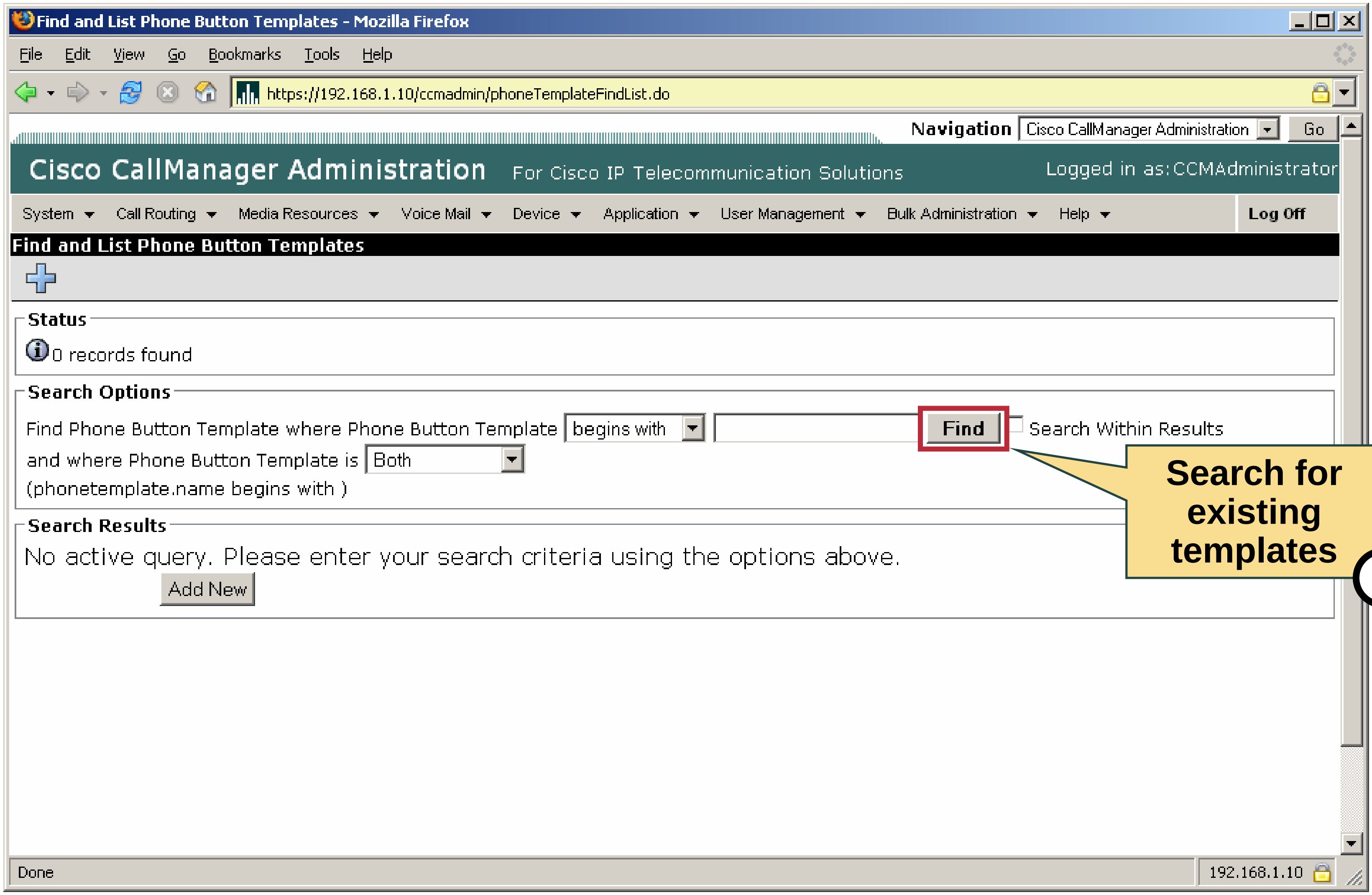
- Template updates affect any IP Phone that uses that template.
- Renaming a template does not affect the IP Phones using that template.
- Templates assigned to one or more devices can not be deleted.

IP Phone Button Templates

These tasks are necessary to add a new personalized phone button template:

- Search for any existing phone button templates.
- Find the template that most closely matches what you want to do and copy it.
- Enter a name for the new template.
- Change the buttons to meet the requirements.
- Save changes.

IP Phone Button Templates



Find and List Phone Button Templates - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneTemplateFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Find and List Phone Button Templates
Status
Search Options
Search Results
Find
Add New
Done
192.168.1.10

0 records found

Find Phone Button Template where Phone Button Template begins with

☐ Search Within Results

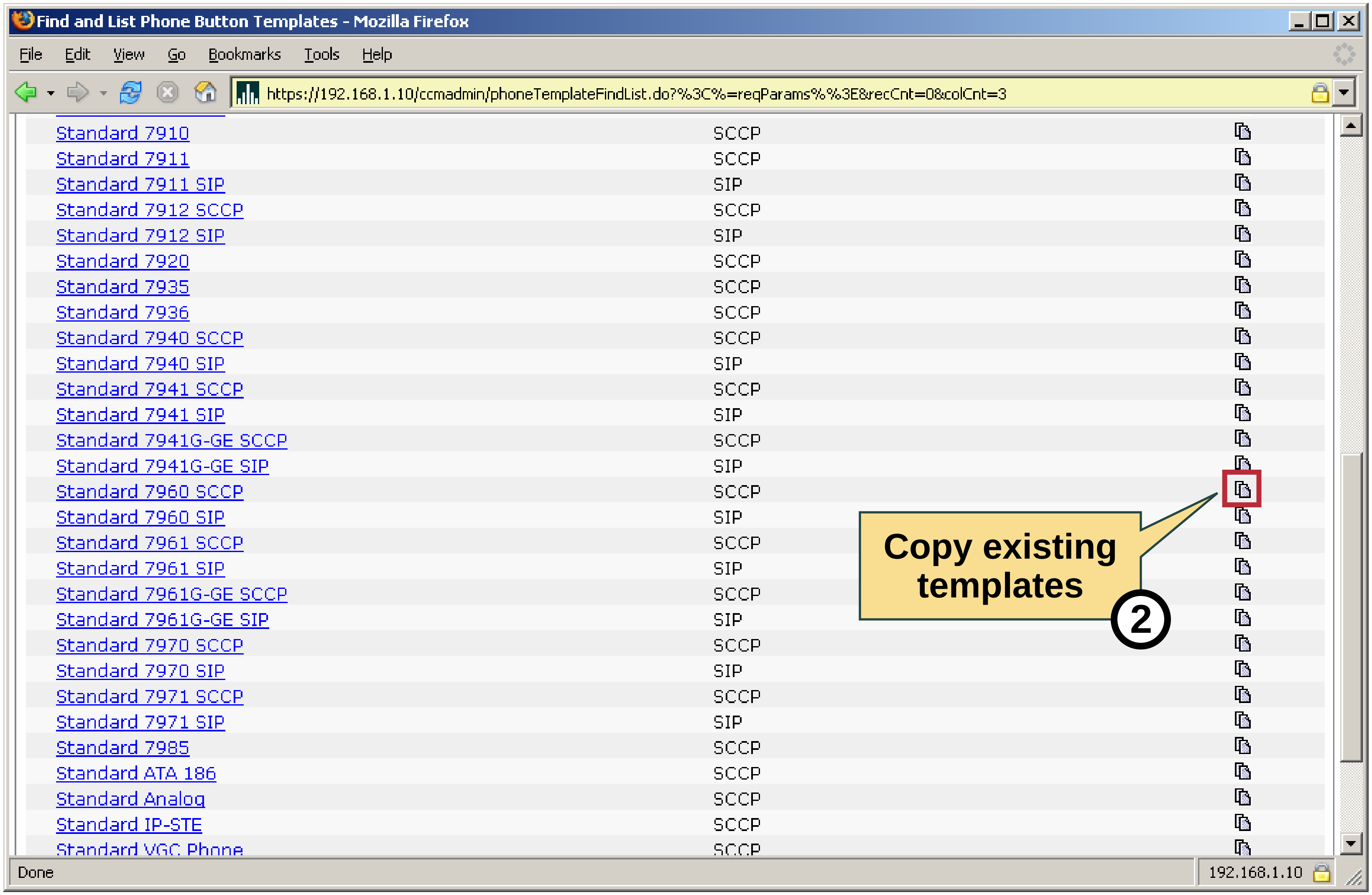
and where Phone Button Template is Both

(phonetemplate.name begins with)

No active query. Please enter your search criteria using the options above.

Search for existing templates ①

IP Phone Button Templates


Find and List Phone Button Templates - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help

https://192.168.1.10/ccmadmin/phoneTemplateFindList.do?%3C%=reqParams%%3E&recCnt=0&colCnt=3

Standard 7910	SCCP
Standard 7911	SCCP
Standard 7911 SIP	SIP
Standard 7912 SCCP	SCCP
Standard 7912 SIP	SIP
Standard 7920	SCCP
Standard 7935	SCCP
Standard 7936	SCCP
Standard 7940 SCCP	SCCP
Standard 7940 SIP	SIP
Standard 7941 SCCP	SCCP
Standard 7941 SIP	SIP
Standard 7941G-GE SCCP	SCCP
Standard 7941G-GE SIP	SIP
Standard 7960 SCCP	SCCP
Standard 7960 SIP	SIP
Standard 7961 SCCP	SCCP
Standard 7961 SIP	SIP
Standard 7961G-GE SCCP	SCCP
Standard 7961G-GE SIP	SIP
Standard 7970 SCCP	SCCP
Standard 7970 SIP	SIP
Standard 7971 SCCP	SCCP
Standard 7971 SIP	SIP
Standard 7985	SCCP
Standard ATA 186	SCCP
Standard Analog	SCCP
Standard IP-STE	SCCP
Standard VGC Phone	SCCP

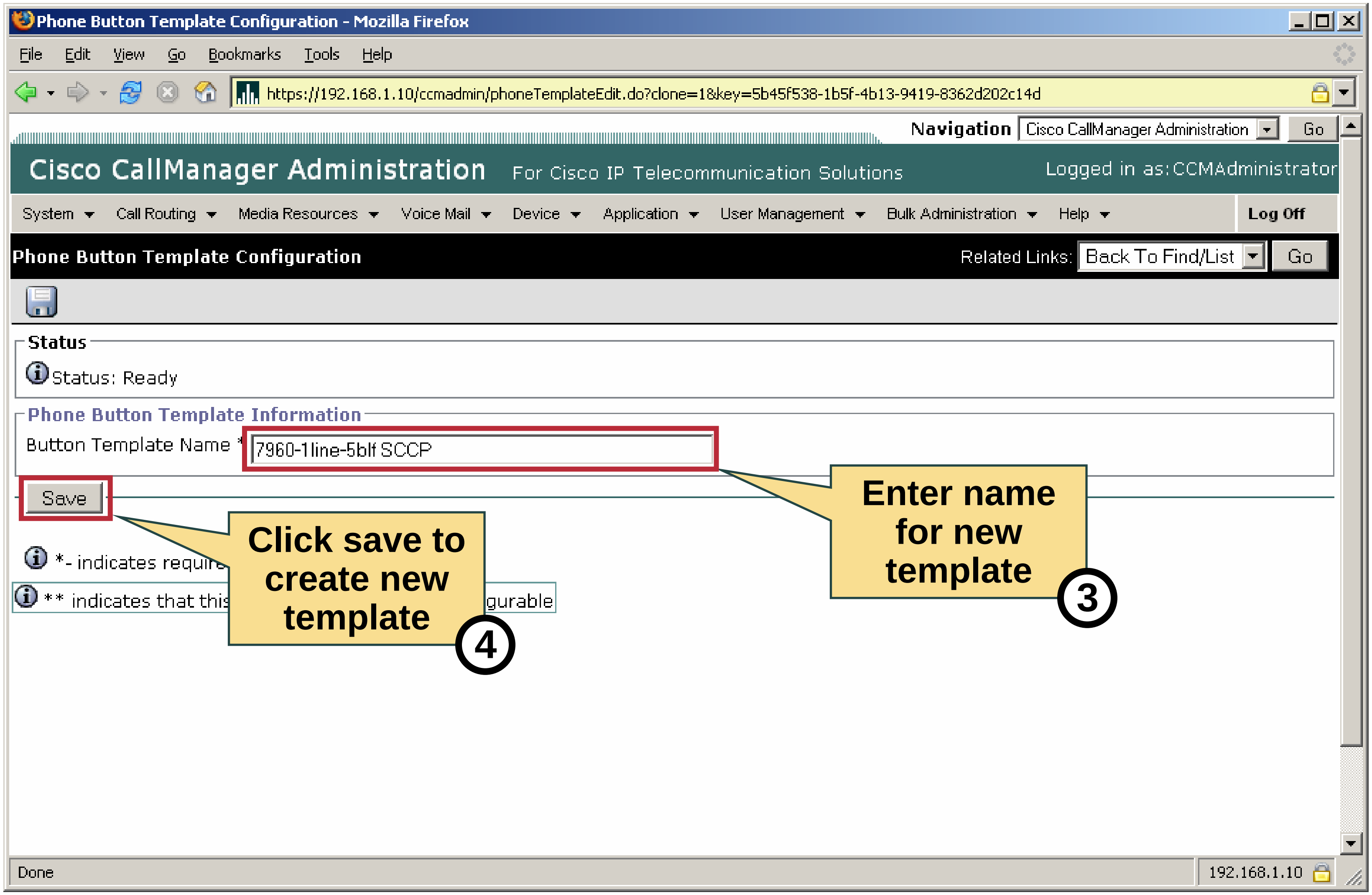
Done

192.168.1.10

Copy existing templates

②

IP Phone Button Templates



Phone Button Template Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneTemplateEdit.do?clone=1&key=5b45f538-1b5f-4b13-9419-8362d202c14d
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Phone Button Template Configuration
Related Links: Back To Find/List Go
Status
Phone Button Template Information
Save
*- indicates requi
** indicates that this
gurable
Done
192.168.1.10

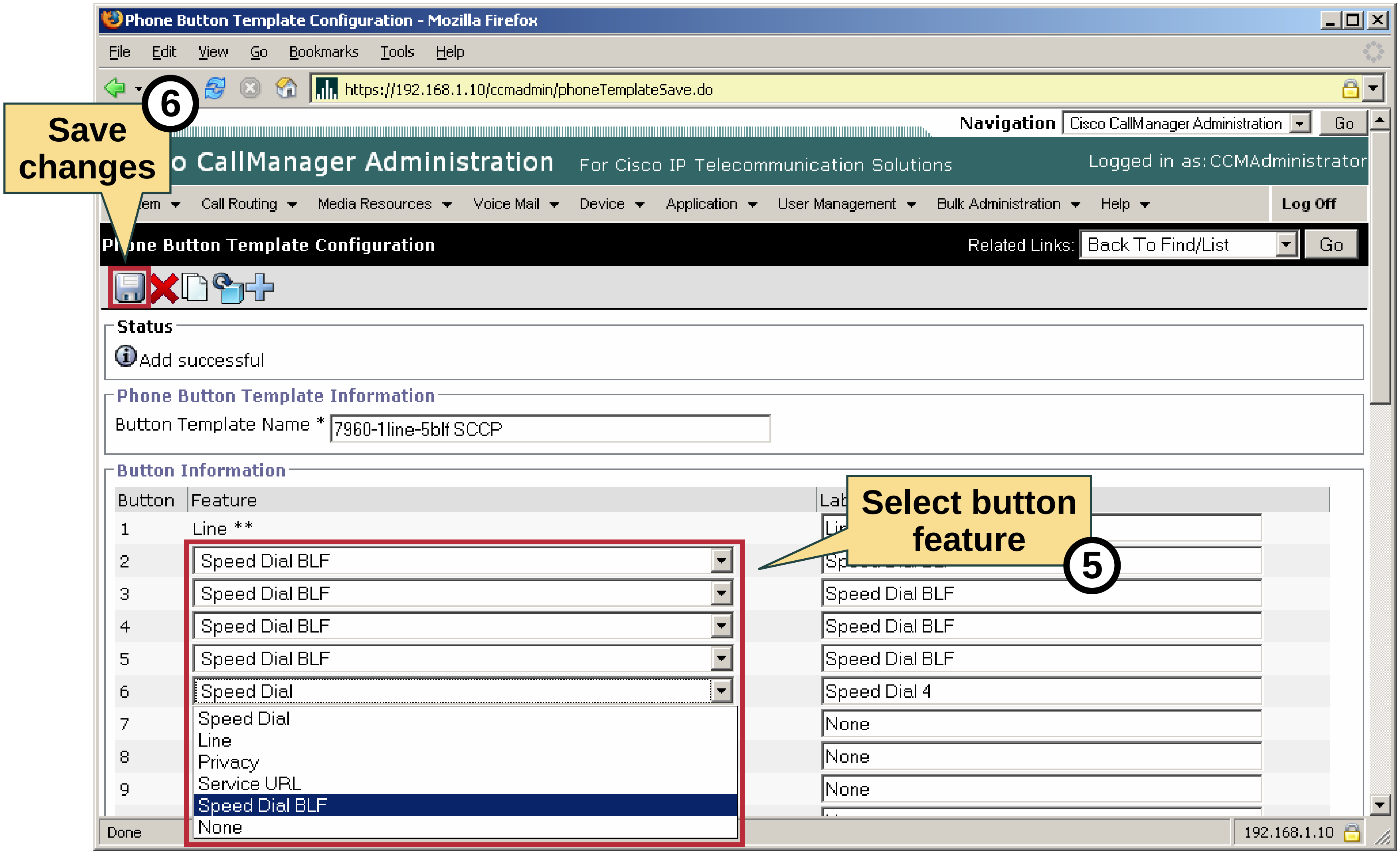
Status: Ready

Button Template Name * 7960-1line-5blf SCCP

Enter name for new template ③

Click save to create new template ④

IP Phone Button Templates


Phone Button Template Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Administration Go
o CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
em Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Related Links: Back To Find/List Go
Done
192.168.1.10

https://192.168.1.10/ccmadmin/phoneTemplateSave.do

Phone Button Template Configuration

Status

Add successful

Phone Button Template Information

Button Template Name * 7960-1line-5blf SCCP

Button Information

Button	Feature	Label
1	Line **	Li
2	Speed Dial BLF	Sp
3	Speed Dial BLF	Speed Dial BLF
4	Speed Dial BLF	Speed Dial BLF
5	Speed Dial BLF	Speed Dial BLF
6	Speed Dial	Speed Dial 4
7		None
8		None
9		None

- Speed Dial
- Line
- Privacy
- Service URL
- Speed Dial BLF
- None

⑥ Save changes

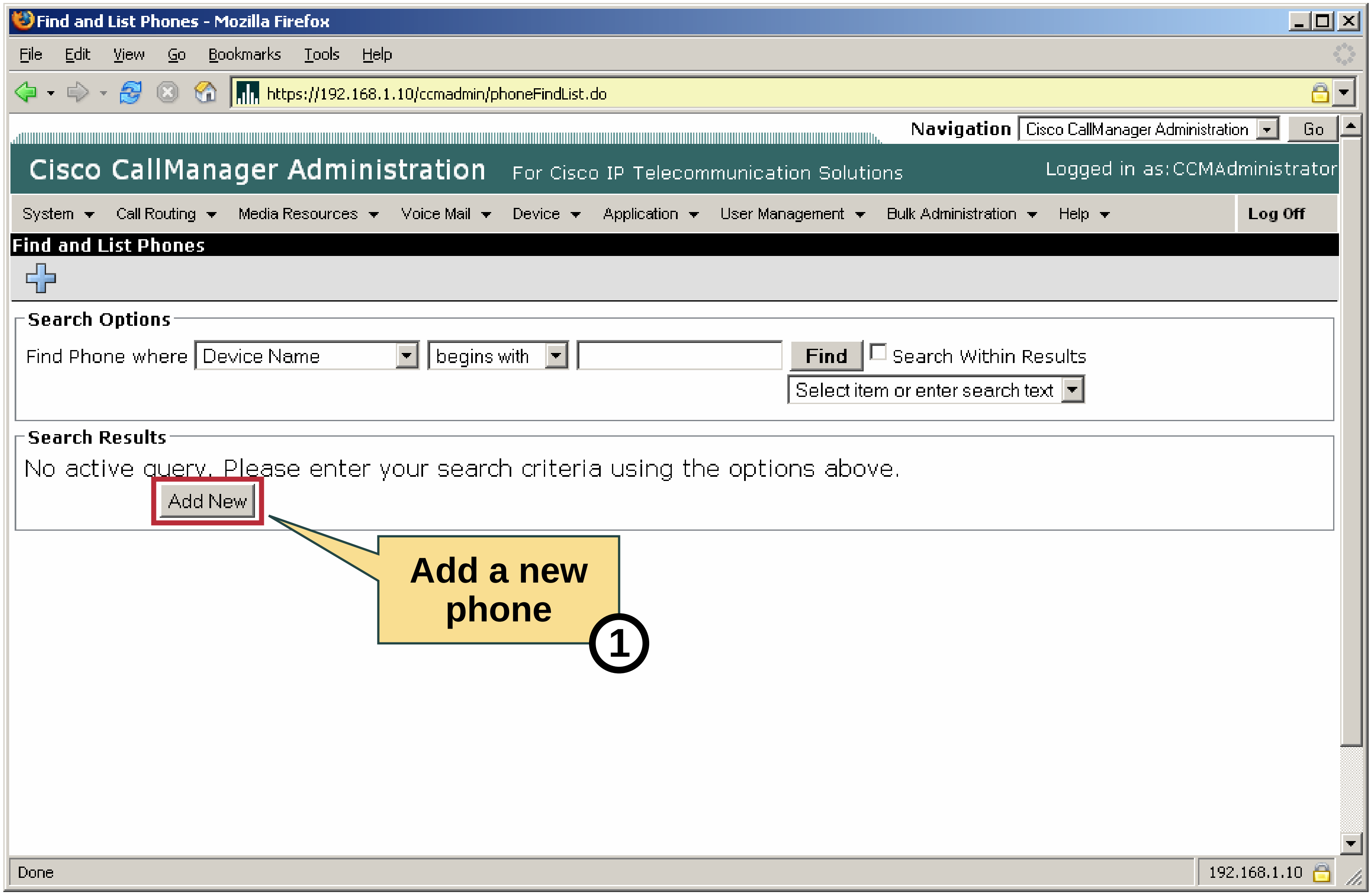
⑤ Select button feature

Manual IP Phone Configuration

These are the minimum steps required to manually add an IP phone on Cisco Unified CallManager 5.0:

- **Add a new phone.**
- **Select the phone type.**
- **Select the phone protocol.**
- **Perform the basic phone configuration.**

Manual IP Phone Configuration

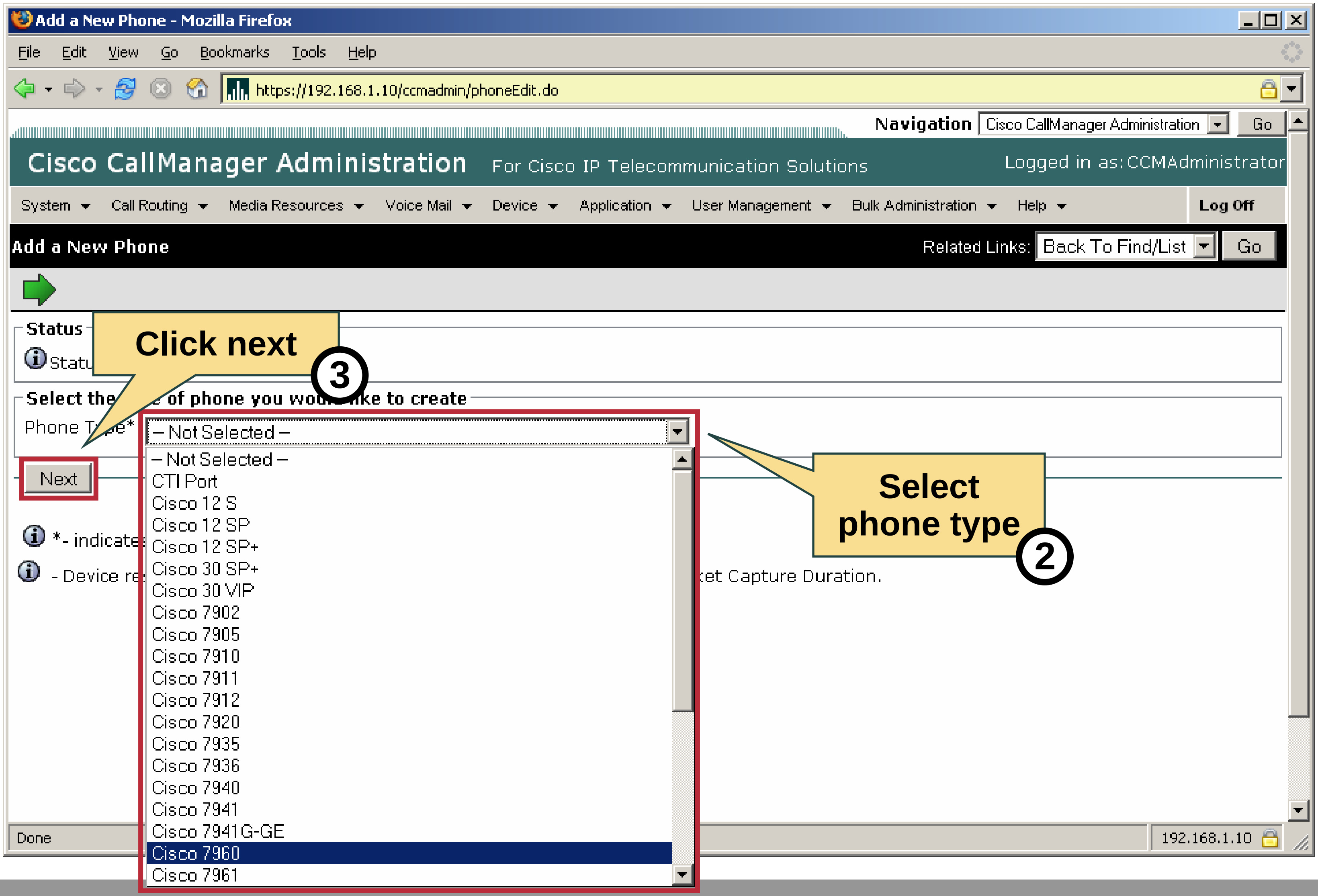

Find and List Phones - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Find and List Phones
Search Options
Find
☐ Search Within Results
Select item or enter search text
Search Results
Add New
Done
192.168.1.10

Find Phone where Device Name begins with

No active query. Please enter your search criteria using the options above.

Add a new phone ①

Manual IP Phone Configuration



Add a New Phone - Mozilla Firefox

https://192.168.1.10/ccmadmin/phoneEdit.do

Cisco CallManager Administration For Cisco IP Telecommunication Solutions

Logged in as: CCMAdministrator

Add a New Phone

Select the type of phone you would like to create

Phone Type* – Not Selected –

*- indicates

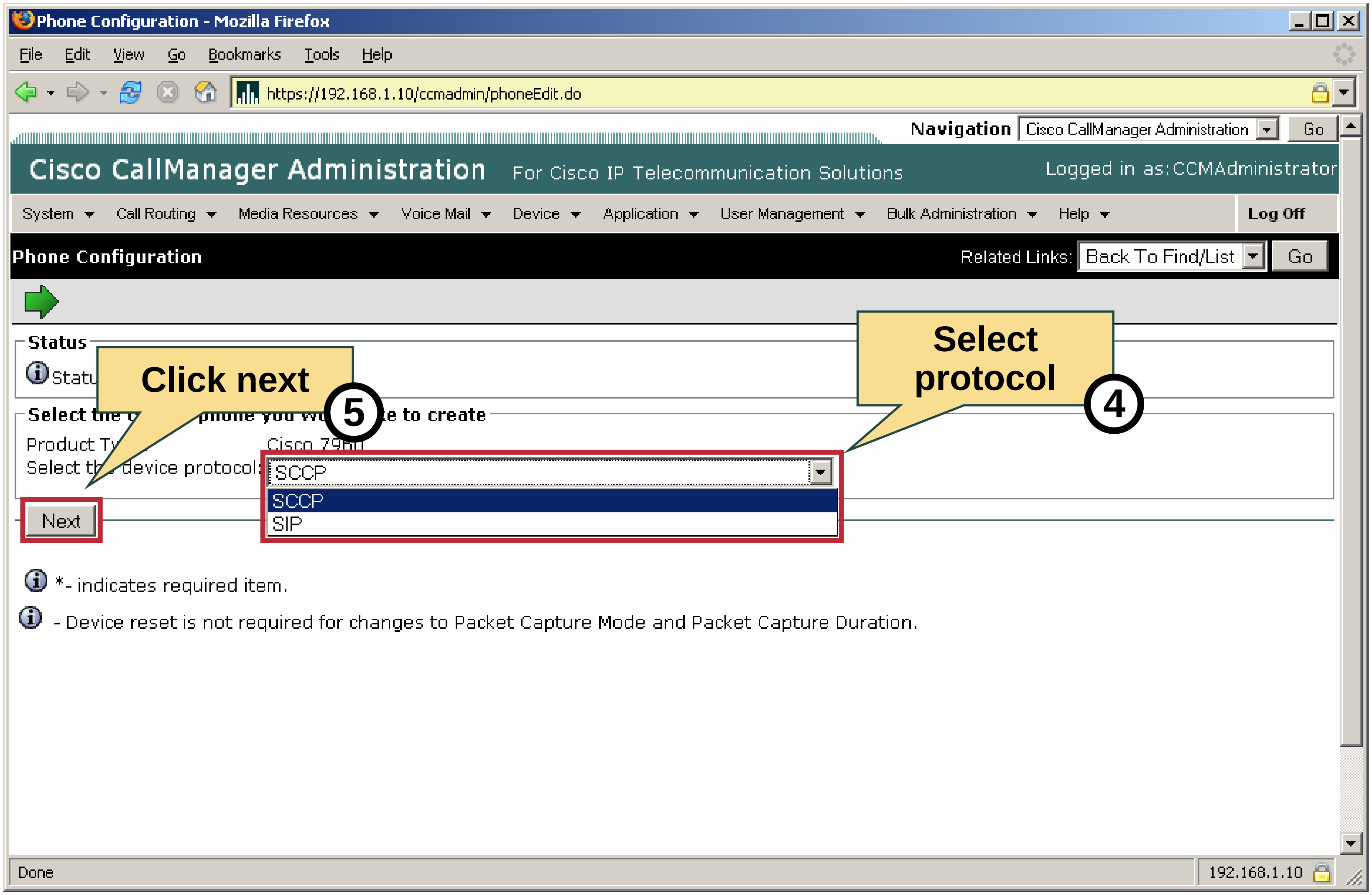
- Device re…ket Capture Duration.

File
Edit
View
Go
Bookmarks
Tools
Help
Navigation
Cisco CallManager Administration
Go
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Related Links:
Back To Find/List
Go
Status
Status
Next
– Not Selected –
CTI Port
Cisco 12 S
Cisco 12 SP
Cisco 12 SP+
Cisco 30 SP+
Cisco 30 VIP
Cisco 7902
Cisco 7905
Cisco 7910
Cisco 7911
Cisco 7912
Cisco 7920
Cisco 7935
Cisco 7936
Cisco 7940
Cisco 7941
Cisco 7941G-GE
Cisco 7960
Cisco 7961
Done
192.168.1.10

Click next ③

Select phone type ②

Manual IP Phone Configuration


Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Phone Configuration
Related Links: Back To Find/List Go
Status
Next
SCCP
SIP
Done
192.168.1.10

Select the type of phone you would like to create

Product Type: Cisco 7960

Select the device protocol: SCCP

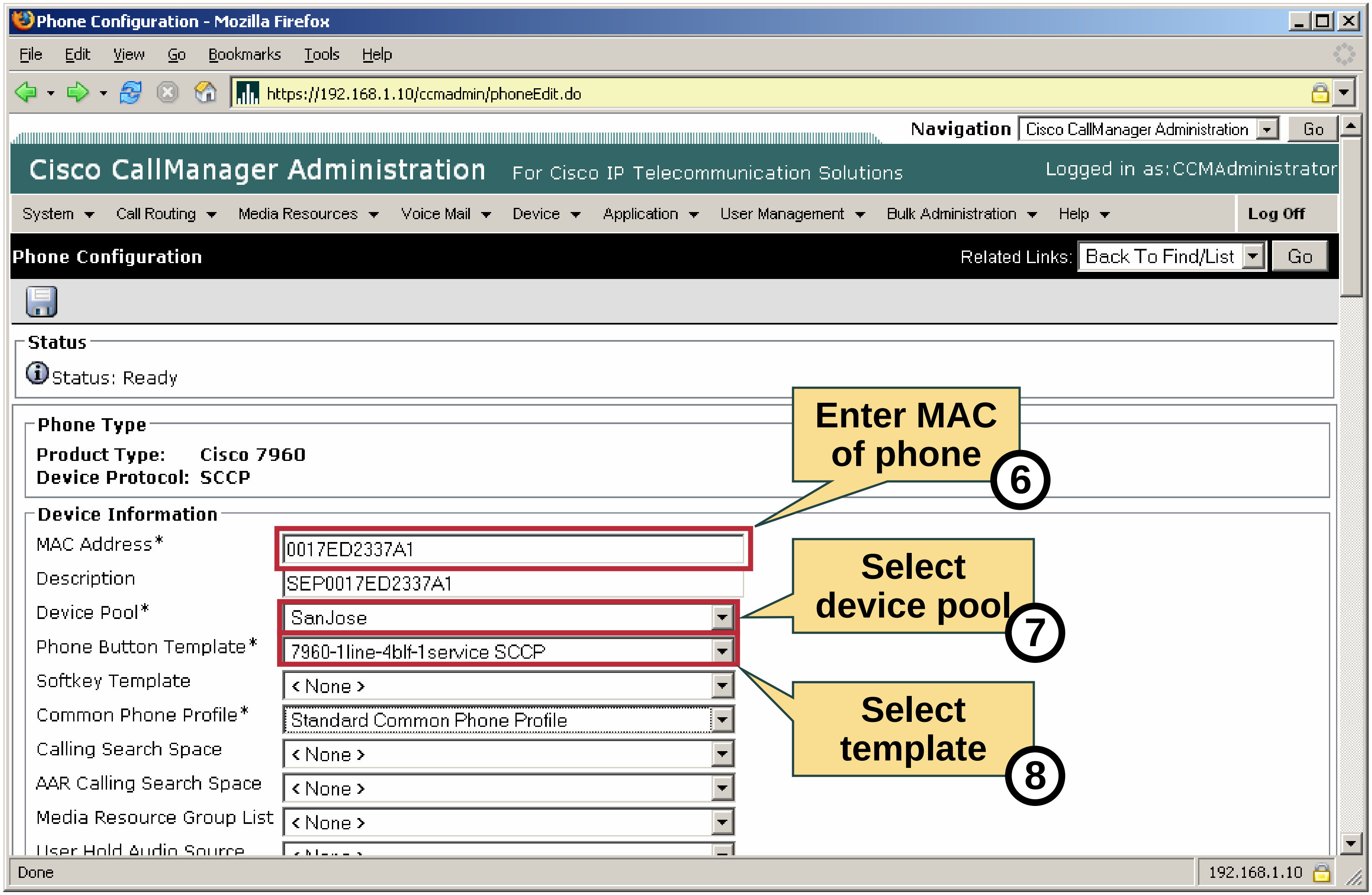
*- indicates required item.

- Device reset is not required for changes to Packet Capture Mode and Packet Capture Duration.

④ Select protocol

⑤ Click next

Manual IP Phone Configuration



Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Phone Configuration
Related Links: Back To Find/List Go
Done
192.168.1.10

Status

Status: Ready

Phone Type

Product Type: Cisco 7960
Device Protocol: SCCP

Device Information

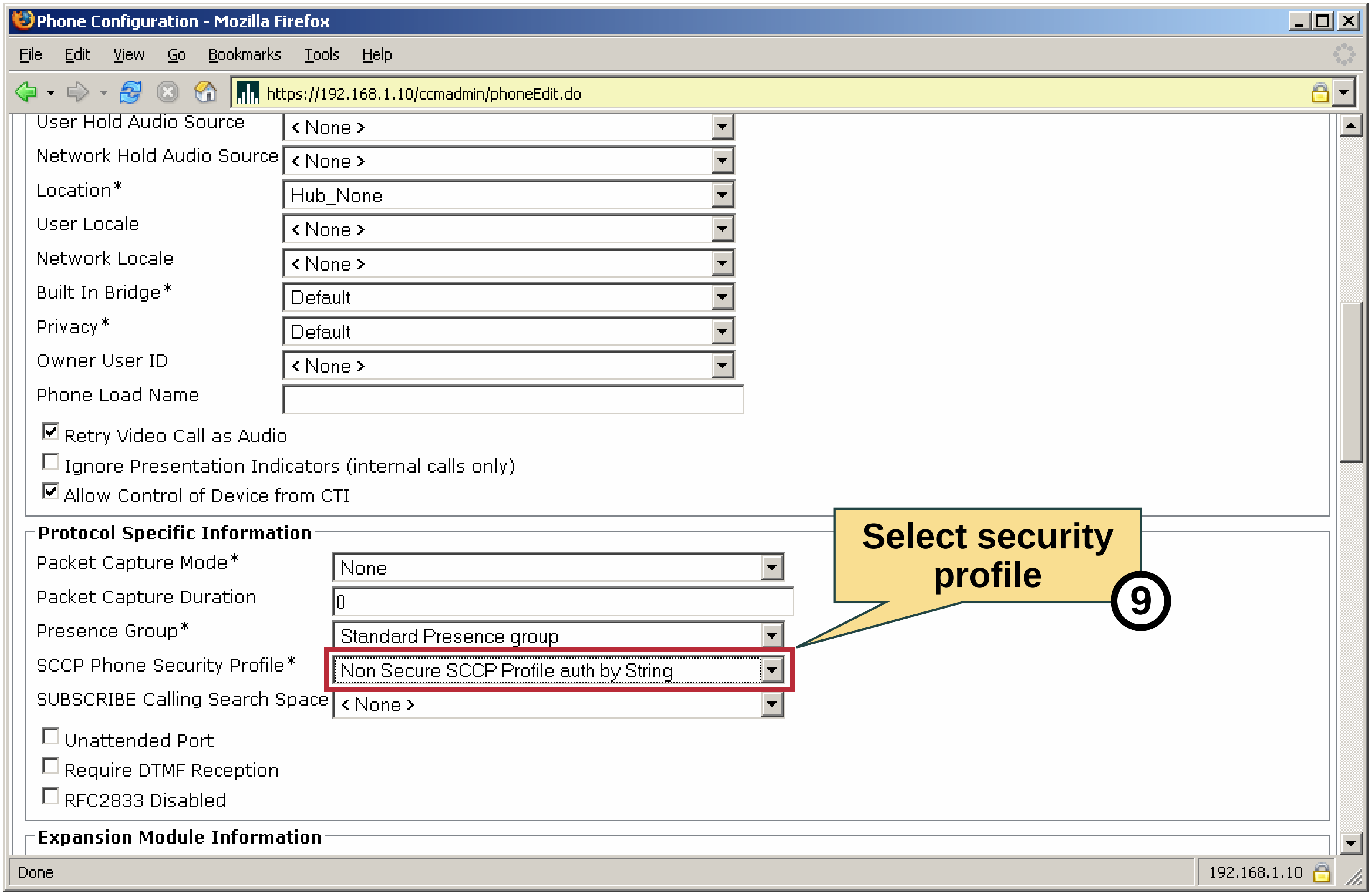
MAC Address*	0017ED2337A1
Description	SEP0017ED2337A1
Device Pool*	SanJose
Phone Button Template*	7960-1line-4blf-1service SCCP
Softkey Template	< None >
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	< None >
AAR Calling Search Space	< None >
Media Resource Group List	< None >
User Hold Audio Source	< None >

Enter MAC of phone ⑥

Select device pool ⑦

Select template ⑧

Manual IP Phone Configuration


Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneEdit.do

User Hold Audio Source	< None >
Network Hold Audio Source	< None >
Location*	Hub_None
User Locale	< None >
Network Locale	< None >
Built In Bridge*	Default
Privacy*	Default
Owner User ID	< None >
Phone Load Name	

☑ Retry Video Call as Audio
☐ Ignore Presentation Indicators (internal calls only)
☑ Allow Control of Device from CTI

Protocol Specific Information

Packet Capture Mode*	None
Packet Capture Duration	0
Presence Group*	Standard Presence group
SCCP Phone Security Profile*	Non Secure SCCP Profile auth by String
SUBSCRIBE Calling Search Space	< None >

☐ Unattended Port
☐ Require DTMF Reception
☐ RFC2833 Disabled

Expansion Module Information

Done
192.168.1.10

Select security profile ⑨

Manual IP Phone Configuration

Phone settings sections:

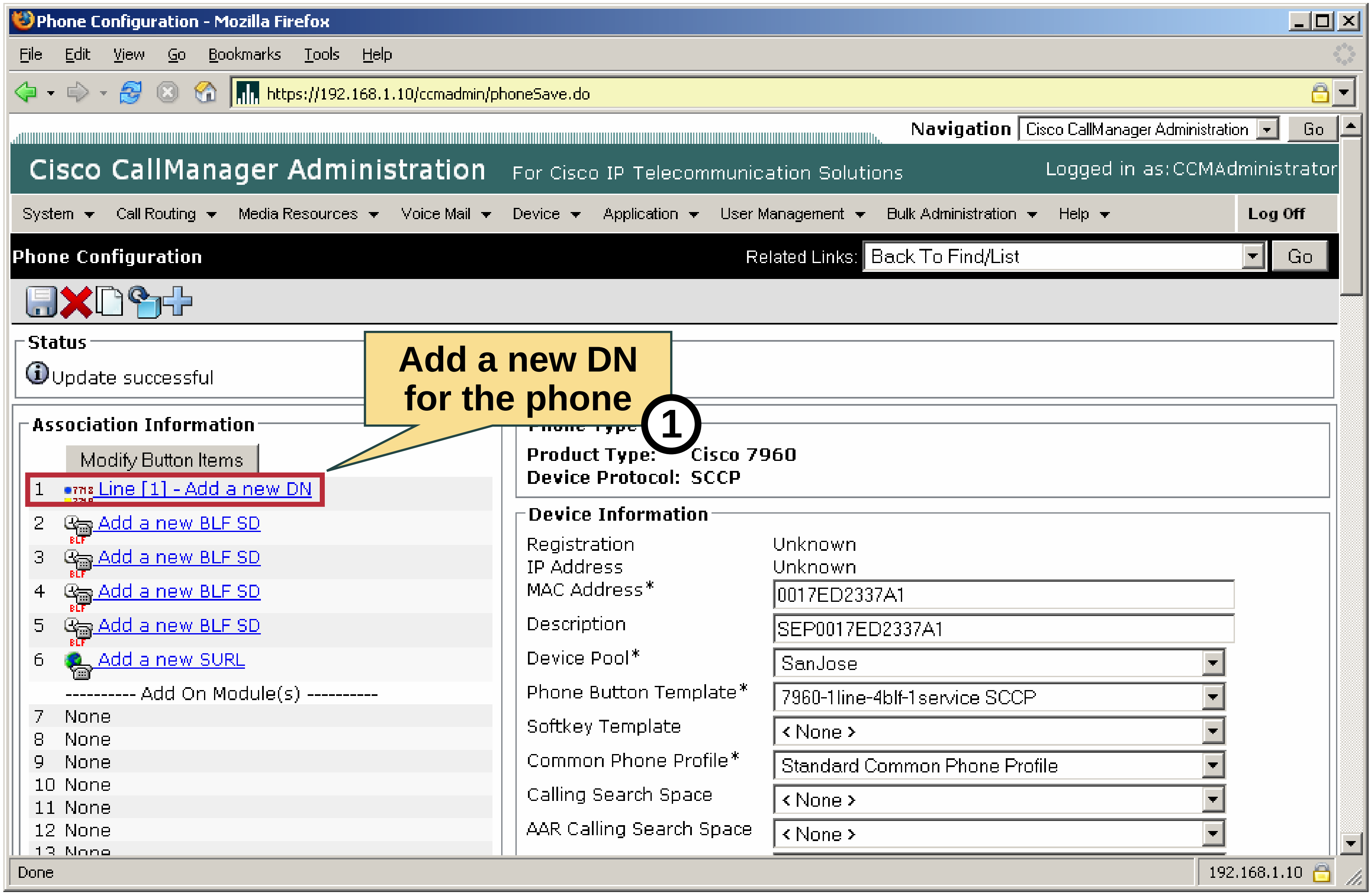
Section	Function
Device Information	Device parameters.
Protocol Specific Information	SCCP/SIP related settings.
Expansion Module Information	7914 expansion module configuration.
External Data Locations	URLs for external data sources.
Extension Information	Extension mobility configuration.
Certification Authority Proxy Function	CAPF phone configuration.
MLPP Information	Multilevel Precedence and Preemption phone configuration.
Secure Shell	Secure shell user information.
Product Specific Configuration	Device configuration specific for the phone type.

Line Configuration

You must configure at least one line on the phone to complete the phone configuration

- Add a new directory number (DN) for the phone.
- Enter the DN.
- Enter a description for the DN.
- Enter an alerting name for the DN.
- Save changes.

Line Configuration


Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneSave.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Phone Configuration
Related Links: Back To Find/List Go
Done
192.168.1.10

Status

Update successful

Association Information

Modify Button Items

1 Line [1] - Add a new DN
2 Add a new BLF SD
3 Add a new BLF SD
4 Add a new BLF SD
5 Add a new BLF SD
6 Add a new SURL
---------- Add On Module(s) ----------
7 None
8 None
9 None
10 None
11 None
12 None
13 None

Phone Type

Product Type: Cisco 7960
Device Protocol: SCCP

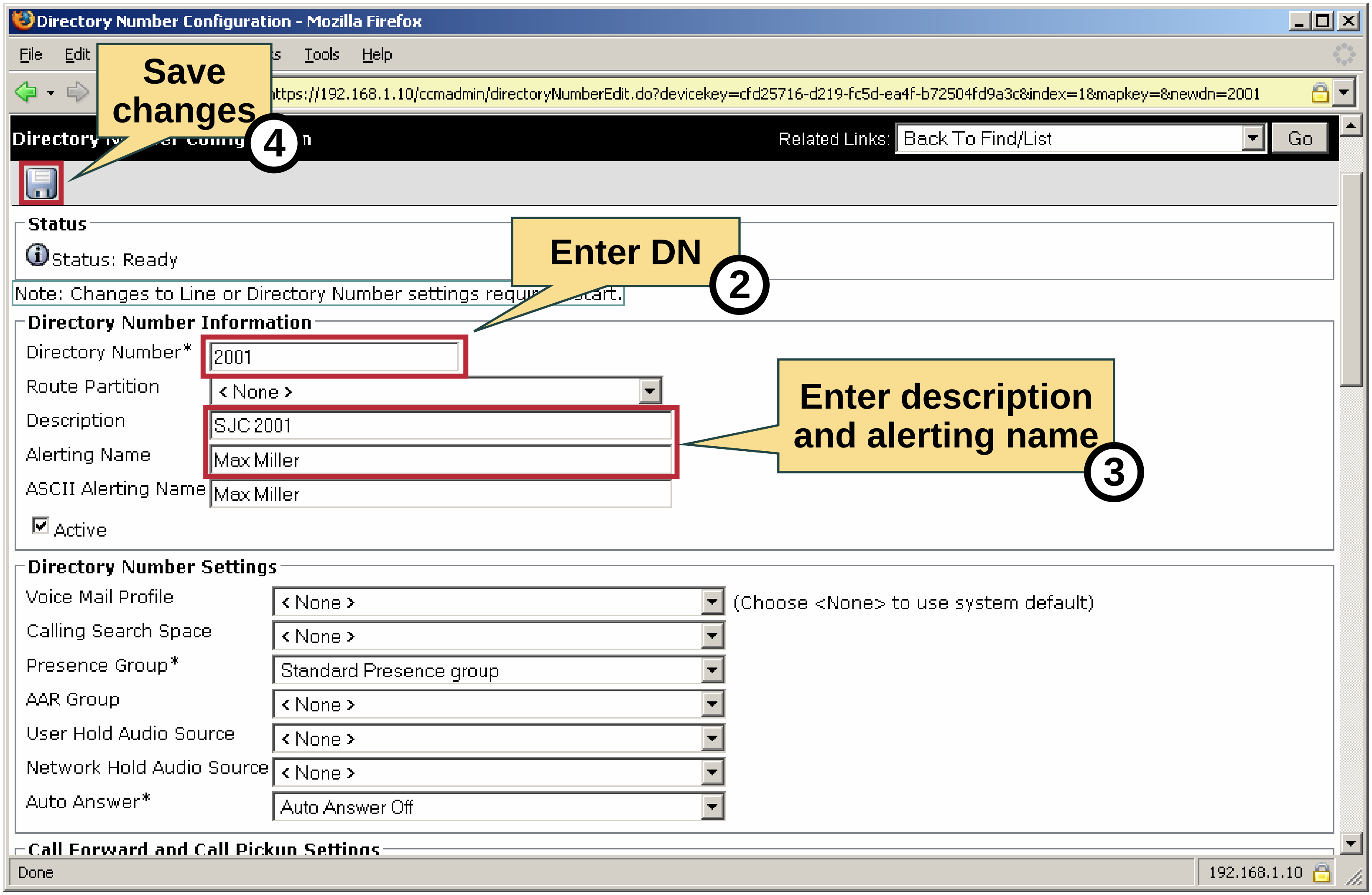
Device Information

Registration	Unknown
IP Address	Unknown
MAC Address*	0017ED2337A1
Description	SEP0017ED2337A1
Device Pool*	SanJose
Phone Button Template*	7960-1line-4blf-1service SCCP
Softkey Template	< None >
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	< None >
AAR Calling Search Space	< None >

Add a new DN for the phone

①

Line Configuration


Directory Number Configuration - Mozilla Firefox
File
Edit
Tools
Help
https://192.168.1.10/ccmadmin/directoryNumberEdit.do?devicekey=cfd25716-d219-fc5d-ea4f-b72504fd9a3c&index=1&mapkey=&newdn=2001
Related Links:
Back To Find/List
Go
Done
192.168.1.10

Save changes ④

Enter DN ②

Enter description and alerting name ③

Status

Status: Ready

Note: Changes to Line or Directory Number settings requir start.

Directory Number Information

Directory Number*	2001
Route Partition	< None >
Description	SJC 2001
Alerting Name	Max Miller
ASCII Alerting Name	Max Miller

☑ Active

Directory Number Settings

Voice Mail Profile	< None > (Choose <None> to use system default)
Calling Search Space	< None >
Presence Group*	Standard Presence group
AAR Group	< None >
User Hold Audio Source	< None >
Network Hold Audio Source	< None >
Auto Answer*	Auto Answer Off

Call Forward and Call Pickup Settings

Line Configuration

Cisco Unified CallManager 5.0 line settings sections:

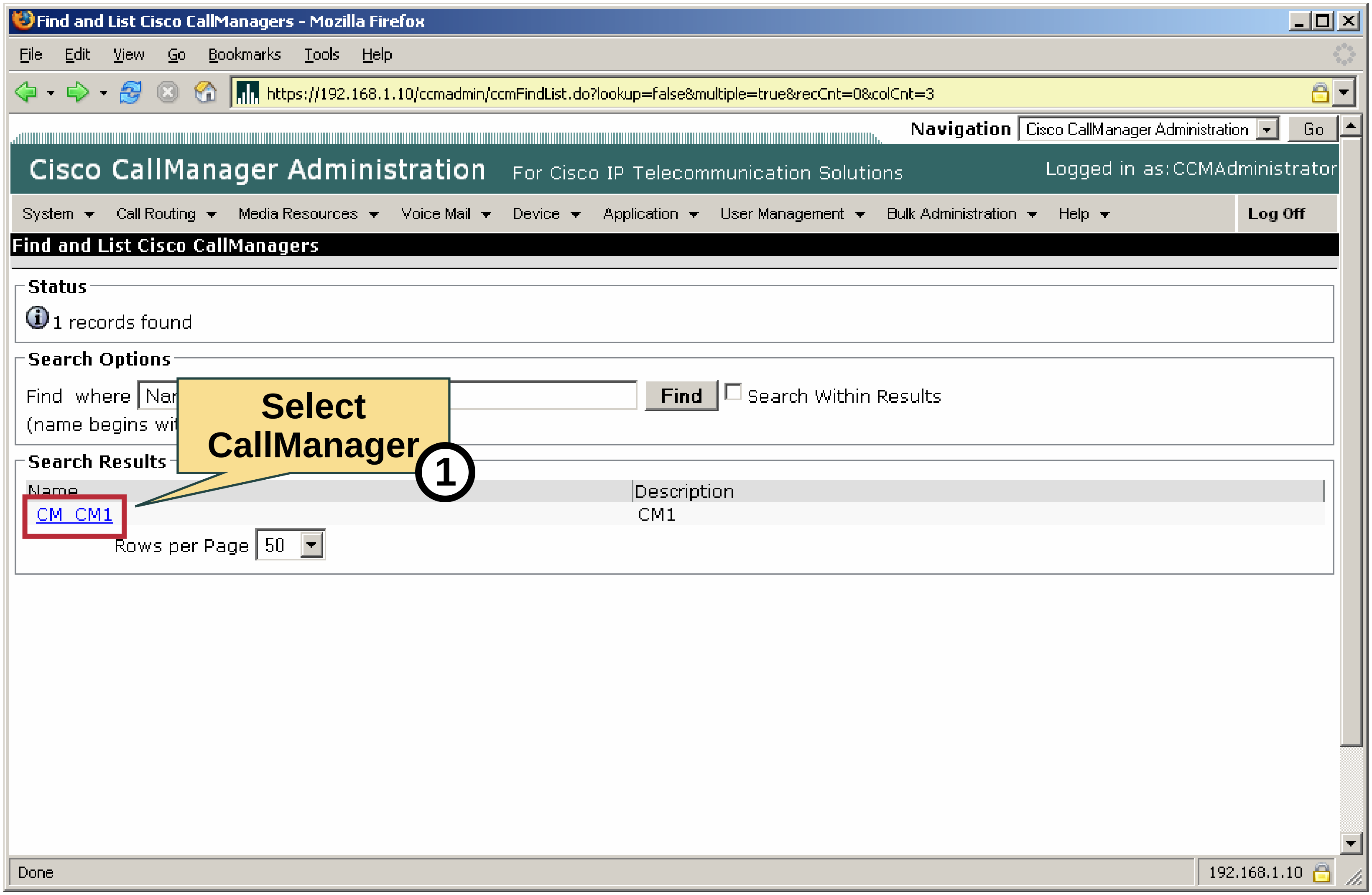
Section	Function
Directory Number Information	DN number configuration.
Directory Number Settings	DN settings configuration.
Call Forward and Call Pickup Settings	Call forward and pickup group allocation.
MLPP Alternate Party Settings	MLPP configuration.
Line on Device	Line specific phone configuration.
Multiple Call/Call Waiting Settings	Max. calls for line configuration.
Forwarded Call Information	Define information that should be forwarded.

Configuring IP Phone Auto-Registration

Auto-Registration can be used to easily add new phones to CallManager:

- **Select the server on which auto-registration will be enabled.**
- **Enter a phone number range for auto-registered phones.**
- **Enable auto-registration on the specified Cisco Unified CallManager.**
- **Note: Manual re-configuration required to personalize auto-registered devices.**

Configuring IP Phone Auto-Registration



Find and List Cisco CallManagers - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/ccmFindList.do?lookup=false&multiple=true&recCnt=0&colCnt=3
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Find and List Cisco CallManagers

Status
1 records found

Search Options
Find where Nar
(name begins wi
Find
☐ Search Within Results

Search Results

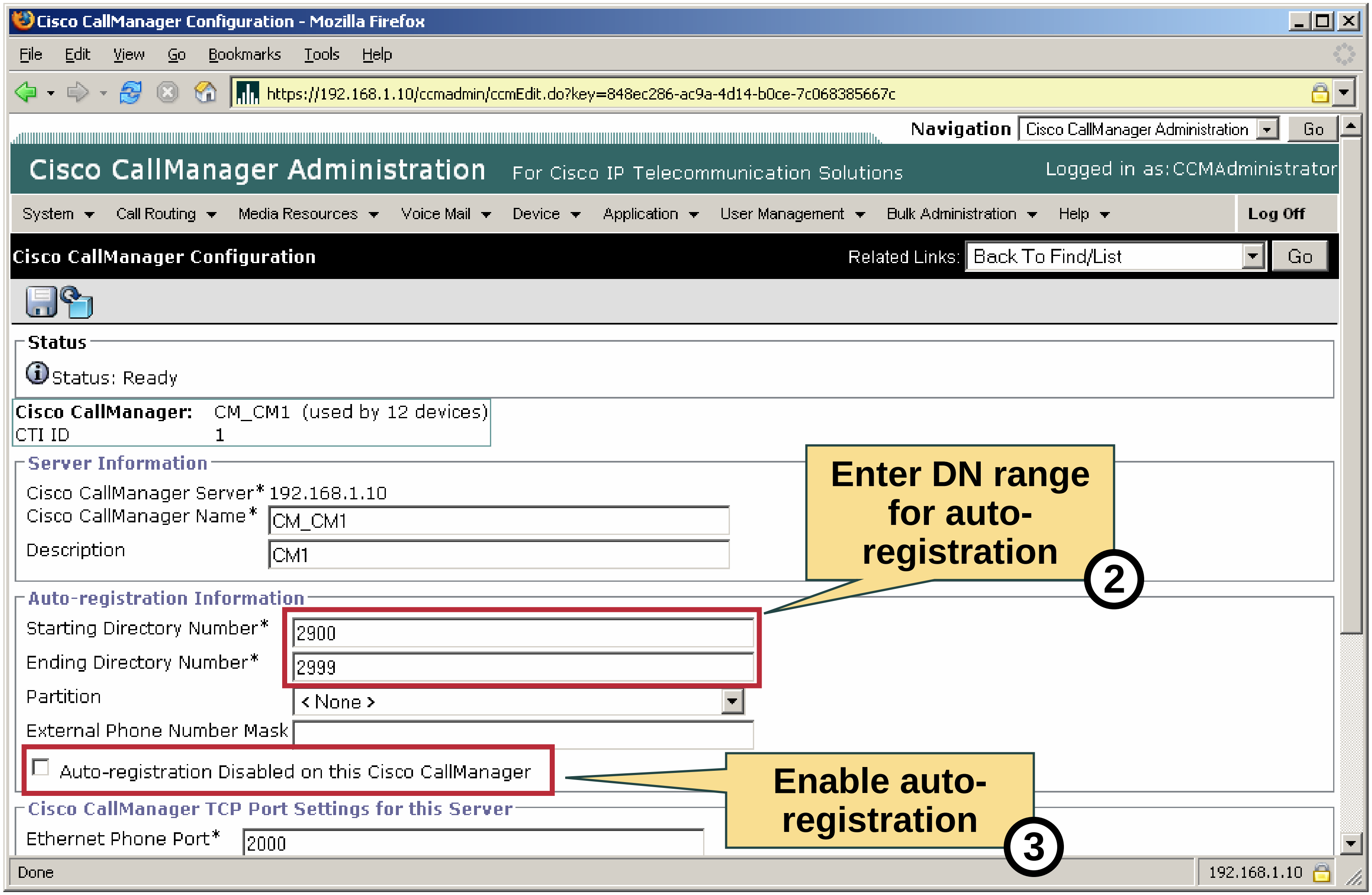
Name	Description
CM_CM1	CM1

Rows per Page 50

Done
192.168.1.10

Select CallManager ①

Configuring IP Phone Auto-Registration


Cisco CallManager Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/ccmEdit.do?key=848ec286-ac9a-4d14-b0ce-7c068385667c
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Cisco CallManager Configuration
Related Links: Back To Find/List Go
Done
192.168.1.10

Status

Status: Ready

Cisco CallManager: CM_CM1 (used by 12 devices)
CTI ID 1

Server Information

Cisco CallManager Server* 192.168.1.10
Cisco CallManager Name* CM_CM1
Description CM1

Auto-registration Information

Starting Directory Number* 2900
Ending Directory Number* 2999
Partition < None >
External Phone Number Mask

☐ Auto-registration Disabled on this Cisco CallManager

Cisco CallManager TCP Port Settings for this Server

Ethernet Phone Port* 2000

Enter DN range for auto-registration ②

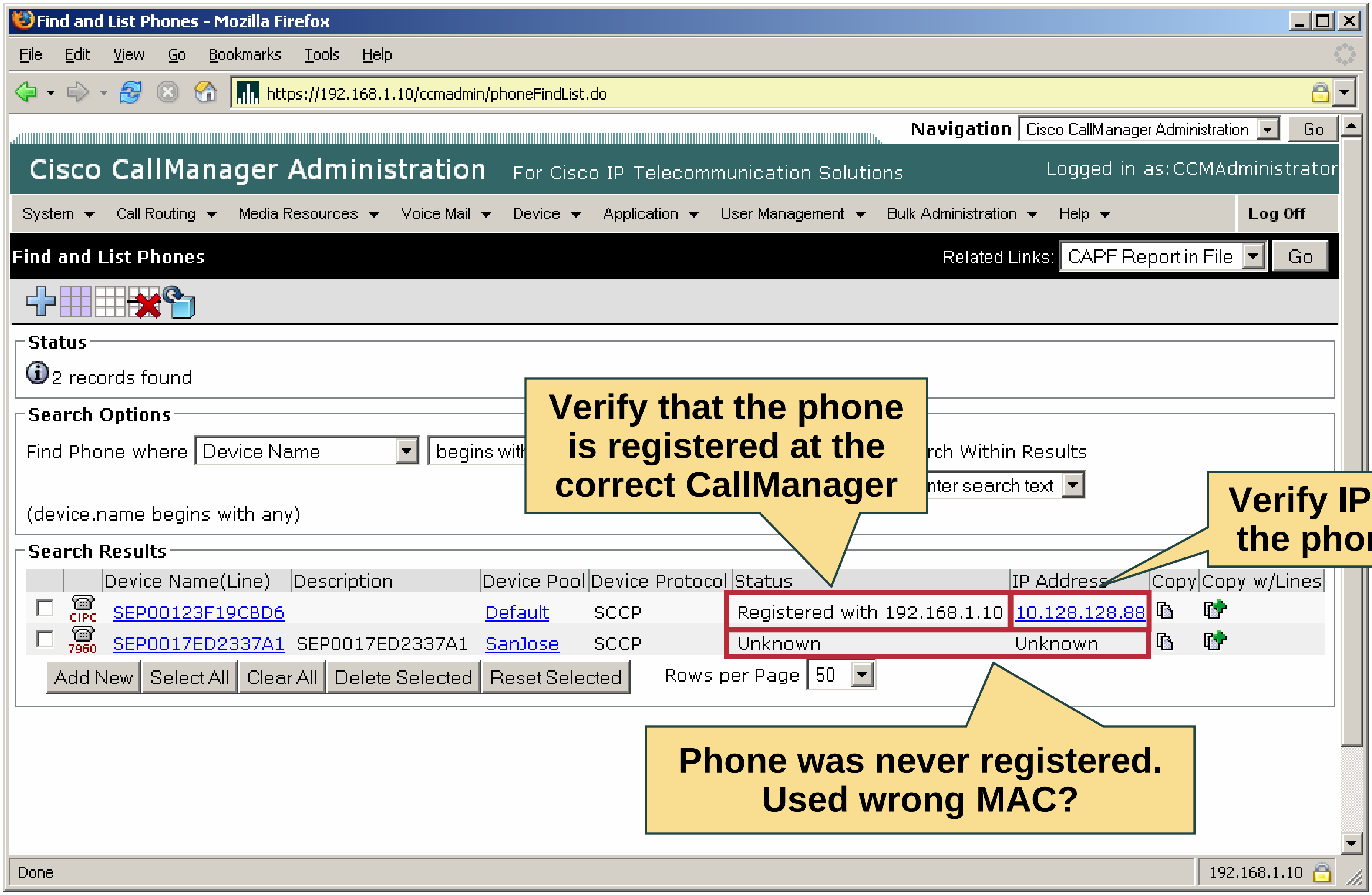
Enable auto-registration ③

Verify Endpoint Configuration

To verify that the phone configuration is done successfully, do the following:

- **Verify that the phone is registered.**
- **Verify the correct Cisco Unified CallManager is used.**
- **Verify the IP address of the phone.**
- **Verify that the lines are associated to the correct phone(s).**

Verify Endpoint Configuration


Find and List Phones - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Related Links:
CAPF Report in File
Go
Add New
Select All
Clear All
Delete Selected
Reset Selected
Done
192.168.1.10

https://192.168.1.10/ccmadmin/phoneFindList.do

Find and List Phones

Status

2 records found

Search Options

Find Phone where Device Name begins with

rch Within Results

nter search text

(device.name begins with any)

Search Results

		Device Name(Line)	Description	Device Pool	Device Protocol	Status	IP Address	Copy	Copy w/Lines
☐	CIPC	SEP00123F19CBD6		Default	SCCP	Registered with 192.168.1.10	10.128.128.88		
☐	7960	SEP0017ED2337A1	SEP0017ED2337A1	SanJose	SCCP	Unknown	Unknown		

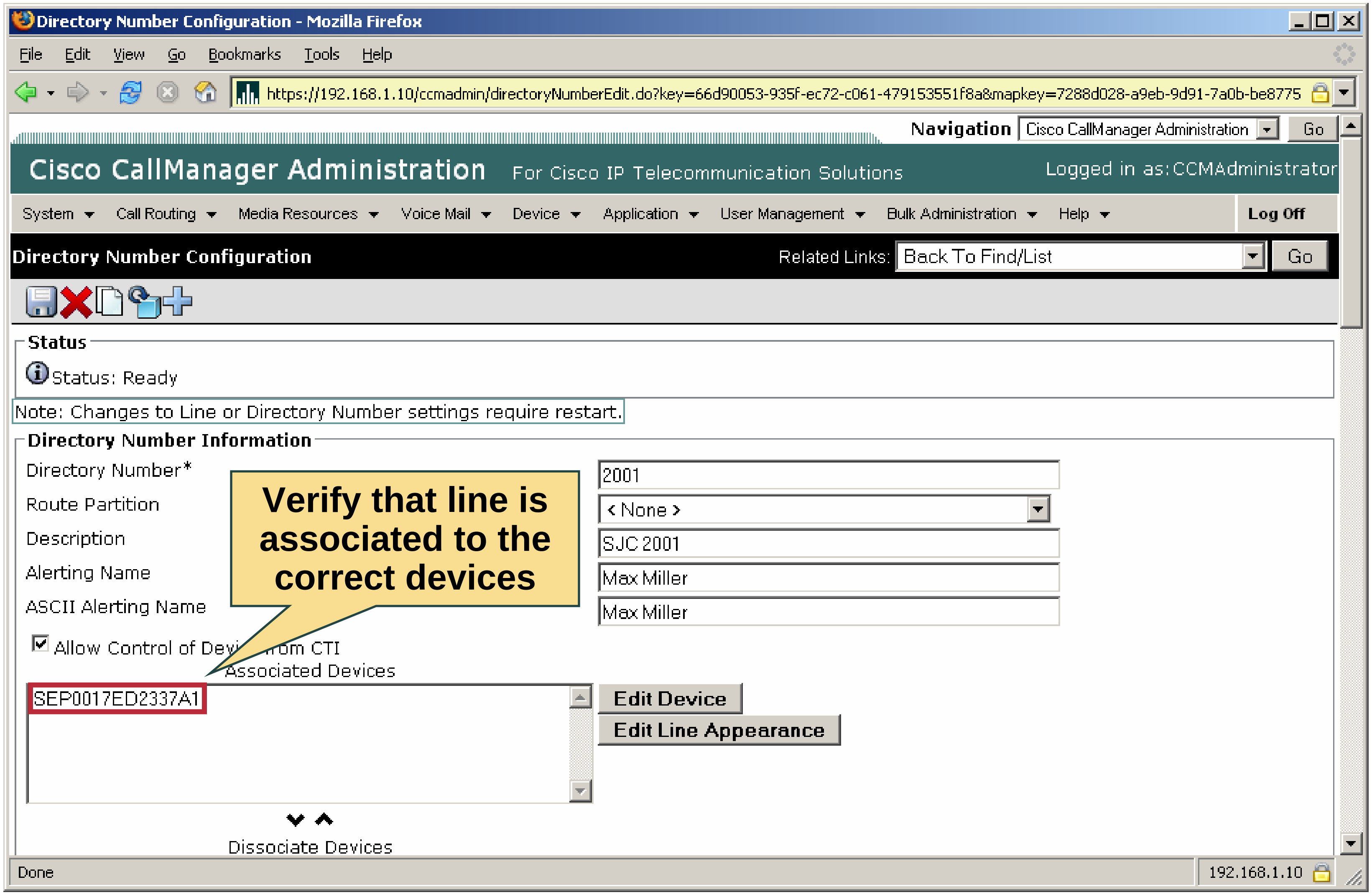
Rows per Page 50

Verify that the phone is registered at the correct CallManager

Verify IP of the phone

Phone was never registered. Used wrong MAC?

Verify Endpoint Configuration


Directory Number Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/directoryNumberEdit.do?key=66d90053-935f-ec72-c061-479153551f8a&mapkey=7288d028-a9eb-9d91-7a0b-be8775
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Directory Number Configuration
Related Links: Back To Find/List Go
Edit Device
Edit Line Appearance
Dissociate Devices
Done
192.168.1.10

Status

Status: Ready

Note: Changes to Line or Directory Number settings require restart.

Directory Number Information

Directory Number* 2001
Route Partition < None >
Description SJC 2001
Alerting Name Max Miller
ASCII Alerting Name Max Miller

☑ Allow Control of Device from CTI

Associated Devices

SEP0017ED2337A1

Verify that line is associated to the correct devices

Summary

- Cisco Unified CallManager 5.0 has many functionalities that assist in configuring and managing SCCP IP phones.
- Device pool configuration is used to define global device settings for phones within that pool.
- IP phone button templates define how buttons on phones are used.
- To manually configure IP phones on Cisco Unified CallManager 5.0 it is necessary to know MAC address and type of the phone.
- At least one line needs to be configured for each phone.
- Auto-registration allows automatic registration of the phone and configuration of the line on Cisco Unified CallManager.
- Endpoint configuration can be verified by checking the registration status of the phone.

Deploying Cisco Unified CallManager 5.0 Endpoints

Configuring SIP Endpoints in Cisco Unified CallManager 5.0

Objectives

- SIP Phone Features
- Feature Issues
- Configuring Cisco SIP Phones
- Configuring 3rd Party SIP Phones

SIP Phone Features: 7905/7912 SIP Phones

Minimum required features for 7905/7912 SIP phones to operate are available with software version 8.0:

- **Registration redundancy.**
- **Failover to SRST.**
- **Reset/restart from CallManager.**
- **Configuration and local dial plan provisioned from Cisco Unified CallManager administration pages.**
- **Encrypted configuration files.**
- **Call preservation.**

SIP Phone Features: 7940/7960 SIP Phones

These required features for 7940/7960 SIP phones to operate are available with software version 8.0:

- **Enhancement to release 7.5:**
  - **8.0 added better RFC compliance (3261 (SIP), 3264 (Offer Answer), and 3311(UPDATE)).**
- **Registration redundancy.**
- **Reset/Restart from CallManager.**
- **Failover to SRST.**
- **Configuration and local dial plan provisioned from CallManager administration pages.**
- **Encrypted Configuration files.**

SIP Phone Features:
7940/7960 SIP Phones

These required features for 7940/7960 SIP phones to operate are available with software version 8.0:

- **Limited scope compared to the 7911/7941/7961/7970/7971 SIP implementation:**
  - **Music On Hold.**
  - **Display Name updates via Remote-Party-ID.**
- **End user feature interaction and UI operation is different between SCCP and SIP on the 7940/60 phones:**
  - **Look and Feel of existing firmware 7.5.**

SIP Phone Features: 7911/7941/7961/7970/7971 SIP Phones

SIP firmware 8.0 introduces advanced SIP support on the 7911/7941/7961/7970/7971 phone models:

- Java architecture currently used in the SCCP phones was leveraged for its UI control and platform infrastructure.
- 7940/7960 SIP stack and call feature logic are ported and enhanced for the new phones.

From an end-user perspective feature interaction and UI operation is nearly identical between SCCP and SIP:

- 90% of the SCCP features have been ported to SIP on the 7911/7941/7961/7970/7971 phones.

SIP Phone Features

SIP vs SCCP configuration:

SIP	SCCP
Configuration file via TFTP	Configuration via TFTP
Softkey file via TFTP (Enhanced IP Phones only)	Softkey template via SCCP messages
Can have local dial plan	Does not have local dial plan
Registers via UDP, TCP or TLS	Registers via TCP or TLS

SIP Phone Features

Phone to CCM interaction comparison:

	Integrated with CTFTP	Sends MAC address	Down-loads Softkey file	Down-loads Dialplan file	Supports CCM failover / fallback	Supports Reset / Restart
Cisco 7905/12	Yes	Yes	No	Yes[1]	Yes	Yes
Cisco 7940/60	Yes	Yes	No	Yes	Yes	Yes
797x, 7941, 7961	Yes	Yes	Yes	Yes	Yes	Yes
3rd-Party	No	No[2]	No	No	No[2]	No[2]

[1] Part of the configuration file.
[2] In the future, 3rd-party phones may add this support. Failover can be supported today via DNS SRV.

Feature Issues

What is not supported with the 7905/7912/7940/7960 SIP Phones?

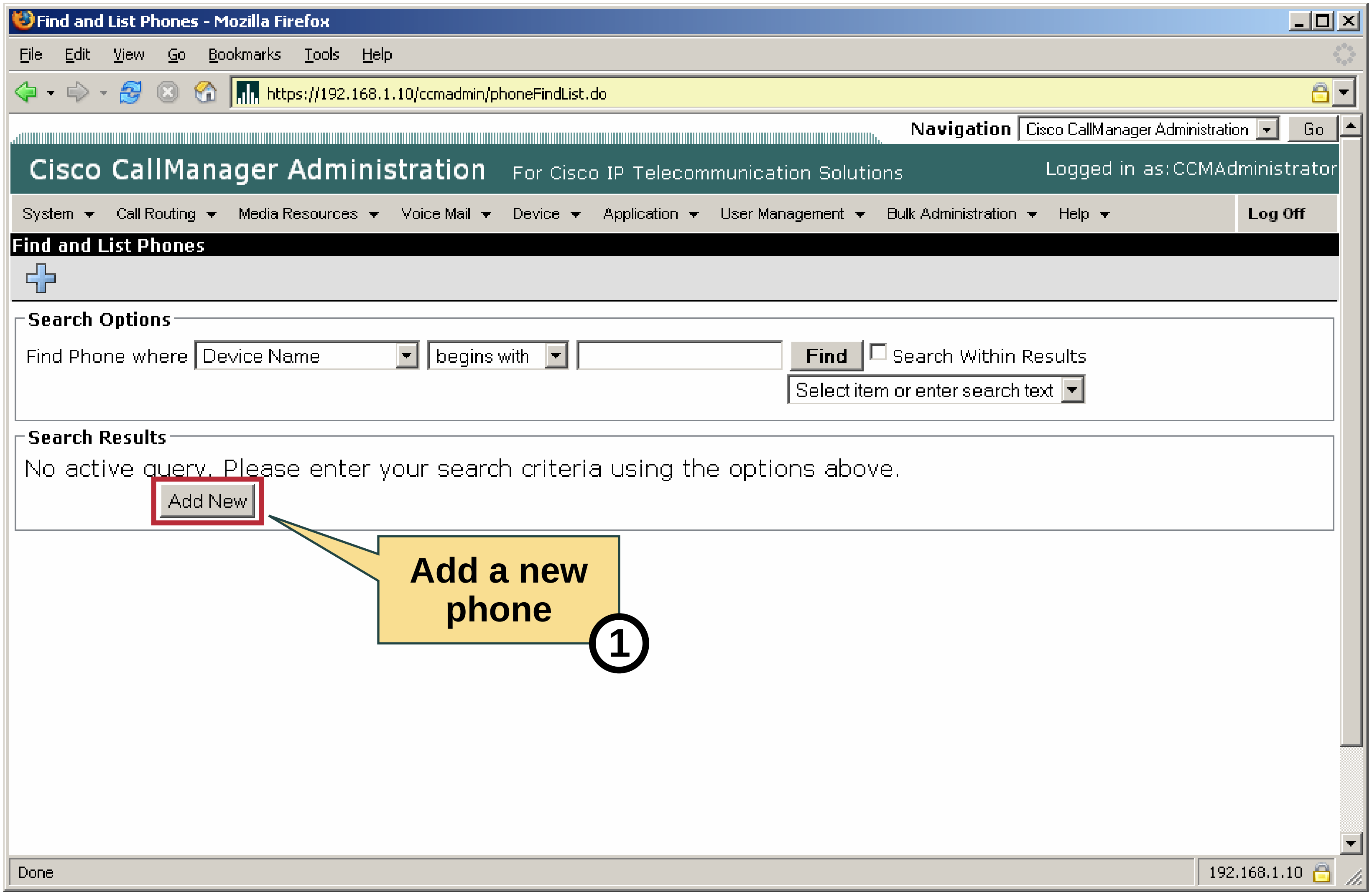
- **Anything requiring CMXML 3.1 (IPPM, IPMA, EM).**
- **Digit by digit dialing using Key Pad Markup Language.**
- **The 7914 sidecar module.**
- **Cisco VT Advantage (CVTA).**
- **CTI call control.**
- **Configurable Softkeys.**
- **Ad-Hoc Conference B2BUA mode (external conferencing resources).**
- **UI consistency with the SCCP phones.**

Configuring Cisco SIP Phones

Configuration steps for Cisco SIP phones on Cisco Unified CallManager are similar to SCCP phone configuration:

- **Add a new phone.**
- **Select the phone type.**
- **Select the device protocol SIP.**
- **Configure the device information.**
- **Add a new DN.**

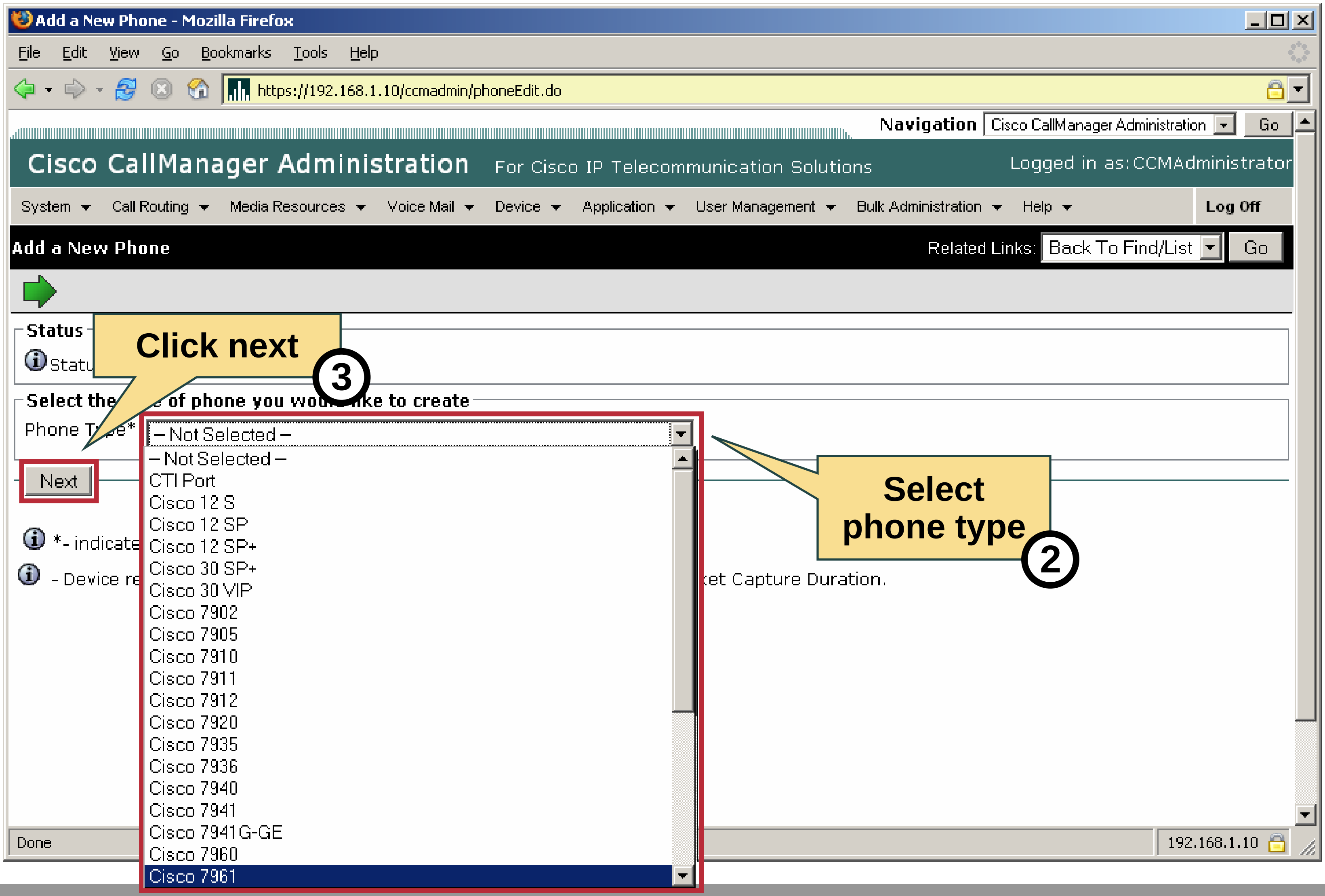
Configuring Cisco SIP Phones



Find and List Phones - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Find and List Phones
Search Options
Find Phone where Device Name begins with Find
Search Within Results
Select item or enter search text
Search Results
No active query. Please enter your search criteria using the options above.
Add New
Done
192.168.1.10

Add a new phone ①

Configuring Cisco SIP Phones



Add a New Phone - Mozilla Firefox

https://192.168.1.10/ccmadmin/phoneEdit.do

Cisco CallManager Administration For Cisco IP Telecommunication Solutions

Logged in as: CCMAdministrator

Add a New Phone

Status

Select the type of phone you would like to create

Phone Type* – Not Selected –

*- indicate

- Device re

et Capture Duration.

Done

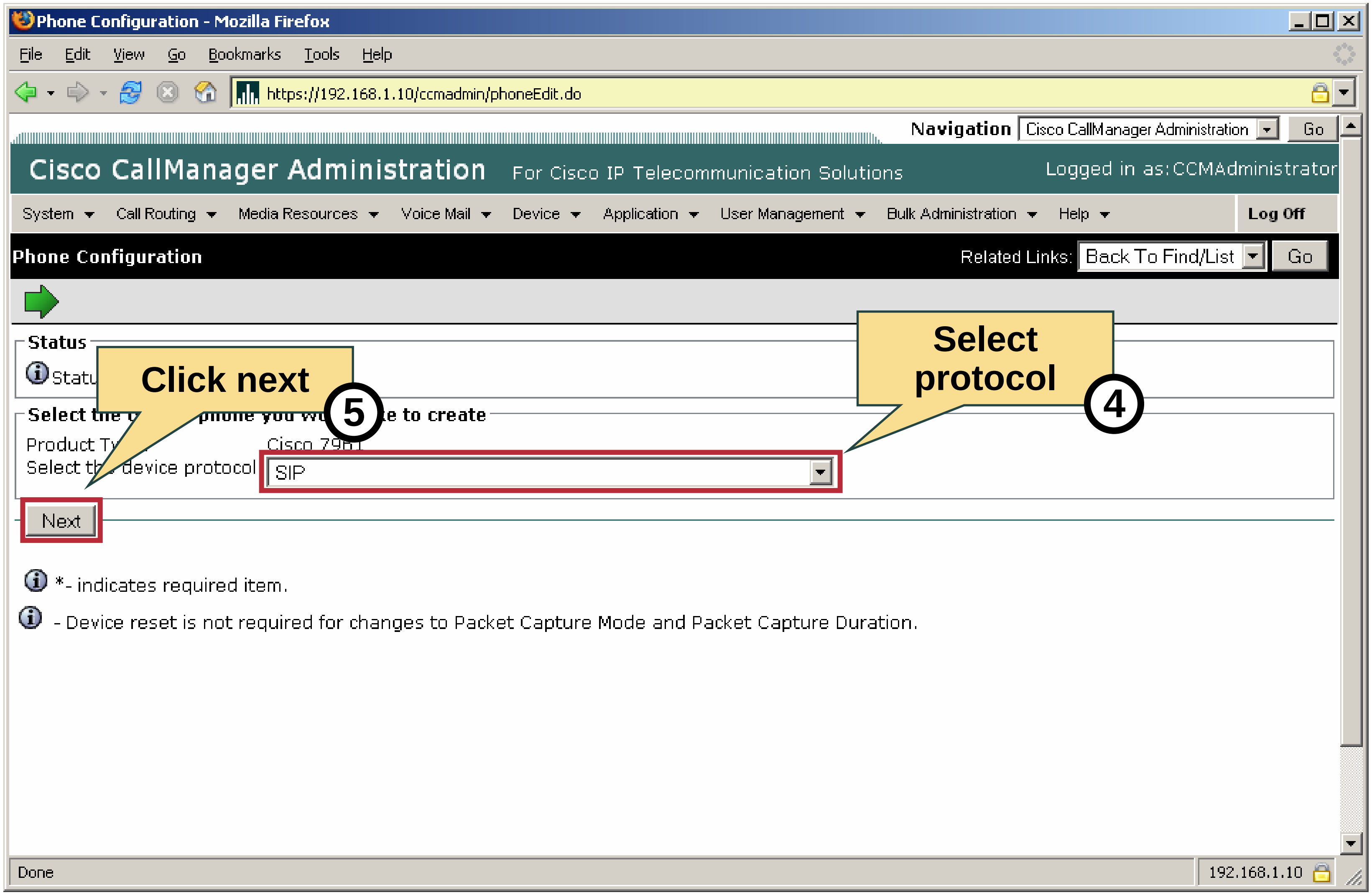
192.168.1.10

Click next ③

Select phone type ②

File
Edit
View
Go
Bookmarks
Tools
Help
Navigation
Cisco CallManager Administration
Go
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Related Links:
Back To Find/List
Go
Statu
Next
– Not Selected –
CTI Port
Cisco 12 S
Cisco 12 SP
Cisco 12 SP+
Cisco 30 SP+
Cisco 30 VIP
Cisco 7902
Cisco 7905
Cisco 7910
Cisco 7911
Cisco 7912
Cisco 7920
Cisco 7935
Cisco 7936
Cisco 7940
Cisco 7941
Cisco 7941G-GE
Cisco 7960
Cisco 7961

Configuring Cisco SIP Phones



Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Phone Configuration
Related Links: Back To Find/List Go
Status
Next
Done
192.168.1.10

Select the ... phone you w... ...e to create

Product Ty... Cisco 7961

Select th... device protocol SIP

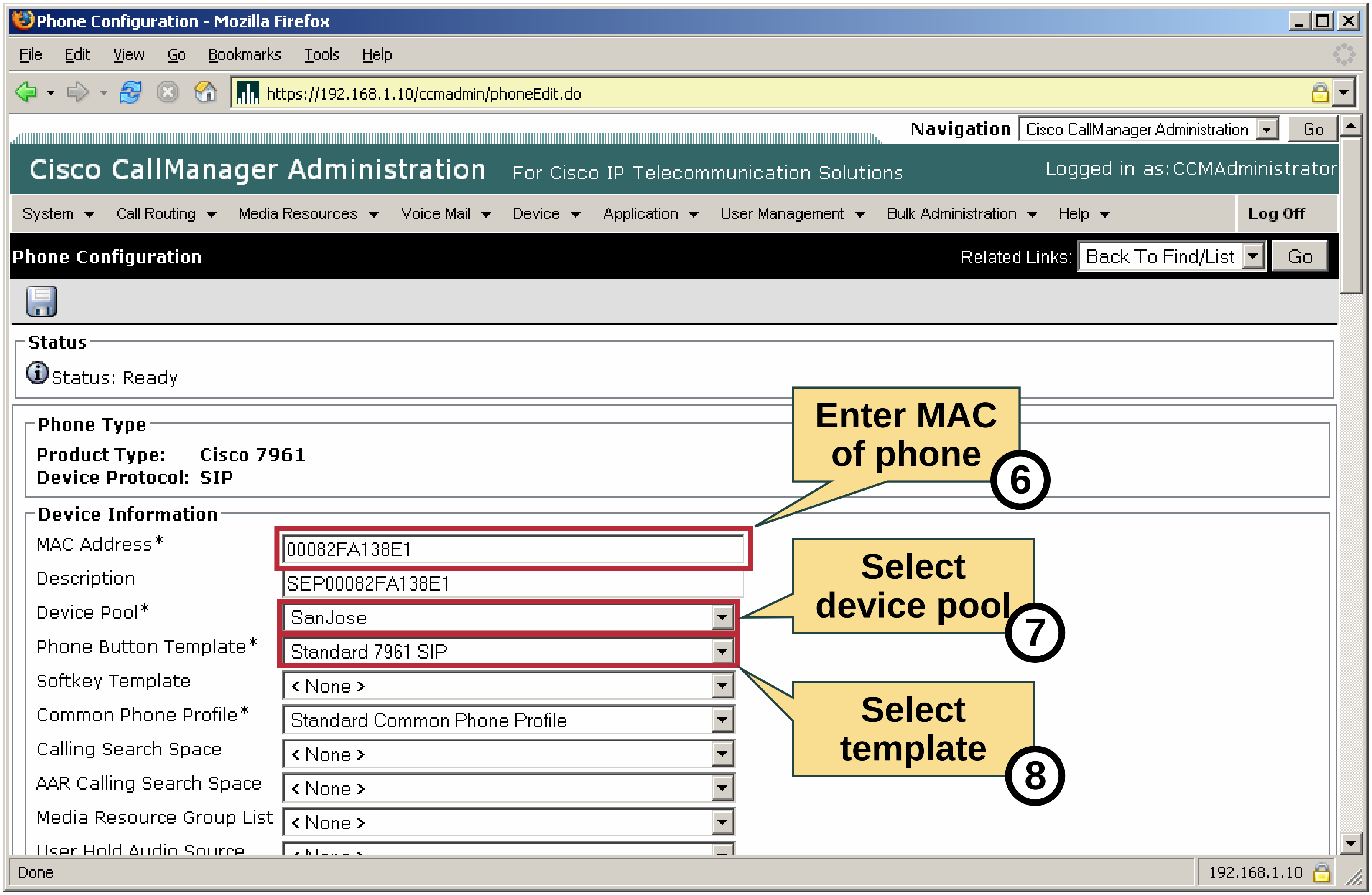
*- indicates required item.

- Device reset is not required for changes to Packet Capture Mode and Packet Capture Duration.

④ Select protocol

⑤ Click next

Configuring Cisco SIP Phones


Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Phone Configuration
Related Links: Back To Find/List Go
Done
192.168.1.10

Status

Status: Ready

Phone Type

Product Type: Cisco 7961
Device Protocol: SIP

Device Information

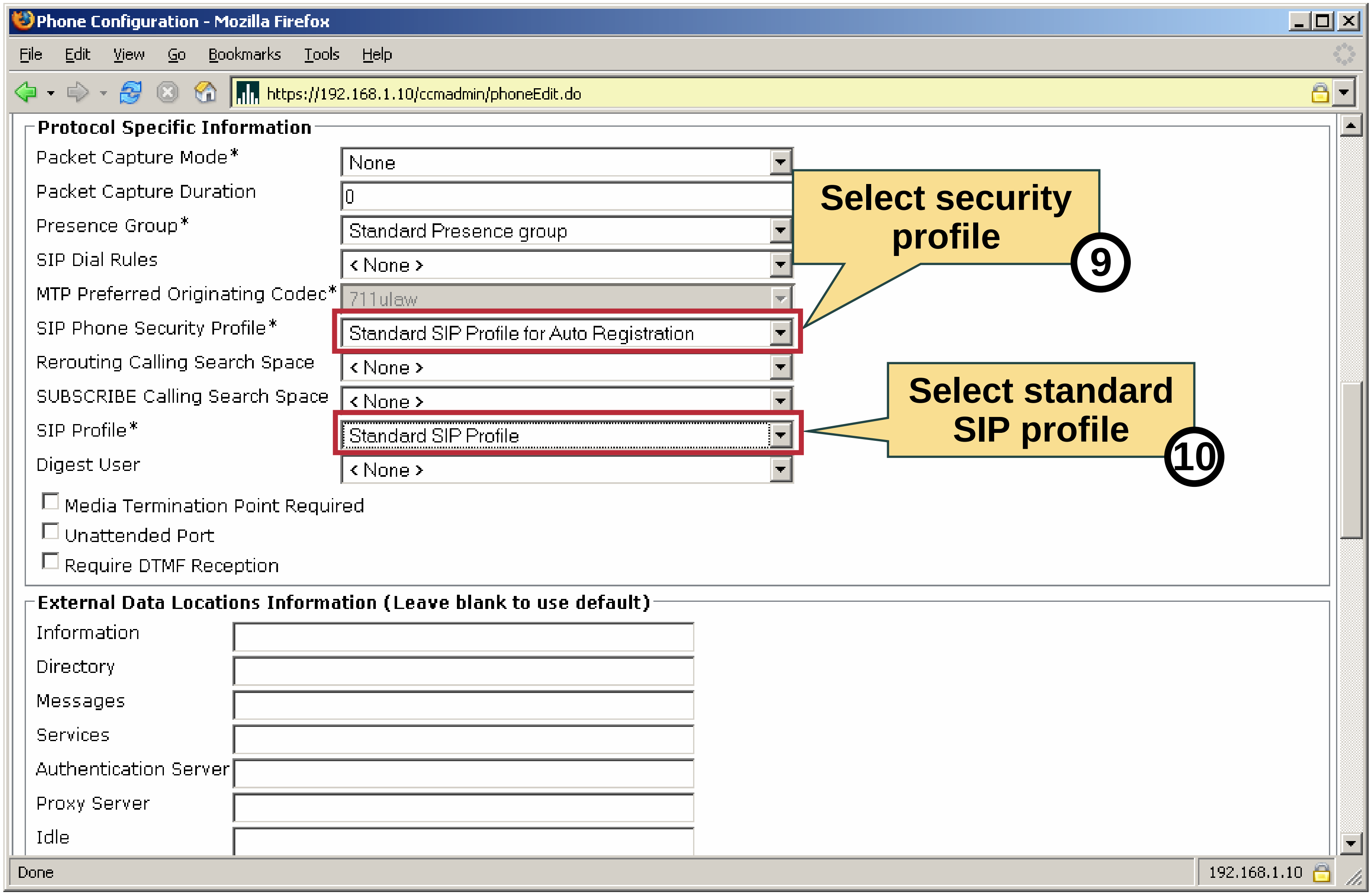
MAC Address*	00082FA138E1
Description	SEP00082FA138E1
Device Pool*	SanJose
Phone Button Template*	Standard 7961 SIP
Softkey Template	< None >
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	< None >
AAR Calling Search Space	< None >
Media Resource Group List	< None >
User Hold Audio Source	< None >

Enter MAC of phone ⑥

Select device pool ⑦

Select template ⑧

Configuring Cisco SIP Phones


Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneEdit.do

Protocol Specific Information

Packet Capture Mode*	None
Packet Capture Duration	0
Presence Group*	Standard Presence group
SIP Dial Rules	< None >
MTP Preferred Originating Codec*	711ulaw
SIP Phone Security Profile*	Standard SIP Profile for Auto Registration
Rerouting Calling Search Space	< None >
SUBSCRIBE Calling Search Space	< None >
SIP Profile*	Standard SIP Profile
Digest User	< None >

☐ Media Termination Point Required
☐ Unattended Port
☐ Require DTMF Reception

External Data Locations Information (Leave blank to use default)

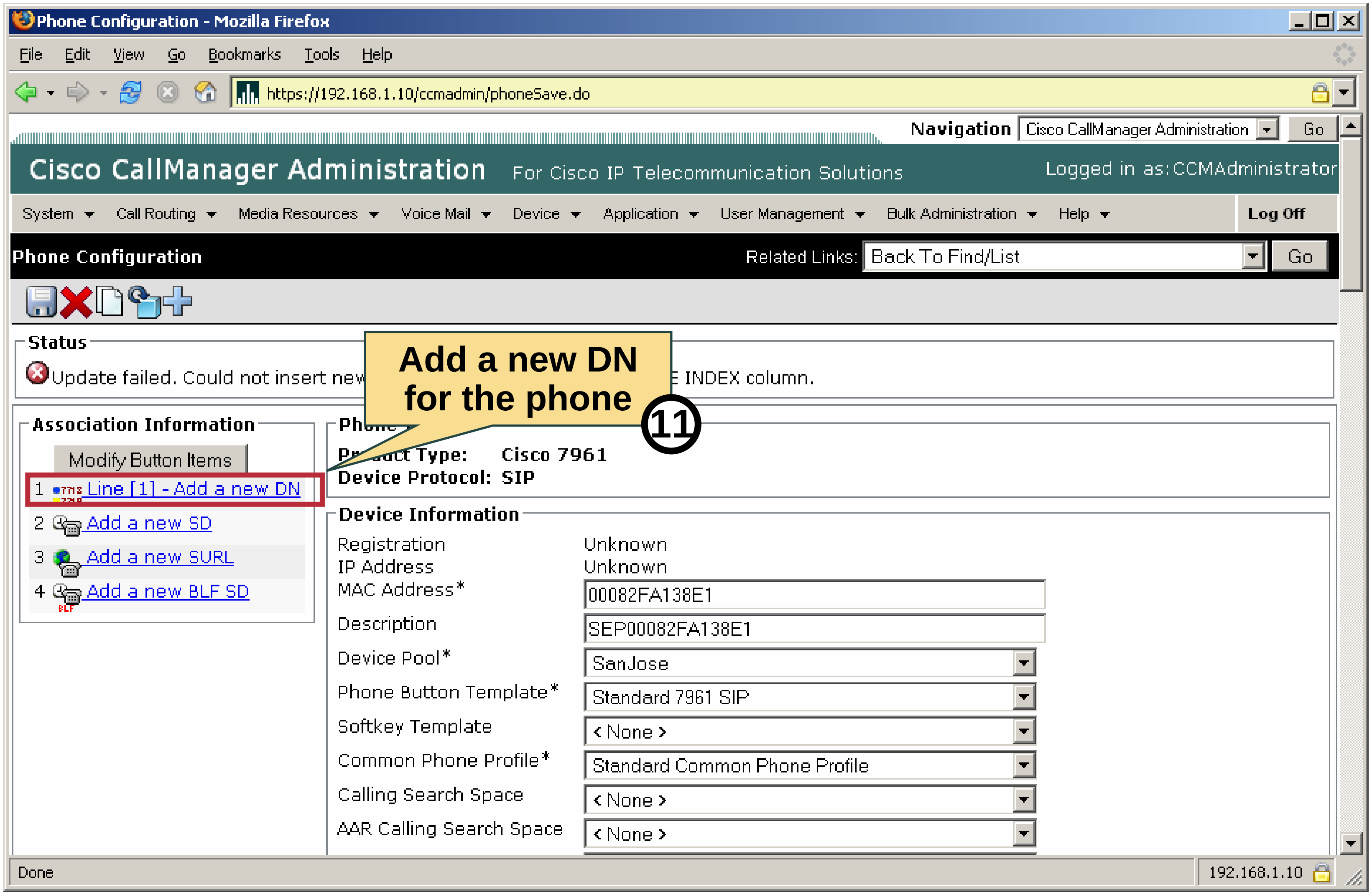
Information	
Directory	
Messages	
Services	
Authentication Server	
Proxy Server	
Idle	

Done
192.168.1.10

Select security profile ⑨

Select standard SIP profile ⑩

Configuring Cisco SIP Phones


Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneSave.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Phone Configuration
Related Links: Back To Find/List Go
Modify Button Items
Done
192.168.1.10

Status

Update failed. Could not insert new … E INDEX column.

Association Information

1 Line [1] - Add a new DN
2 Add a new SD
3 Add a new SURL
4 Add a new BLF SD

Phone …

Product Type: Cisco 7961
Device Protocol: SIP

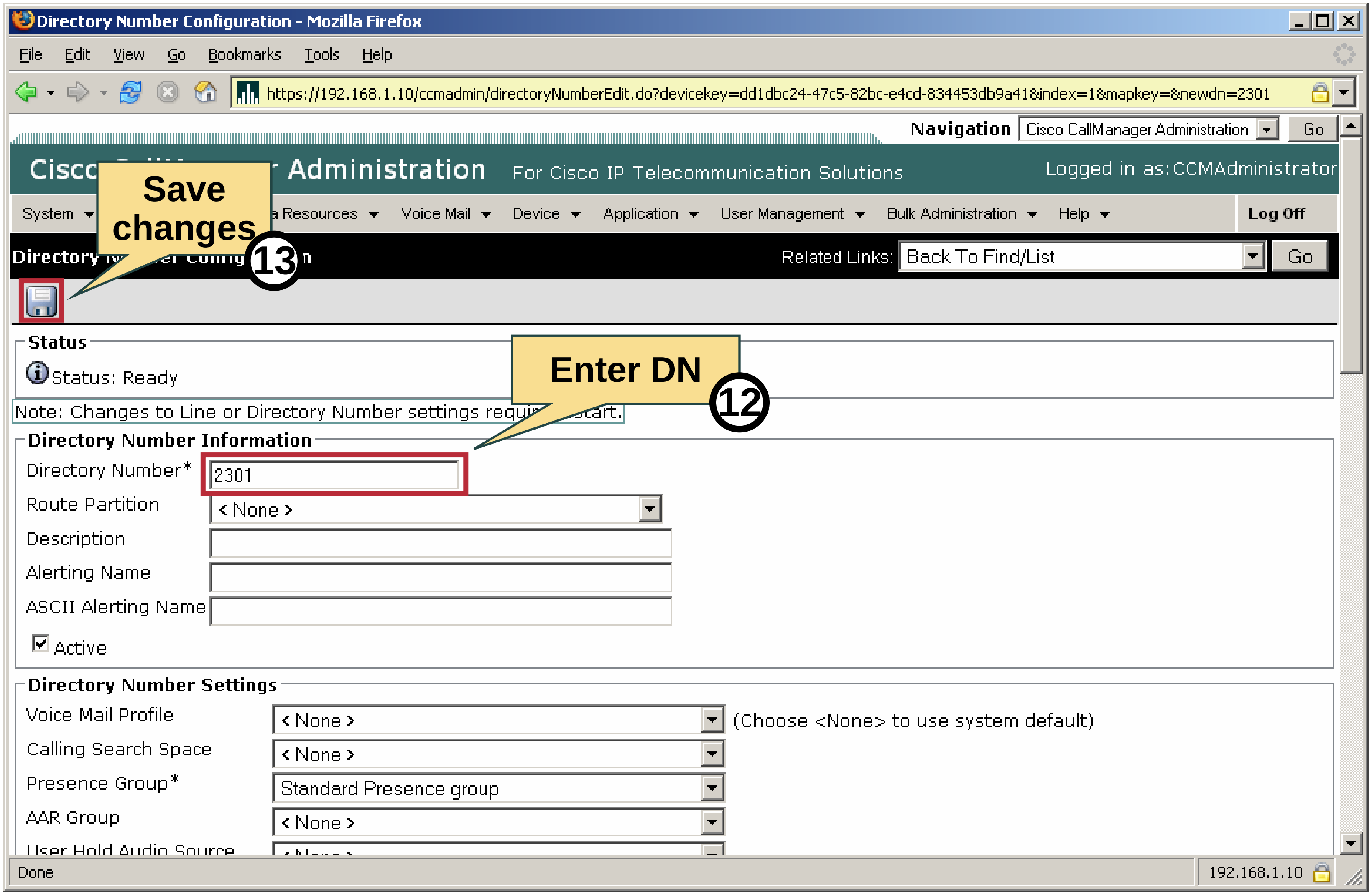
Device Information

Registration	Unknown
IP Address	Unknown
MAC Address*	00082FA138E1
Description	SEP00082FA138E1
Device Pool*	SanJose
Phone Button Template*	Standard 7961 SIP
Softkey Template	< None >
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	< None >
AAR Calling Search Space	< None >

Add a new DN for the phone ⑪

T. E.2

Configuring Cisco SIP Phones



Directory Number Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Administration Go
Cisco CallM... Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Related Links: Back To Find/List Go
Done
192.168.1.10

https://192.168.1.10/ccmadmin/directoryNumberEdit.do?devicekey=dd1dbc24-47c5-82bc-e4cd-834453db9a41&index=1&mapkey=&newdn=2301

Directory Number Configuration

Save changes ⑬

Enter DN ⑫

Status

Status: Ready

Note: Changes to Line or Directory Number settings require restart.

Directory Number Information

Directory Number* 2301
Route Partition < None >
Description
Alerting Name
ASCII Alerting Name
☑ Active

Directory Number Settings

Voice Mail Profile < None > (Choose <None> to use system default)
Calling Search Space < None >
Presence Group* Standard Presence group
AAR Group < None >
User Hold Audio Source < None >

Slide 17

T. E.2 Table showing SIP configuration settings from CCM5.0 online help.

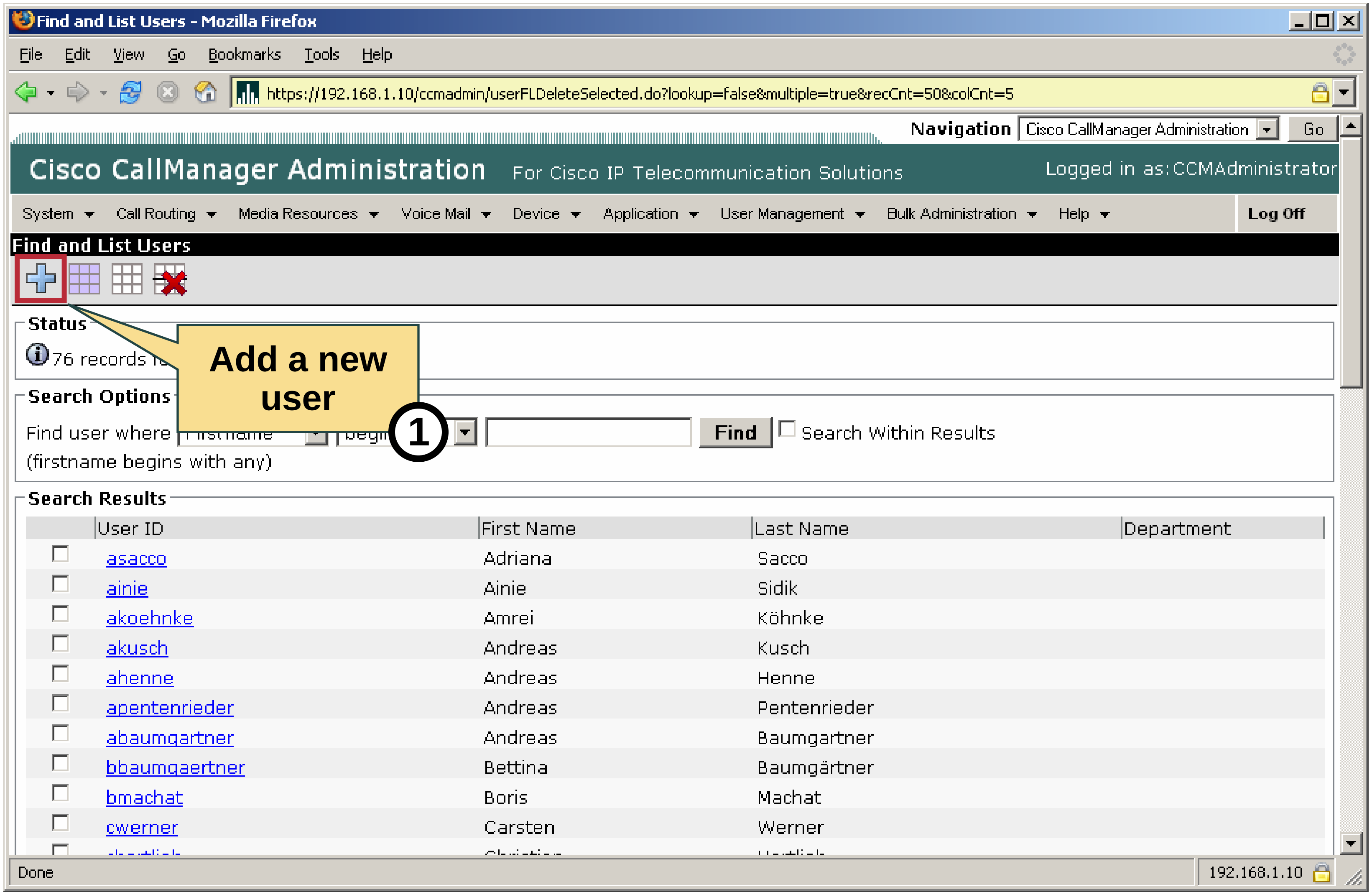
Tolga Erdogan, 3/15/2006

Configuring 3rd Party SIP Phones

SIP Phone Configuration Sequence:

- Configure an end user for the device.
  - Most SIP phones have an authorization ID that is used for digest-authentication.
  - Some SIP endpoints use the DN as the authorization ID, so the end user username has to be added as the DN.
- Configure the device.
- Associate the device with the end user.
- Configure the phone with an end user ID.
  - Device itself need to be provisioned via separate TFTP, HTTP, or phone configuration.

Configuring 3rd Party SIP Phones


Find and List Users - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Find
Done
192.168.1.10

https://192.168.1.10/ccmadmin/userFLDeleteSelected.do?lookup=false&multiple=true&recCnt=50&colCnt=5

Logged in as: CCMAdministrator

Find and List Users

Status

76 records fo

Search Options

Find user where First name begins with ☐ Search Within Results

(firstname begins with any)

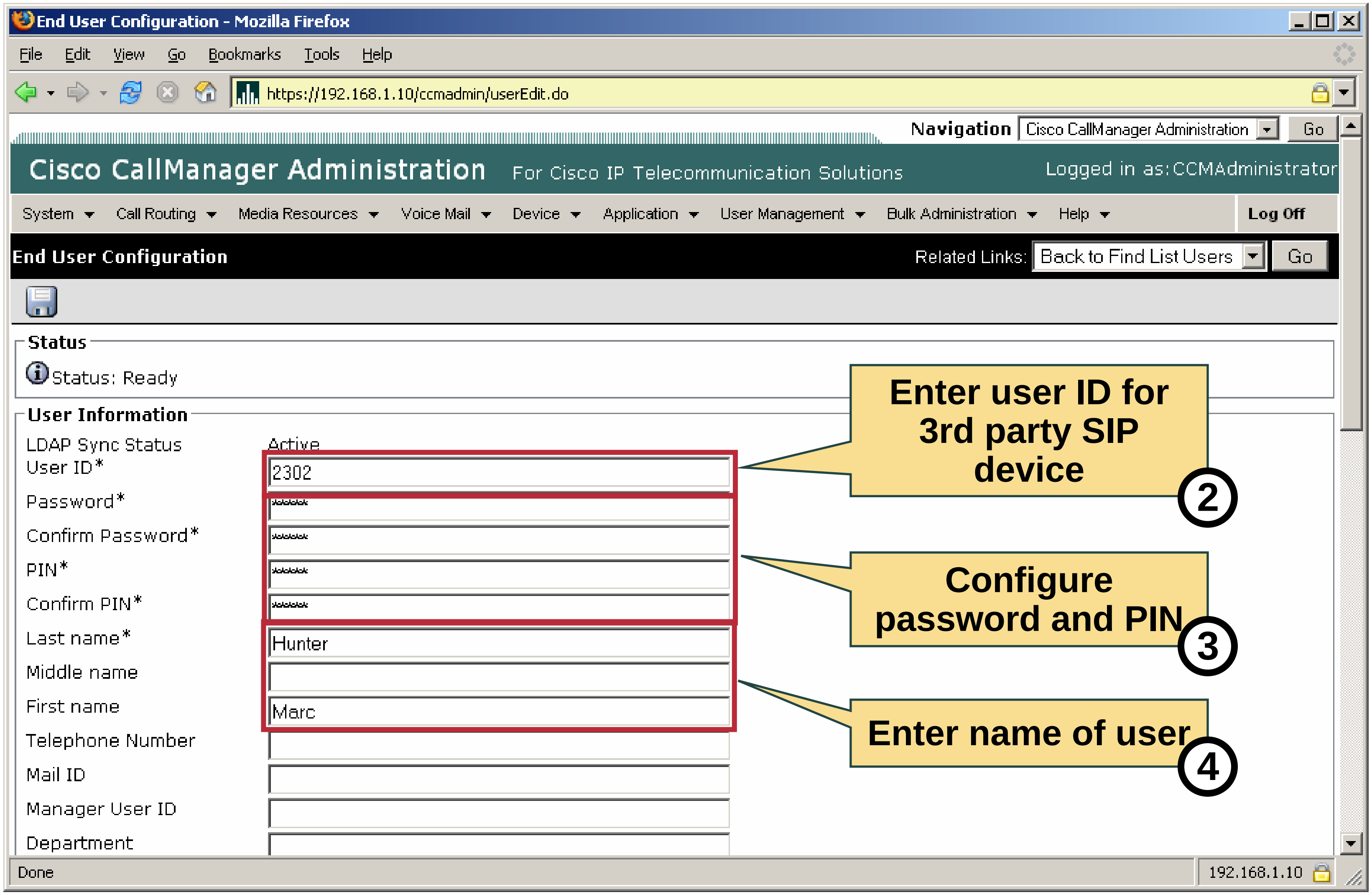
Search Results

	User ID	First Name	Last Name	Department
☐	asacco	Adriana	Sacco	
☐	ainie	Ainie	Sidik	
☐	akoehnke	Amrei	Köhnke	
☐	akusch	Andreas	Kusch	
☐	ahenne	Andreas	Henne	
☐	apentenrieder	Andreas	Pentenrieder	
☐	abaumgartner	Andreas	Baumgartner	
☐	bbaumgaertner	Bettina	Baumgärtner	
☐	bmachat	Boris	Machat	
☐	cwerner	Carsten	Werner	

Add a new user

①

Configuring 3rd Party SIP Phones


End User Configuration - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
https://192.168.1.10/ccmadmin/userEdit.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Related Links:
Back to Find List Users
Go
Done
192.168.1.10

End User Configuration

Status

Status: Ready

User Information

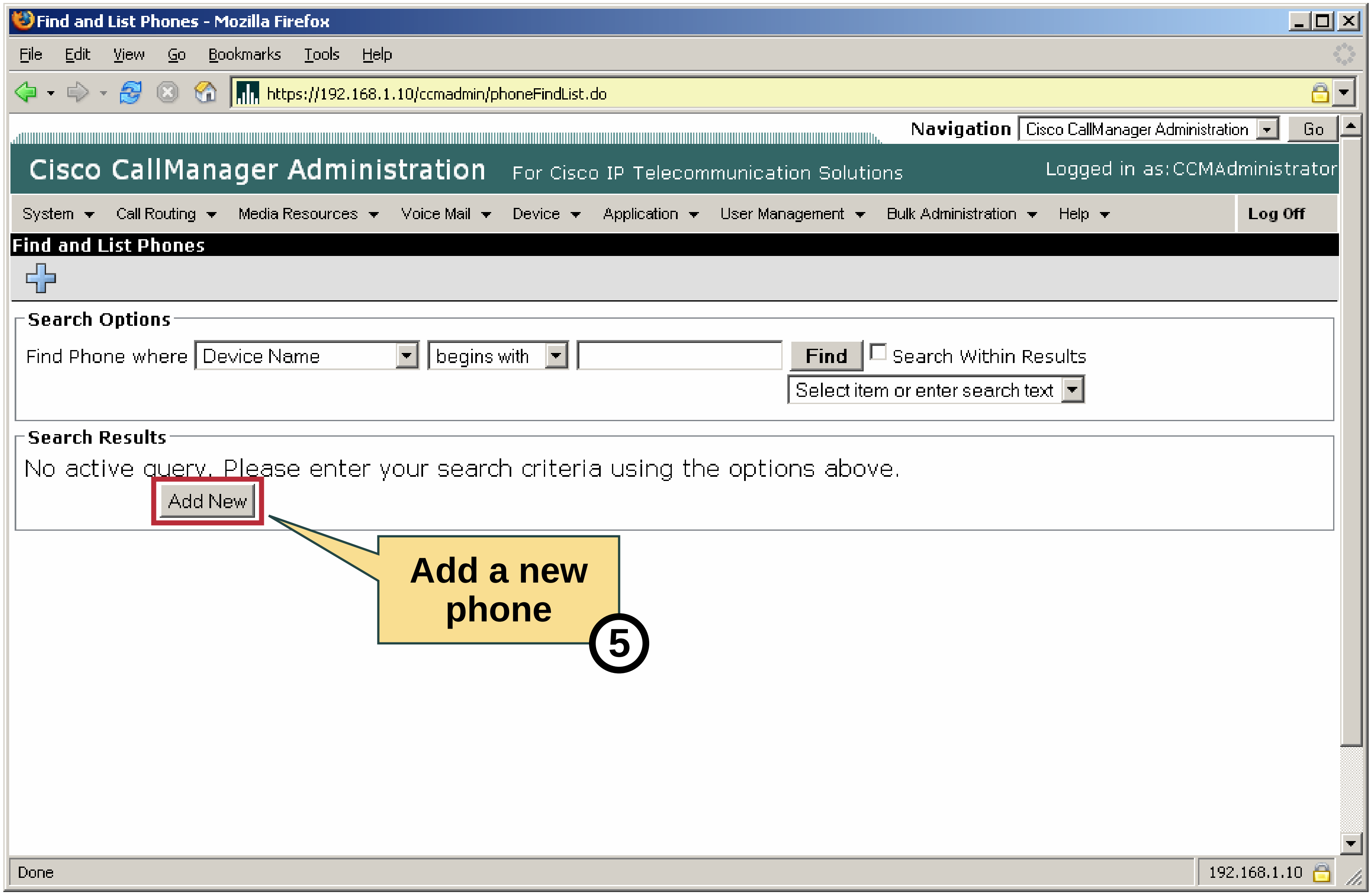
LDAP Sync Status	Active
User ID*	2302
Password*	*****
Confirm Password*	*****
PIN*	*****
Confirm PIN*	*****
Last name*	Hunter
Middle name	
First name	Marc
Telephone Number	
Mail ID	
Manager User ID	
Department	

② Enter user ID for 3rd party SIP device

③ Configure password and PIN

④ Enter name of user

Configuring 3rd Party SIP Phones

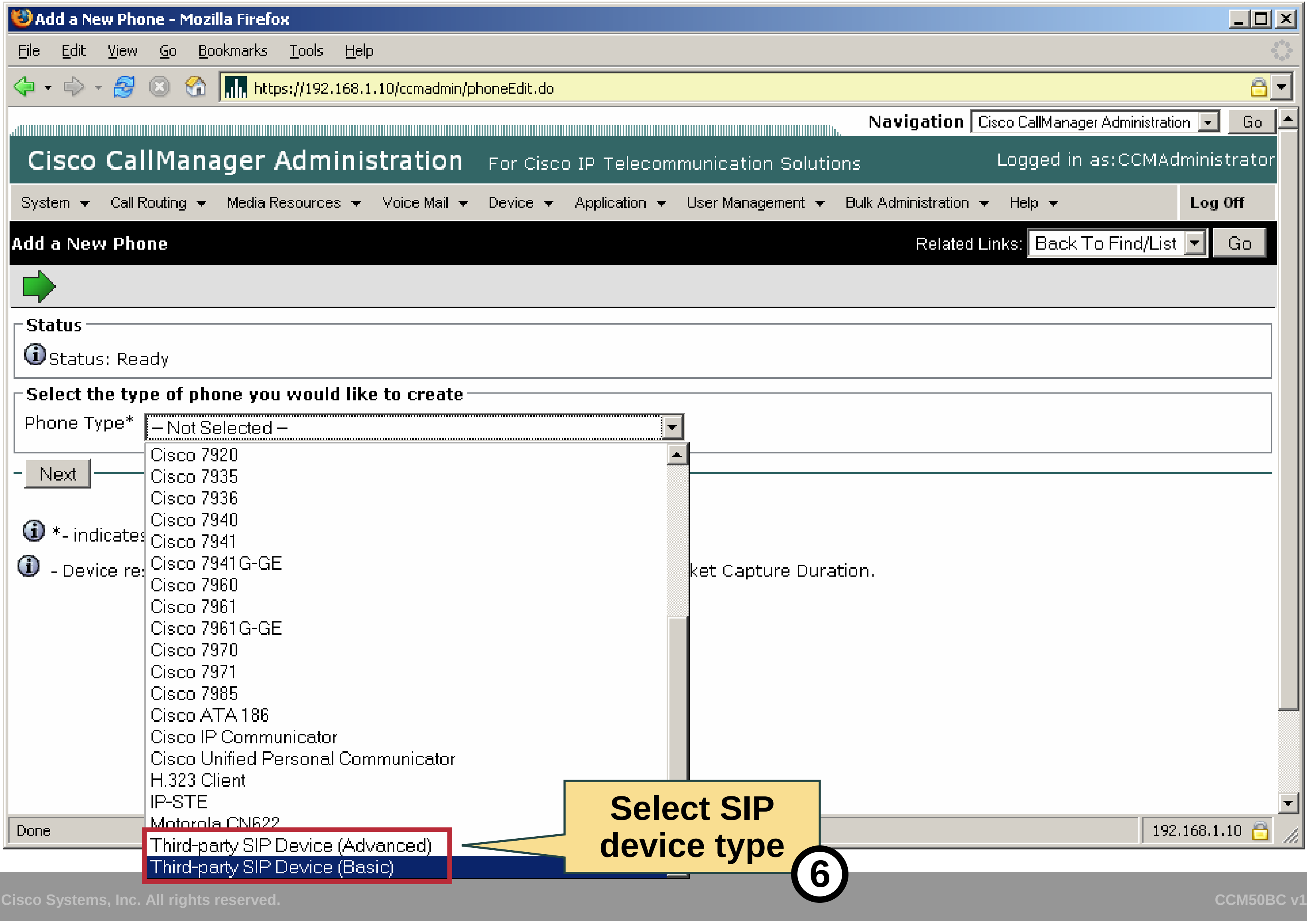


Find and List Phones - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneFindList.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Find and List Phones
Search Options
Find Phone where
Device Name
begins with
Find
☐ Search Within Results
Select item or enter search text
Search Results
Add New
Done
192.168.1.10

No active query. Please enter your search criteria using the options above.

Add a new phone ⑤

Configuring 3rd Party SIP Phones



Add a New Phone - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Related Links: Back To Find/List Go

Add a New Phone

Status

Status: Ready

Select the type of phone you would like to create

Phone Type* – Not Selected –

- Cisco 7920
- Cisco 7935
- Cisco 7936
- Cisco 7940
- Cisco 7941
- Cisco 7941G-GE
- Cisco 7960
- Cisco 7961
- Cisco 7961G-GE
- Cisco 7970
- Cisco 7971
- Cisco 7985
- Cisco ATA 186
- Cisco IP Communicator
- Cisco Unified Personal Communicator
- H.323 Client
- IP-STE
- Motorola CN622
- Third-party SIP Device (Advanced)
- Third-party SIP Device (Basic)

Next

*- indicates

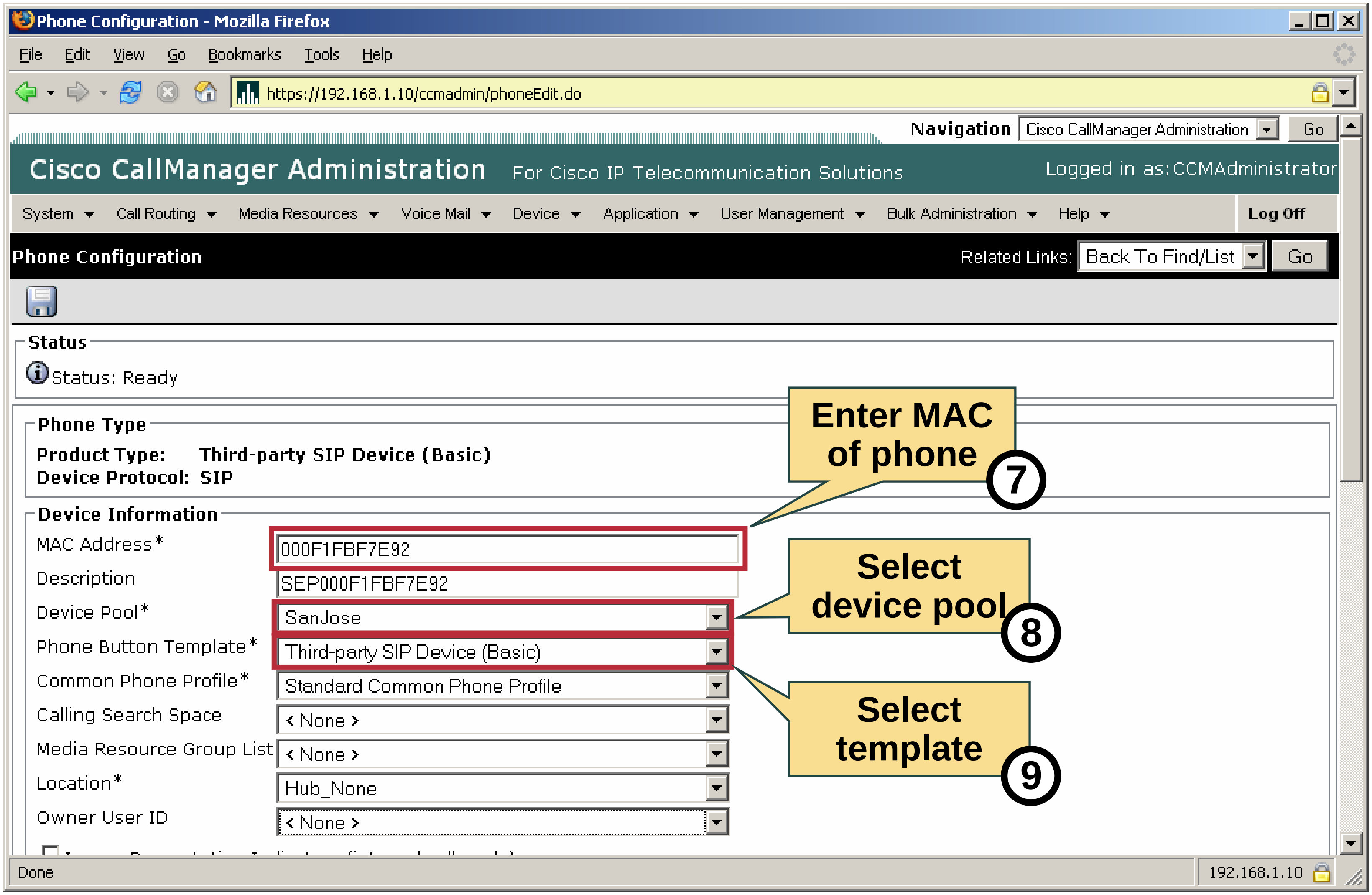
- Device re ket Capture Duration.

Done
192.168.1.10

Select SIP device type

⑥

Configuring 3rd Party SIP Phones


Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Phone Configuration
Related Links: Back To Find/List Go
Done
192.168.1.10

Status

Status: Ready

Phone Type

Product Type: Third-party SIP Device (Basic)
Device Protocol: SIP

Device Information

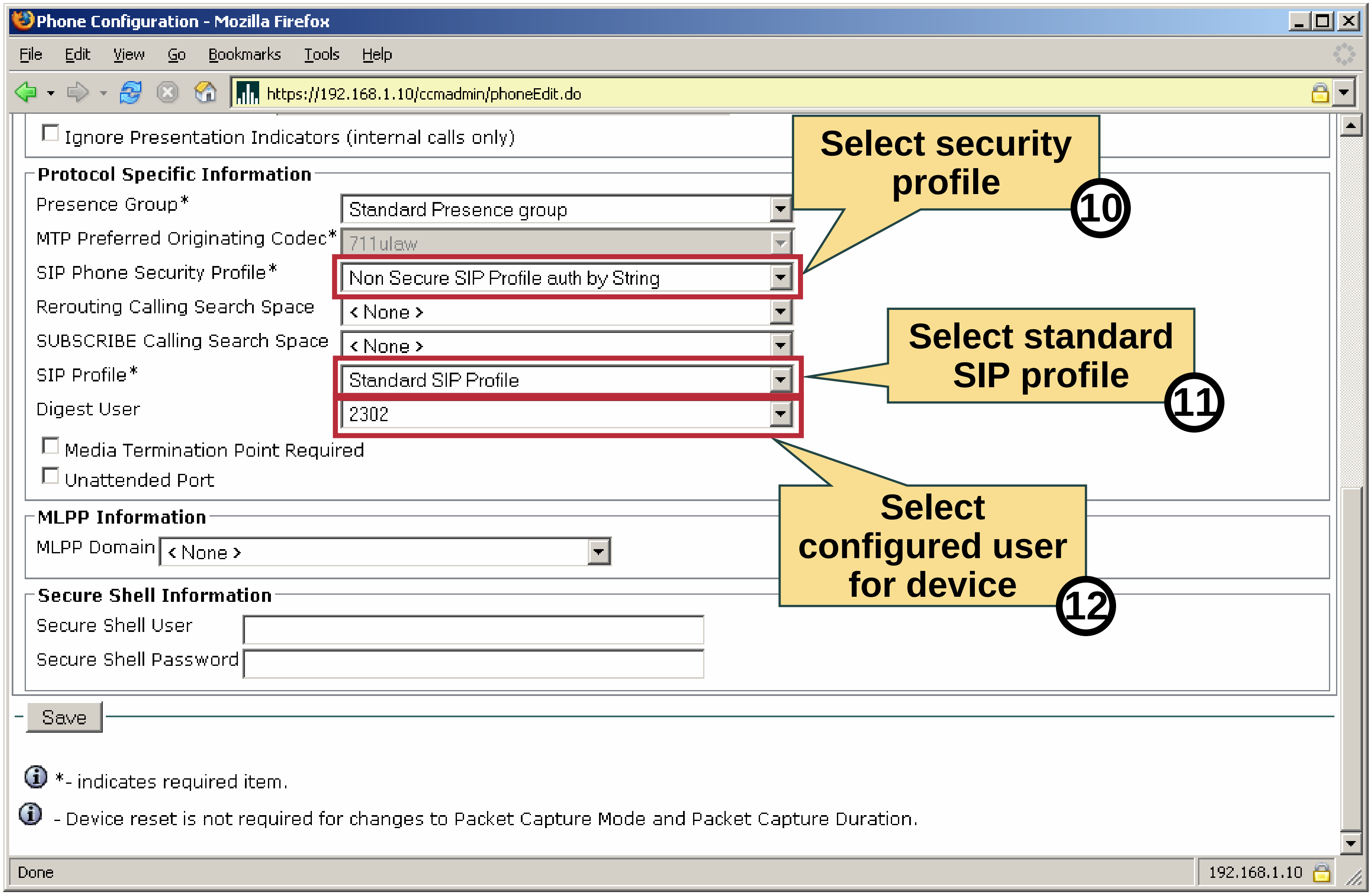
MAC Address*	000F1FBF7E92
Description	SEP000F1FBF7E92
Device Pool*	SanJose
Phone Button Template*	Third-party SIP Device (Basic)
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	< None >
Media Resource Group List	< None >
Location*	Hub_None
Owner User ID	< None >

Enter MAC of phone ⑦

Select device pool ⑧

Select template ⑨

Configuring 3rd Party SIP Phones


Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneEdit.do

☐ Ignore Presentation Indicators (internal calls only)

Protocol Specific Information

Presence Group*	Standard Presence group
MTP Preferred Originating Codec*	711ulaw
SIP Phone Security Profile*	Non Secure SIP Profile auth by String
Rerouting Calling Search Space	< None >
SUBSCRIBE Calling Search Space	< None >
SIP Profile*	Standard SIP Profile
Digest User	2302

☐ Media Termination Point Required

☐ Unattended Port

MLPP Information

MLPP Domain < None >

Secure Shell Information

Secure Shell User

Secure Shell Password

*- indicates required item.

- Device reset is not required for changes to Packet Capture Mode and Packet Capture Duration.

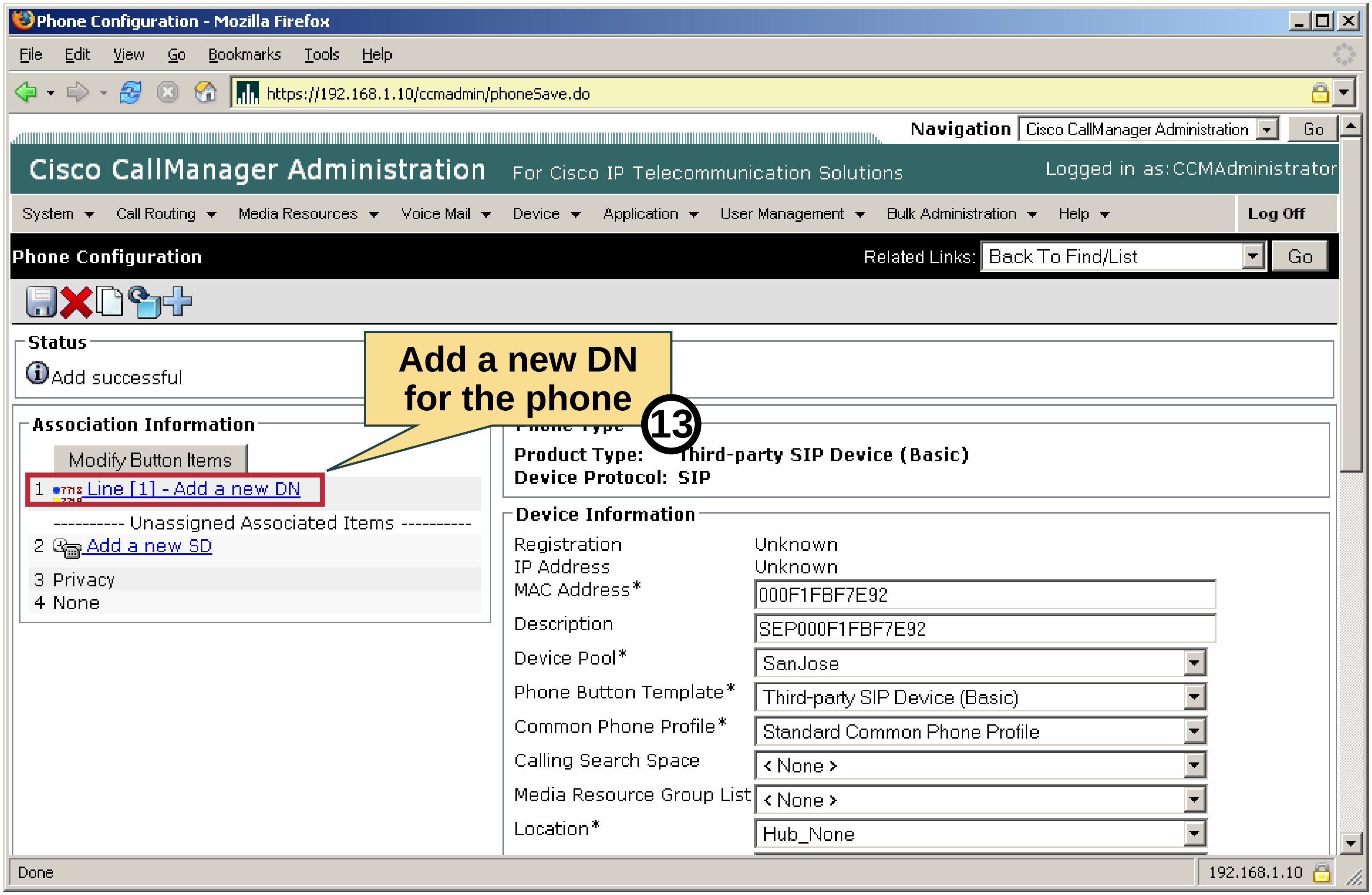
Done
192.168.1.10

Select security profile ⑩

Select standard SIP profile ⑪

Select configured user for device ⑫

Configuring 3rd Party SIP Phones


Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneSave.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Phone Configuration
Related Links: Back To Find/List Go
Modify Button Items
Done
192.168.1.10

Add a new DN for the phone ⑬

Status

Add successful

Association Information

1 Line [1] - Add a new DN

---------- Unassigned Associated Items ----------

2 Add a new SD

3 Privacy

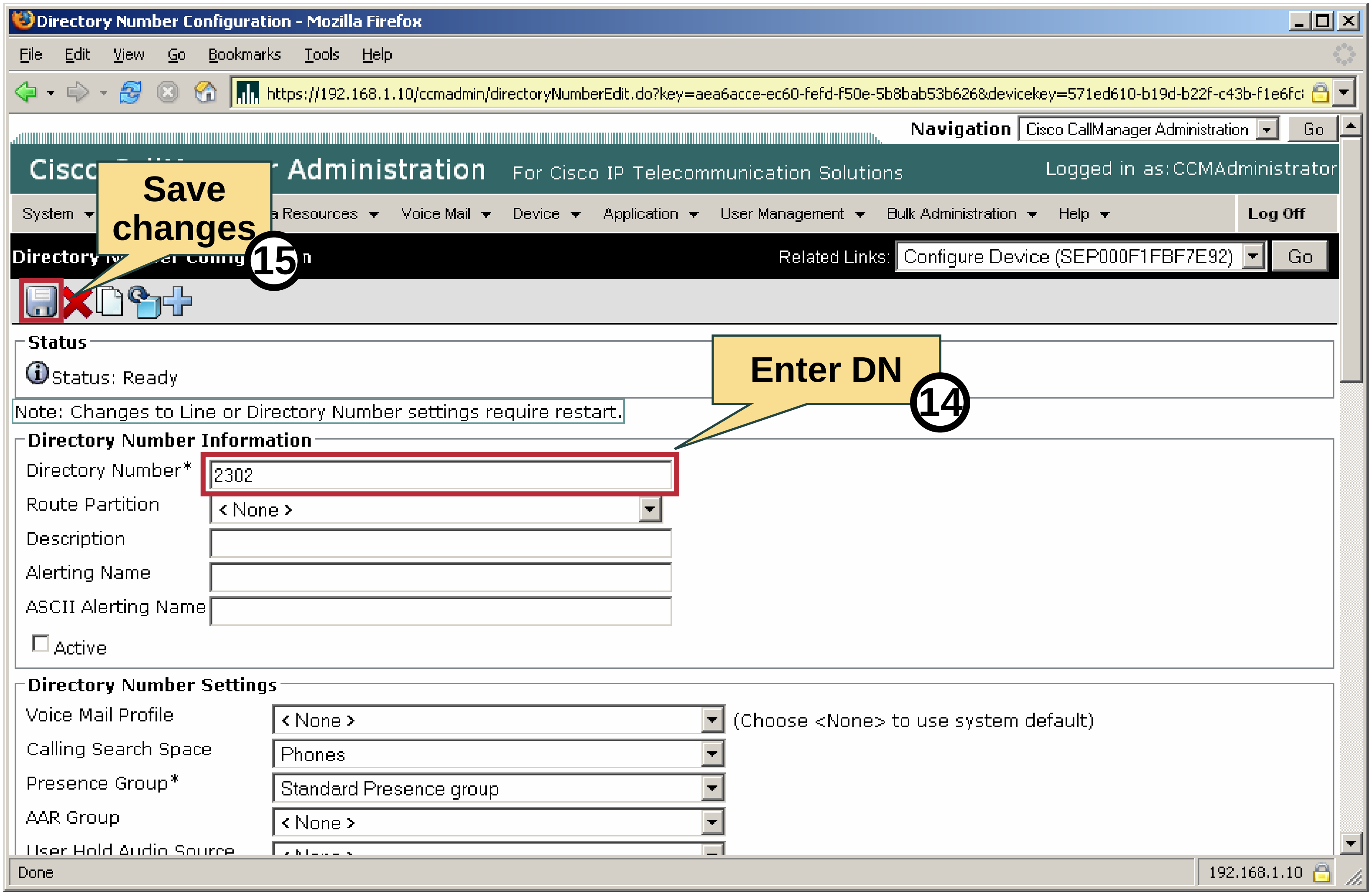
4 None

Product Type: Third-party SIP Device (Basic)
Device Protocol: SIP

Device Information

Registration	Unknown
IP Address	Unknown
MAC Address*	000F1FBF7E92
Description	SEP000F1FBF7E92
Device Pool*	SanJose
Phone Button Template*	Third-party SIP Device (Basic)
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	< None >
Media Resource Group List	< None >
Location*	Hub_None

Configuring 3rd Party SIP Phones



Directory Number Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/directoryNumberEdit.do?key=aea6acce-ec60-fefd-f50e-5b8bab53b626&devicekey=571ed610-b19d-b22f-c43b-f1e6fc
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Directory Number Configuration
Related Links: Configure Device (SEP000F1FBF7E92) Go
Done
192.168.1.10

Save changes ⑮

Enter DN ⑭

Status

Status: Ready

Note: Changes to Line or Directory Number settings require restart.

Directory Number Information

Directory Number*: 2302

Route Partition: < None >

Description:

Alerting Name:

ASCII Alerting Name:

☐ Active

Directory Number Settings

Voice Mail Profile: < None > (Choose <None> to use system default)

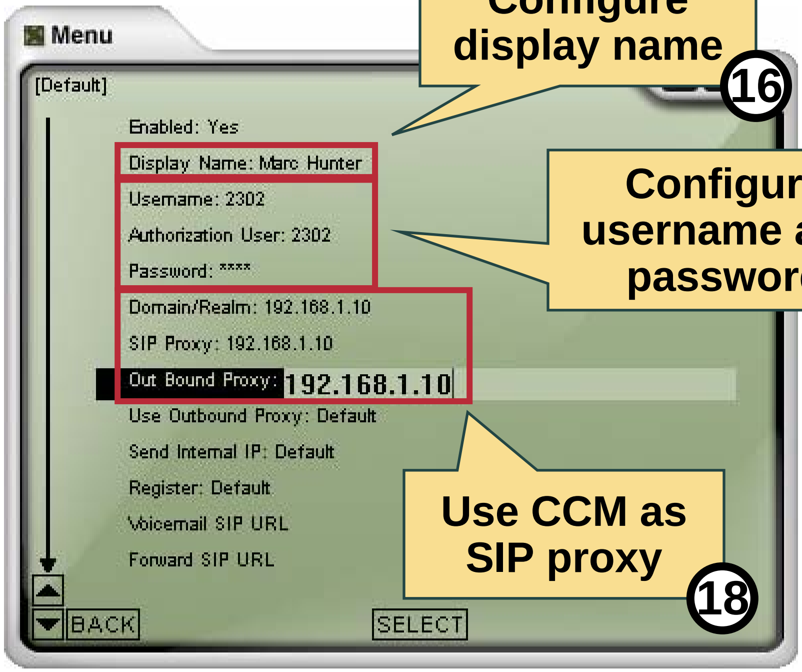
Calling Search Space: Phones

Presence Group*: Standard Presence group

AAR Group: < None >

User Hold Audio Source: < None >

Configuring 3rd Party SIP Phones


Menu

[Default]

Enabled: Yes

Display Name: Marc Hunter

Username: 2302

Authorization User: 2302

Password: ****

Domain/Realm: 192.168.1.10

SIP Proxy: 192.168.1.10

Out Bound Proxy: 192.168.1.10

Use Outbound Proxy: Default

Send Internal IP: Default

Register: Default

Voicemail SIP URL

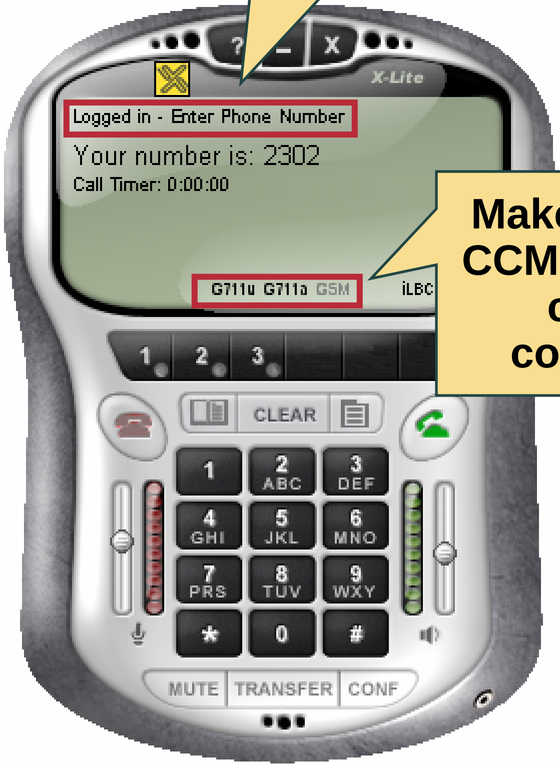
Forward SIP URL

BACK
SELECT

Configure display name ⑯

Configure username and password ⑰

Use CCM as SIP proxy ⑱


X-Lite
?
_
X

Logged in - Enter Phone Number

Your number is: 2302

Call Timer: 0:00:00

G711u G711a GSM iLBC

1
2
3
CLEAR
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PRS
8 TUV
9 WXY
*
0
#
MUTE
TRANSFER
CONF

Verify that phone is connected to CCM ⑲

Make sure that CCM supported codecs configured ⑳

Summary

- Cisco Unified CallManager 5.0 supports many Cisco SIP phones as well as 3rd party SIP phones.
- SIP phone futures depend on the special Cisco SIP IP phone type.
- At the moment SIP phones do not support all of the same features as SCCP phones.
- Configuring Cisco SIP IP phones is similar to the configuration of Cisco SCCP IP phones.
- To configure 3rd party SIP IP phones, a user needs to be configured and associated to the device as well.

Deploying Cisco Unified CallManager 5.0 Endpoints

Managing Endpoints

Objectives

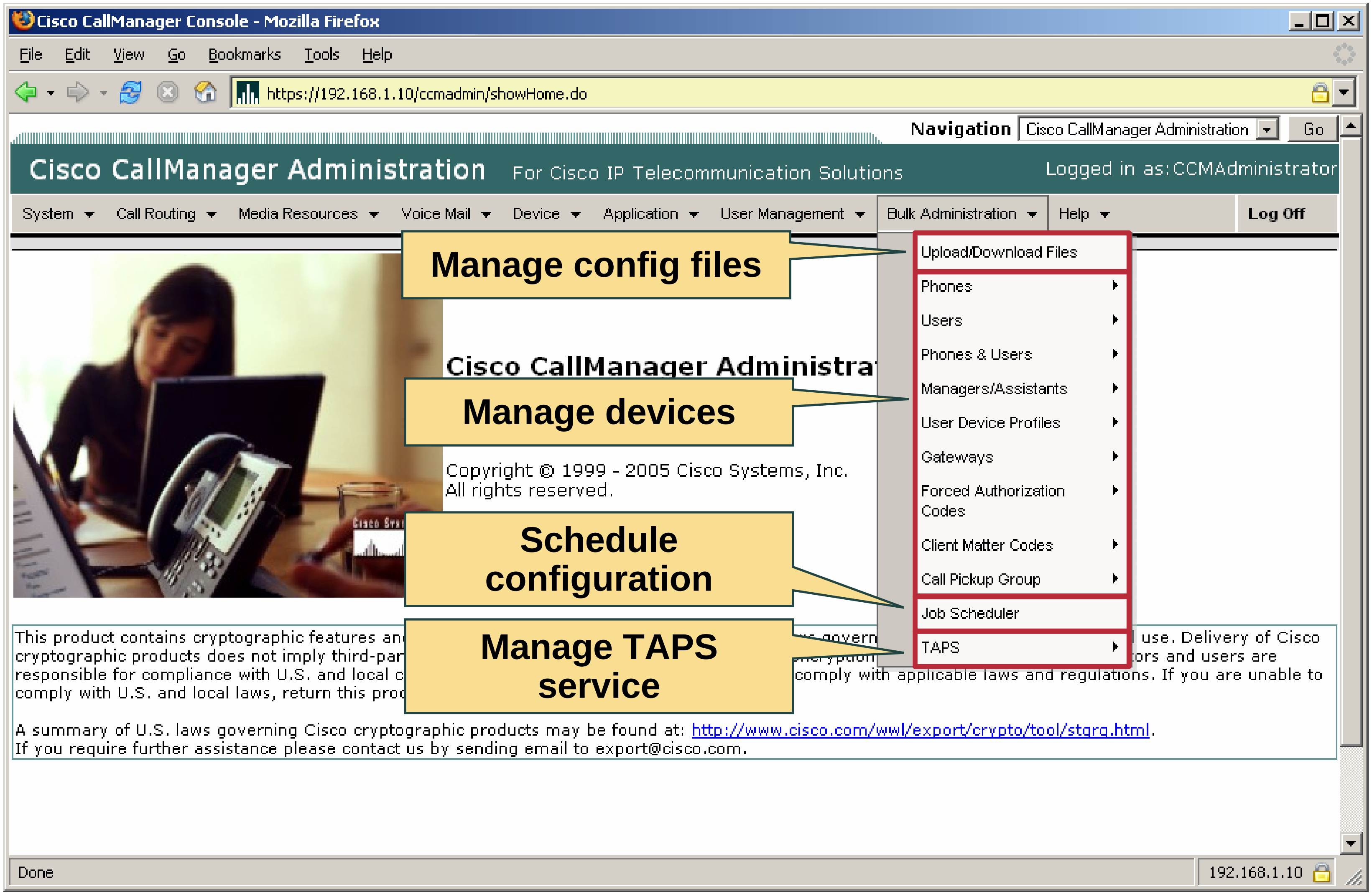
- Bulk Administration Tool (BAT) Overview
- Using BAT
- Configuring BAT Templates
- Creating CSV Files
- Adding Devices
- Scheduling Tasks
- Updating Devices

Bulk Administration Tool (BAT) Overview

The Cisco Unified CallManager 5.0 Bulk Administration Tool (BAT) UI follows these guidelines:

- **Integrated with the CCM Admin pages and is available by default (no plug-in required)**
- **All pages are available under the “Bulk Administration” menu**
- **Same look and feel as the CCM admin pages**
- **Supports Internationalization**
- **MLA support for BAT pages**
- **Tool for Auto-registered Phone Support (TAPS) is now part of Bulk Administration.**

Bulk Administration Tool (BAT) Overview



Cisco CallManager Console - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
https://192.168.1.10/ccmadmin/showHome.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Upload/Download Files
Phones
Users
Phones & Users
Managers/Assistants
User Device Profiles
Gateways
Forced Authorization Codes
Client Matter Codes
Call Pickup Group
Job Scheduler
TAPS
Done
192.168.1.10

Cisco CallManager Administra

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This product contains cryptographic features an govern l use. Delivery of Cisco
cryptographic products does not imply third-par ors and users are
responsible for compliance with U.S. and local c comply with applicable laws and regulations. If you are unable to
comply with U.S. and local laws, return this proc

A summary of U.S. laws governing Cisco cryptographic products may be found at: http://www.cisco.com/wwl/export/crypto/tool/stqrg.html.
If you require further assistance please contact us by sending email to export@cisco.com.

Manage config files

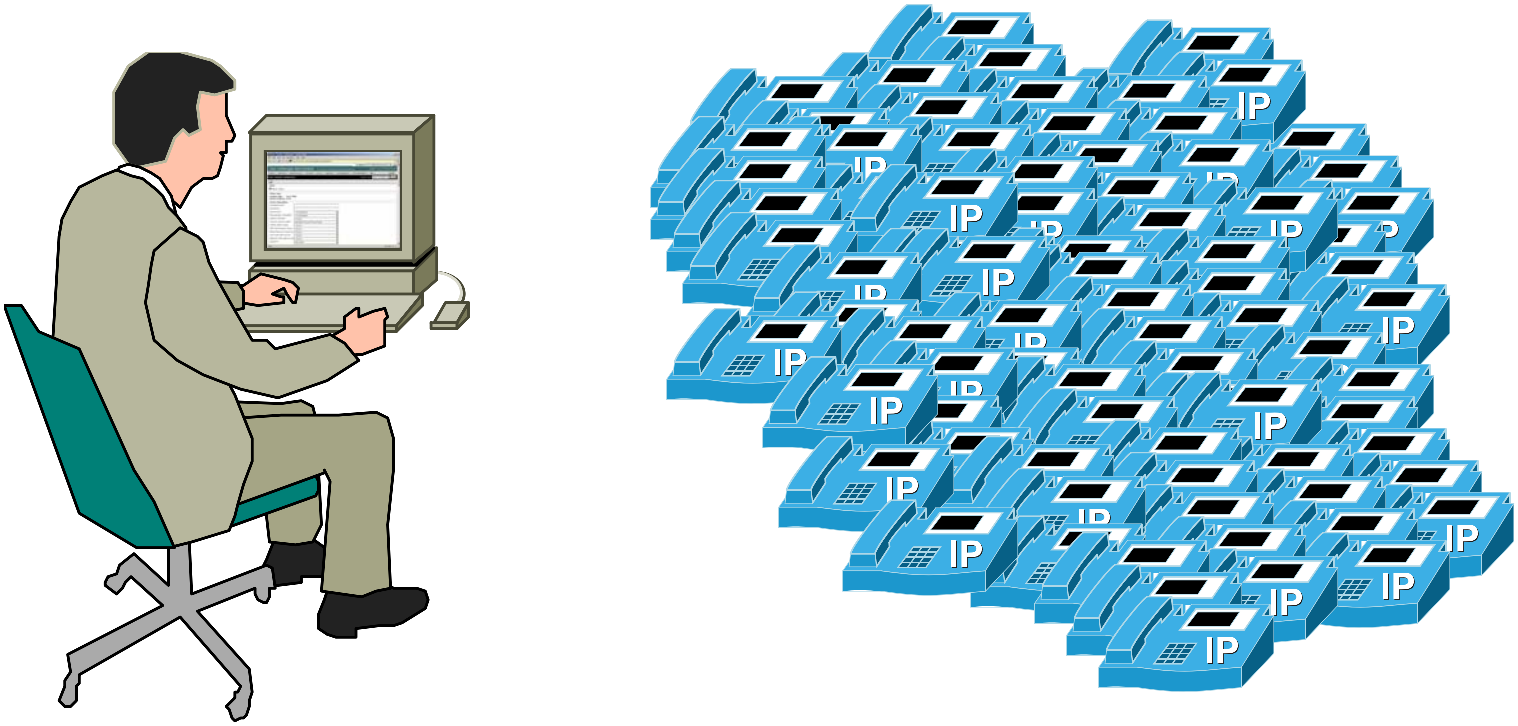
Manage devices

Schedule configuration

Manage TAPS service

Using BAT

BAT will allow management of many devices/records within a short period of time.



Using BAT

BAT administration contains the following parts:

- BAT templates are used to define general settings that fit all of the devices that should be added.
- CSV files are used to define device/record specific settings that should be bulk configured.
- Adding, updating, and deleting devices/records is done automatically based on query and CSVs.
- Additions, updates, and deletions can be scheduled to be performed at a defined time.

Using BAT

BAT can be used on Cisco Unified CallManager 5.0 to add, update, and delete these devices and records:

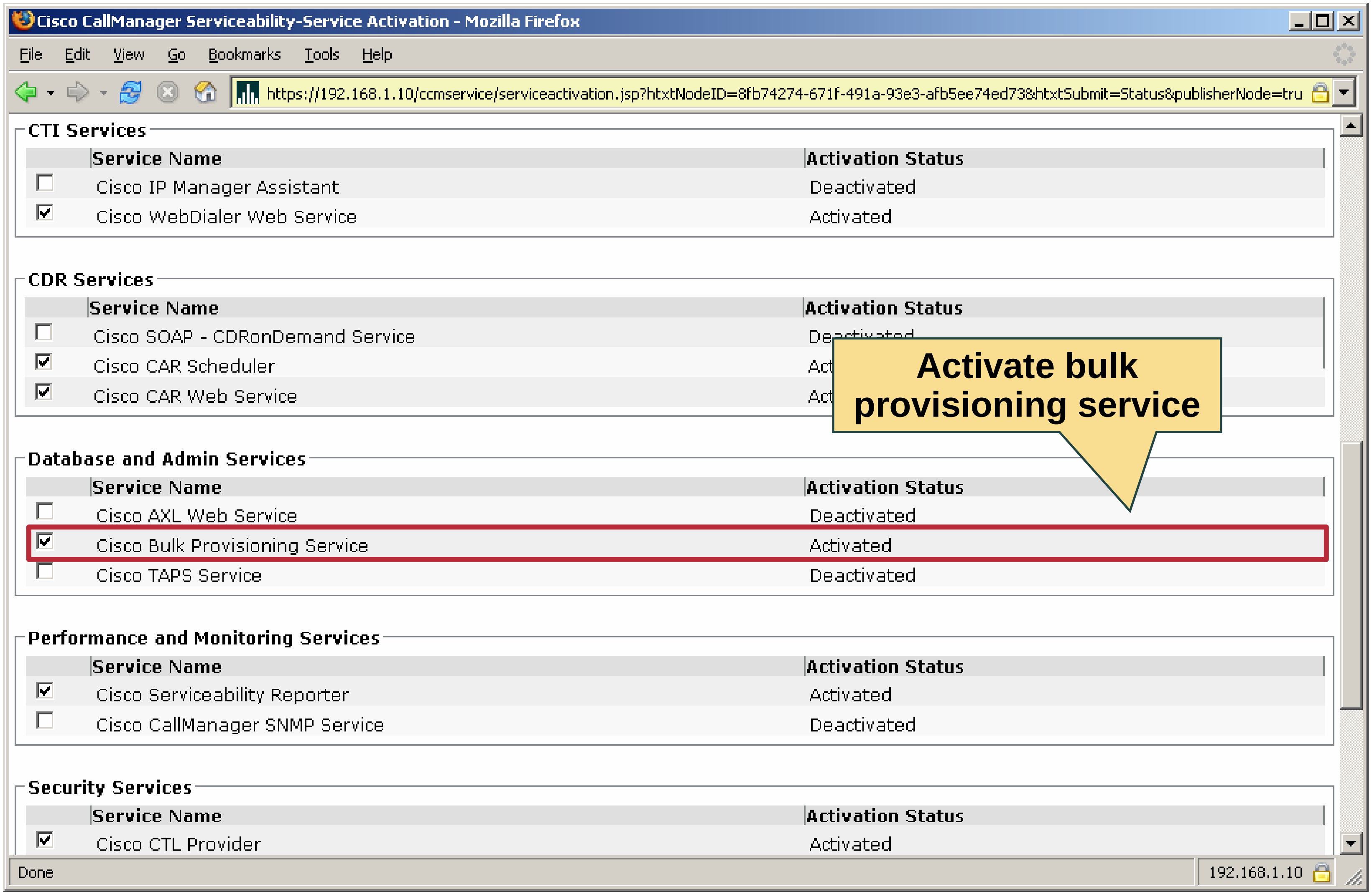
- Cisco IP Phones
- Voice gateways (VG)
- CTI ports
- Users
- User Device Profiles
- Cisco IP Manager Assistant (IPMA) managers and assistants
- Ports on a Cisco Catalyst 6000 FXS Analog Interface Module
- Cisco VG200 series analog gateways and ports
- Forced Authorization Codes
- Client Matter Codes
- Call Pickup Groups

Using BAT

Bulk Provisioning Service (BPS):

- Bulk Provisioning Service is used by BAT to perform tasks.
- Bulk Provisioning Service is listed under Database services in the service activation pages.
- Service should be activated for scheduled jobs to be executed.
- Can be activated only on the publisher node in a cluster.

Using BAT


Cisco CallManager Serviceability-Service Activation - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Done
192.168.1.10

https://192.168.1.10/ccmservice/serviceactivation.jsp?htxtNodeID=8fb74274-671f-491a-93e3-afb5ee74ed73&htxtSubmit=Status&publisherNode=tru

CTI Services

	Service Name	Activation Status
☐	Cisco IP Manager Assistant	Deactivated
☑	Cisco WebDialer Web Service	Activated

CDR Services

	Service Name	Activation Status
☐	Cisco SOAP - CDRonDemand Service	Deactivated
☑	Cisco CAR Scheduler	Act
☑	Cisco CAR Web Service	Act

Database and Admin Services

	Service Name	Activation Status
☐	Cisco AXL Web Service	Deactivated
☑	Cisco Bulk Provisioning Service	Activated
☐	Cisco TAPS Service	Deactivated

Performance and Monitoring Services

	Service Name	Activation Status
☑	Cisco Serviceability Reporter	Activated
☐	Cisco CallManager SNMP Service	Deactivated

Security Services

	Service Name	Activation Status
☑	Cisco CTL Provider	Activated

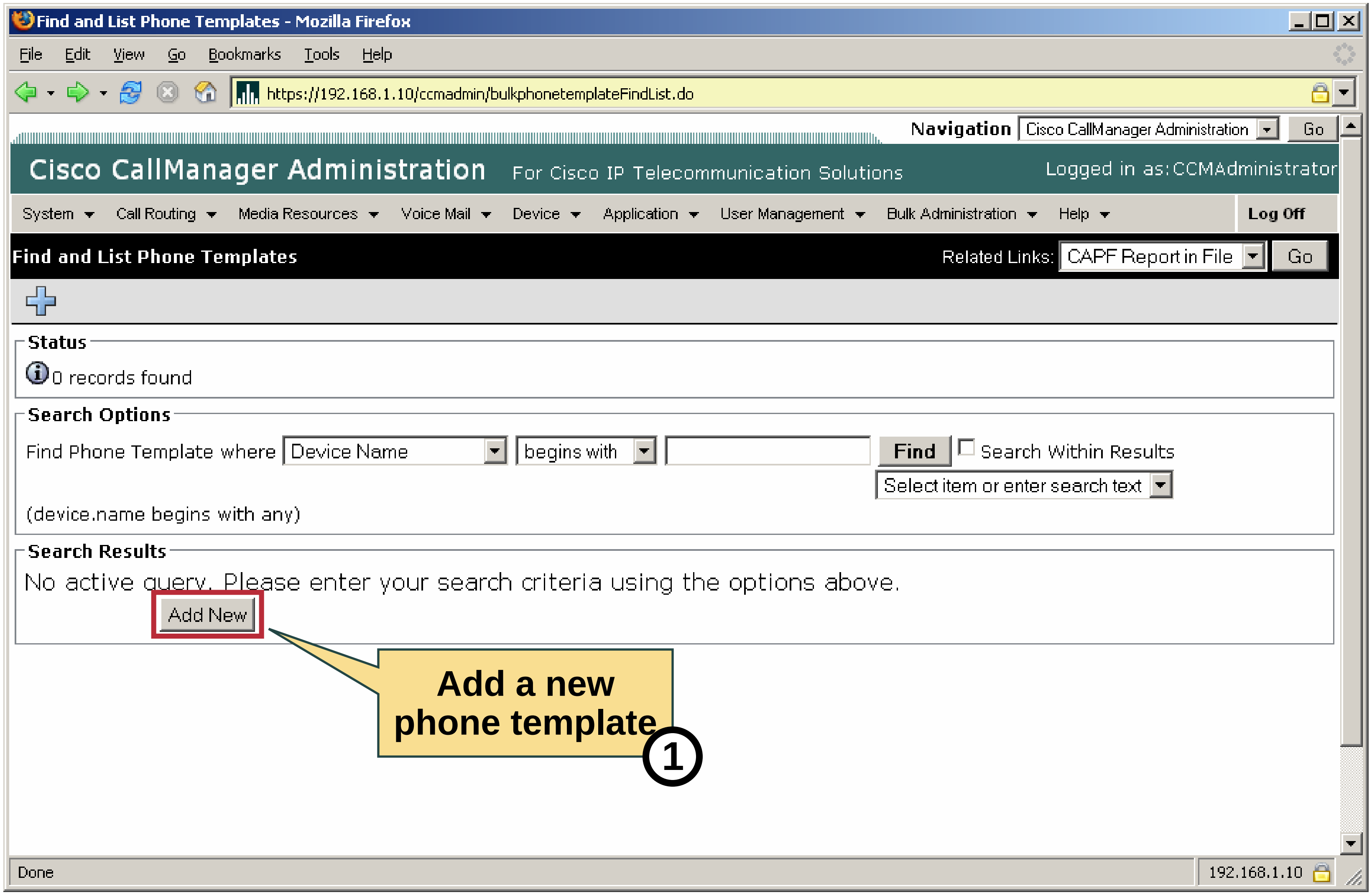
Activate bulk provisioning service

Configuring BAT Phone Templates

The BAT template configuration process is very similar to configuring each individual device or record:

- **Add new device.**
- **Select device type.**
- **Configure device parameters.**

Configuring BAT Phone Templates



Find and List Phone Templates - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/bulkphonetemplateFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Find and List Phone Templates
Related Links: CAPF Report in File Go
Add New
Done
192.168.1.10

Status

0 records found

Search Options

Find Phone Template where Device Name begins with Find ☐ Search Within Results

Select item or enter search text

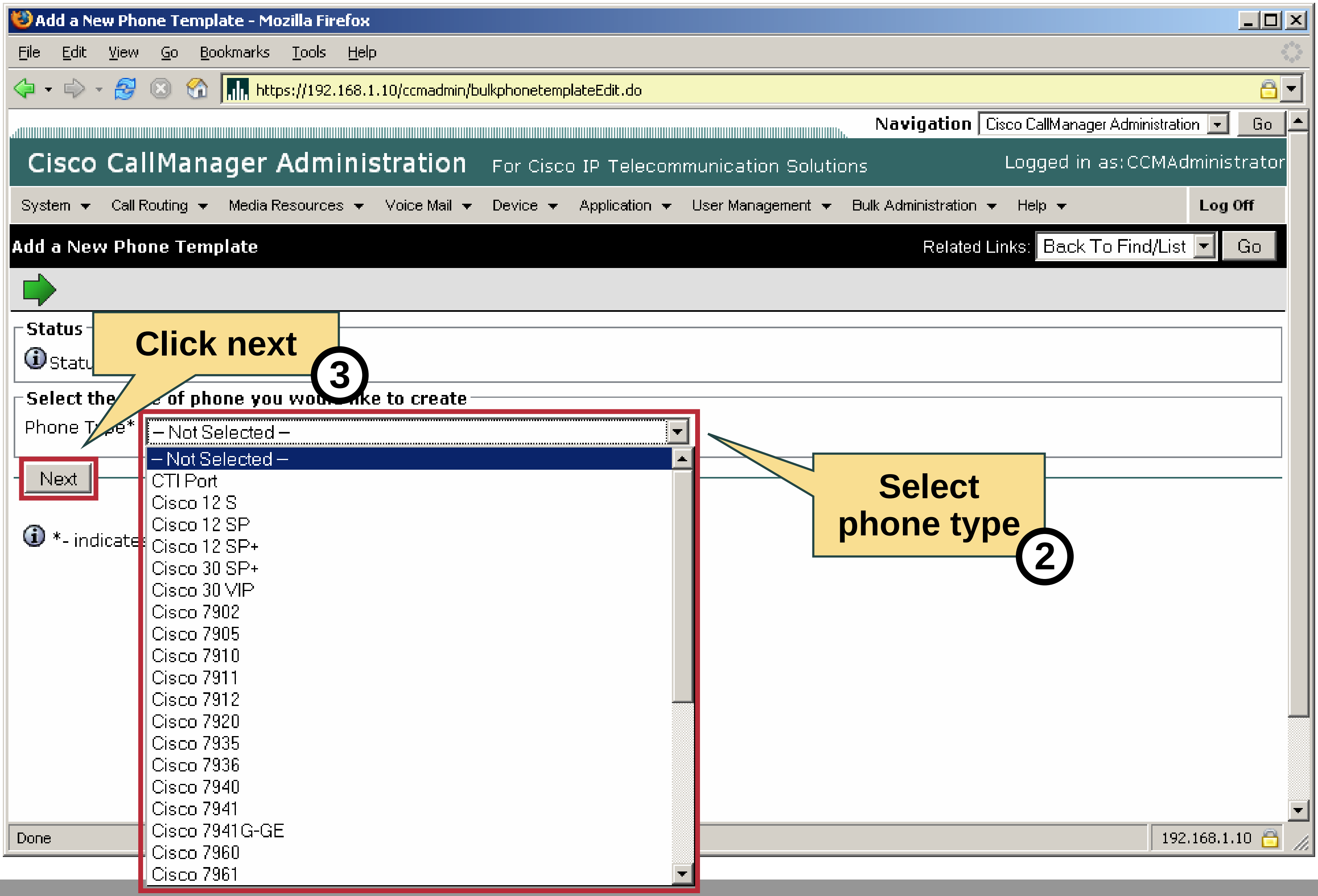
(device.name begins with any)

Search Results

No active query. Please enter your search criteria using the options above.

Add a new phone template ①

Configuring BAT Phone Templates



Add a New Phone Template - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/bulkphonetemplateEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Related Links: Back To Find/List Go
Done
192.168.1.10

Add a New Phone Template

Status

Select the type of phone you would like to create

Phone Type* – Not Selected –

– Not Selected –
CTI Port
Cisco 12 S
Cisco 12 SP
Cisco 12 SP+
Cisco 30 SP+
Cisco 30 VIP
Cisco 7902
Cisco 7905
Cisco 7910
Cisco 7911
Cisco 7912
Cisco 7920
Cisco 7935
Cisco 7936
Cisco 7940
Cisco 7941
Cisco 7941G-GE
Cisco 7960
Cisco 7961

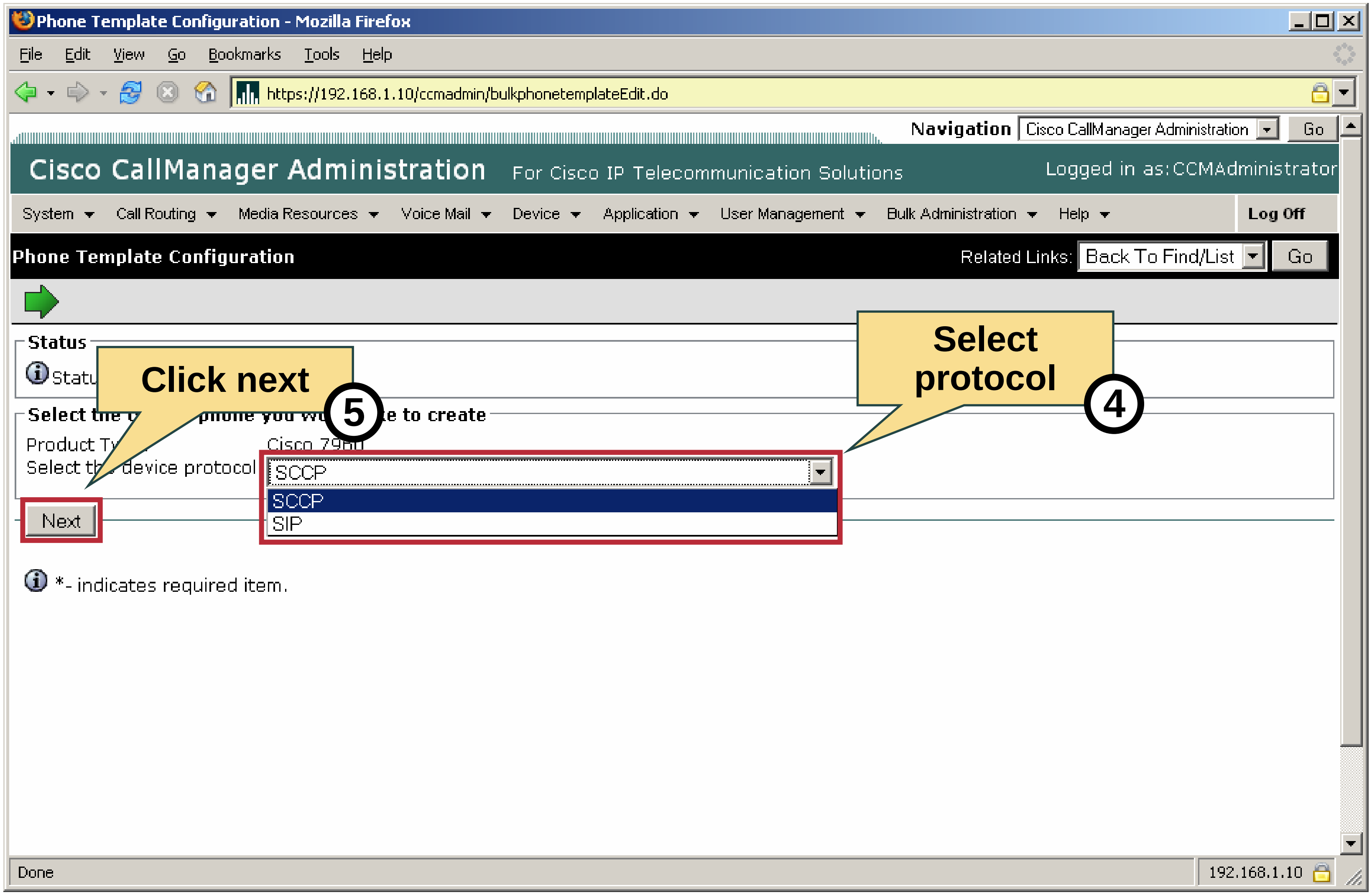
Next

*- indicate

Click next ③

Select phone type ②

Configuring BAT Phone Templates



Phone Template Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/bulkphonetemplateEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Phone Template Configuration
Related Links: Back To Find/List Go
Status
Next
SCCP
SIP
Done
192.168.1.10

Select the ... phone you w... e to create

Product Ty...: Cisco 7960

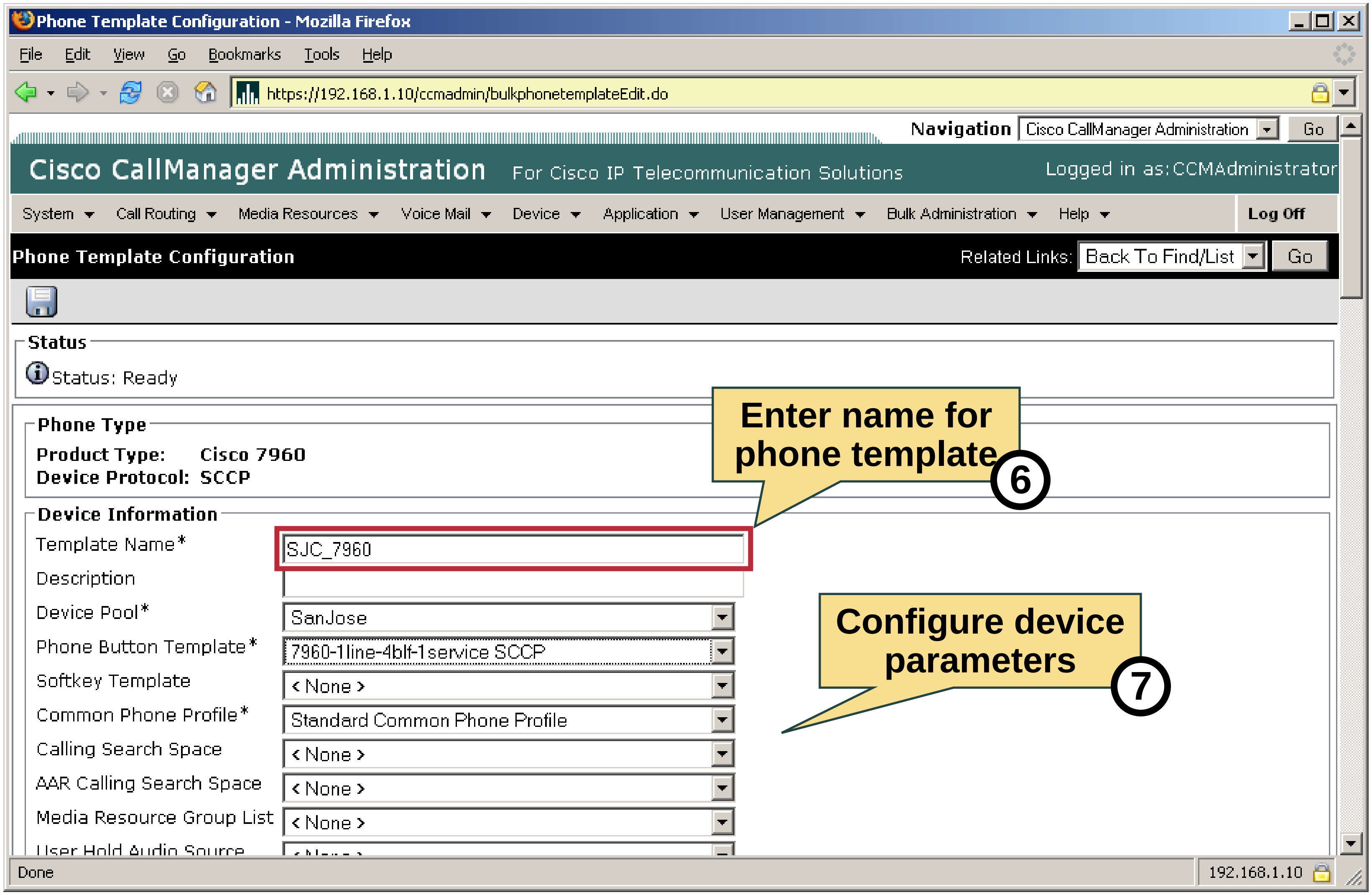
Select th... device protocol: SCCP

*- indicates required item.

Select protocol ④

Click next ⑤

Configuring BAT Phone Templates



Phone Template Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/bulkphonetemplateEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Phone Template Configuration
Related Links: Back To Find/List Go
Done
192.168.1.10

Status

Status: Ready

Phone Type

Product Type: Cisco 7960
Device Protocol: SCCP

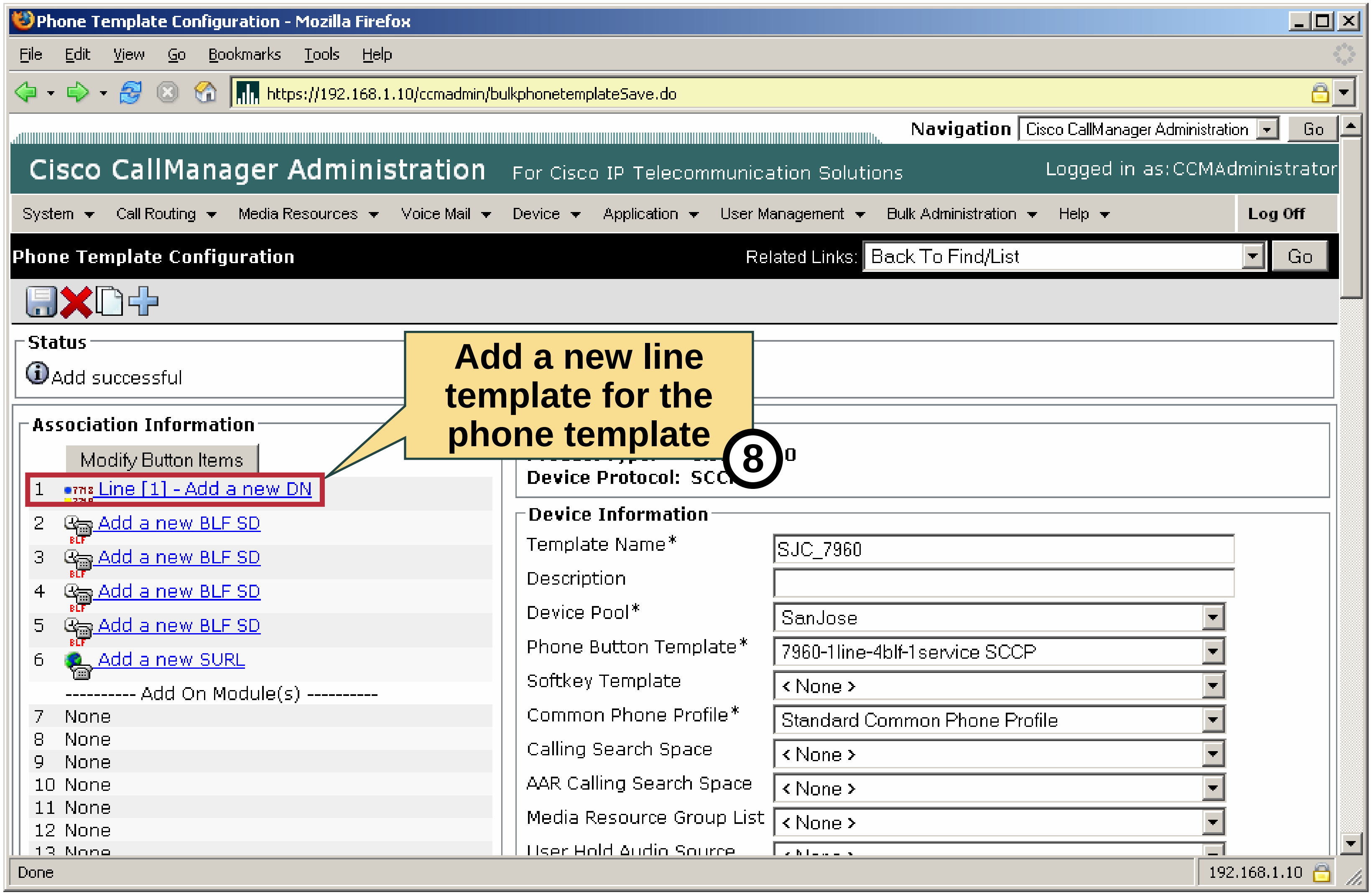
Device Information

Template Name*	SJC_7960
Description	
Device Pool*	SanJose
Phone Button Template*	7960-1line-4blf-1service SCCP
Softkey Template	< None >
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	< None >
AAR Calling Search Space	< None >
Media Resource Group List	< None >
User Hold Audio Source	< None >

Enter name for phone template ⑥

Configure device parameters ⑦

Configuring BAT Phone Templates


Phone Template Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/bulkphonetemplateSave.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Phone Template Configuration
Related Links: Back To Find/List Go
Modify Button Items
Done
192.168.1.10

Status

Add successful

Association Information

1 Line [1] - Add a new DN
2 Add a new BLF SD
3 Add a new BLF SD
4 Add a new BLF SD
5 Add a new BLF SD
6 Add a new SURL
---------- Add On Module(s) ----------
7 None
8 None
9 None
10 None
11 None
12 None
13 None

Device Protocol: SCCP

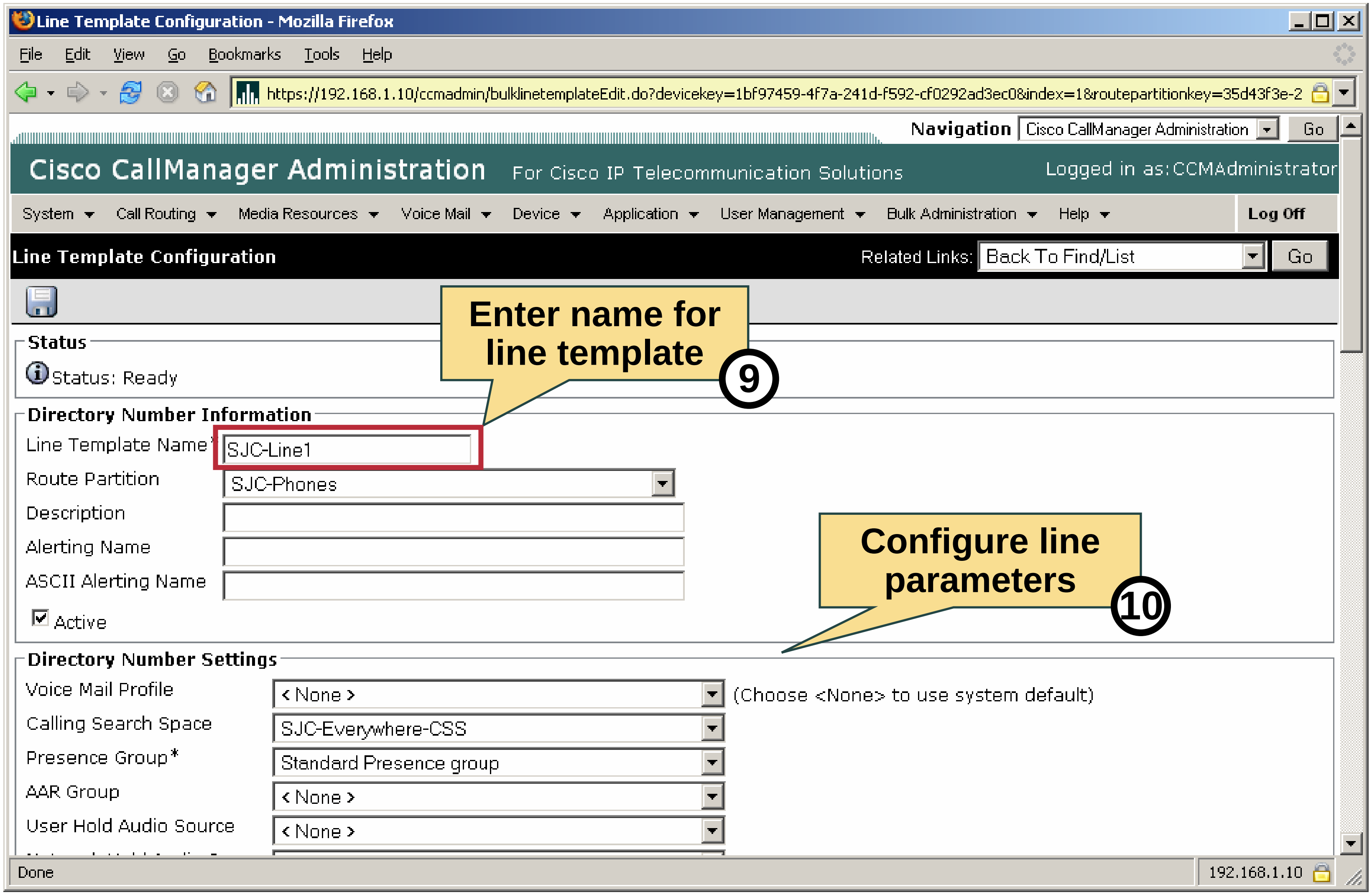
Device Information

Template Name*	SJC_7960
Description	
Device Pool*	SanJose
Phone Button Template*	7960-1line-4blf-1service SCCP
Softkey Template	< None >
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	< None >
AAR Calling Search Space	< None >
Media Resource Group List	< None >
User Hold Audio Source	< None >

Add a new line template for the phone template

⑧

Configuring BAT Phone Templates



Line Template Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/bulklinetemplateEdit.do?devicekey=1bf97459-4f7a-241d-f592-cf0292ad3ec0&index=1&routepartitionkey=35d43f3e-2
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Line Template Configuration
Related Links: Back To Find/List Go
Done
192.168.1.10

Status

Status: Ready

Directory Number Information

Line Template Name*	SJC-Line1
Route Partition	SJC-Phones
Description	
Alerting Name	
ASCII Alerting Name	

☑ Active

Directory Number Settings

Voice Mail Profile	< None > (Choose <None> to use system default)
Calling Search Space	SJC-Everywhere-CSS
Presence Group*	Standard Presence group
AAR Group	< None >
User Hold Audio Source	< None >

Enter name for line template ⑨

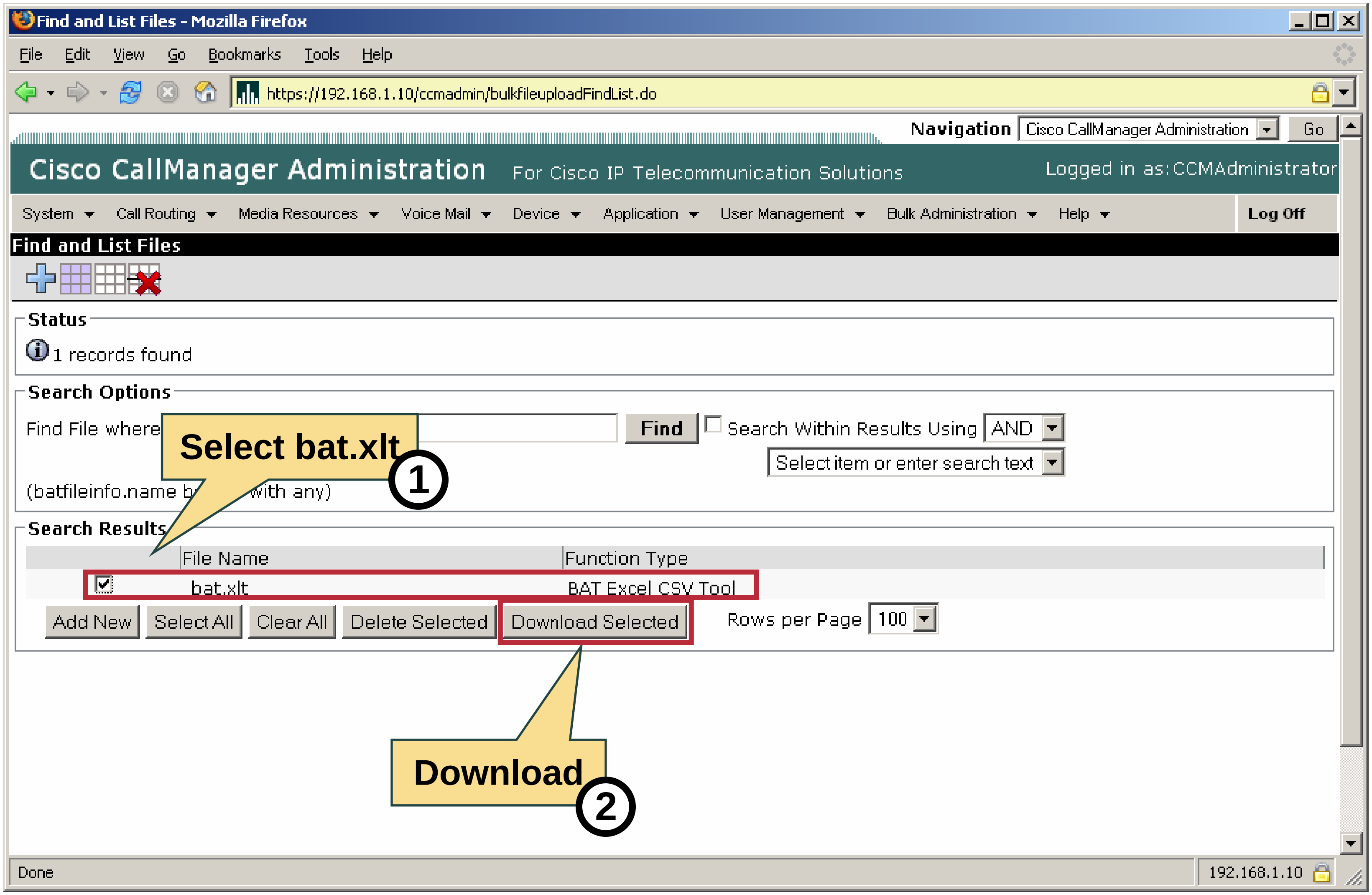
Configure line parameters (10)

Creating CSV Files

Cisco provides a template to create CSV files which have the special format that BAT requires:

- The template is a Microsoft Excel table using macros.
- The template can be personalized for the special needs of the environment.
- The macro in the template generates CSV files which have the correct format.

Creating CSV Files



Find and List Files - Mozilla Firefox

https://192.168.1.10/ccmadmin/bulkfileuploadFindList.do

Cisco CallManager Administration For Cisco IP Telecommunication Solutions

Logged in as: CCMAdministrator

Find and List Files

Status

1 records found

Search Options

Find File where ... (batfileinfo.name b... with any)

Search Results

	File Name	Function Type
☑	bat.xlt	BAT Excel CSV Tool

Rows per Page 100

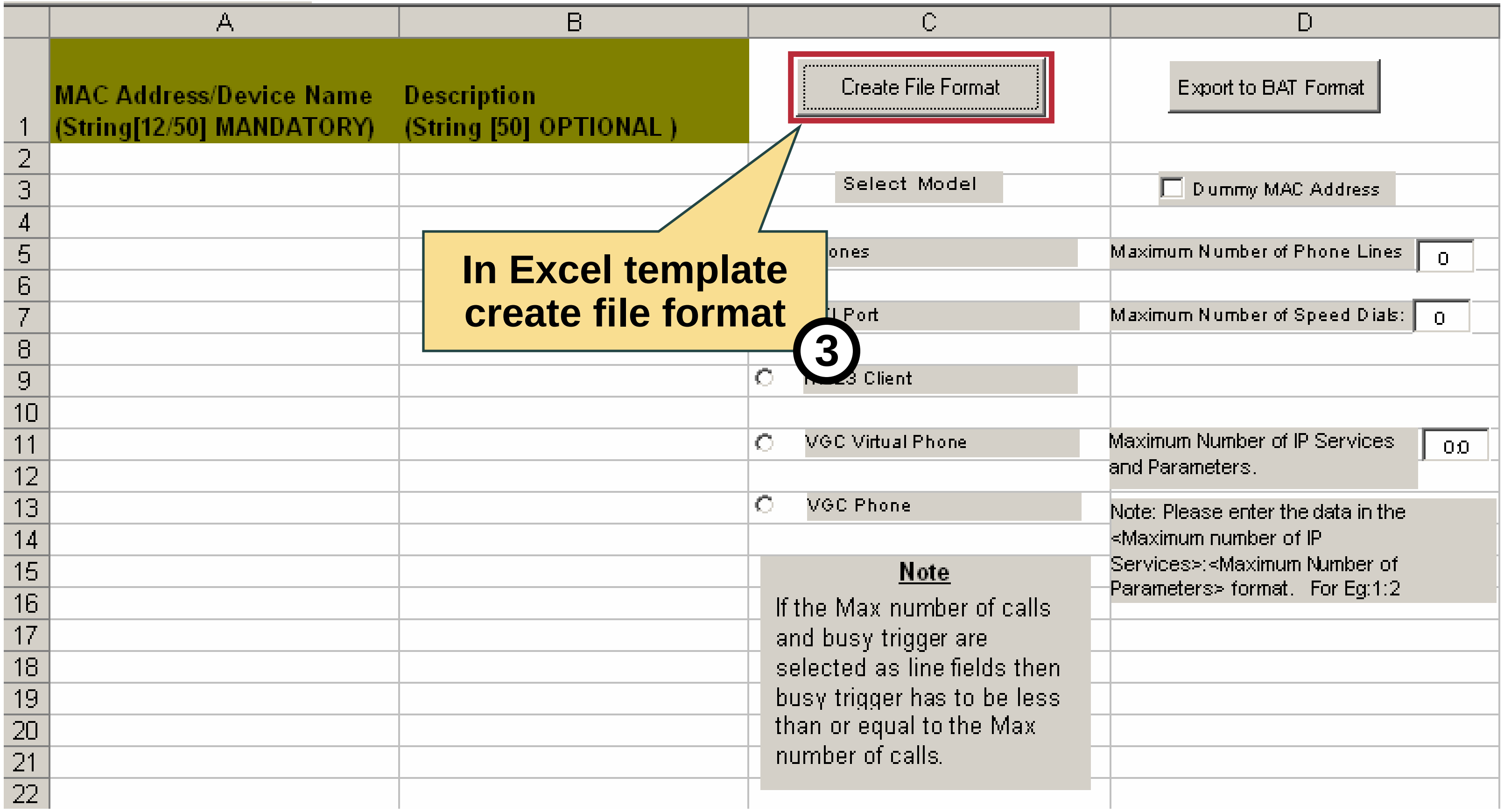
Done

File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Administration Go
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Find Search Within Results Using AND
Select item or enter search text
Add New Select All Clear All Delete Selected Download Selected
192.168.1.10

Select bat.xlt ①

Download ②

Creating CSV Files


A
B
C
D
MAC Address/Device Name (String[12/50] MANDATORY)
Description (String [50] OPTIONAL)
Create File Format
Export to BAT Format
Select Model
☐ Dummy MAC Address
ones
Port
○ 3 Client
○ VGC Virtual Phone
○ VGC Phone
Maximum Number of Phone Lines 0
Maximum Number of Speed Dials: 0
Maximum Number of IP Services and Parameters. 0:0

Note

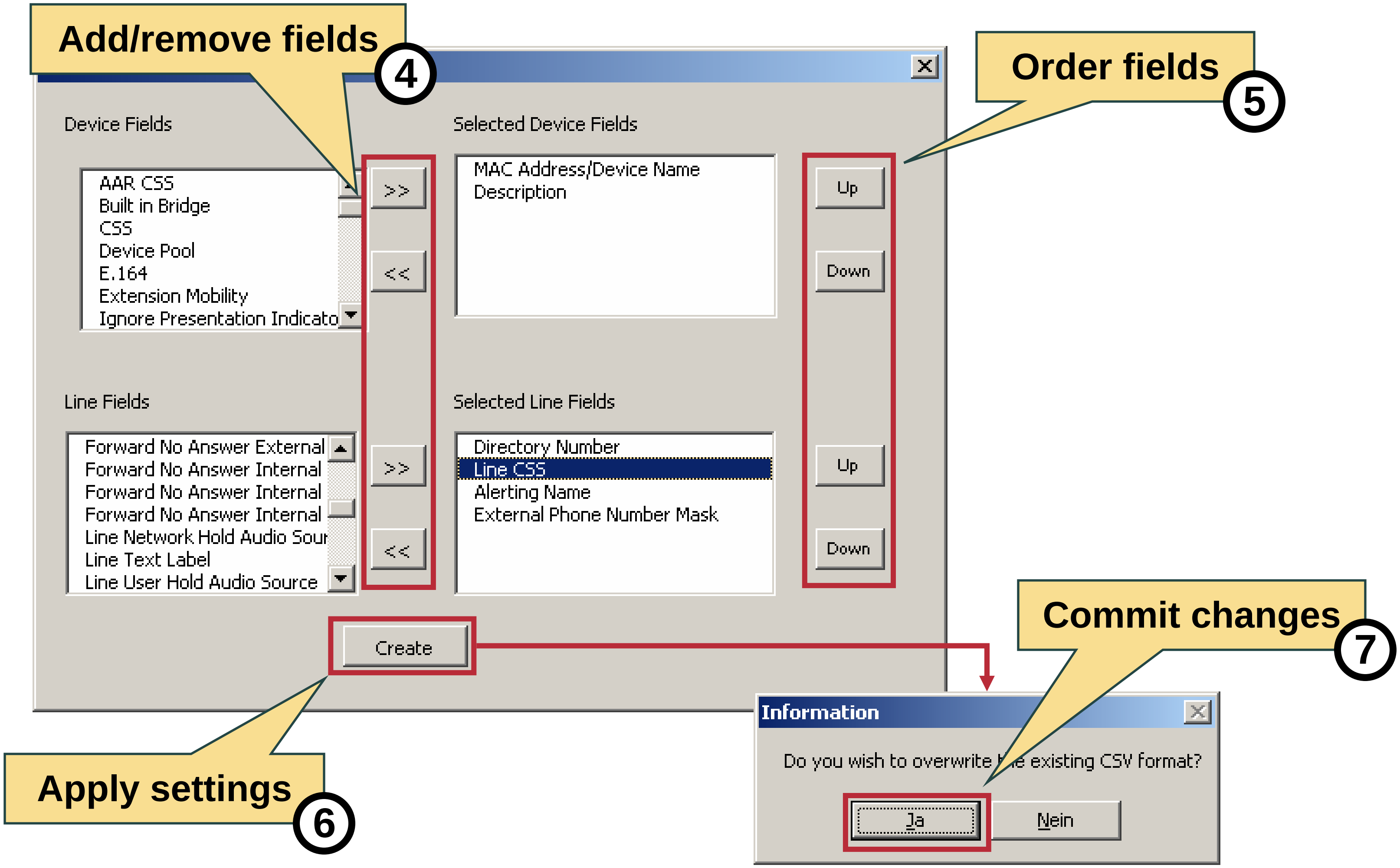
If the Max number of calls and busy trigger are selected as line fields then busy trigger has to be less than or equal to the Max number of calls.

Note: Please enter the data in the <Maximum number of IP Services>:<Maximum Number of Parameters> format. For Eg:1:2

In Excel template create file format

③

Creating CSV Files



Add/remove fields ④

Order fields ⑤

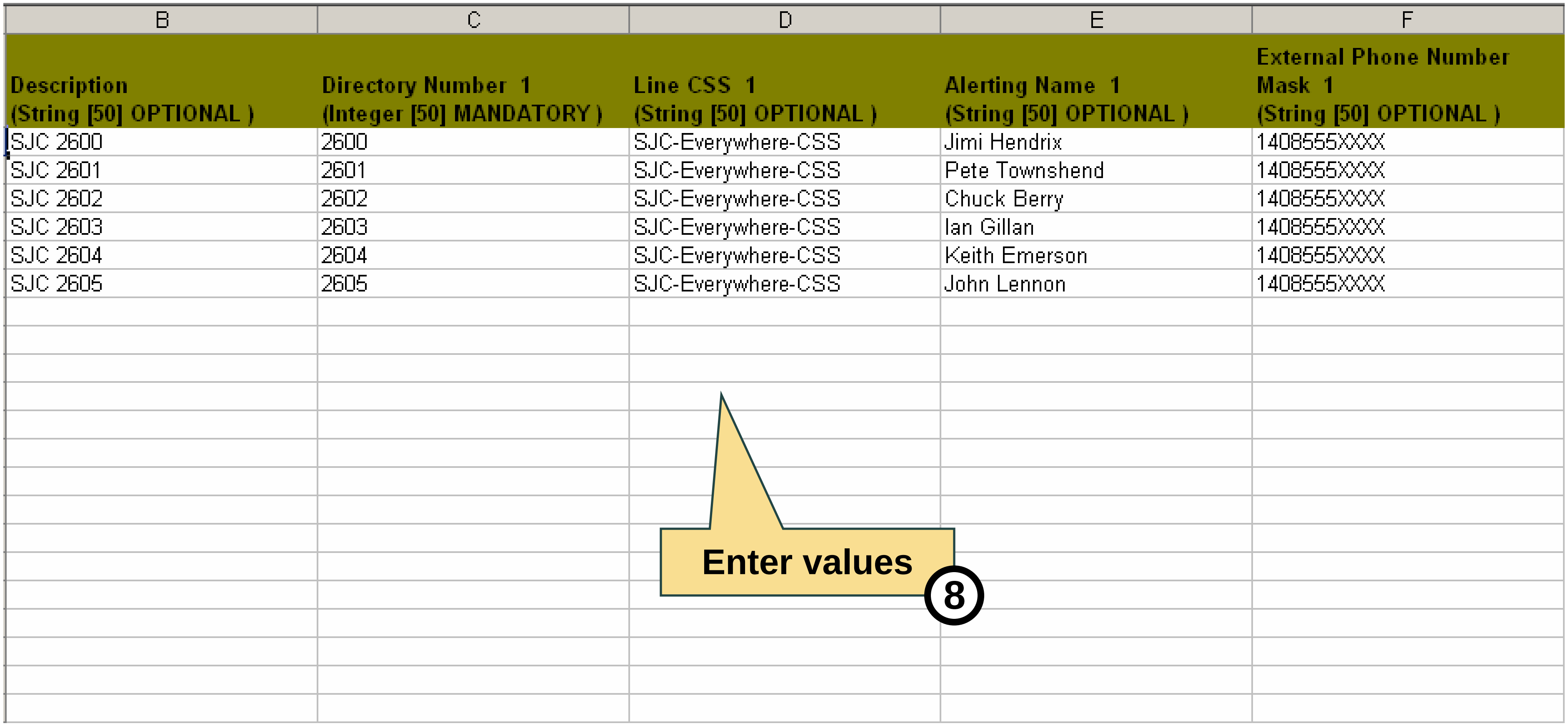
Apply settings ⑥

Commit changes ⑦

Device Fields
AAR CSS
Built in Bridge
CSS
Device Pool
E.164
Extension Mobility
Ignore Presentation Indicato
>>
<<
Selected Device Fields
MAC Address/Device Name
Description
Up
Down
Line Fields
Forward No Answer External
Forward No Answer Internal
Forward No Answer Internal
Forward No Answer Internal
Line Network Hold Audio Sour
Line Text Label
Line User Hold Audio Source
>>
<<
Selected Line Fields
Directory Number
Line CSS
Alerting Name
External Phone Number Mask
Up
Down
Create
Information
Ja
Nein

Do you wish to overwrite the existing CSV format?

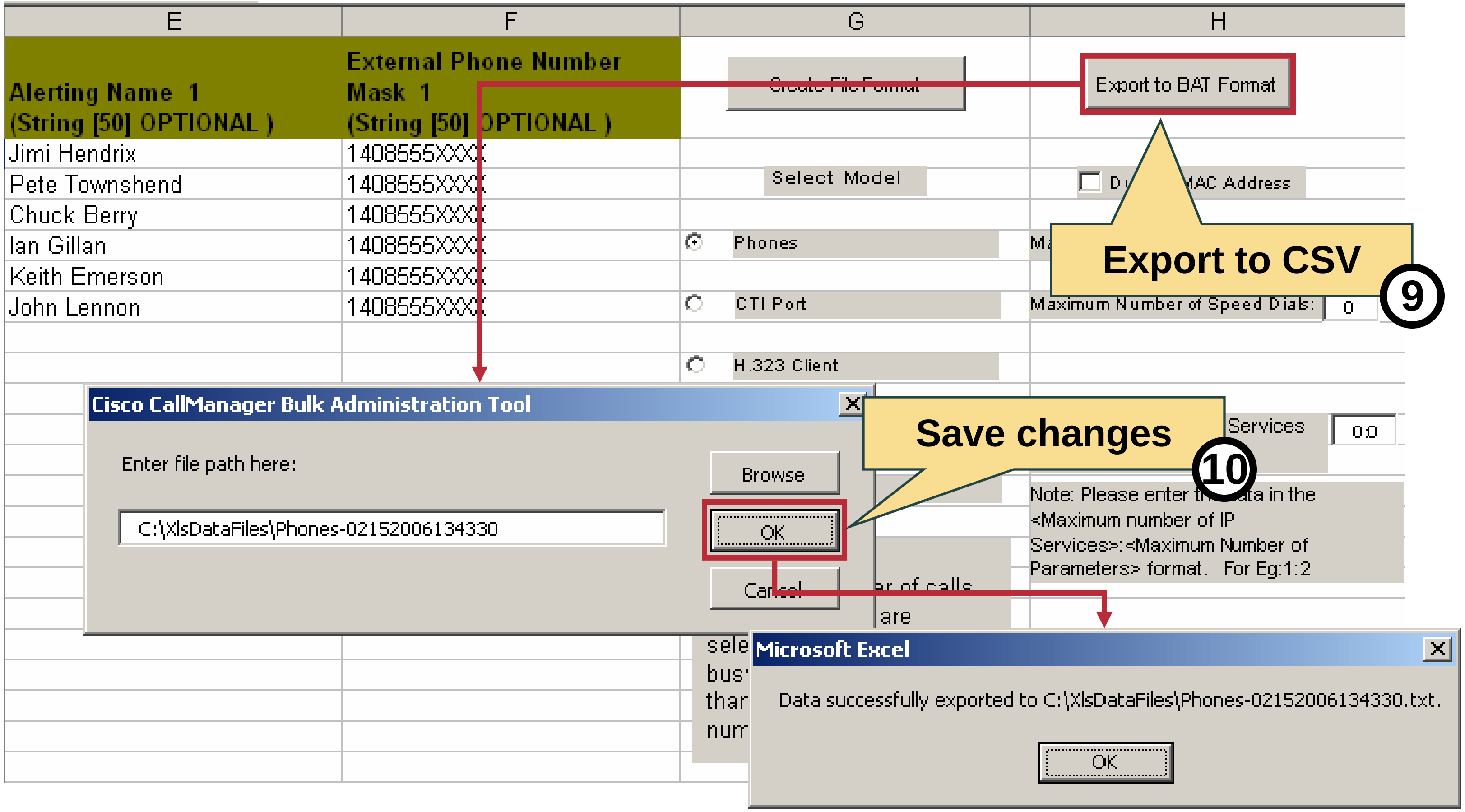
Creating CSV Files



B	C	D	E	F
Description (String [50] OPTIONAL)	**Directory Number 1 (Integer [50] MANDATORY)**	**Line CSS 1 (String [50] OPTIONAL)**	**Alerting Name 1 (String [50] OPTIONAL)**	**External Phone Number Mask 1 (String [50] OPTIONAL)**
SJC 2600	2600	SJC-Everywhere-CSS	Jimi Hendrix	1408555XXXX
SJC 2601	2601	SJC-Everywhere-CSS	Pete Townshend	1408555XXXX
SJC 2602	2602	SJC-Everywhere-CSS	Chuck Berry	1408555XXXX
SJC 2603	2603	SJC-Everywhere-CSS	Ian Gillan	1408555XXXX
SJC 2604	2604	SJC-Everywhere-CSS	Keith Emerson	1408555XXXX
SJC 2605	2605	SJC-Everywhere-CSS	John Lennon	1408555XXXX

Enter values ⑧

Creating CSV Files



Alerting Name 1 (String [50] OPTIONAL)	External Phone Number Mask 1 (String [50] OPTIONAL)
Jimi Hendrix	1408555XXXX
Pete Townshend	1408555XXXX
Chuck Berry	1408555XXXX
Ian Gillan	1408555XXXX
Keith Emerson	1408555XXXX
John Lennon	1408555XXXX

Cisco CallManager Bulk Administration Tool

Enter file path here: C:\XlsDataFiles\Phones-02152006134330

Microsoft Excel

Data successfully exported to C:\XlsDataFiles\Phones-02152006134330.txt.

Note: Please enter th[illegible]ta in the <Maximum number of IP Services>:<Maximum Number of Parameters> format. For Eg:1:2

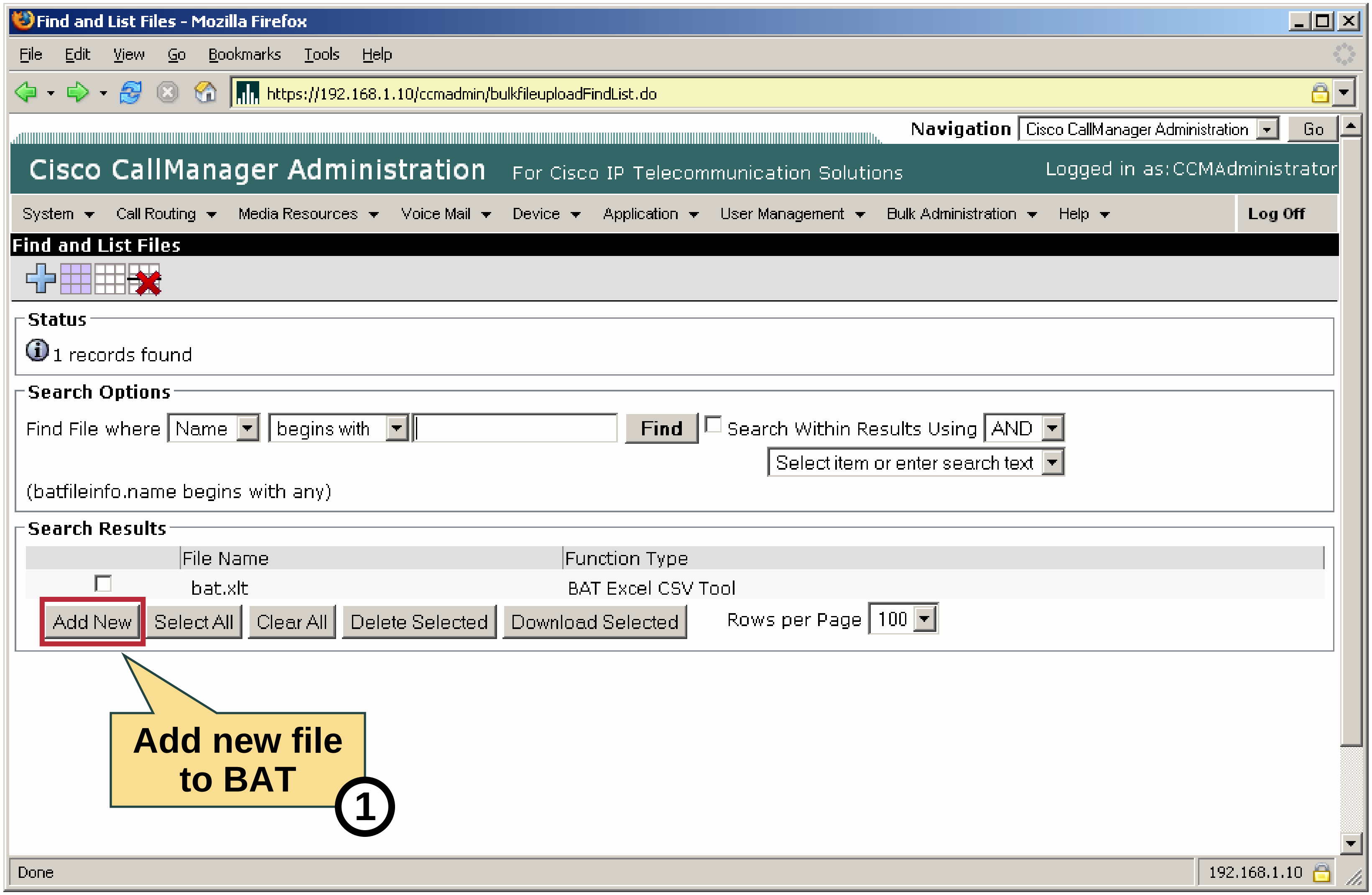
E
F
G
H
Create File Format
Export to BAT Format
Select Model
MAC Address
○ Phones
○ CTI Port
○ H.323 Client
Maximum Number of Speed Dials: 0
Services 0:0
Browse
OK
Cancel
OK
Export to CSV
9
Save changes
10

Adding Devices

The following tasks need to be performed to add devices or records using BAT:

- **Upload CSV to Cisco Unified CallManager 5.0**
- **Validate file content.**
- **Select template**
- **Run “Insert Task”.**
- **Verify that the insert is successful.**

Adding Devices


Find and List Files - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Find File where Name begins with Find
Search Within Results Using AND
Select item or enter search text
Add New Select All Clear All Delete Selected Download Selected
Rows per Page 100
Done
192.168.1.10

https://192.168.1.10/ccmadmin/bulkfileuploadFindList.do

Logged in as: CCMAdministrator

Find and List Files

Status

1 records found

Search Options

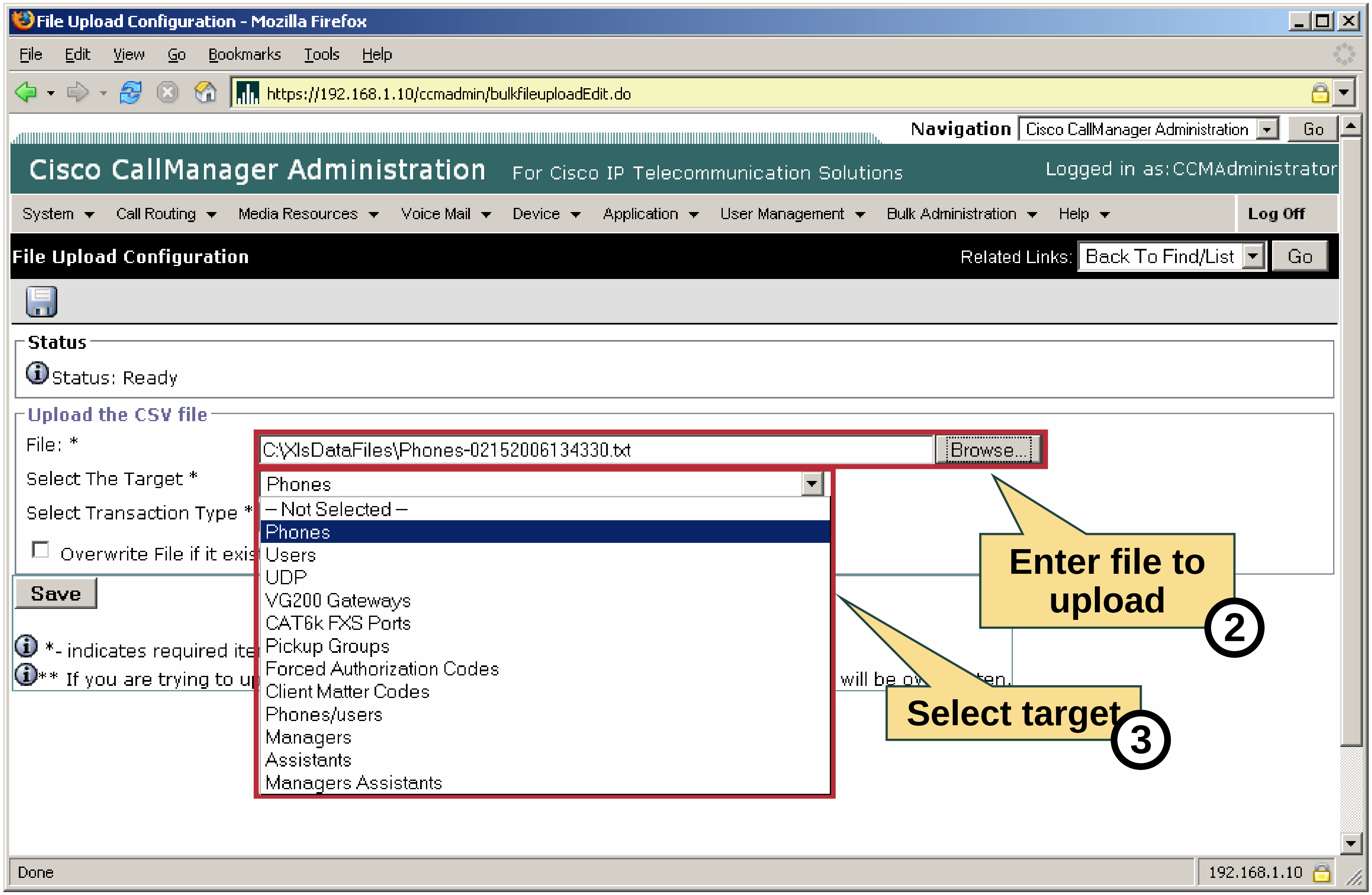
(batfileinfo.name begins with any)

Search Results

	File Name	Function Type
☐	bat.xlt	BAT Excel CSV Tool

Add new file to BAT ①

Adding Devices



File Upload Configuration - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
https://192.168.1.10/ccmadmin/bulkfileuploadEdit.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Related Links:
Back To Find/List
Go
Browse...
Save
Done
192.168.1.10

File Upload Configuration

Status

Status: Ready

Upload the CSV file

File: * C:\XlsDataFiles\Phones-02152006134330.txt

Select The Target * Phones

- – Not Selected –
- Phones
- Users
- UDP
- VG200 Gateways
- CAT6k FXS Ports
- Pickup Groups
- Forced Authorization Codes
- Client Matter Codes
- Phones/users
- Managers
- Assistants
- Managers Assistants

Select Transaction Type *

☐ Overwrite File if it exis

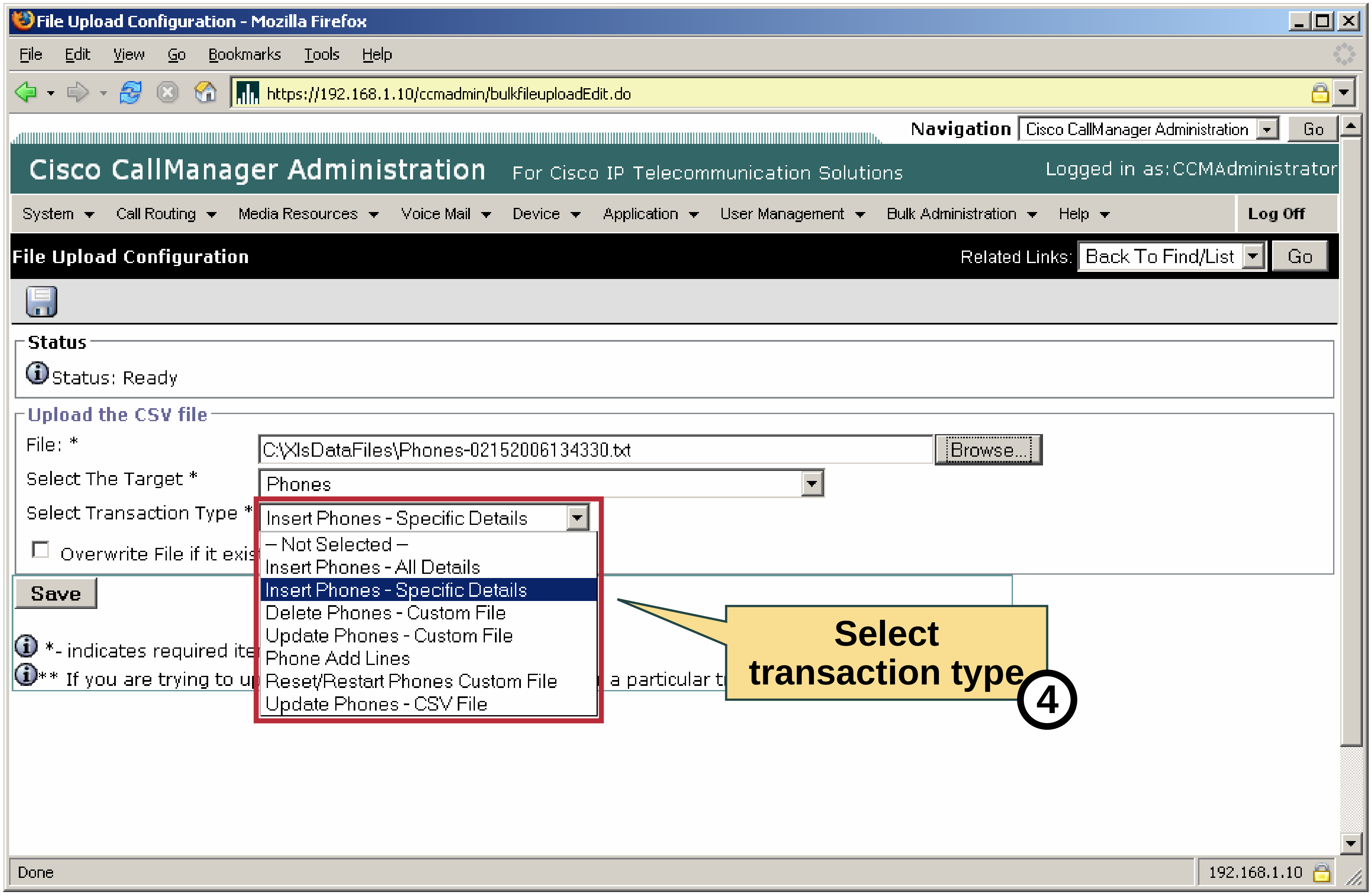
*- indicates required ite

** If you are trying to up … will be ov … ten.

Enter file to upload ②

Select target ③

Adding Devices



File Upload Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/bulkfileuploadEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
File Upload Configuration
Related Links: Back To Find/List Go
Save
Done
192.168.1.10

Status

Status: Ready

Upload the CSV file

File: * C:\XlsDataFiles\Phones-02152006134330.txt Browse...

Select The Target * Phones

Select Transaction Type * Insert Phones - Specific Details

- – Not Selected –
- Insert Phones - All Details
- Insert Phones - Specific Details
- Delete Phones - Custom File
- Update Phones - Custom File
- Phone Add Lines
- Reset/Restart Phones Custom File
- Update Phones - CSV File

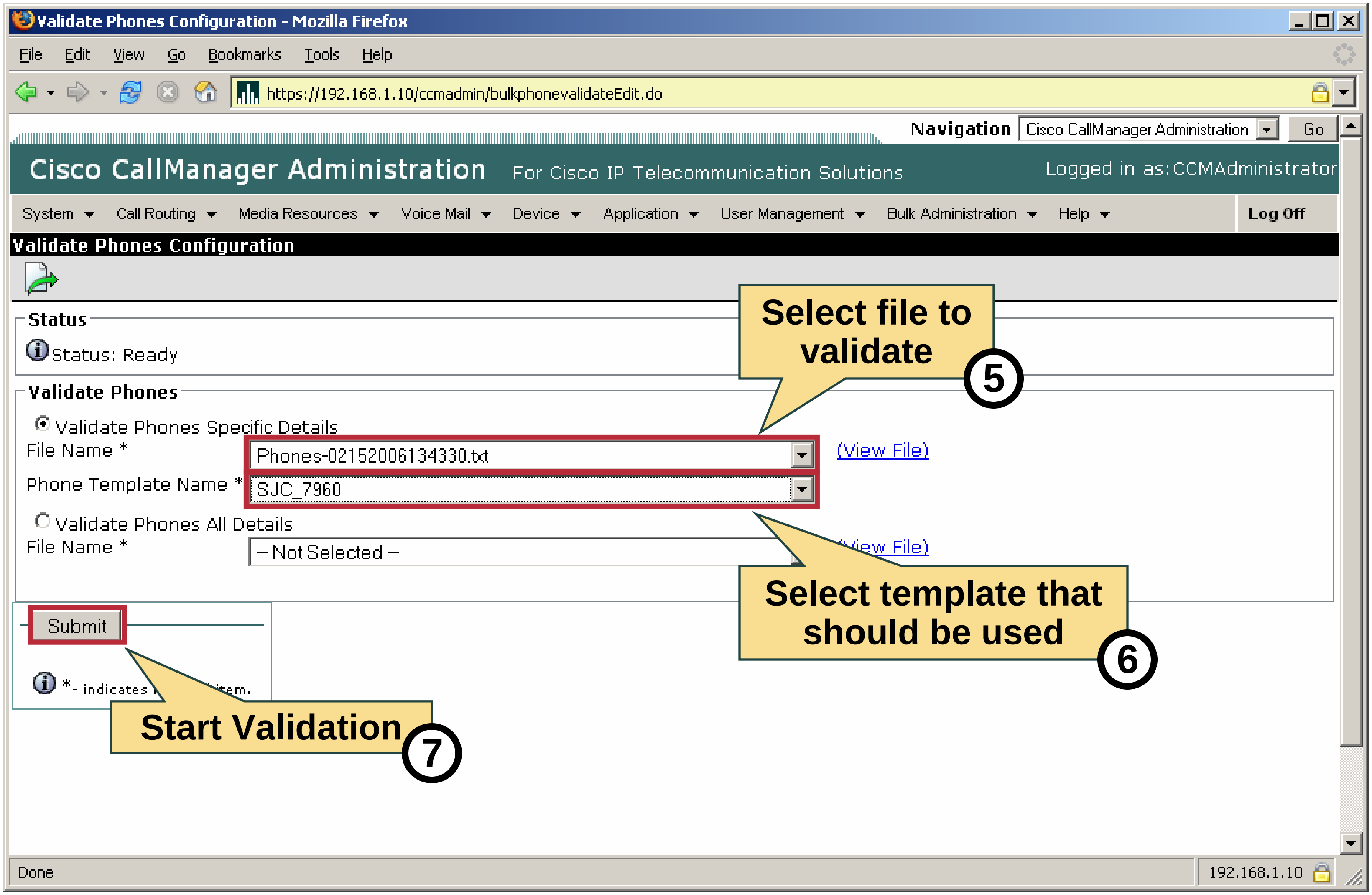
☐ Overwrite File if it exis

*- indicates required ite

** If you are trying to u … a particular t

Select transaction type ④

Adding Devices



Validate Phones Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/bulkphonevalidateEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Validate Phones Configuration

Status

Status: Ready

Validate Phones

● Validate Phones Specific Details

File Name * Phones-02152006134330.txt (View File)

Phone Template Name * SJC_7960

○ Validate Phones All Details

File Name * – Not Selected – (View File)

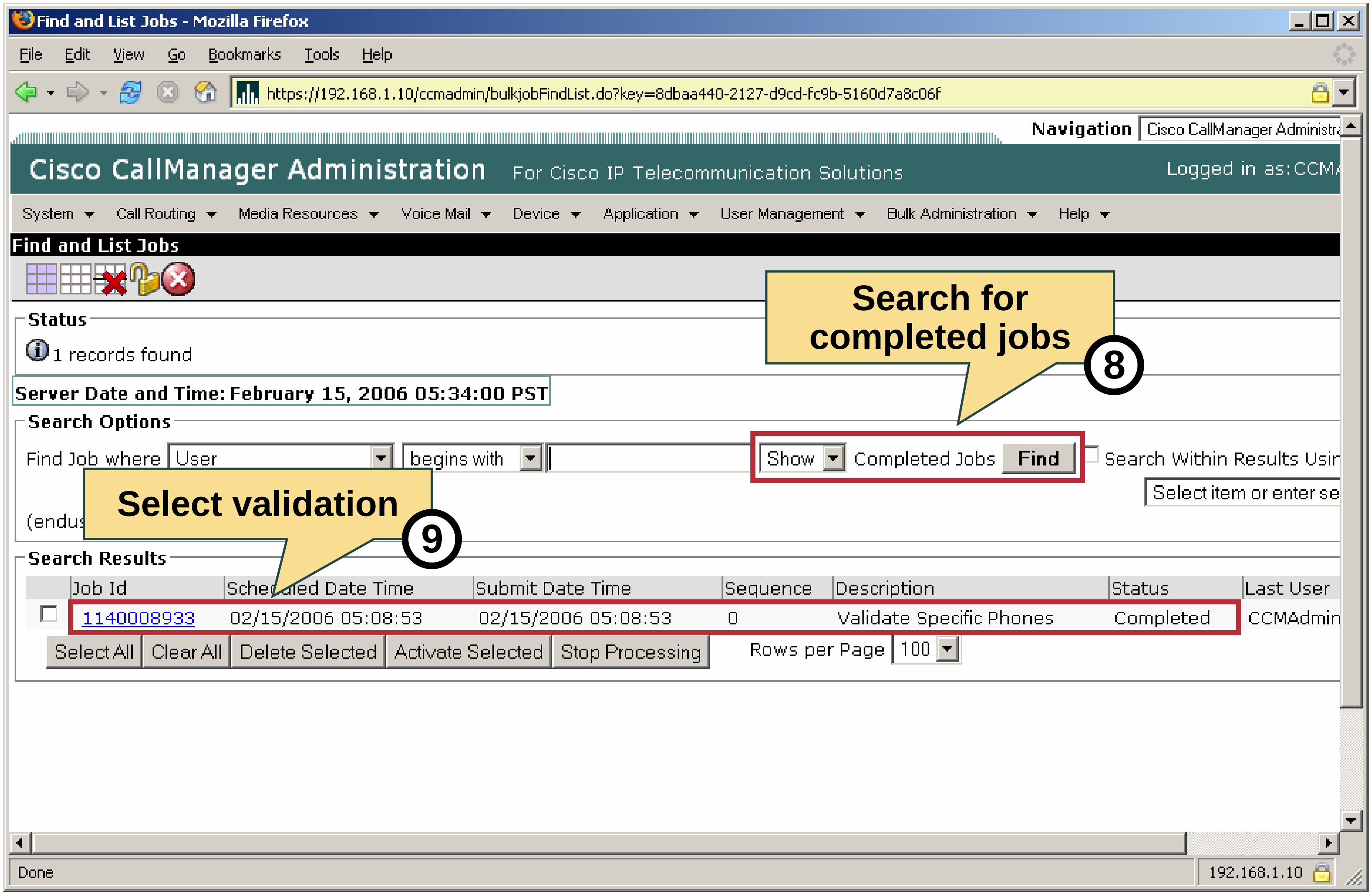
Submit
*- indicates required item.
Done
192.168.1.10

Select file to validate ⑤

Select template that should be used ⑥

Start Validation ⑦

Adding Devices



Server Date and Time: February 15, 2006 05:34:00 PST

1 records found

Find Job where User begins with

Show Completed Jobs

	Job Id	Scheduled Date Time	Submit Date Time	Sequence	Description	Status	Last User
☐	1140008933	02/15/2006 05:08:53	02/15/2006 05:08:53	0	Validate Specific Phones	Completed	CCMAdmin

Rows per Page 100

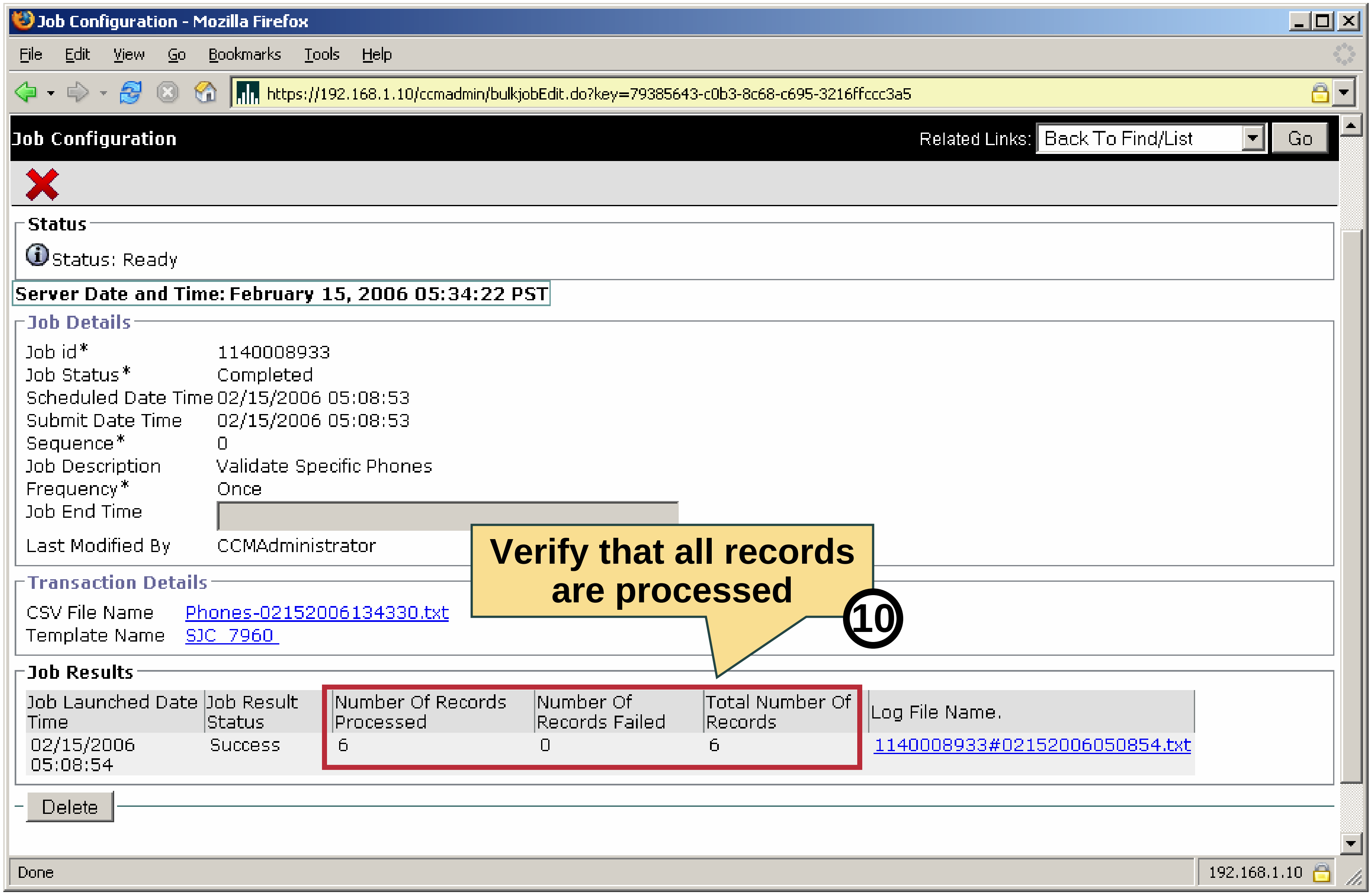
https://192.168.1.10/ccmadmin/bulkjobFindList.do?key=8dbaa440-2127-d9cd-fc9b-5160d7a8c06f

Find and List Jobs - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Administra
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCM
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Find and List Jobs
Status
Search Options
Find
Search Within Results Usir
Select item or enter se
(endus
Search Results
Select All
Clear All
Delete Selected
Activate Selected
Stop Processing
Done
192.168.1.10

Search for completed jobs ⑧

Select validation ⑨

Adding Devices


Job Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/bulkjobEdit.do?key=79385643-c0b3-8c68-c695-3216ffccc3a5
Related Links: Back To Find/List
Go
Delete
Done
192.168.1.10

Job Configuration

Status

Status: Ready

Server Date and Time: February 15, 2006 05:34:22 PST

Job Details

Job id*	1140008933
Job Status*	Completed
Scheduled Date Time	02/15/2006 05:08:53
Submit Date Time	02/15/2006 05:08:53
Sequence*	0
Job Description	Validate Specific Phones
Frequency*	Once
Job End Time	
Last Modified By	CCMAdministrator

Transaction Details

CSV File Name	Phones-02152006134330.txt
Template Name	SJC_7960

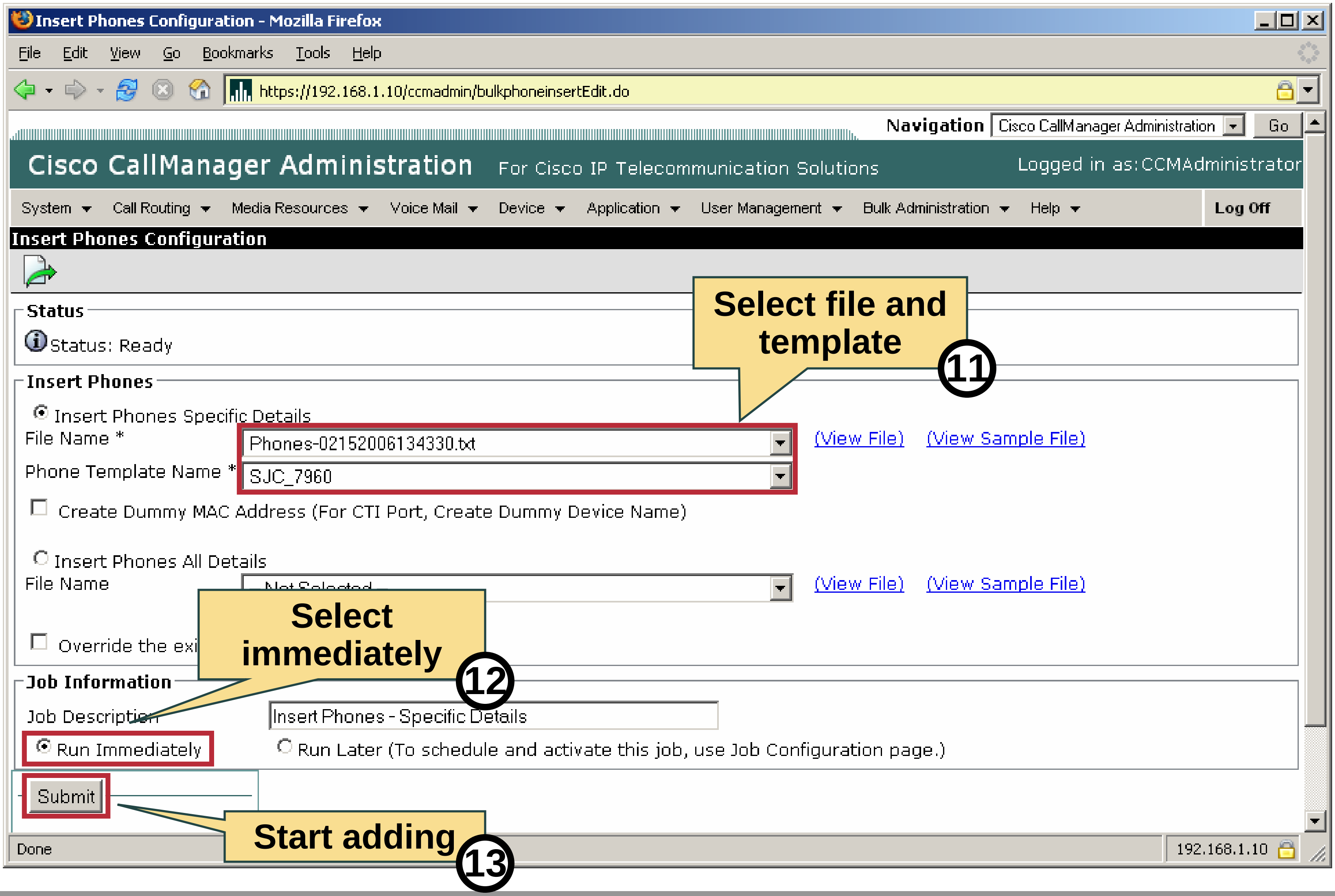
Job Results

Job Launched Date Time	Job Result Status	Number Of Records Processed	Number Of Records Failed	Total Number Of Records	Log File Name.
02/15/2006 05:08:54	Success	6	0	6	1140008933#02152006050854.txt

Verify that all records are processed

⑩

Adding Devices



Select file and template ⑪

Select immediately ⑫

Start adding ⑬

Insert Phones Configuration - Mozilla Firefox

https://192.168.1.10/ccmadmin/bulkphoneinsertEdit.do

Insert Phones Configuration

Status

Status: Ready

Insert Phones

● Insert Phones Specific Details

File Name * Phones-02152006134330.txt

Phone Template Name * SJC_7960

☐ Create Dummy MAC Address (For CTI Port, Create Dummy Device Name)

○ Insert Phones All Details

File Name Not Selected

☐ Override the exi

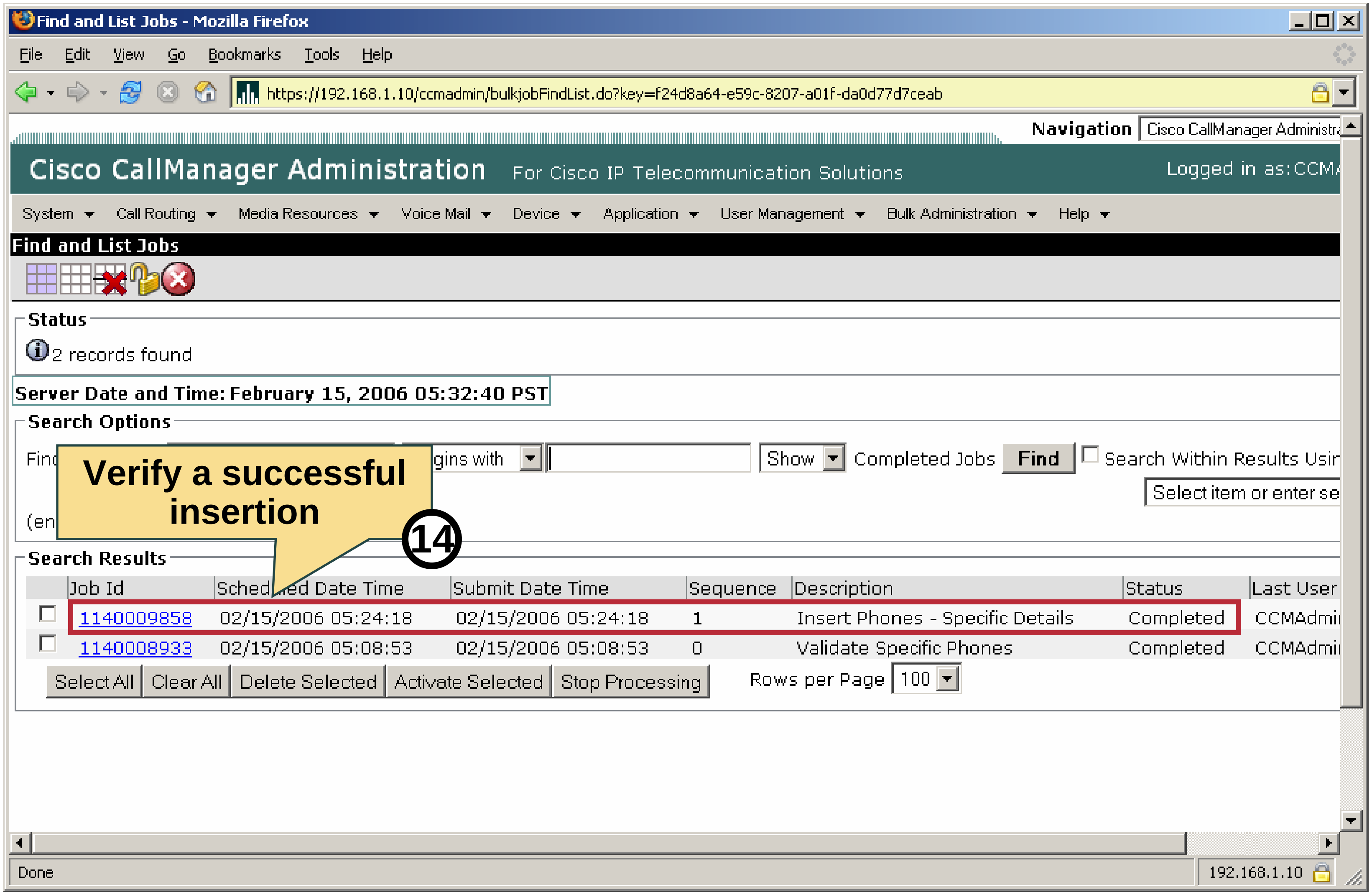
Job Information

Job Description Insert Phones - Specific Details

● Run Immediately ○ Run Later (To schedule and activate this job, use Job Configuration page.)

File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
(View File) (View Sample File)
(View File) (View Sample File)
Submit
Done
192.168.1.10

Adding Devices


Find and List Jobs - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/bulkjobFindList.do?key=f24d8a64-e59c-8207-a01f-da0d77d7ceab
Navigation Cisco CallManager Administra
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCM
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Find and List Jobs

Status

2 records found

Server Date and Time: February 15, 2006 05:32:40 PST

Search Options

Find … gins with Show Completed Jobs **Find** ☐ Search Within Results Usir

Select item or enter se

(en

Search Results

	Job Id	Scheduled Date Time	Submit Date Time	Sequence	Description	Status	Last User
☐	1140009858	02/15/2006 05:24:18	02/15/2006 05:24:18	1	Insert Phones - Specific Details	Completed	CCMAdmi
☐	1140008933	02/15/2006 05:08:53	02/15/2006 05:08:53	0	Validate Specific Phones	Completed	CCMAdmi

Select All
Clear All
Delete Selected
Activate Selected
Stop Processing
Rows per Page 100
Done
192.168.1.10

Verify a successful insertion

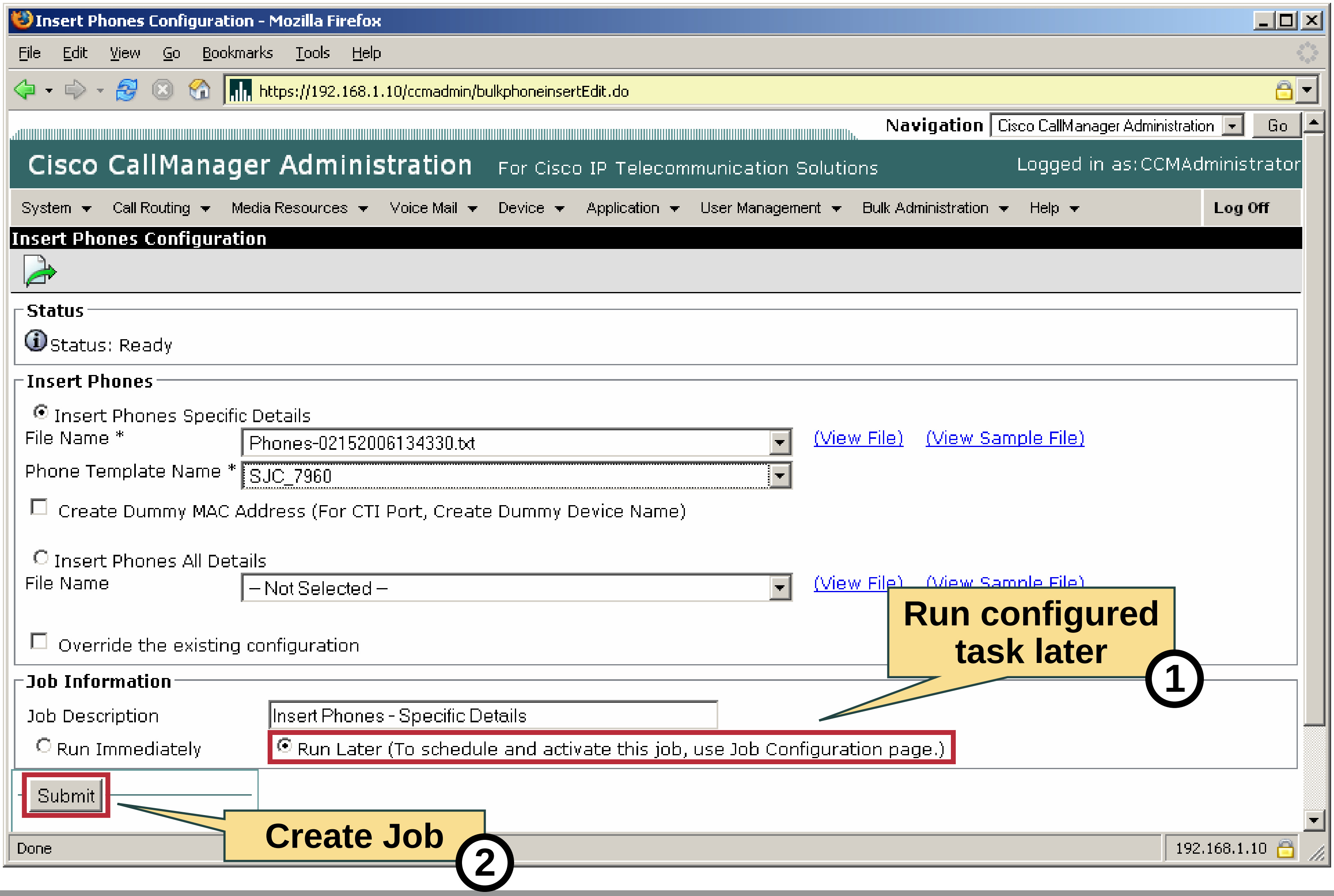
⑭

Scheduling Tasks

The following tasks need to be performed to schedule BAT tasks on Cisco Unified CallManager:

- **Create a task that needs to have a scheduled time.**
- **Configure the time to start task.**

Scheduling Tasks


Insert Phones Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
(View File) (View Sample File)
Submit
Done
192.168.1.10

https://192.168.1.10/ccmadmin/bulkphoneinsertEdit.do

Insert Phones Configuration

Status

Status: Ready

Insert Phones

● Insert Phones Specific Details

File Name * Phones-02152006134330.txt

Phone Template Name * SJC_7960

☐ Create Dummy MAC Address (For CTI Port, Create Dummy Device Name)

○ Insert Phones All Details

File Name – Not Selected –

☐ Override the existing configuration

Job Information

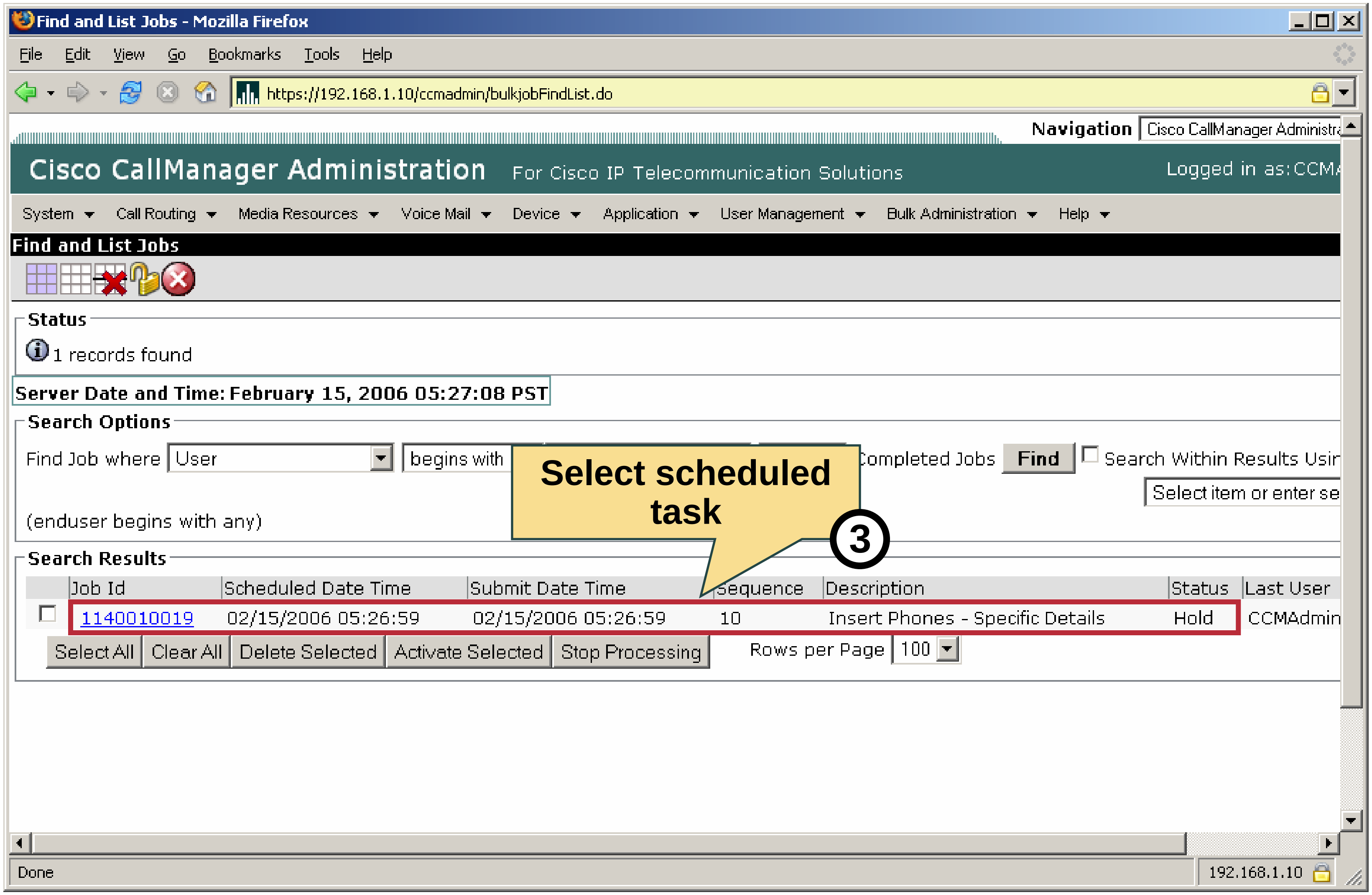
Job Description: Insert Phones - Specific Details

○ Run Immediately ● Run Later (To schedule and activate this job, use Job Configuration page.)

Run configured task later ①

Create Job ②

Scheduling Tasks


Find and List Jobs - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/bulkjobFindList.do
Navigation Cisco CallManager Administra
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMA
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Find and List Jobs

Status

1 records found

Server Date and Time: February 15, 2006 05:27:08 PST

Search Options

Find Job where User begins with … Completed Jobs Find ☐ Search Within Results Usir

Select item or enter se

(enduser begins with any)

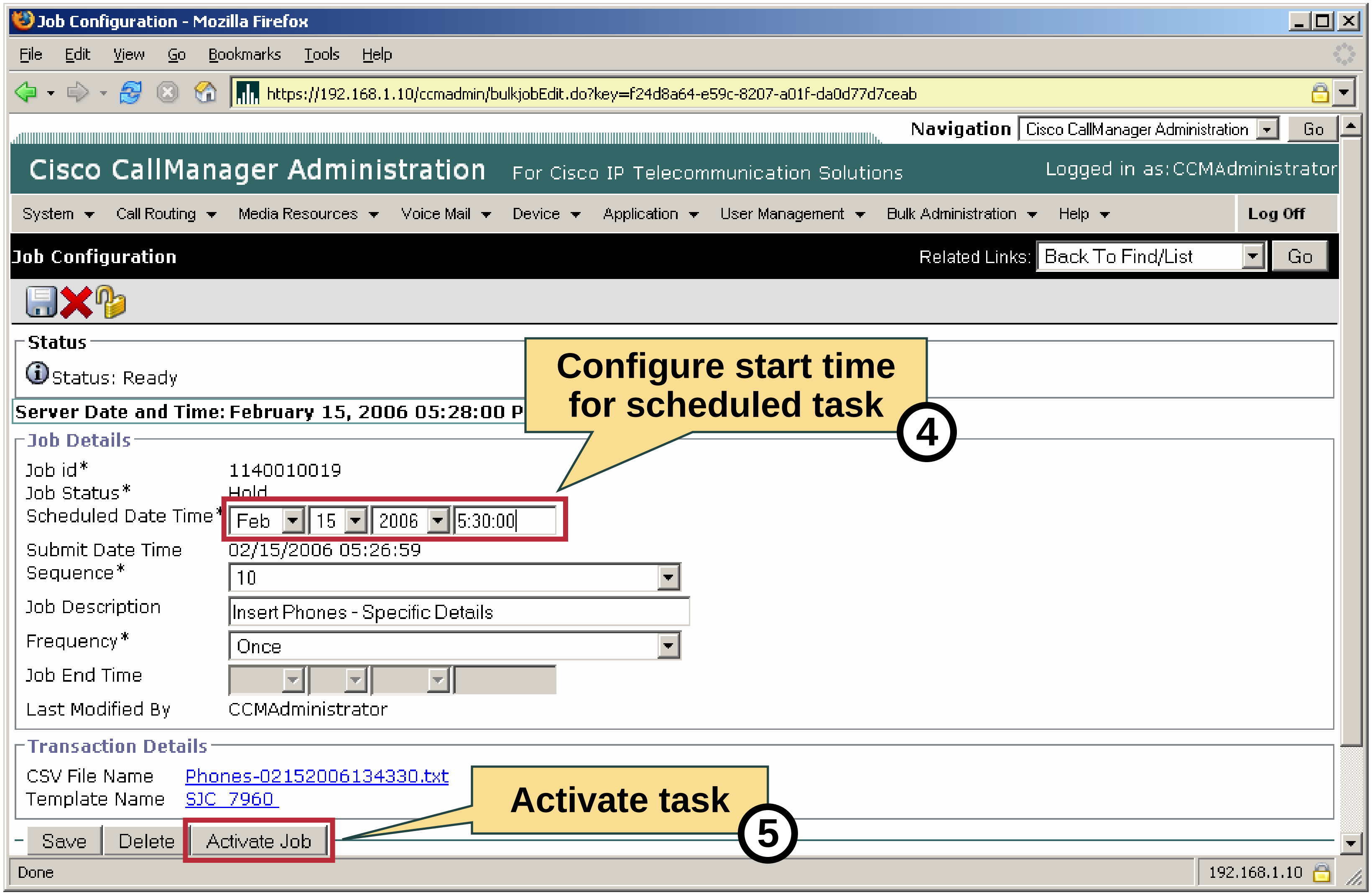
Search Results

	Job Id	Scheduled Date Time	Submit Date Time	Sequence	Description	Status	Last User
☐	1140010019	02/15/2006 05:26:59	02/15/2006 05:26:59	10	Insert Phones - Specific Details	Hold	CCMAdmin

Select All
Clear All
Delete Selected
Activate Selected
Stop Processing
Rows per Page 100
Done
192.168.1.10

Select scheduled task ③

Scheduling Tasks


Job Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/bulkjobEdit.do?key=f24d8a64-e59c-8207-a01f-da0d77d7ceab
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Job Configuration
Related Links: Back To Find/List Go
Save Delete Activate Job
Done
192.168.1.10

Status

Status: Ready

Server Date and Time: February 15, 2006 05:28:00 P

Job Details

Job id*	1140010019
Job Status*	Hold
Scheduled Date Time*	Feb 15 2006 5:30:00
Submit Date Time	02/15/2006 05:26:59
Sequence*	10
Job Description	Insert Phones - Specific Details
Frequency*	Once
Job End Time	
Last Modified By	CCMAdministrator

Transaction Details

CSV File Name	Phones-02152006134330.txt
Template Name	SJC_7960

④ Configure start time for scheduled task

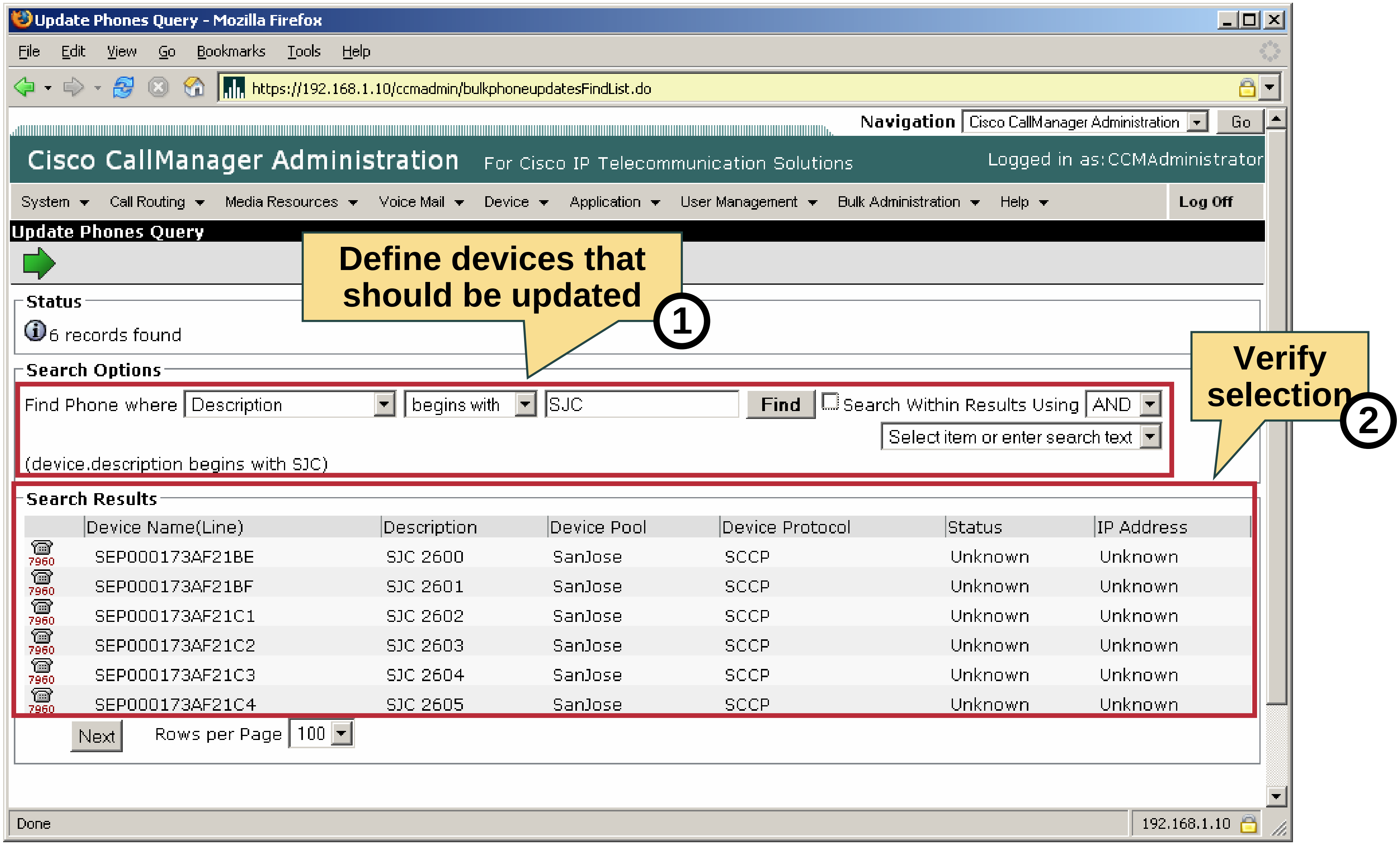
⑤ Activate task

Updating Devices

There are two ways to update devices/records with BAT:

- Use a CSV file containing the updated information:
  - The process used is similar to adding a new device.
- Search for a group of devices and change all of the devices or records within that selection to the same settings:
  - Execute a search for the devices or records to update.
  - Select fields that should be updated on the specified devices.
  - Click the Create Task button.
- Useful for updating parameters for a large number of devices.

Updating Devices


Update Phones Query - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/bulkphoneupdatesFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Update Phones Query

Define devices that should be updated ①

Verify selection ②

Status

6 records found

Search Options

Find Phone where Description begins with SJC Find ☐ Search Within Results Using AND

Select item or enter search text

(device.description begins with SJC)

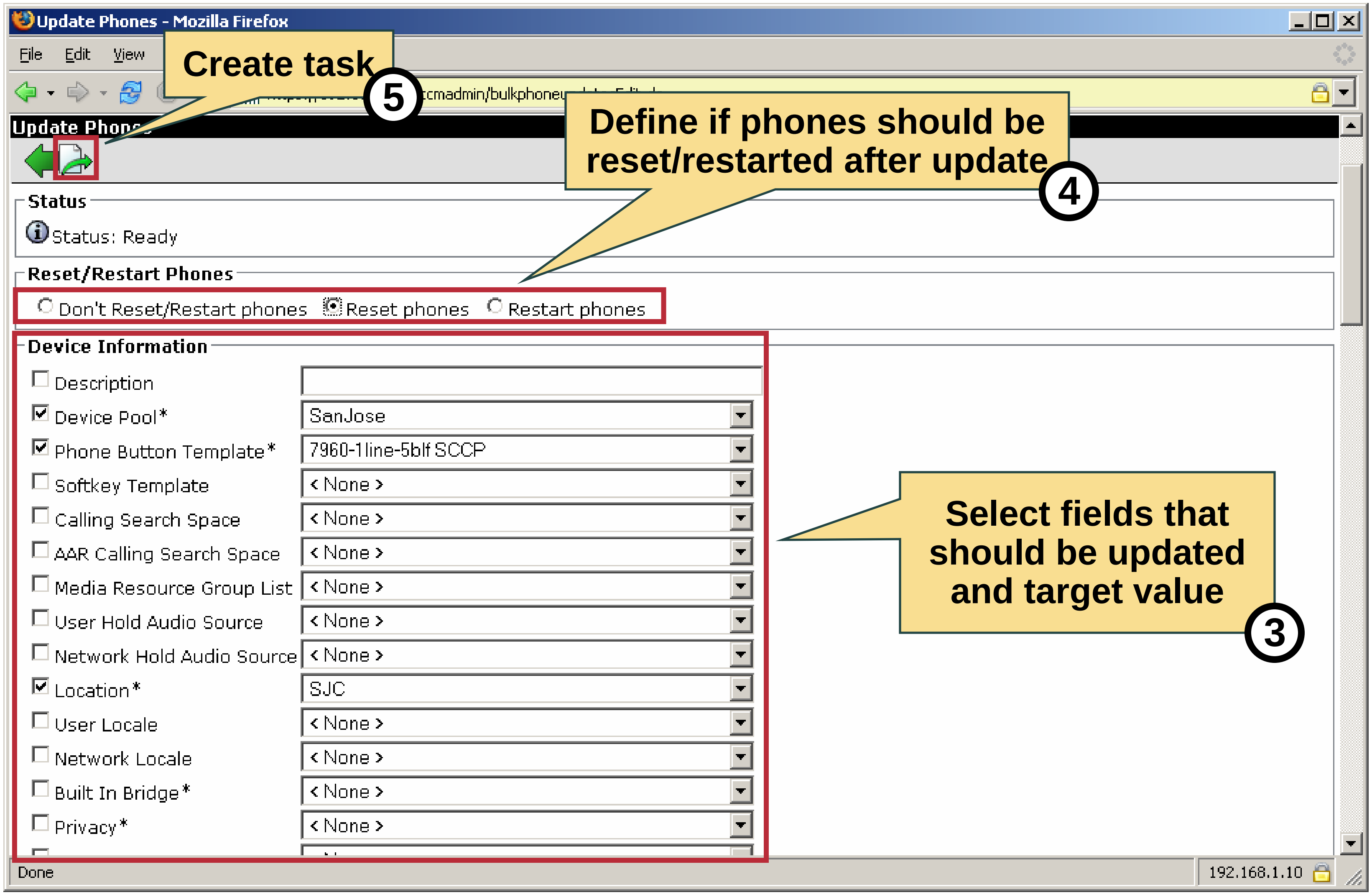
Search Results

	Device Name(Line)	Description	Device Pool	Device Protocol	Status	IP Address
☎ 7960	SEP000173AF21BE	SJC 2600	SanJose	SCCP	Unknown	Unknown
☎ 7960	SEP000173AF21BF	SJC 2601	SanJose	SCCP	Unknown	Unknown
☎ 7960	SEP000173AF21C1	SJC 2602	SanJose	SCCP	Unknown	Unknown
☎ 7960	SEP000173AF21C2	SJC 2603	SanJose	SCCP	Unknown	Unknown
☎ 7960	SEP000173AF21C3	SJC 2604	SanJose	SCCP	Unknown	Unknown
☎ 7960	SEP000173AF21C4	SJC 2605	SanJose	SCCP	Unknown	Unknown

Next Rows per Page 100

Done
192.168.1.10

Updating Devices



Update Phones - Mozilla Firefox
File Edit View
ccmadmin/bulkphone
Update Phones

Create task ⑤

Define if phones should be reset/restarted after update ④

Select fields that should be updated and target value ③

Status

Status: Ready

Reset/Restart Phones

○ Don't Reset/Restart phones ● Reset phones ○ Restart phones

Device Information

☐ Description	
☑ Device Pool*	SanJose
☑ Phone Button Template*	7960-1line-5blf SCCP
☐ Softkey Template	< None >
☐ Calling Search Space	< None >
☐ AAR Calling Search Space	< None >
☐ Media Resource Group List	< None >
☐ User Hold Audio Source	< None >
☐ Network Hold Audio Source	< None >
☑ Location*	SJC
☐ User Locale	< None >
☐ Network Locale	< None >
☐ Built In Bridge*	< None >
☐ Privacy*	< None >

Done
192.168.1.10

Summary

- The Bulk Administration Tool (BAT) is fully integrated with Cisco Unified CallManager 5.0 Administration.
- BAT can be used to add, update, and delete an enormous number of devices or records within a short period of time.
- BAT templates define basic device configuration and are configured similar to each individual device.
- To create CSV files that meet Cisco Unified CallManager 5.0 requirements a Microsoft Excel BAT template is used.
- To add devices it is necessary to use the correct BAT template and CSV file.
- BAT tasks can be performed at a specified time using the Task Schedule option.
- Either a CSV file or device selection can be used to update devices.

Deploying a Dial Plan on CallManager 5.0

Understanding Dial Plans

Objectives

- Dial Plan Overview
- Endpoint Addressing
- Call Routing and Path Selection
- Digit Manipulation
- Call Privileges
- Call Coverage

Dial Plan Overview

A dial plan defines how calls are interconnected:

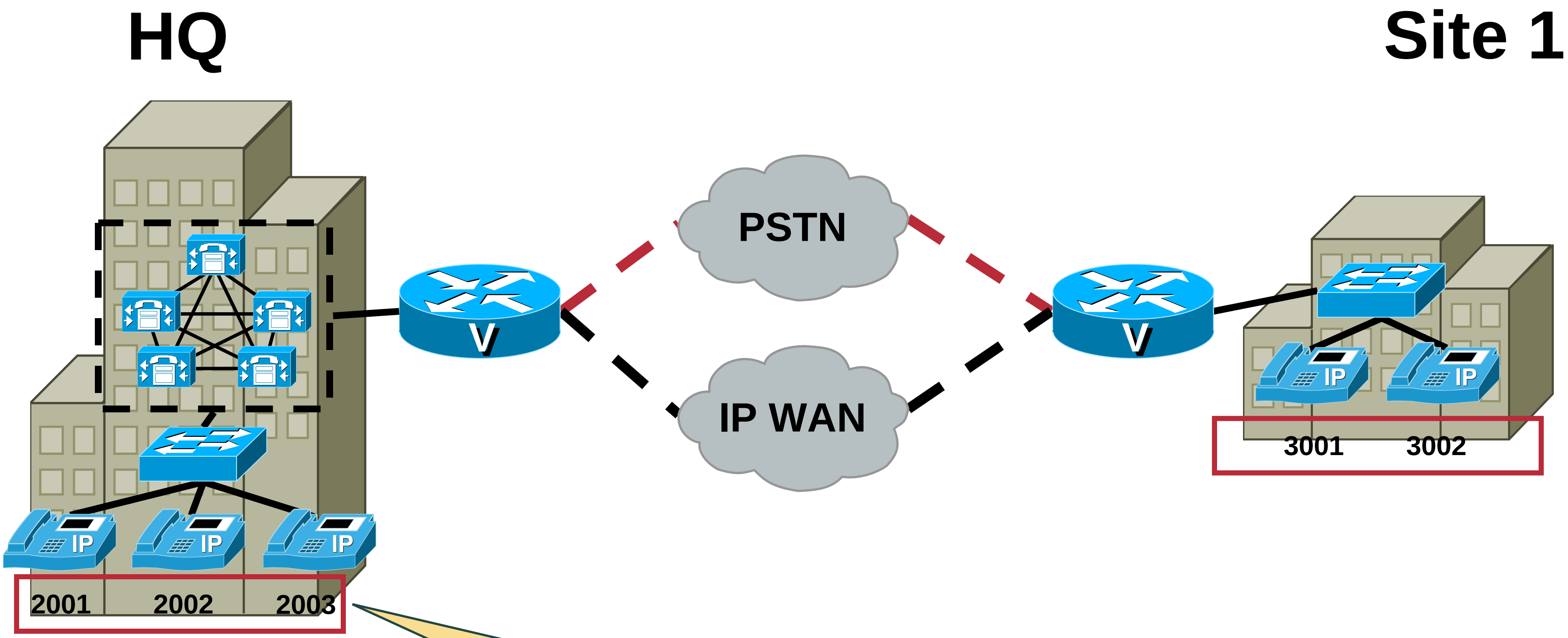
- Directory numbers (DNs) used by endpoints.
- Where to and how calls are routed.
- How digits are modified.
- Restrict the destinations a user can dial.
- Ensure that incoming are answered.

End Point Addressing

End Point Addressing has the following characteristics:

- **Directory numbers are assigned to end points, e.g. phones.**
- **Internal extensions are mapped to inbound PSTN calls.**
  - **Often dependant on range of DID numbers.**
- **The biggest challenge: creating an end point addressing scheme in multi-site environments.**

End Point Addressing


HQ
Site 1
PSTN
IP WAN
V
V
IP
2001
2002
2003
3001
3002

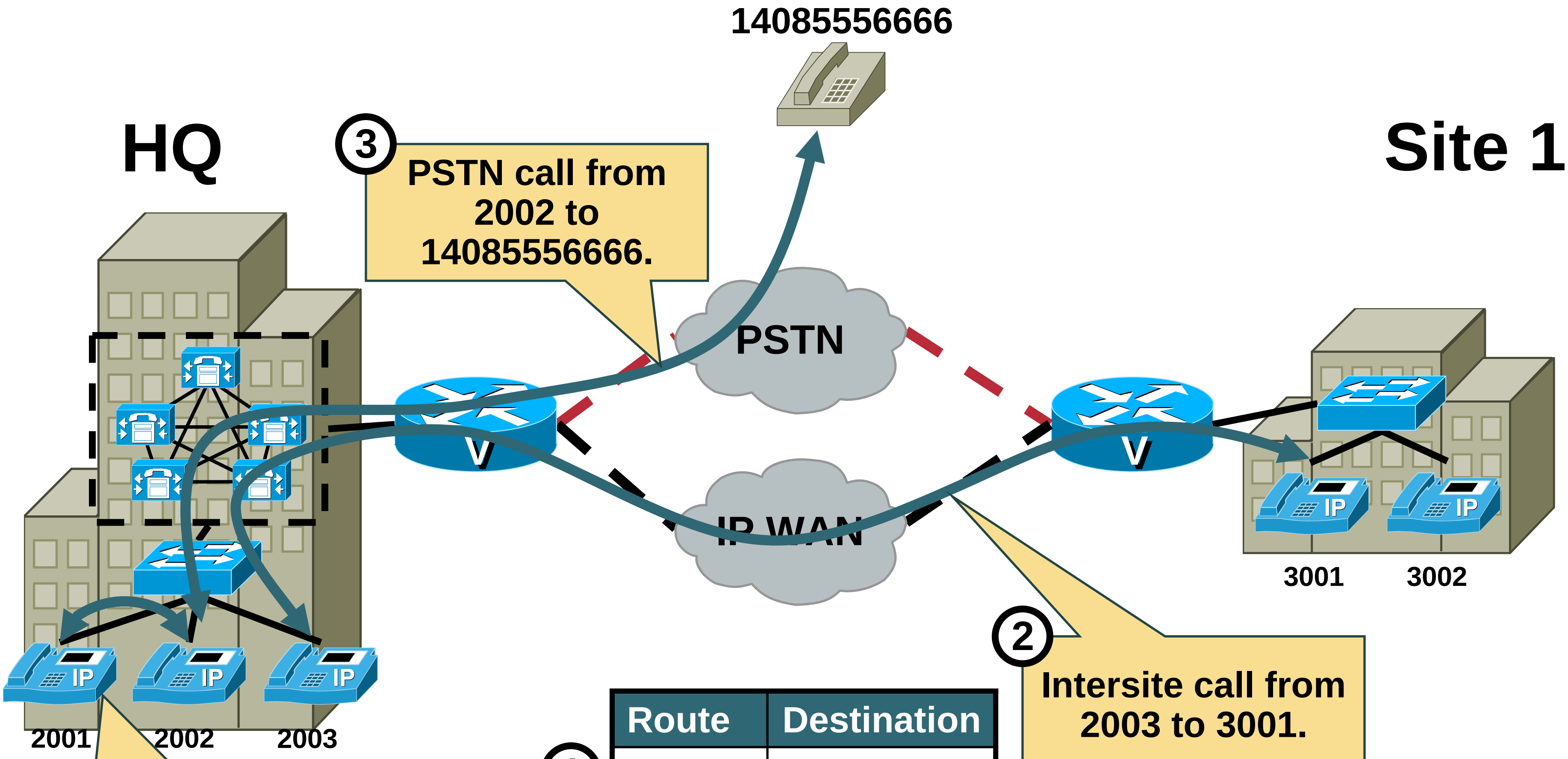
Numbers are assigned to endpoints.

Call Routing and Path Selection

Call Routing and Path Selection are essential for telephony systems:

- Route the call depending on the dialed number.
  - Very similar to destination based IP routing.
- Differentiate between:
  - Intrasite Routing
  - Intersite Routing
  - PSTN Routing
- Select the appropriate path:
  - IP vs. POTS path.
  - Overflow routing.
  - Time of Day routing.

Call Routing and Path Selection


14085556666
HQ
Site 1
PSTN
IP WAN
V
V
2001
2002
2003
3001
3002
IP

③ PSTN call from 2002 to 14085556666.

② Intersite call from 2003 to 3001.

① Intrasite call from 2001 to 2002.

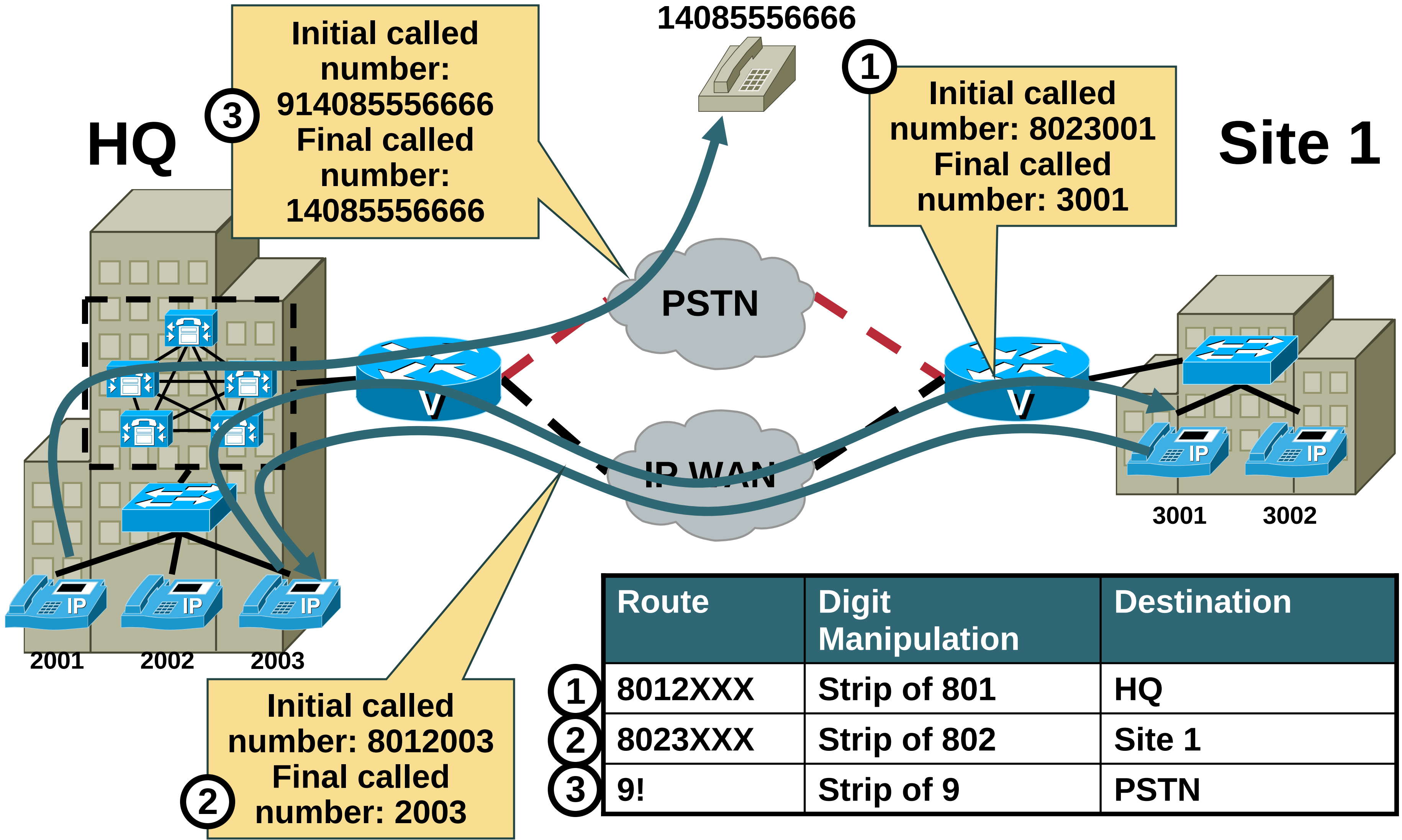
	Route	Destination
①	2XXX	HQ
②	3XXX	Site 1
③	9!	PSTN

Digit Manipulation

Digit Manipulation is closely connected to call routing:

- **Correct calling and called party number presentation.**
- **Required for site code dialing and short dials.**
- **Can solve overlapping end point DN issues.**

Digit Manipulation


14085556666
HQ
Site 1
PSTN
IP WAN
V
V
IP
2001
2002
2003
3001
3002

③ Initial called number: 914085556666 Final called number: 14085556666

① Initial called number: 8023001 Final called number: 3001

② Initial called number: 8012003 Final called number: 2003

	Route	Digit Manipulation	Destination
①	8012XXX	Strip of 801	HQ
②	8023XXX	Strip of 802	Site 1
③	9!	Strip of 9	PSTN

Call Privileges

Calling Privileges define the destinations a user can call:

- **Used to control telephony charges.**
  - **Block costly service numbers.**
  - **Restrict international calls.**
- **Often called “Class of Service” in PBX systems**
  - **Do not confuse with Layer 2 COS**
- **Defined classes are assigned to individual users or user groups.**

Call Privileges

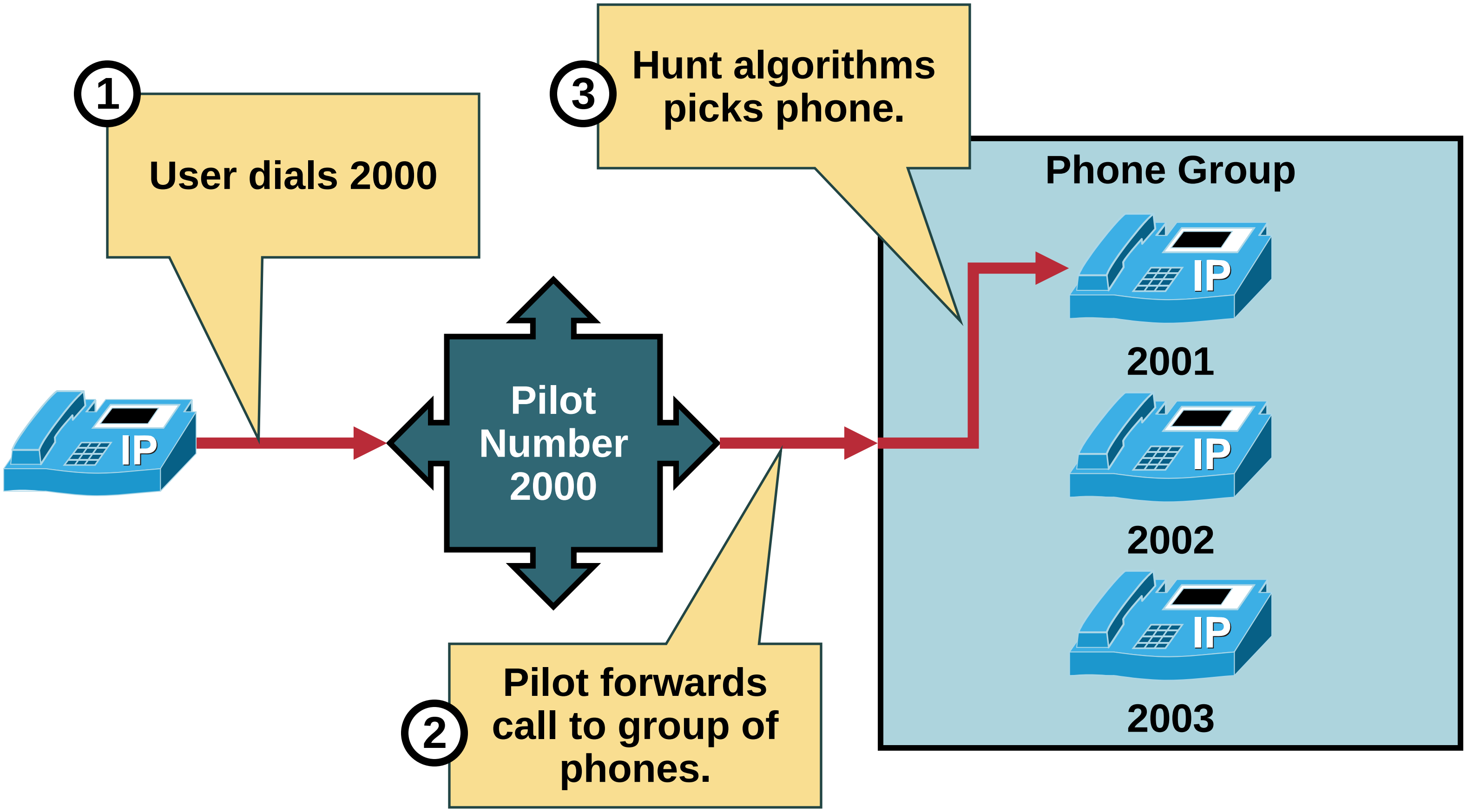
Calling Privilege Class (Class of Service)	Allowed Destinations
Internal	• Internal • Emergency
Local	• Internal • Emergency • Local PSTN
Long Distance	• Internal • Emergency • Local PSTN • Long Distance PSTN
International	• Internal • Emergency • Local PSTN • Long Distance PSTN • International PSTN

Call Coverage

Call Coverage ensures that all incoming calls are answered:

- **Used for individuals:**
  - **Ring other phones if original called phone is not answering.**
- **Used for user groups with pilot numbers:**
  - **Hunt through multiple phones**
  - **Ring multiple phones**

Call Coverage



① User dials 2000

② Pilot forwards call to group of phones.

③ Hunt algorithms picks phone.

Pilot Number 2000
Phone Group
IP
2001
2002
2003

Summary

- A dial plan defines how calls are interconnected.
- Endpoint addressing defines the DNs assigned to end points.
- Call routing and path selection determine where and how to route a call.
- Digit manipulation modifies calling and called party numbers.
- Call privileges enable or restrict users to reach certain destinations.
- Call coverage ensures that all incoming calls are answered.

Deploying a Dial Plan on CallManager 5.0

Understanding Cisco Unified CallManager Dial Plan Components

Objectives

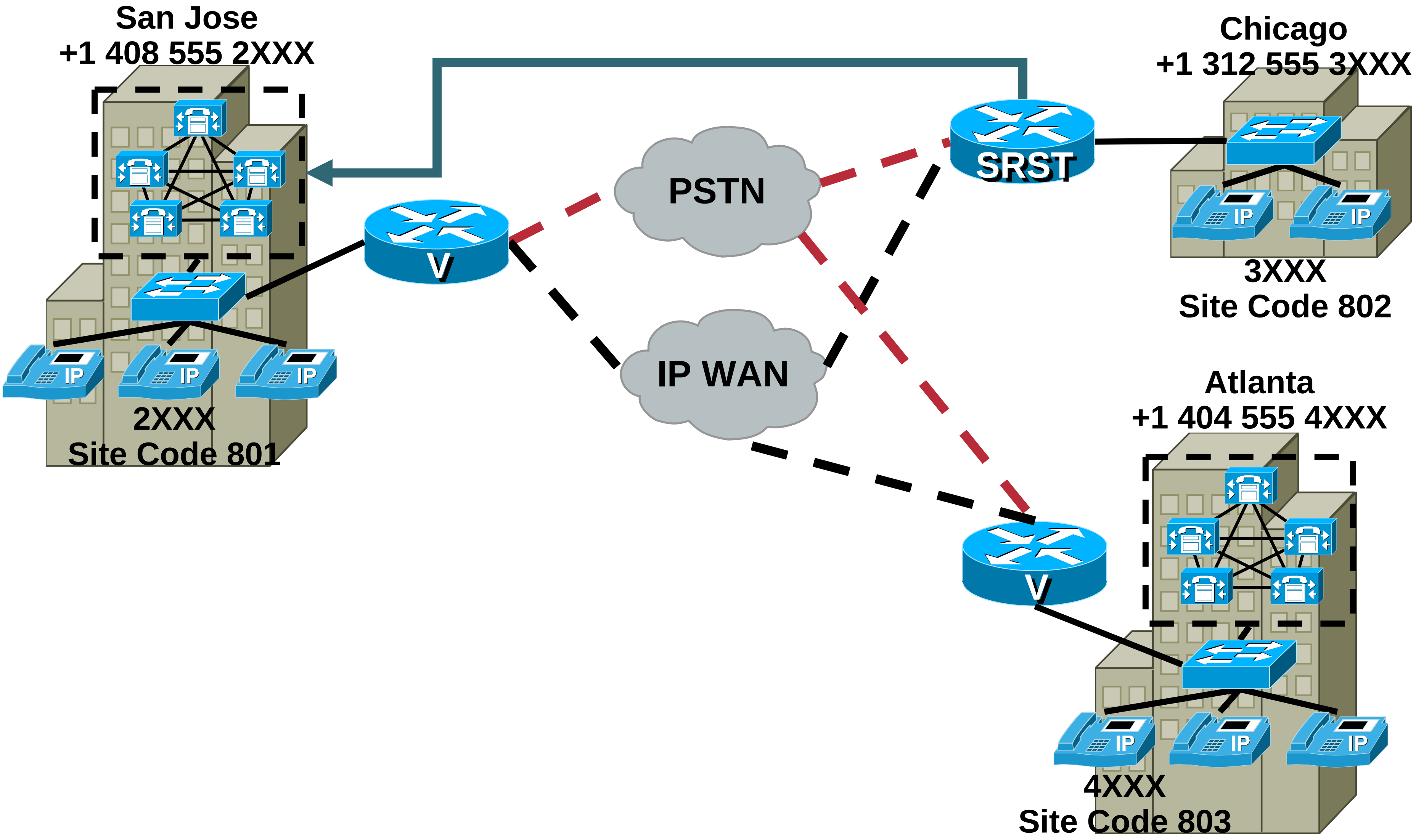
- Cisco Unified CallManager Dial Plan Components Overview
- Partitions and Calling Search Spaces
- On/Off Cluster Routing
- Route Patterns
- Route Lists and Route Groups
- Translation Patterns
- Line Groups, Hunt Lists and Hunt Pilots
- Review of Cisco Unified CallManager Dial Plan Components

Cisco Unified CallManager Dial Plan Components Overview

CCM has the following dial plan components:

- Directory Numbers
- Partitions
- Calling Search Spaces
- (SIP) Route Patterns
- Route Groups and Route Lists
- Translation Patterns
- Line Group, Hunt List and Hunt Pilot

Cisco Unified CallManager Dial Plan Components Overview

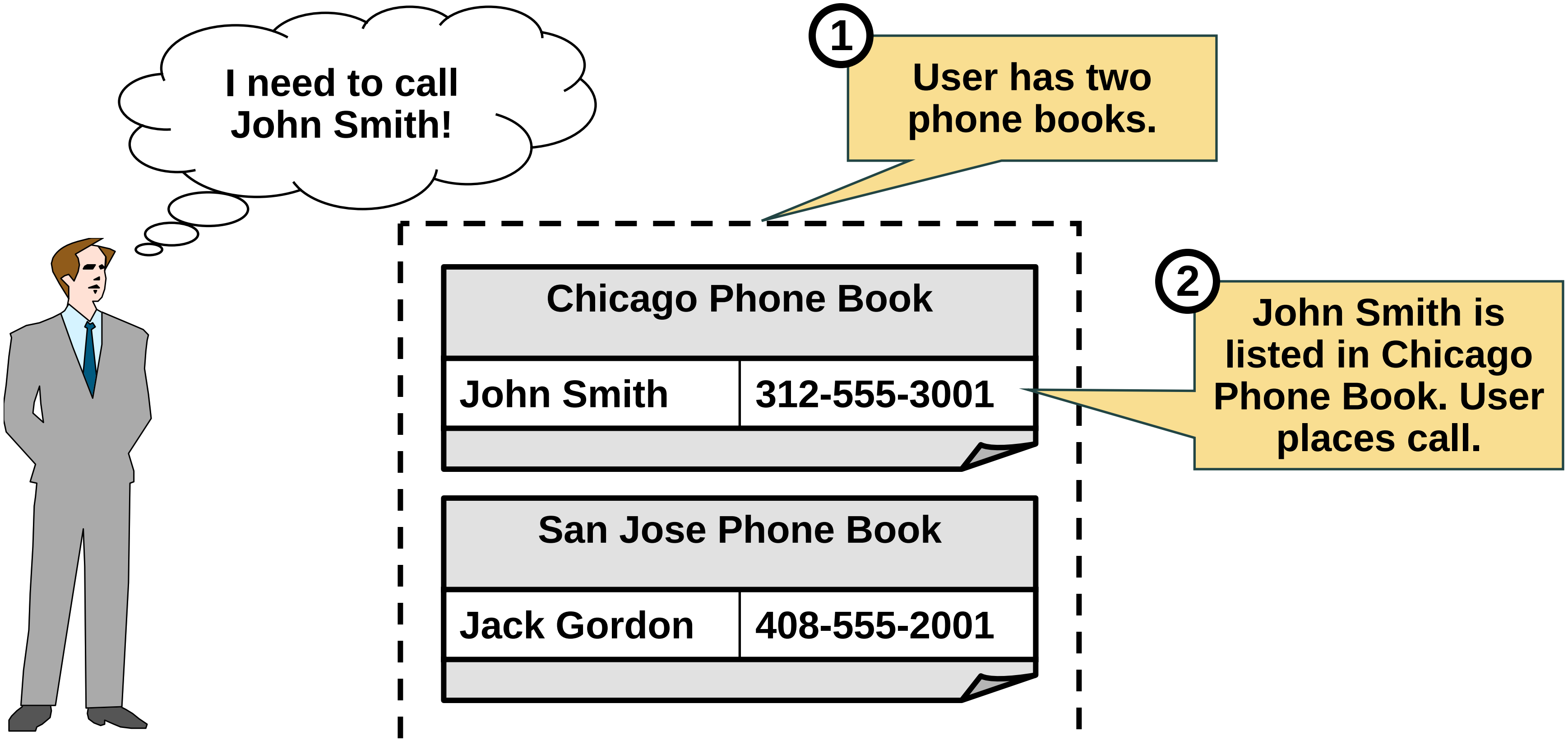

San Jose
+1 408 555 2XXX
2XXX
Site Code 801
V
PSTN
IP WAN
SRST
Chicago
+1 312 555 3XXX
IP
3XXX
Site Code 802
Atlanta
+1 404 555 4XXX
V
4XXX
Site Code 803

Partitions and Calling Search Spaces

Partitions and Calling Search Spaces (CSSs) create multiple routing contexts:

- **Patterns are assigned to partitions, e.g.:**
  - **Directory Numbers**
  - **Route Patterns**
  - **Translation Patterns**
- **CSS includes partitions and can be tied to device and/or line.**
- **Similar to phone books.**
  - **Partition = Phone book your are listed in**
  - **CSS = Phone books you own and use for look ups**
- **Used for call routing and calling privileges**

Partitions and Calling Search Spaces



I need to call John Smith!

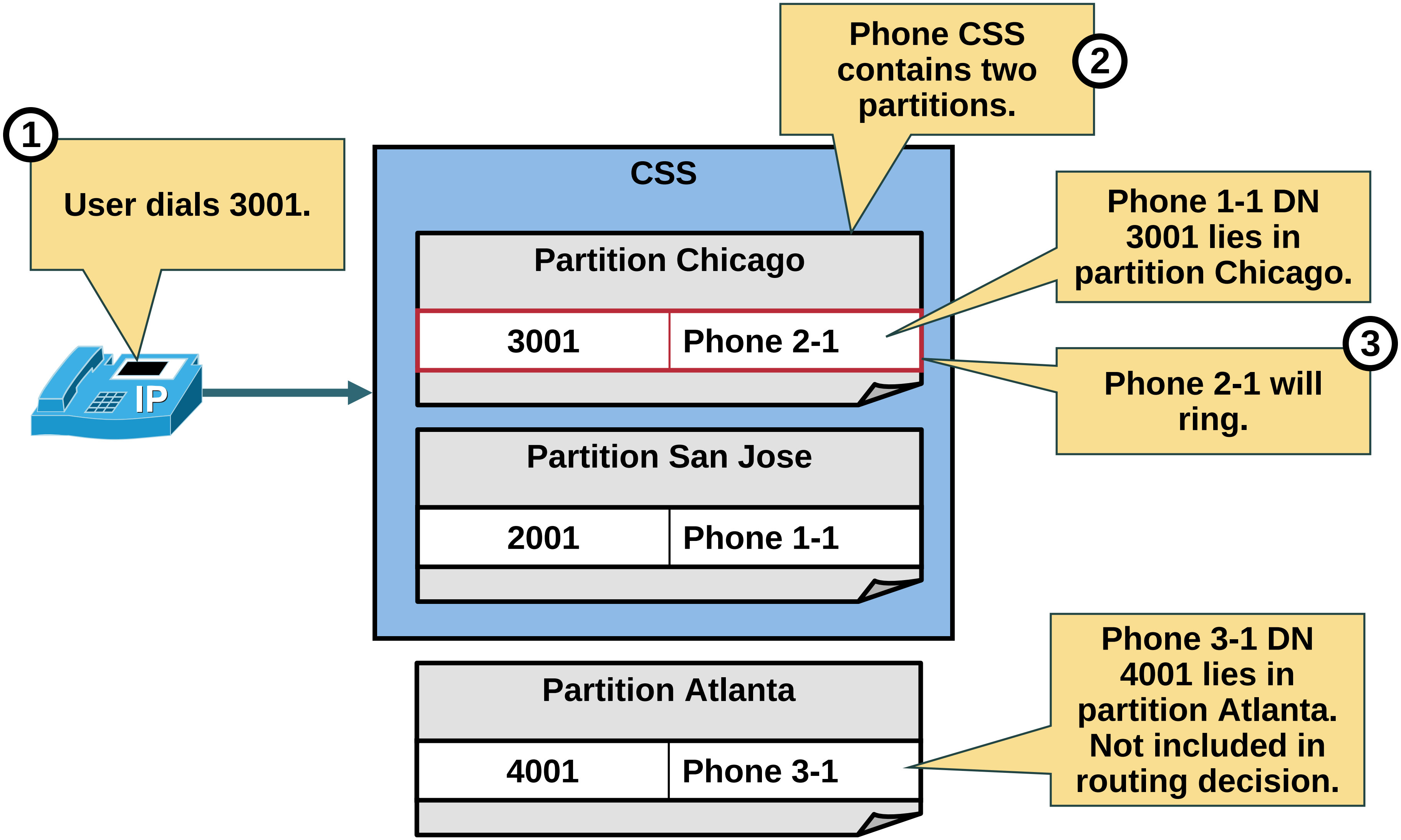
① User has two phone books.

Chicago Phone Book	
John Smith	312-555-3001

San Jose Phone Book	
Jack Gordon	408-555-2001

② John Smith is listed in Chicago Phone Book. User places call.

Partitions and Calling Search Spaces



① User dials 3001.

② Phone CSS contains two partitions.

CSS

Partition Chicago

3001 Phone 2-1

Partition San Jose

2001 Phone 1-1

Partition Atlanta

4001 Phone 3-1

Phone 1-1 DN 3001 lies in partition Chicago.

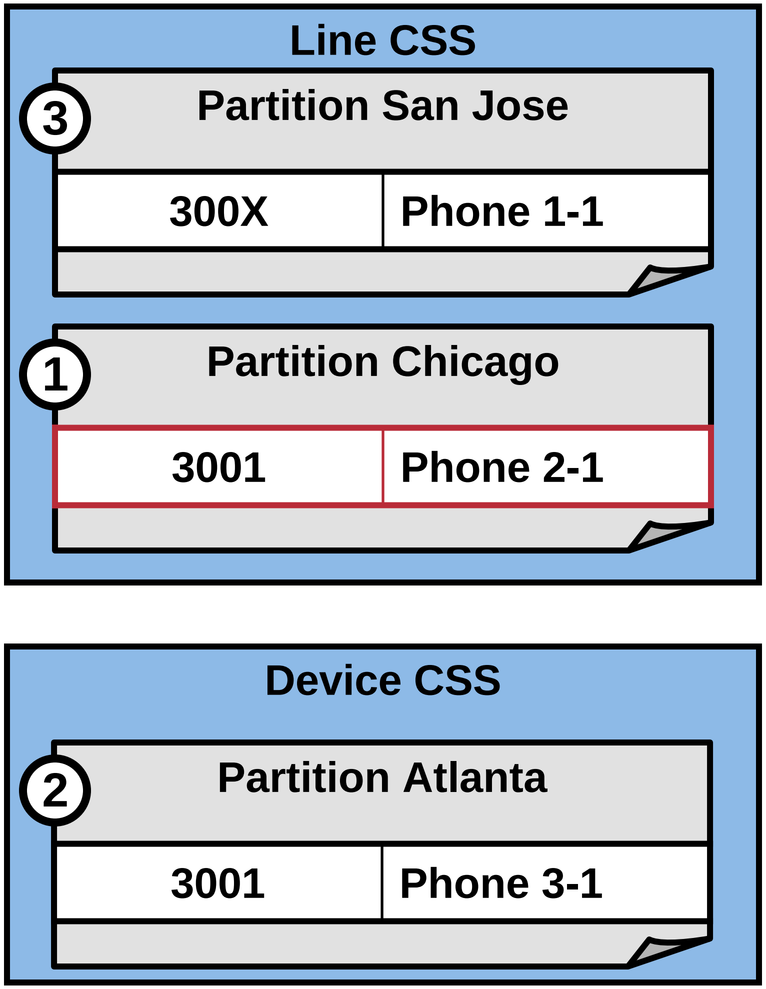
③ Phone 2-1 will ring.

Phone 3-1 DN 4001 lies in partition Atlanta. Not included in routing decision.

Partitions and Calling Search Spaces

Route selection uses the following rules:

- Closest match routing.
  - Similar to IP routing.
  - X wildcard is less specifc.
- Partition order in CSS only used as a tie breaker.
  - Top = Highest Priority
  - Bottom = Lowest Priority
  - Line CSS has higher priority than phone CSS.



Line CSS

③ Partition San Jose

300X	Phone 1-1

① Partition Chicago

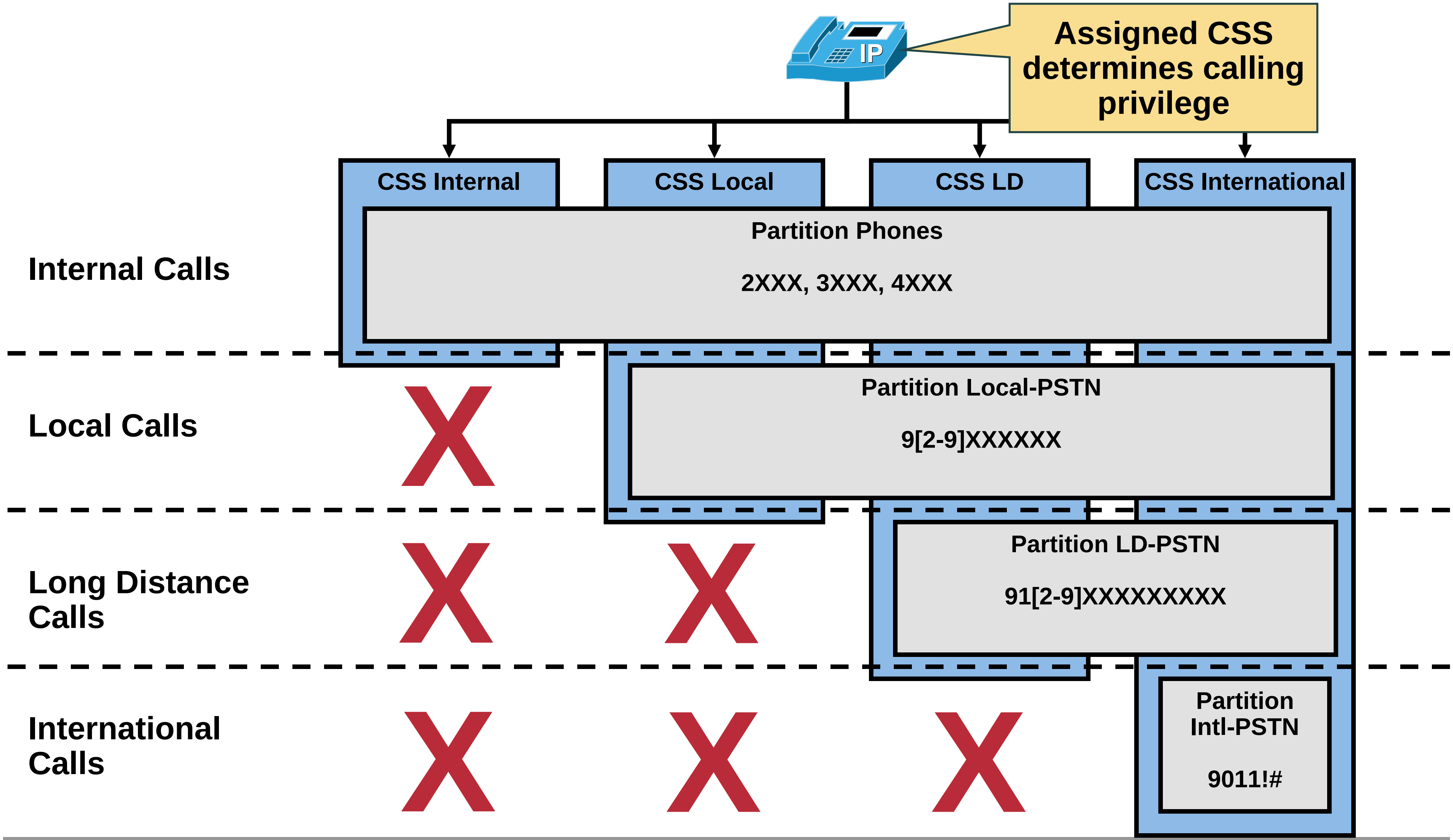
3001	Phone 2-1

Device CSS

② Partition Atlanta

3001	Phone 3-1

Partitions and Calling Search Spaces



Assigned CSS determines calling privilege

CSS Internal

CSS Local

CSS LD

CSS International

Internal Calls

Partition Phones

2XXX, 3XXX, 4XXX

Local Calls

X

Partition Local-PSTN

9[2-9]XXXXXX

Long Distance Calls

X

X

Partition LD-PSTN

91[2-9]XXXXXXXXX

International Calls

X

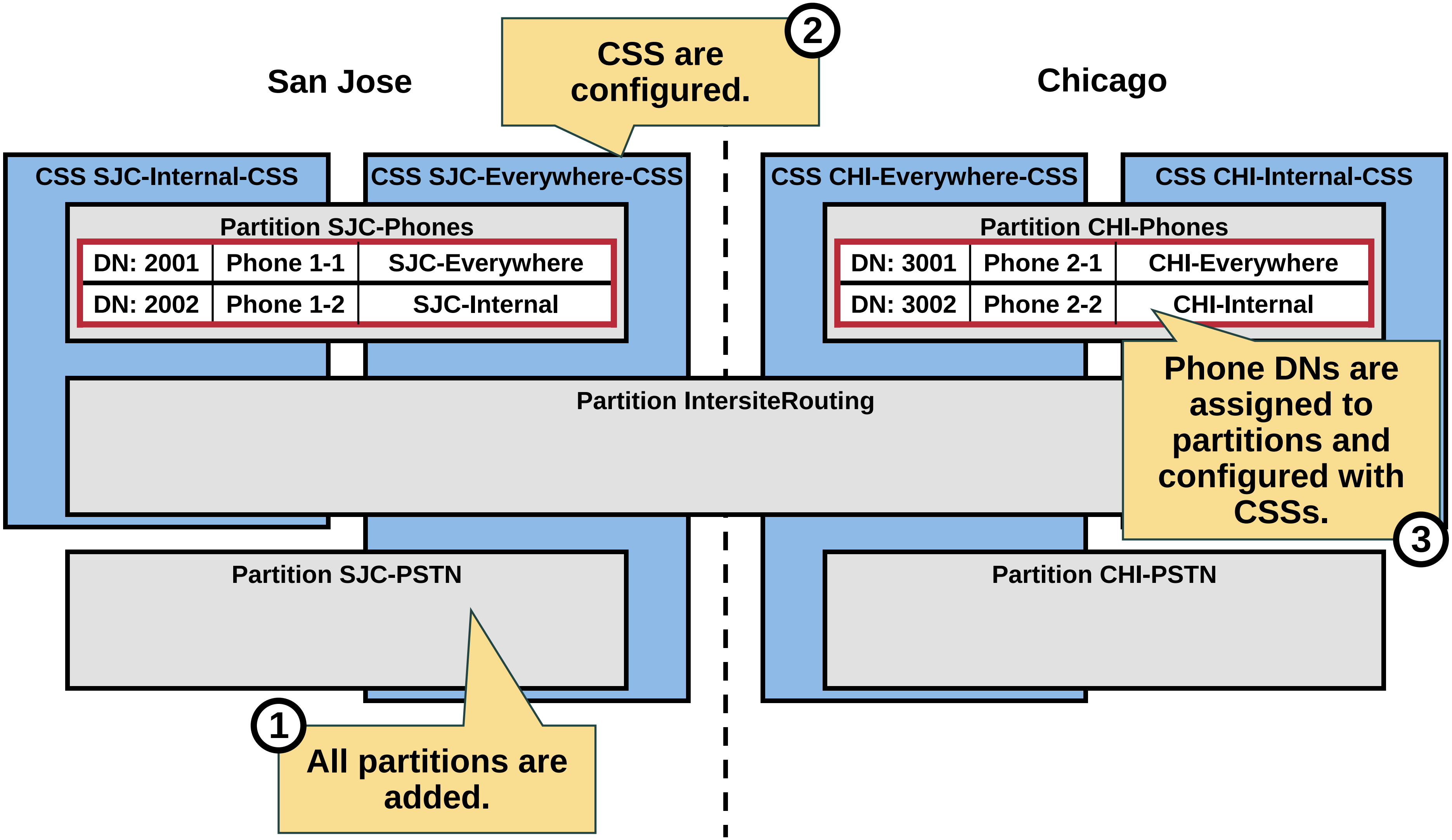
X

X

Partition Intl-PSTN

9011!#

Partitions and Calling Search Spaces



San Jose

Chicago

① All partitions are added.

② CSS are configured.

③ Phone DNs are assigned to partitions and configured with CSSs.

CSS SJC-Internal-CSS

CSS SJC-Everywhere-CSS

CSS CHI-Everywhere-CSS

CSS CHI-Internal-CSS

Partition SJC-Phones

DN: 2001	Phone 1-1	SJC-Everywhere
DN: 2002	Phone 1-2	SJC-Internal

Partition CHI-Phones

DN: 3001	Phone 2-1	CHI-Everywhere
DN: 3002	Phone 2-2	CHI-Internal

Partition IntersiteRouting

Partition SJC-PSTN

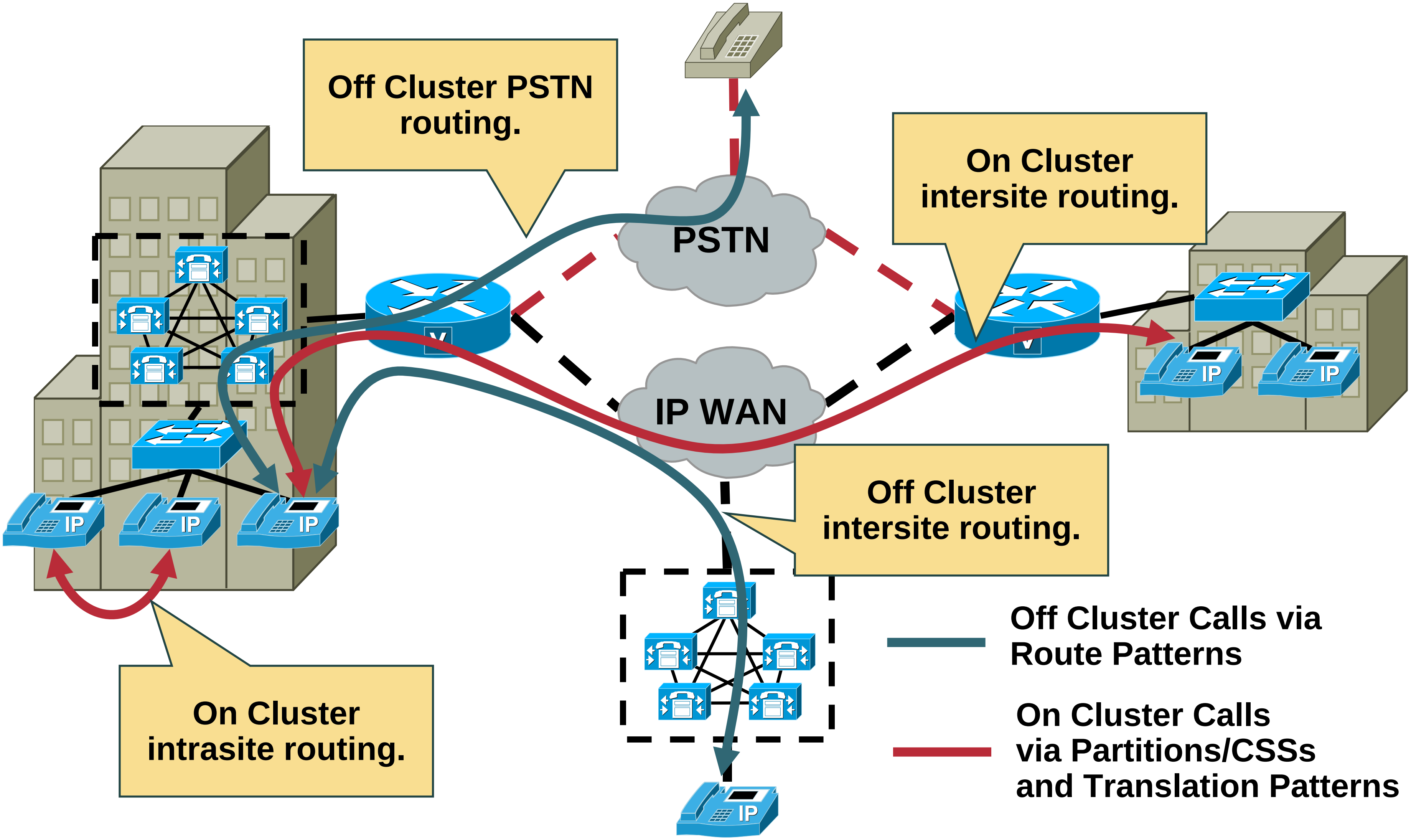
Partition CHI-PSTN

On/Off Cluster Routing

CCM differentiates between two types of routing:

- On Cluster Routing
  - Calls within the same cluster
  - Intersite and Intrasite
  - Handled by Partitions/CSSs and Translation Patterns
- Off Cluster Routing
  - Calls destined for off-cluster destinations.
    - Other CCM clusters via inter-cluster trunks.
    - PSTN or PBXs via voice gateways.
  - Handled by Route Patterns.

On/Off Cluster Routing



Off Cluster PSTN routing.

On Cluster intersite routing.

Off Cluster intersite routing.

On Cluster intrasite routing.

Off Cluster Calls via Route Patterns

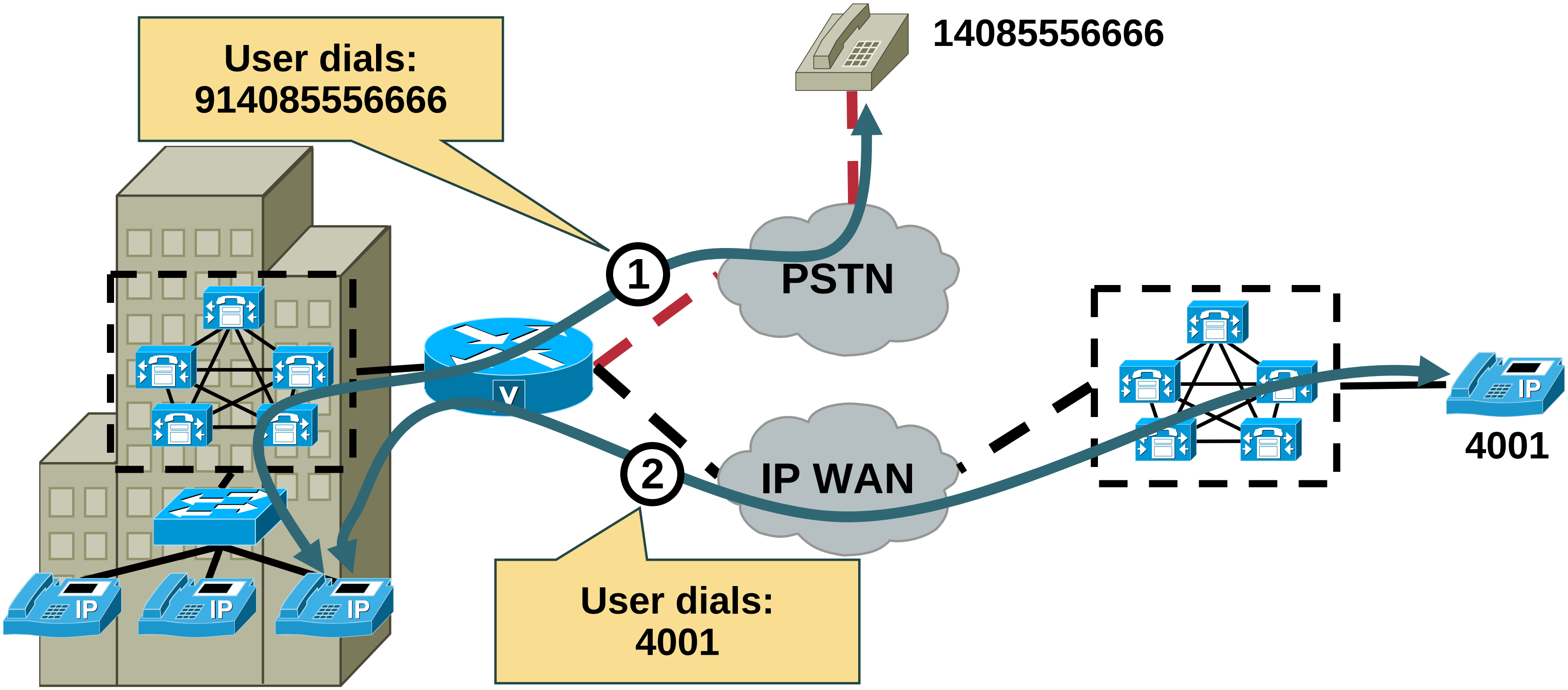
On Cluster Calls via Partitions/CSSs and Translation Patterns

Route Patterns

Route Patterns (RPs) are used for Off-Cluster Routing:

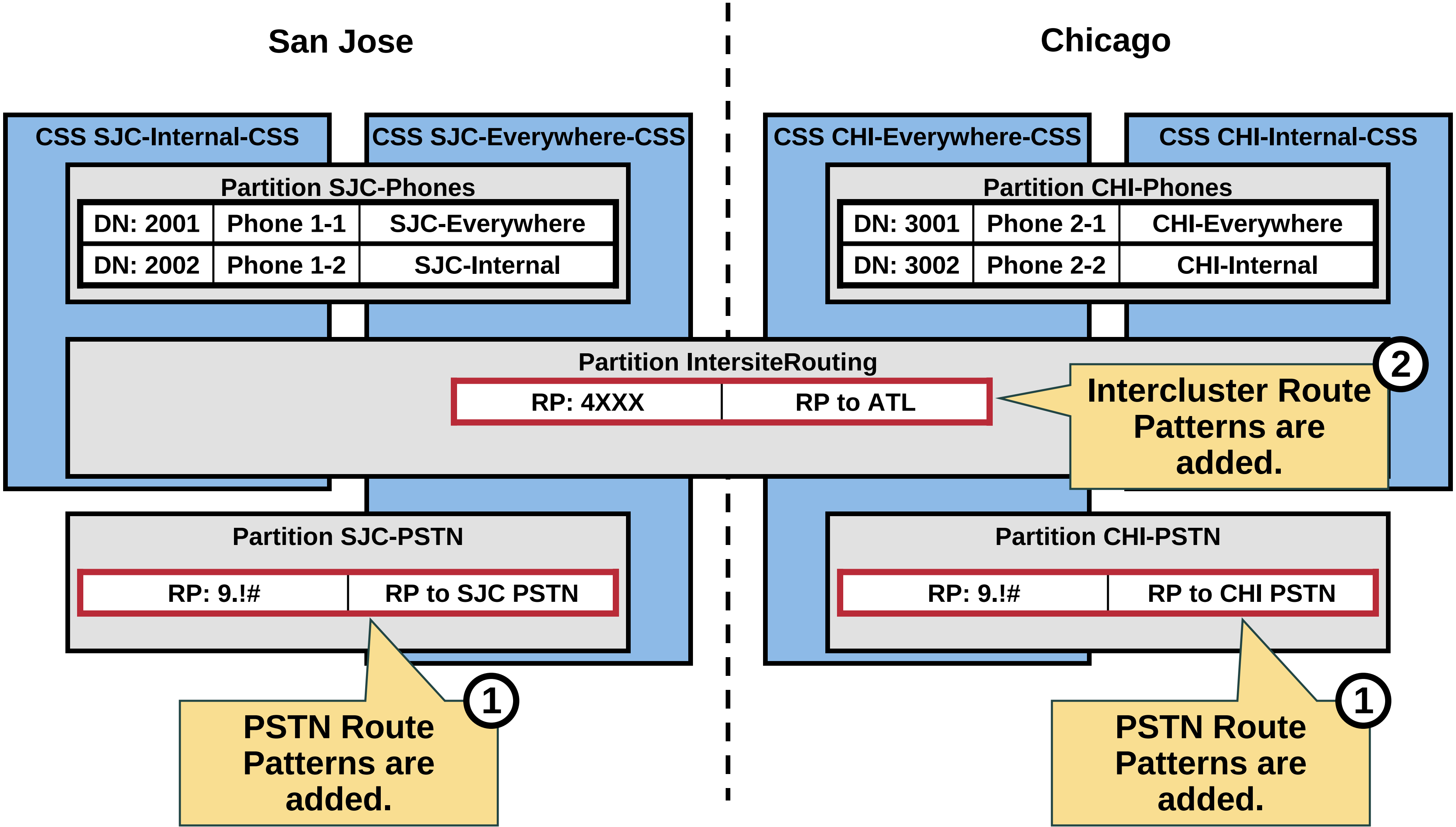
- **Route Pattern assigned to partition.**
- **Destination is either a Route List or Gateway/Trunk**
- **Can also perform digit manipulation:**
  - **Calling Number**
  - **Called Number**

Route Patterns


User dials:
914085556666
14085556666
PSTN
1
V
2
IP WAN
IP
4001
User dials:
4001

	Route Pattern	Partition	Destination	Digit Manipulation
①	9.!#	SJC-PSTN	Router1	Discard 9
②	4XXX	IntersiteRouting	Atlanta CM Trunk	None

Route Patterns


San Jose
Chicago
CSS SJC-Internal-CSS
CSS SJC-Everywhere-CSS
CSS CHI-Everywhere-CSS
CSS CHI-Internal-CSS
Partition SJC-Phones
DN: 2001 | Phone 1-1 | SJC-Everywhere
DN: 2002 | Phone 1-2 | SJC-Internal
Partition CHI-Phones
DN: 3001 | Phone 2-1 | CHI-Everywhere
DN: 3002 | Phone 2-2 | CHI-Internal
Partition IntersiteRouting
RP: 4XXX | RP to ATL
Partition SJC-PSTN
RP: 9.!# | RP to SJC PSTN
Partition CHI-PSTN
RP: 9.!# | RP to CHI PSTN
2
1
1

Interclustercluster Route Patterns are added.

PSTN Route Patterns are added.

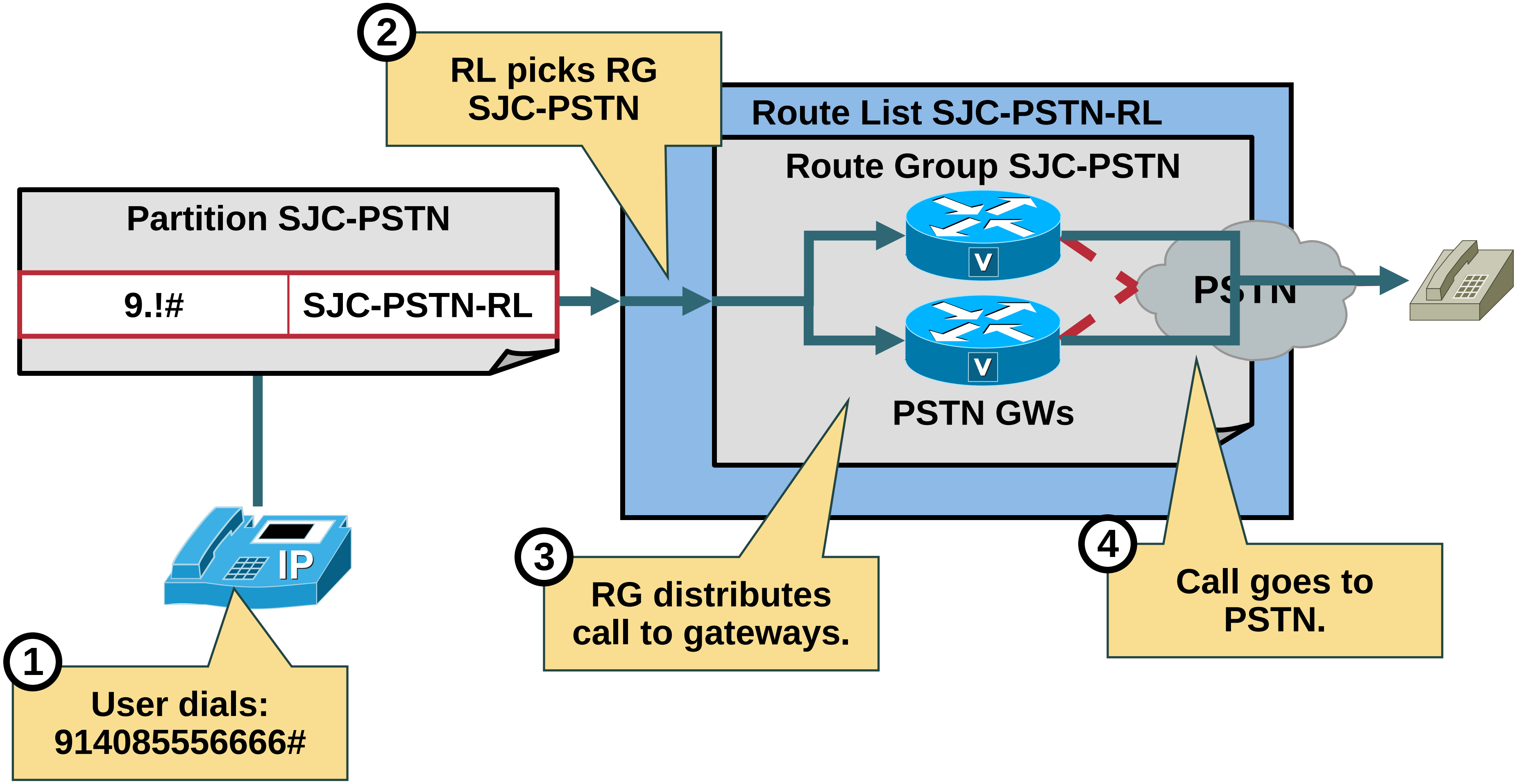
PSTN Route Patterns are added.

Route Lists and Route Groups

Route Lists (RLs) and Route Groups (RGs) group multiple gateways and/or trunks:

- **Gateways/Trunks assigned to Route Groups.**
- **Route Groups assigned to Route Lists.**
  - **Route Lists can combine multiple Route Groups.**
    - **Top = Highest Priority, Bottom = Lowest Priority**
  - **Each Route Group Entry can have different digit manipulation rules.**
- **Route Patterns point to Route Lists instead of physical gateways.**
  - **Never use physical gateways and/or trunks!**

Route Lists and Route Groups



Route List SJC-PSTN-RL
Route Group SJC-PSTN
Partition SJC-PSTN
9.!#
SJC-PSTN-RL
V
V
PSTN GWs
PSTN
IP

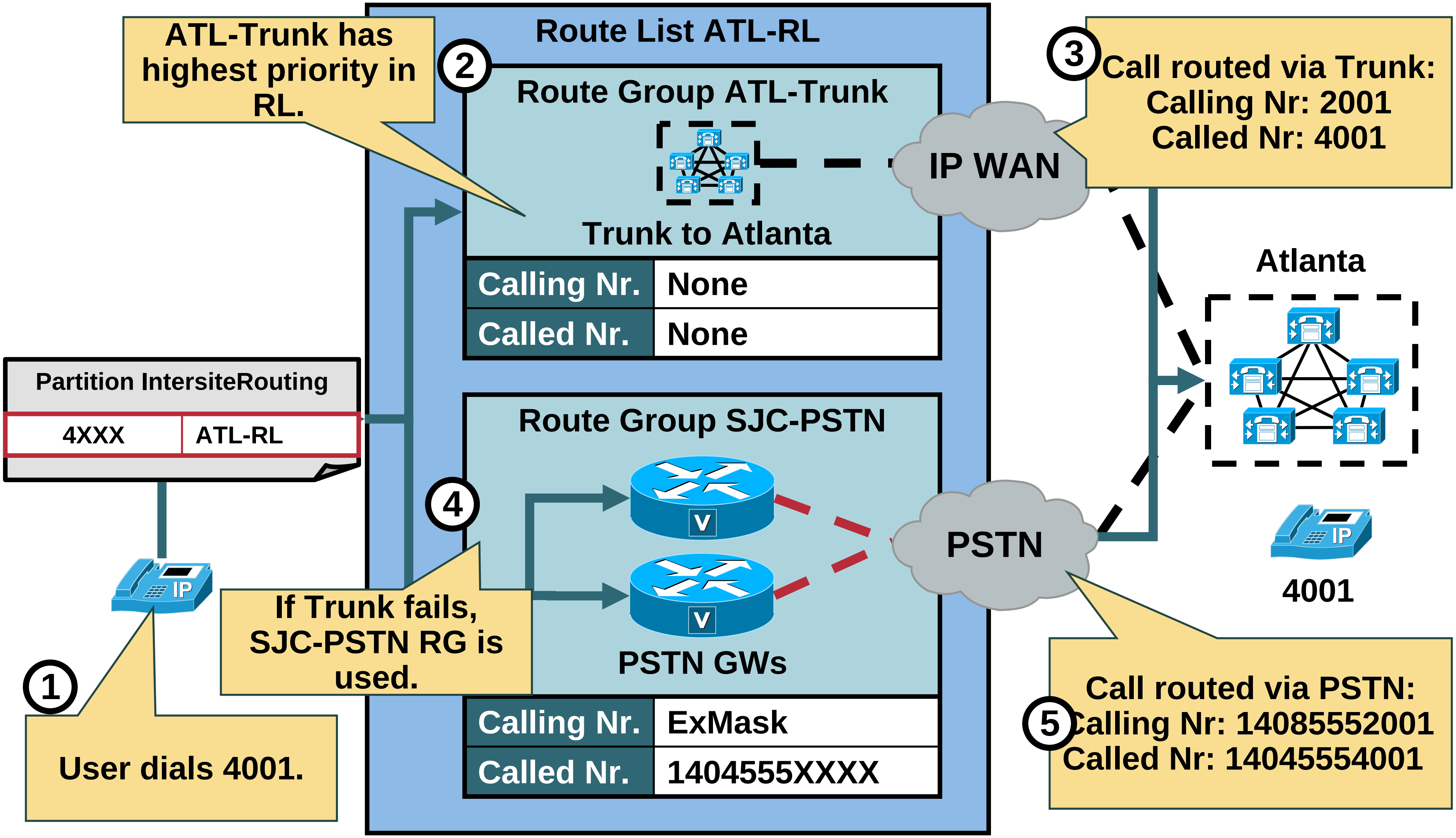
② RL picks RG SJC-PSTN

① User dials: 914085556666#

③ RG distributes call to gateways.

④ Call goes to PSTN.

Route Lists and Route Groups



ATL-Trunk has highest priority in RL.

②

Route List ATL-RL

Route Group ATL-Trunk

Trunk to Atlanta

Calling Nr.	None
Called Nr.	None

Route Group SJC-PSTN

PSTN GWs

Calling Nr.	ExMask
Called Nr.	1404555XXXX

Partition IntersiteRouting

4XXX	ATL-RL

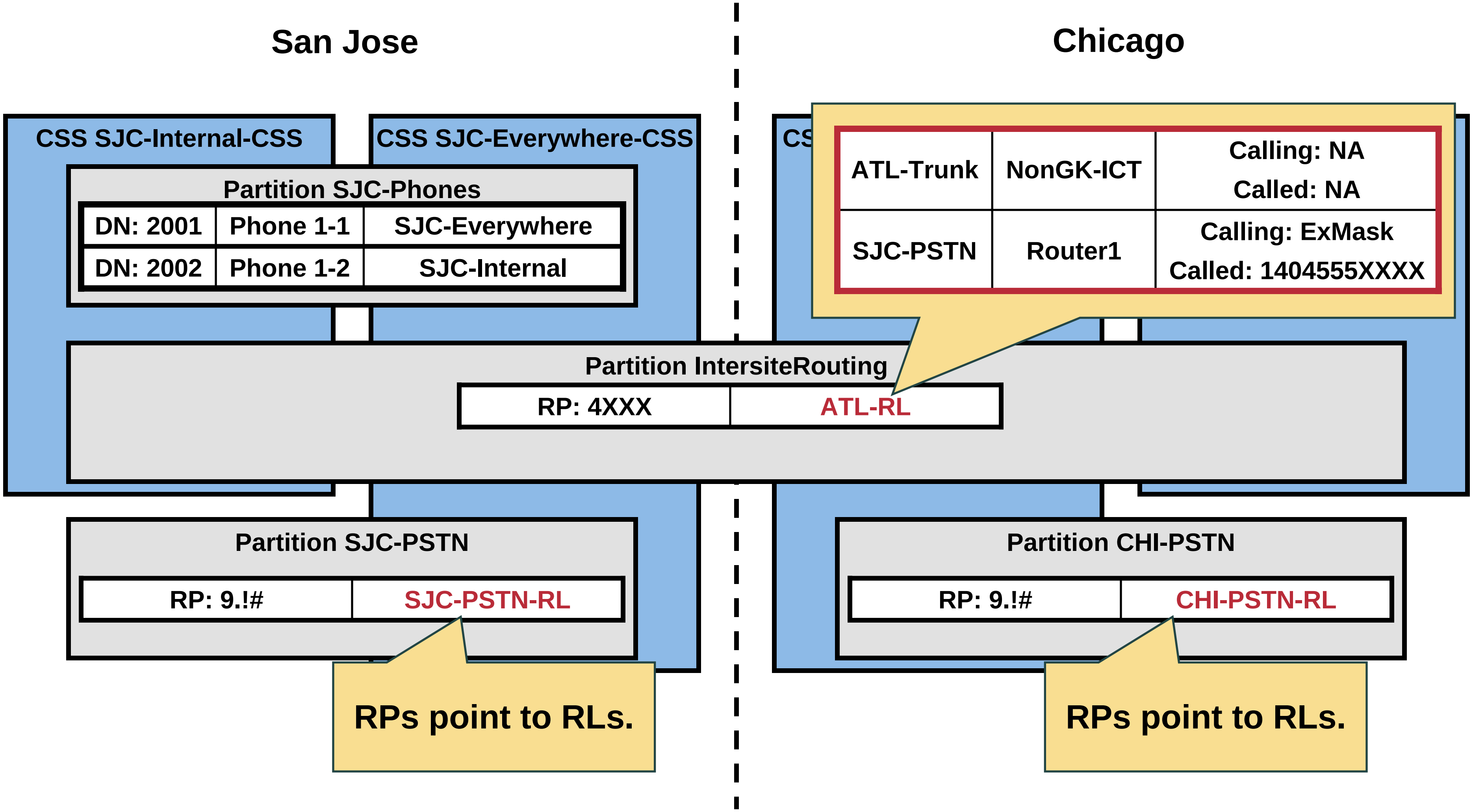
④ If Trunk fails, SJC-PSTN RG is used.

① User dials 4001.

③ Call routed via Trunk:
Calling Nr: 2001
Called Nr: 4001

⑤ Call routed via PSTN:
Calling Nr: 14085552001
Called Nr: 14045554001

Route Lists and Route Groups



San Jose

Chicago

CSS SJC-Internal-CSS

CSS SJC-Everywhere-CSS

CS

Partition SJC-Phones

DN: 2001	Phone 1-1	SJC-Everywhere
DN: 2002	Phone 1-2	SJC-Internal

ATL-Trunk	NonGK-ICT	Calling: NA Called: NA
SJC-PSTN	Router1	Calling: ExMask Called: 1404555XXXX

Partition IntersiteRouting

RP: 4XXX	ATL-RL

Partition SJC-PSTN

RP: 9.!#	SJC-PSTN-RL

Partition CHI-PSTN

RP: 9.!#	CHI-PSTN-RL

RPs point to RLs.

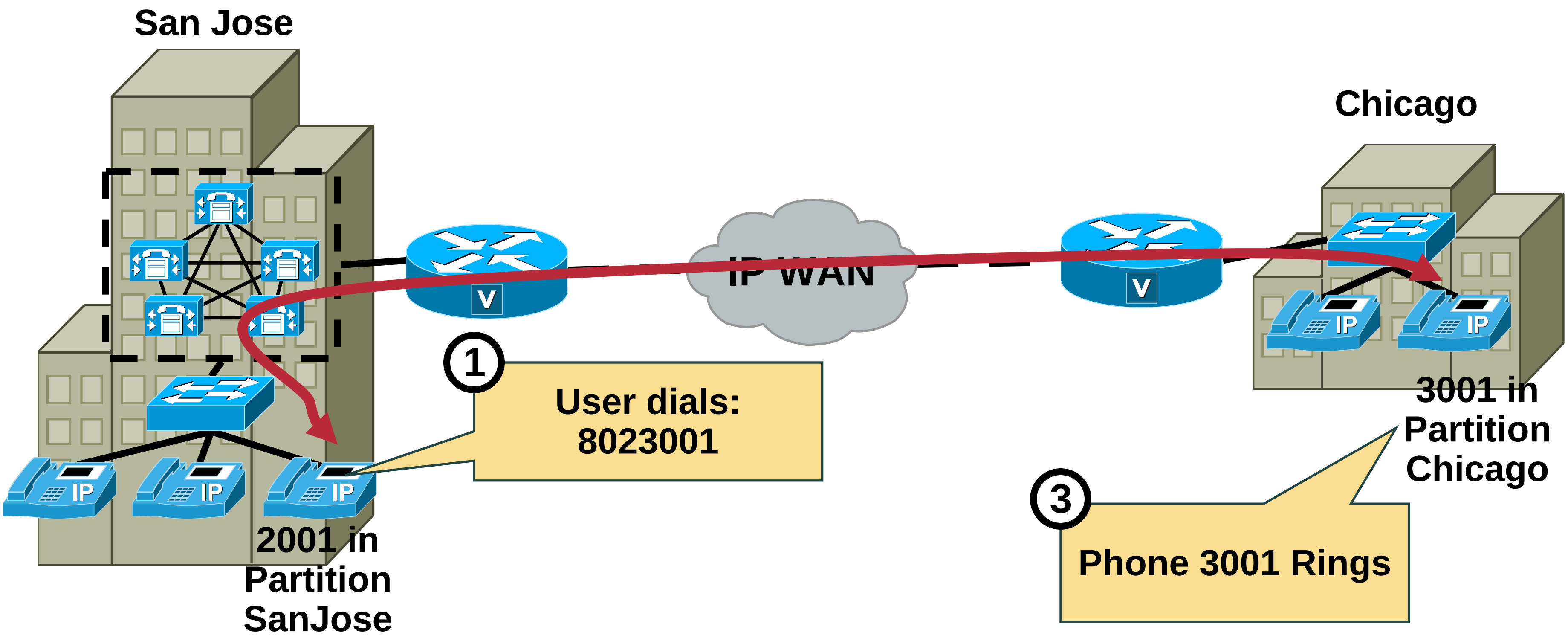
RPs point to RLs.

Translation Patterns

Translation Patterns are used for on cluster routing:

- Translation Pattern (TPs) assigned to partition.
- Destination is a CSS.
- Can also perform digit manipulation:
  - Calling Number
  - Called Number
- Often use to solve overlapping DN routing issues.

Translation Patterns


San Jose
Chicago
IP WAN
V
V
IP
2001 in Partition SanJose
3001 in Partition Chicago

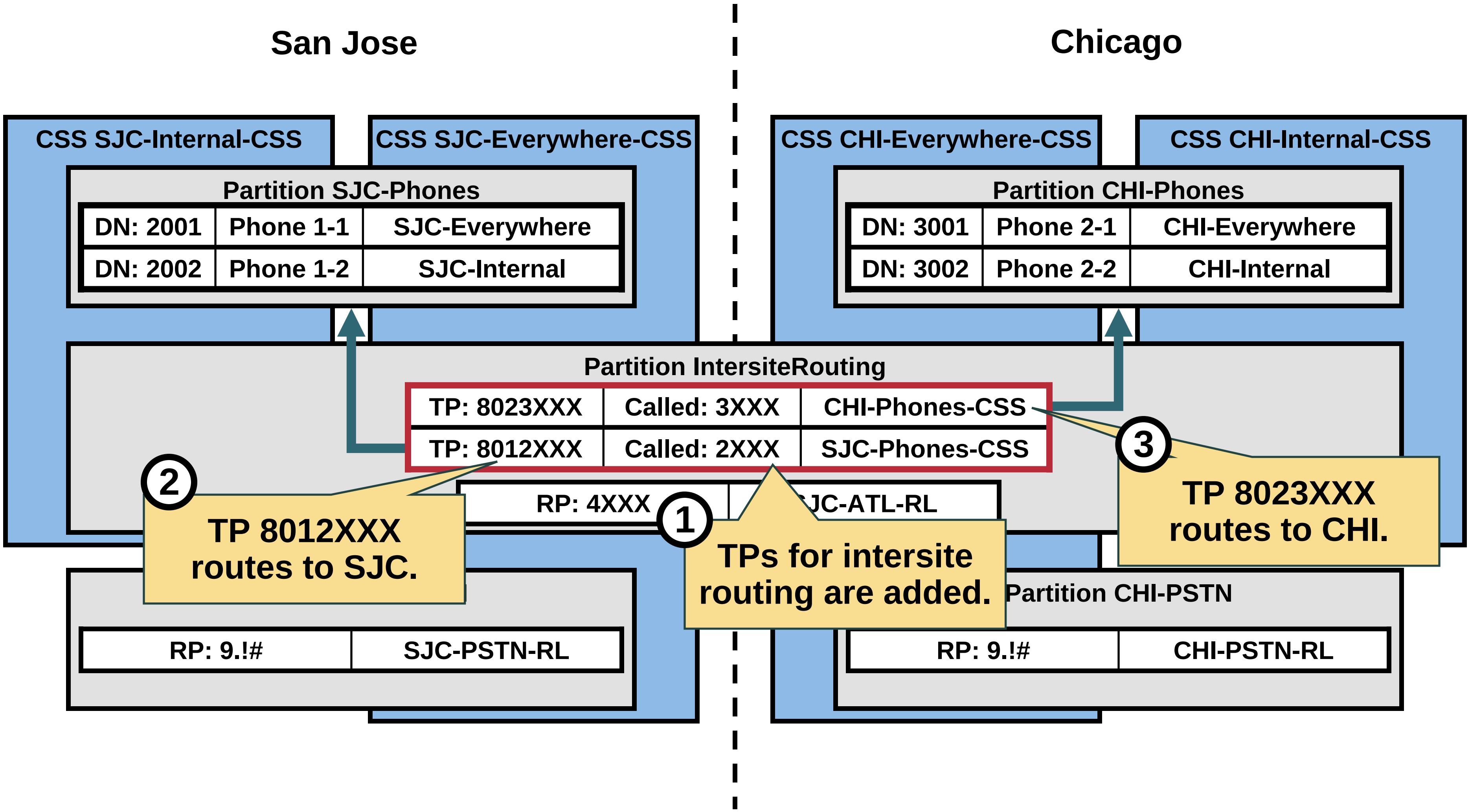
① User dials: 8023001

② Match found: 8023XXX

③ Phone 3001 Rings

Translation Pattern	Partition	Destination	Digit Manipulation
8012XXX	IntersiteRouting	SJC-Phones-CSS	Discard 801
8023XXX	IntersiteRouting	CHI-Phones-CSS	Discard 802

Translation Patterns



San Jose

CSS SJC-Internal-CSS

CSS SJC-Everywhere-CSS

Partition SJC-Phones

DN: 2001	Phone 1-1	SJC-Everywhere
DN: 2002	Phone 1-2	SJC-Internal

RP: 9.!#	SJC-PSTN-RL

Chicago

CSS CHI-Everywhere-CSS

CSS CHI-Internal-CSS

Partition CHI-Phones

DN: 3001	Phone 2-1	CHI-Everywhere
DN: 3002	Phone 2-2	CHI-Internal

Partition CHI-PSTN

RP: 9.!#	CHI-PSTN-RL

Partition IntersiteRouting

TP: 8023XXX	Called: 3XXX	CHI-Phones-CSS
TP: 8012XXX	Called: 2XXX	SJC-Phones-CSS

RP: 4XXX	JC-ATL-RL

① TPs for intersite routing are added.

② TP 8012XXX routes to SJC.

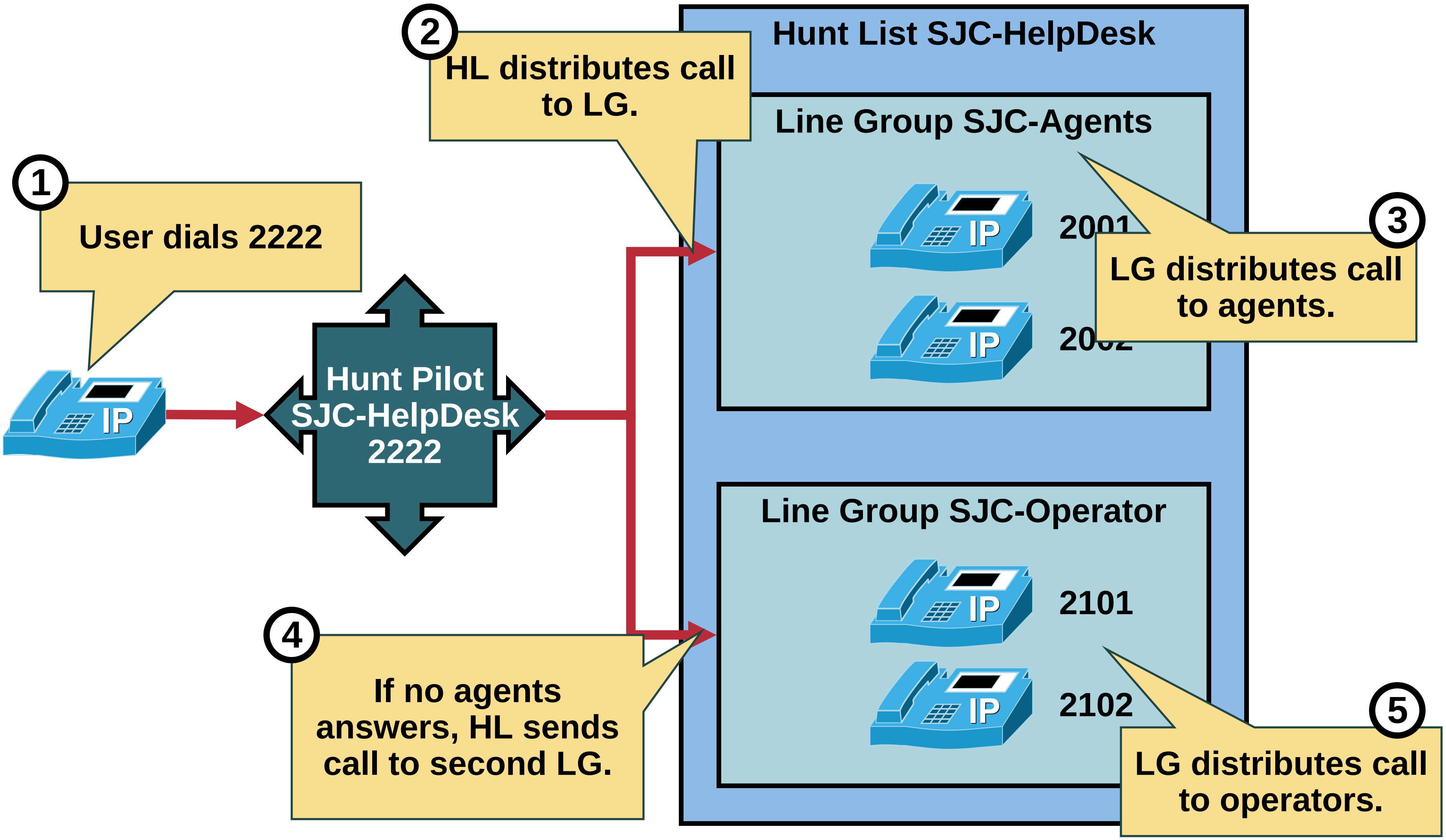
③ TP 8023XXX routes to CHI.

Line Groups, Hunt Lists and Hunt Pilots

Line Groups, Hunt Lists and Hunt Pilots are used for call coverage:

- **Phone DNs assigned to Line Groups (LGs)**
- **Line Groups assigned to Hunt Lists (HLs)**
  - **Can have multiple Line Groups per Hunt List.**
  - **Various hunt algorithms available.**
- **Hunt Lists are assigned to Hunt Pilots**
  - **Hunt Pilot = DN users dial to reach a Hunt List.**

Line Groups, Hunt Lists and Hunt Pilots


Hunt Pilot
SJC-HelpDesk
2222
Hunt List SJC-HelpDesk
Line Group SJC-Agents
2001
20
Line Group SJC-Operator
2101
2102

① User dials 2222

② HL distributes call to LG.

③ LG distributes call to agents.

④ If no agents answers, HL sends call to second LG.

⑤ LG distributes call to operators.

Review of Cisco Unified CallManager Dial Plan Components

Dial Plan Functionality	CCM Component
Endpoint Addressing	•Directory Numbers •Partitions
Call Routing and Path Selection	•Partitions and Calling Search Spaces •Route Patterns •Route Groups and Route Lists •Translation Patterns
Digit Manipulation	•Route Patterns •Route Groups and Route Lists •Translation Patterns
Call Privileges	•Partitions •Calling Search Spaces
Call Coverage	•Line Group, Hunt List and Hunt Pilot

T. E.1

Slide 25

T. E.1 Make build slide.

Tolga Erdogan, 3/15/2006

Summary

- Cisco Unified CallManager uses many components to build a dial plan.
- Partitions and Calling Search Spaces are used for controlling routing.
- Cisco Unified CallManager diferentiates between On/Off Cluster Routing
- Route Patterns are used for Off Cluster Routing
- Route Lists and Route Groups logically bind multiple gateways and trunks together.
- Translation Patterns are used for On Cluster Routing and Digit Manipulation.
- Hunt Lists and Line Groups are used for call coverage.

Cisco Systems

Deploying a Dial Plan on CallManager 5.0

Configuring CallManager Voice Gateways

Objectives

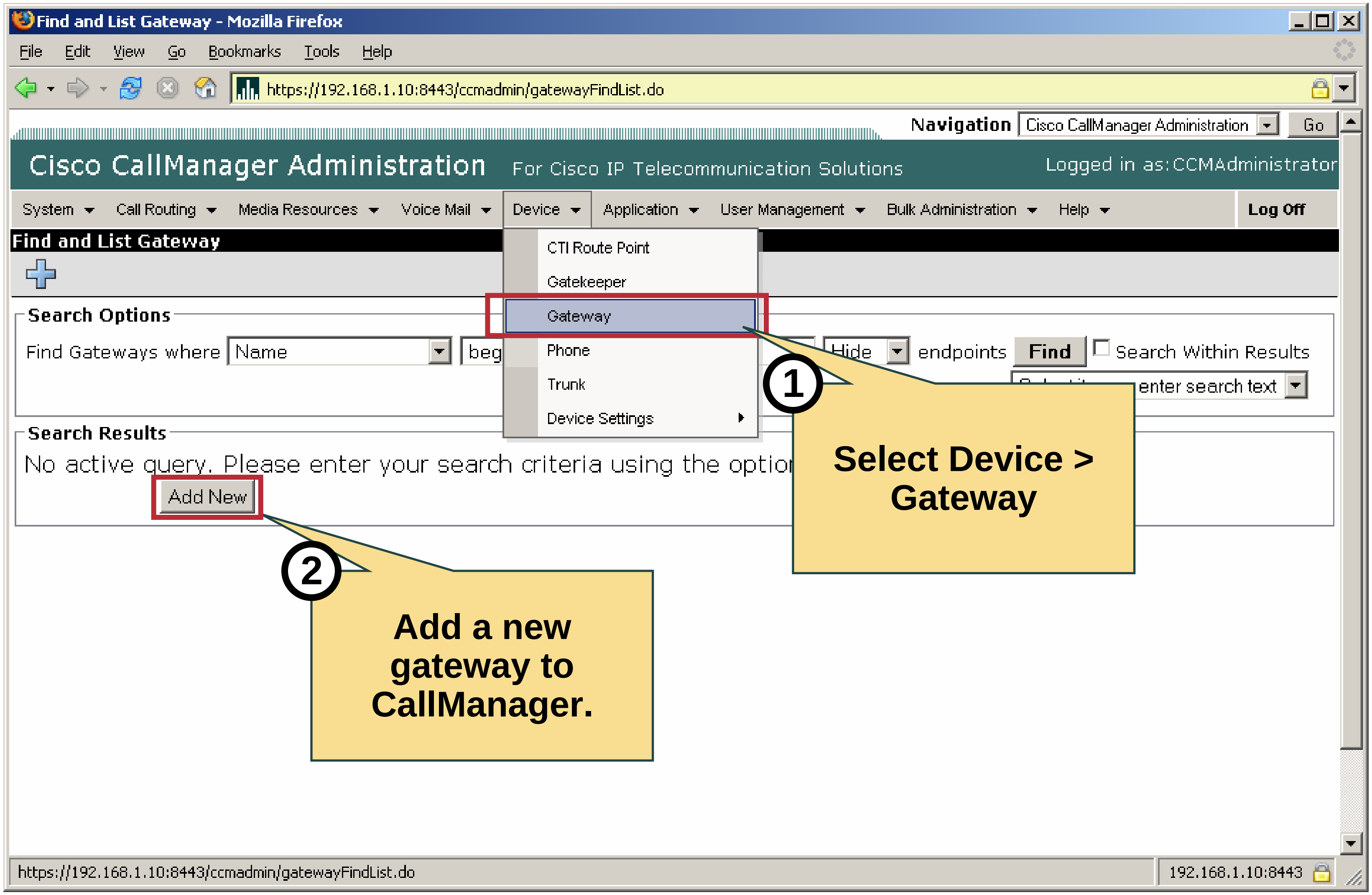
- Configuring MGCP Gateways in Cisco Unified CallManager
- Configuring Gateways for MGCP
- Verify MGCP Gateway Configurations
- Configuring H.323 Gateways in Cisco Unified CallManager
- Configuring Gateways for H.323
- Verify H.323 Gateway Configurations

Configuring MGCP Gateways in Cisco Unified CallManager

CallManager MGCP Gateway configuration steps:

1. Add MGCP Gateway.
2. Add slots.
3. Add VICs.
4. Configure VICs.

Configuring MGCP Gateways in Cisco Unified CallManager: Add Gateway



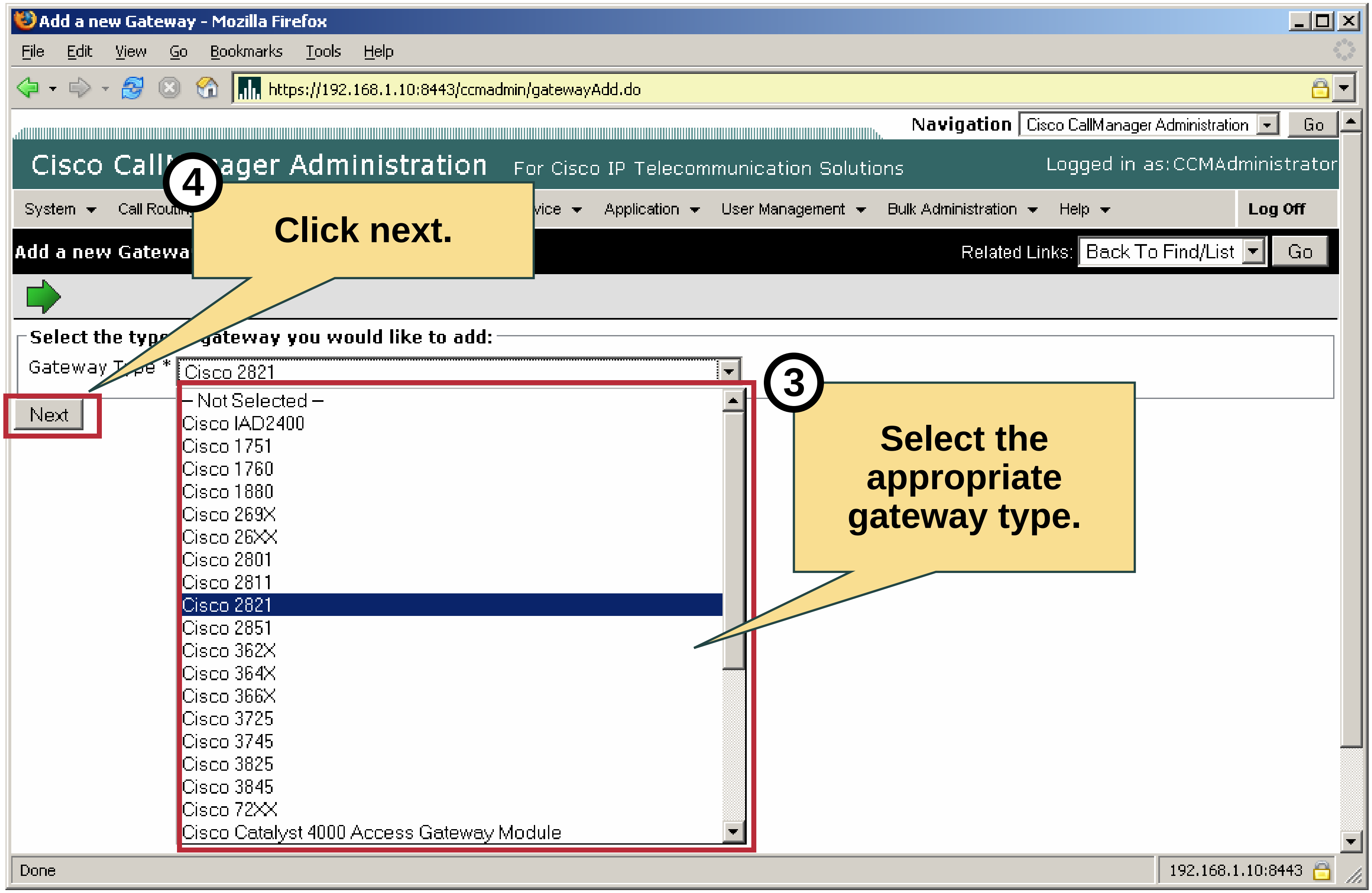
Find and List Gateway - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/gatewayFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
CTI Route Point
Gatekeeper
Gateway
Phone
Trunk
Device Settings
Find and List Gateway
Search Options
Find Gateways where Name beg Hide endpoints Find
☐ Search Within Results
enter search text
Search Results
Add New
https://192.168.1.10:8443/ccmadmin/gatewayFindList.do
192.168.1.10:8443

No active query. Please enter your search criteria using the optio

① Select Device > Gateway

② Add a new gateway to CallManager.

Configuring MGCP Gateways in Cisco Unified CallManager: Add Gateway


Add a new Gateway - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/gatewayAdd.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Service Application User Management Bulk Administration Help Log Off
Add a new Gateway
Related Links: Back To Find/List Go
Next
Done
192.168.1.10:8443

Select the type of gateway you would like to add:

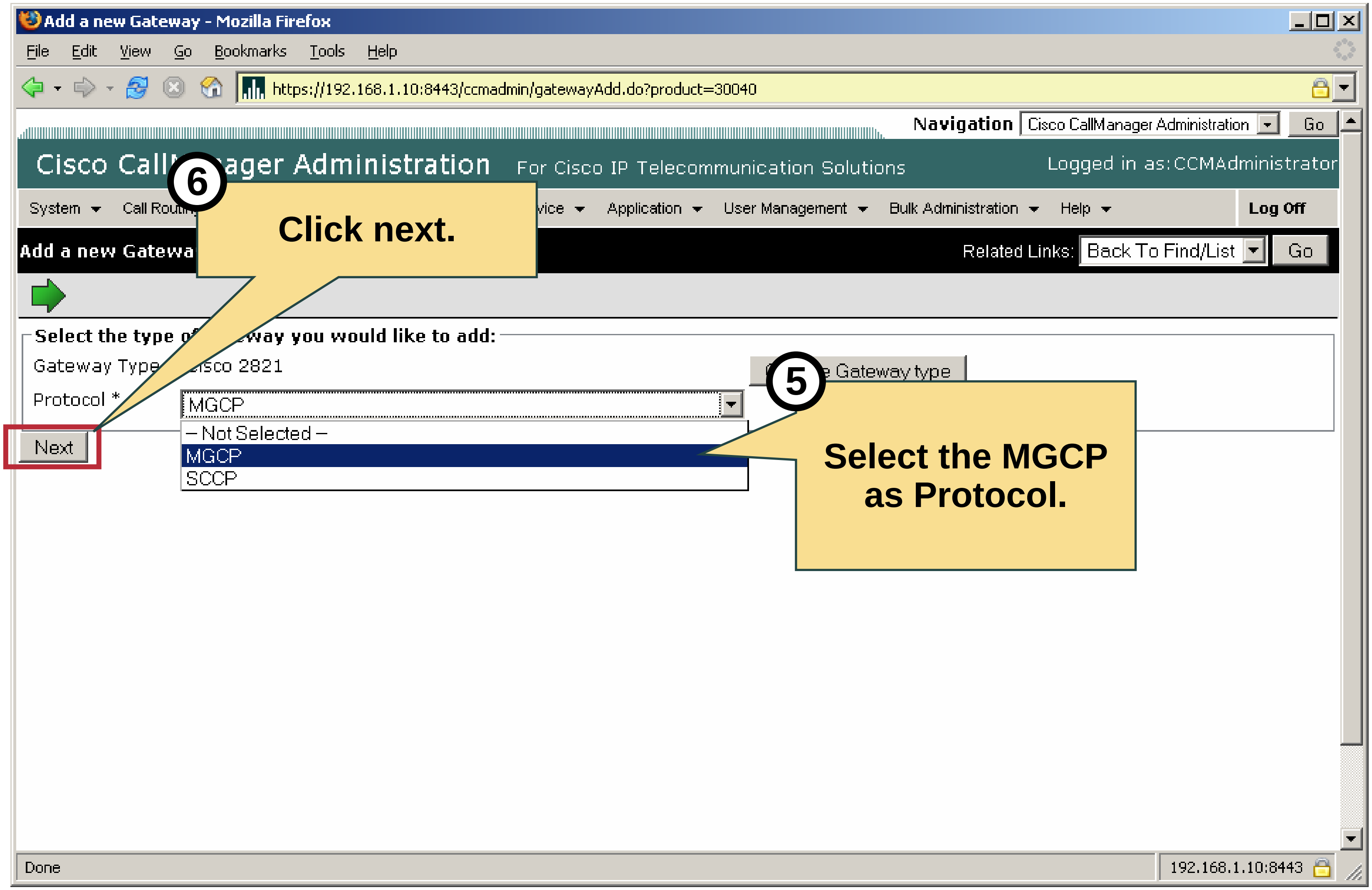
Gateway Type * Cisco 2821

- – Not Selected –
- Cisco IAD2400
- Cisco 1751
- Cisco 1760
- Cisco 1880
- Cisco 269X
- Cisco 26XX
- Cisco 2801
- Cisco 2811
- Cisco 2821
- Cisco 2851
- Cisco 362X
- Cisco 364X
- Cisco 366X
- Cisco 3725
- Cisco 3745
- Cisco 3825
- Cisco 3845
- Cisco 72XX
- Cisco Catalyst 4000 Access Gateway Module

④ Click next.

③ Select the appropriate gateway type.

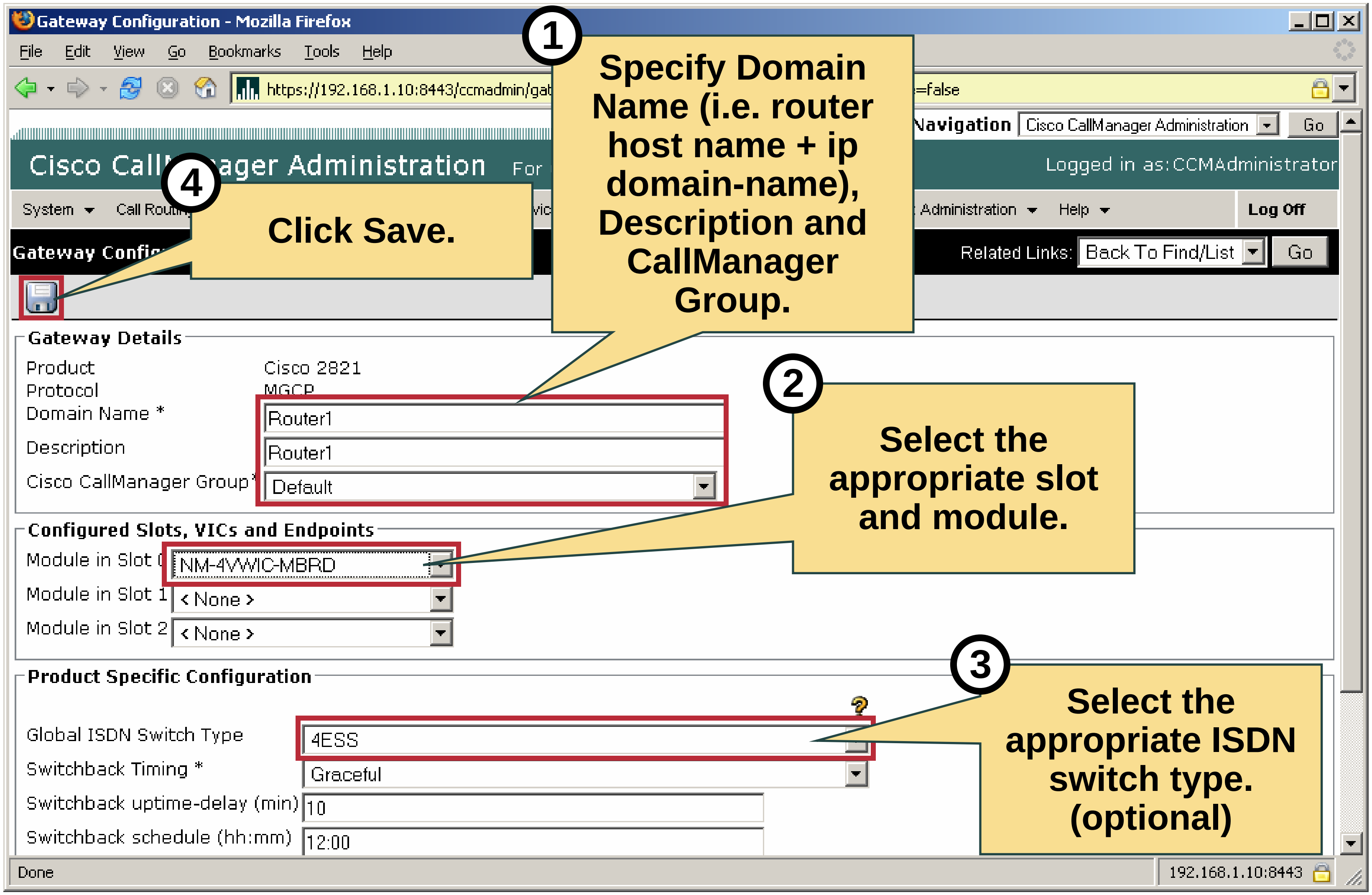
Configuring MGCP Gateways in Cisco Unified CallManager: Add Gateway


Add a new Gateway - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/gatewayAdd.do?product=30040
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Device Application User Management Bulk Administration Help
Log Off
Add a new Gateway
Related Links: Back To Find/List Go
Select the type of gateway you would like to add:
Gateway Type Cisco 2821
Protocol *
MGCP
– Not Selected –
MGCP
SCCP
Change Gateway type
Next
Done
192.168.1.10:8443

⑥ Click next.

⑤ Select the MGCP as Protocol.

Configuring MGCP Gateways in Cisco Unified CallManager: Add Slot


Gateway Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/gat
=false
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For
Logged in as: CCMAdministrator
System Call Rout
Administration Help
Log Off
Gateway Confi
Related Links: Back To Find/List Go
Done
192.168.1.10:8443

① Specify Domain Name (i.e. router host name + ip domain-name), Description and CallManager Group.

② Select the appropriate slot and module.

③ Select the appropriate ISDN switch type. (optional)

④ Click Save.

Gateway Details

Product	Cisco 2821
Protocol	MGCP
Domain Name *	Router1
Description	Router1
Cisco CallManager Group*	Default

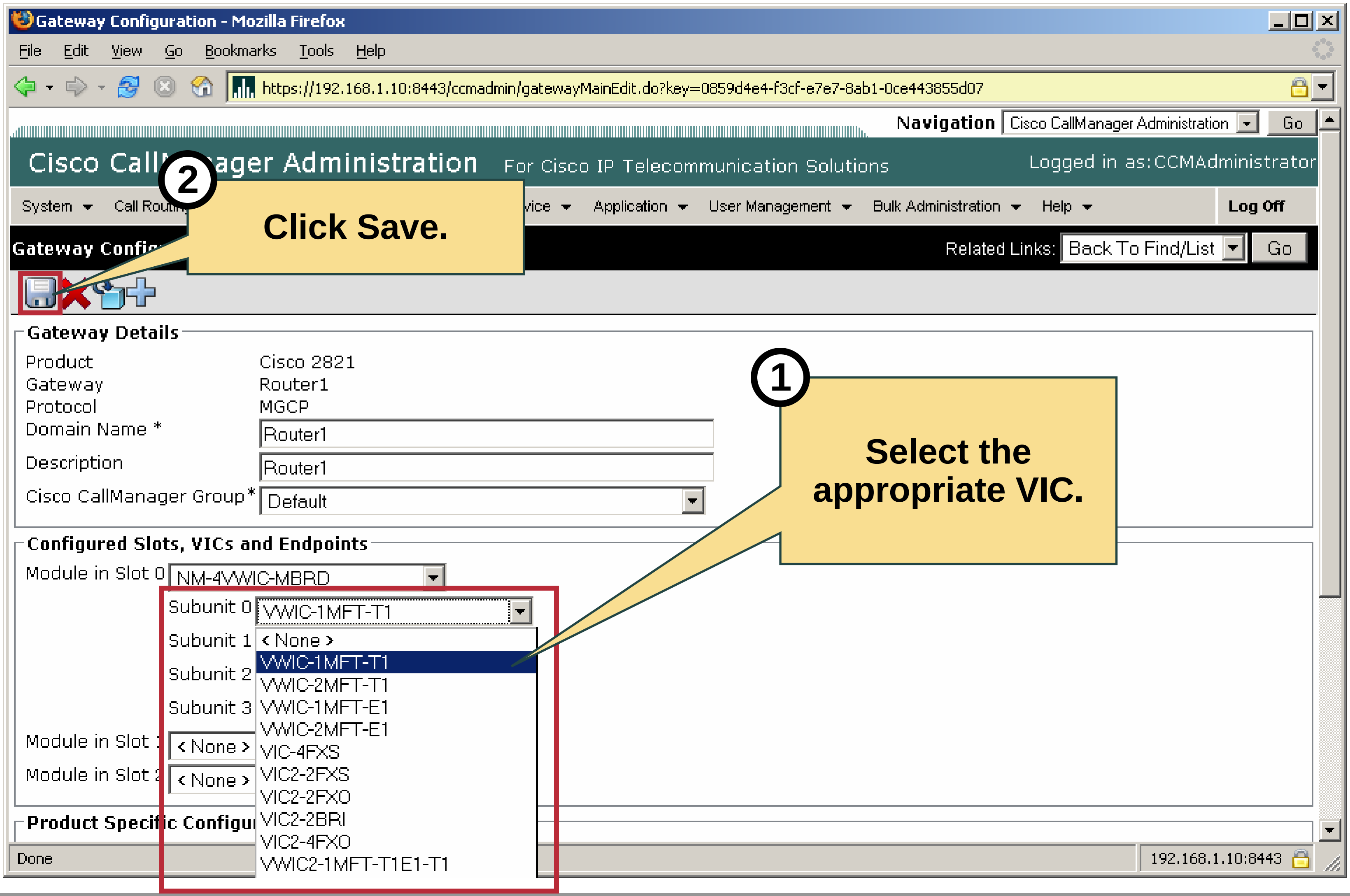
Configured Slots, VICs and Endpoints

Module in Slot 0	NM-4VWIC-MBRD
Module in Slot 1	< None >
Module in Slot 2	< None >

Product Specific Configuration

Global ISDN Switch Type	4ESS
Switchback Timing *	Graceful
Switchback uptime-delay (min)	10
Switchback schedule (hh:mm)	12:00

Configuring MGCP Gateways in Cisco Unified CallManager: Add VICs



Gateway Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/gatewayMainEdit.do?key=0859d4e4-f3cf-e7e7-8ab1-0ce443855d07
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Rout vice Application User Management Bulk Administration Help Log Off
Gateway Config
Related Links: Back To Find/List Go
Done
192.168.1.10:8443

Gateway Details

Product Cisco 2821
Gateway Router1
Protocol MGCP
Domain Name * Router1
Description Router1
Cisco CallManager Group* Default

Configured Slots, VICs and Endpoints

Module in Slot 0 NM-4VWIC-MBRD
Subunit 0 VWIC-1MFT-T1
Subunit 1
Subunit 2
Subunit 3
Module in Slot 1 < None >
Module in Slot 2 < None >

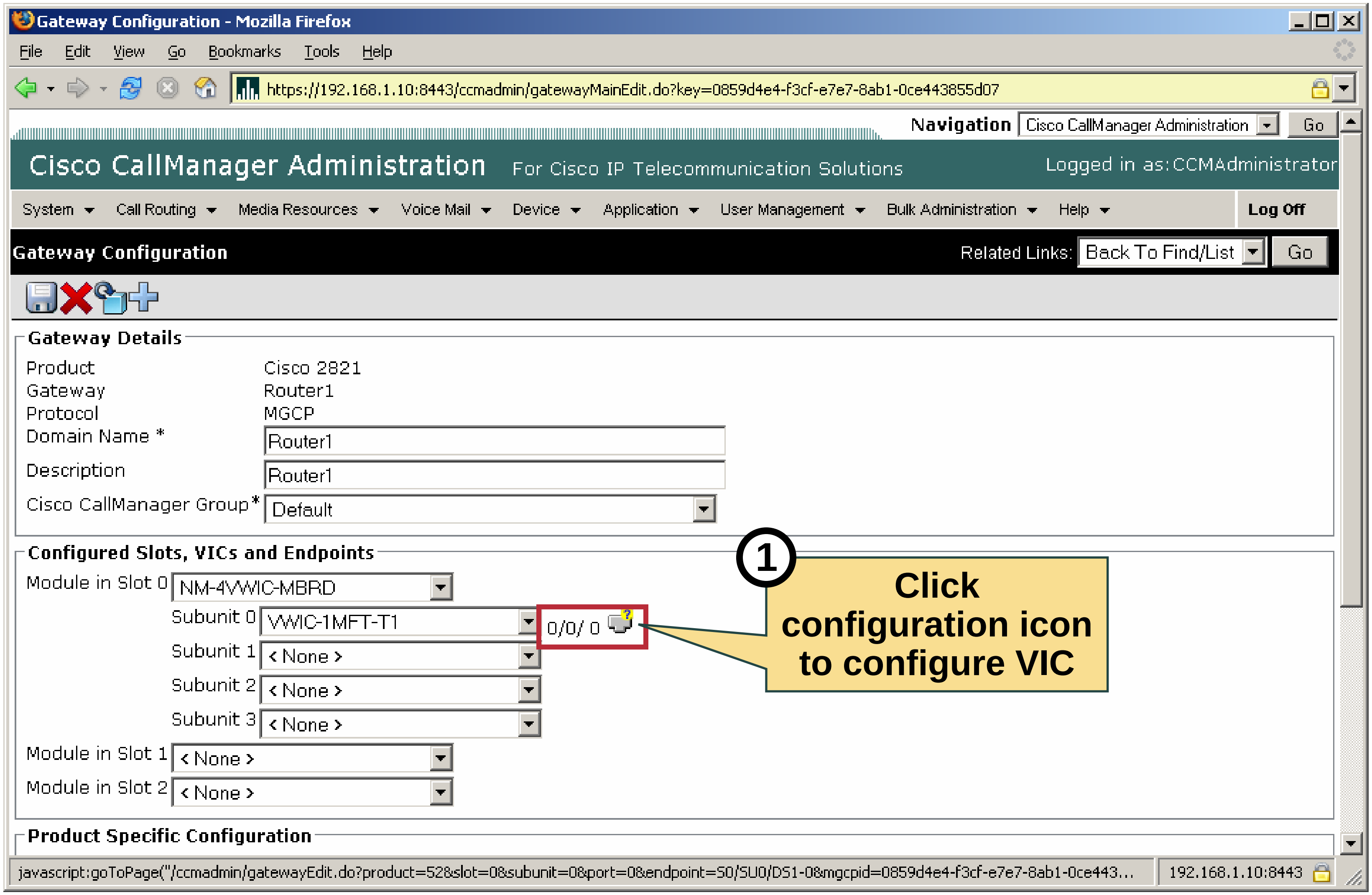
< None >
VWIC-1MFT-T1
VWIC-2MFT-T1
VWIC-1MFT-E1
VWIC-2MFT-E1
VIC-4FXS
VIC2-2FXS
VIC2-2FXO
VIC2-2BRI
VIC2-4FXO
VWIC2-1MFT-T1E1-T1

Product Specific Configu

② Click Save.

① Select the appropriate VIC.

Configuring MGCP Gateways in Cisco Unified CallManager: Configure VICs


Gateway Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Related Links:
Back To Find/List
Go

https://192.168.1.10:8443/ccmadmin/gatewayMainEdit.do?key=0859d4e4-f3cf-e7e7-8ab1-0ce443855d07

Logged in as: CCMAdministrator

Gateway Configuration

Gateway Details

Product	Cisco 2821
Gateway	Router1
Protocol	MGCP
Domain Name *	Router1
Description	Router1
Cisco CallManager Group*	Default

Configured Slots, VICs and Endpoints

Module in Slot 0	NM-4VWIC-MBRD	
Subunit 0	VWIC-1MFT-T1	0/0/ 0
Subunit 1	< None >	
Subunit 2	< None >	
Subunit 3	< None >	
Module in Slot 1	< None >	
Module in Slot 2	< None >	

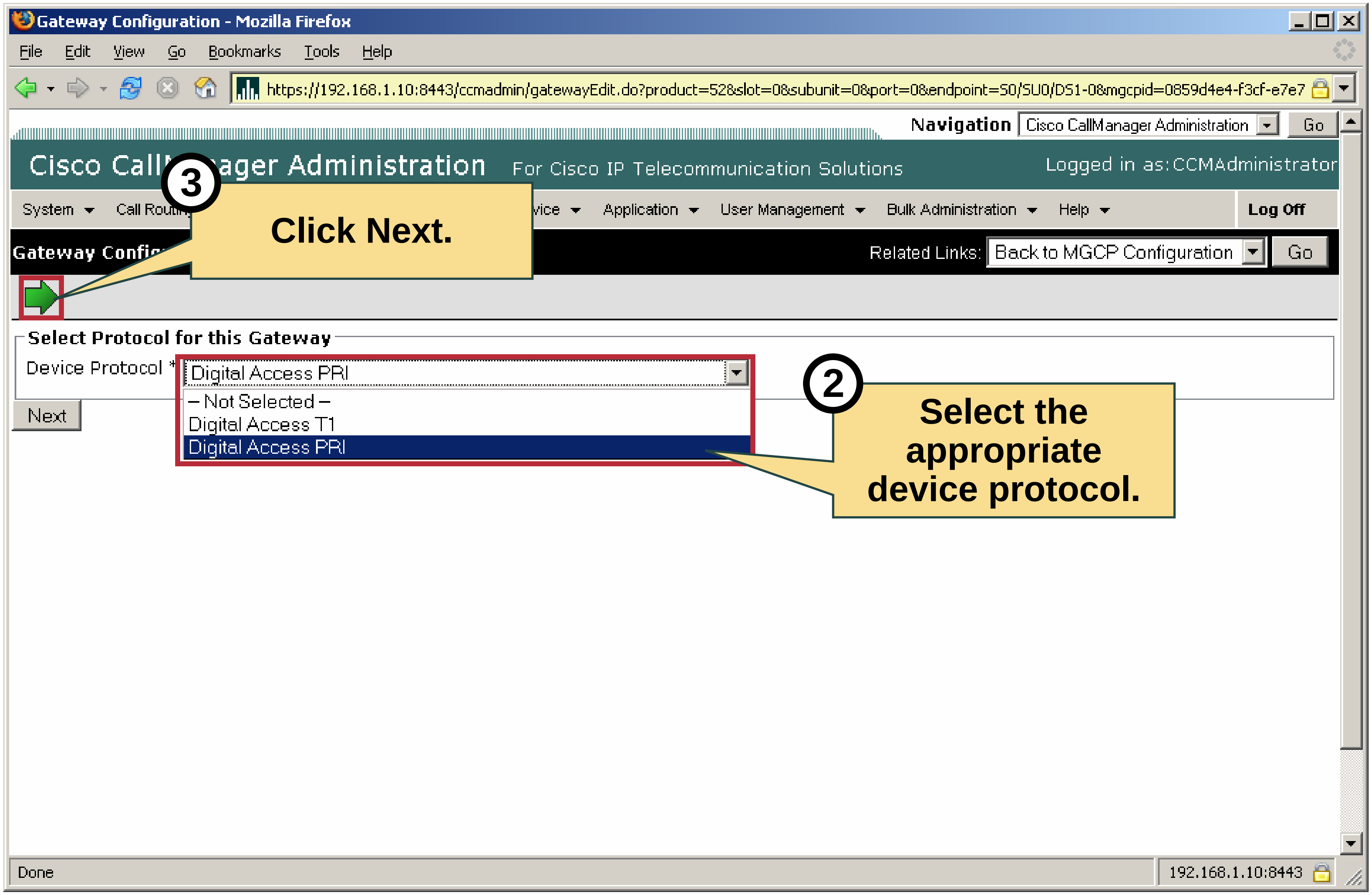
Product Specific Configuration

javascript:goToPage("/ccmadmin/gatewayEdit.do?product=52&slot=0&subunit=0&port=0&endpoint=S0/SU0/DS1-0&mgcpid=0859d4e4-f3cf-e7e7-8ab1-0ce443...

192.168.1.10:8443

① Click configuration icon to configure VIC

Configuring MGCP Gateways in Cisco Unified CallManager: Configure VICs


Gateway Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Device Application User Management Bulk Administration Help
Log Off
Gateway Configuration
Related Links: Back to MGCP Configuration Go
Next
Done
192.168.1.10:8443

https://192.168.1.10:8443/ccmadmin/gatewayEdit.do?product=52&slot=0&subunit=0&port=0&endpoint=S0/SU0/DS1-0&mgcpid=0859d4e4-f3cf-e7e7

Select Protocol for this Gateway

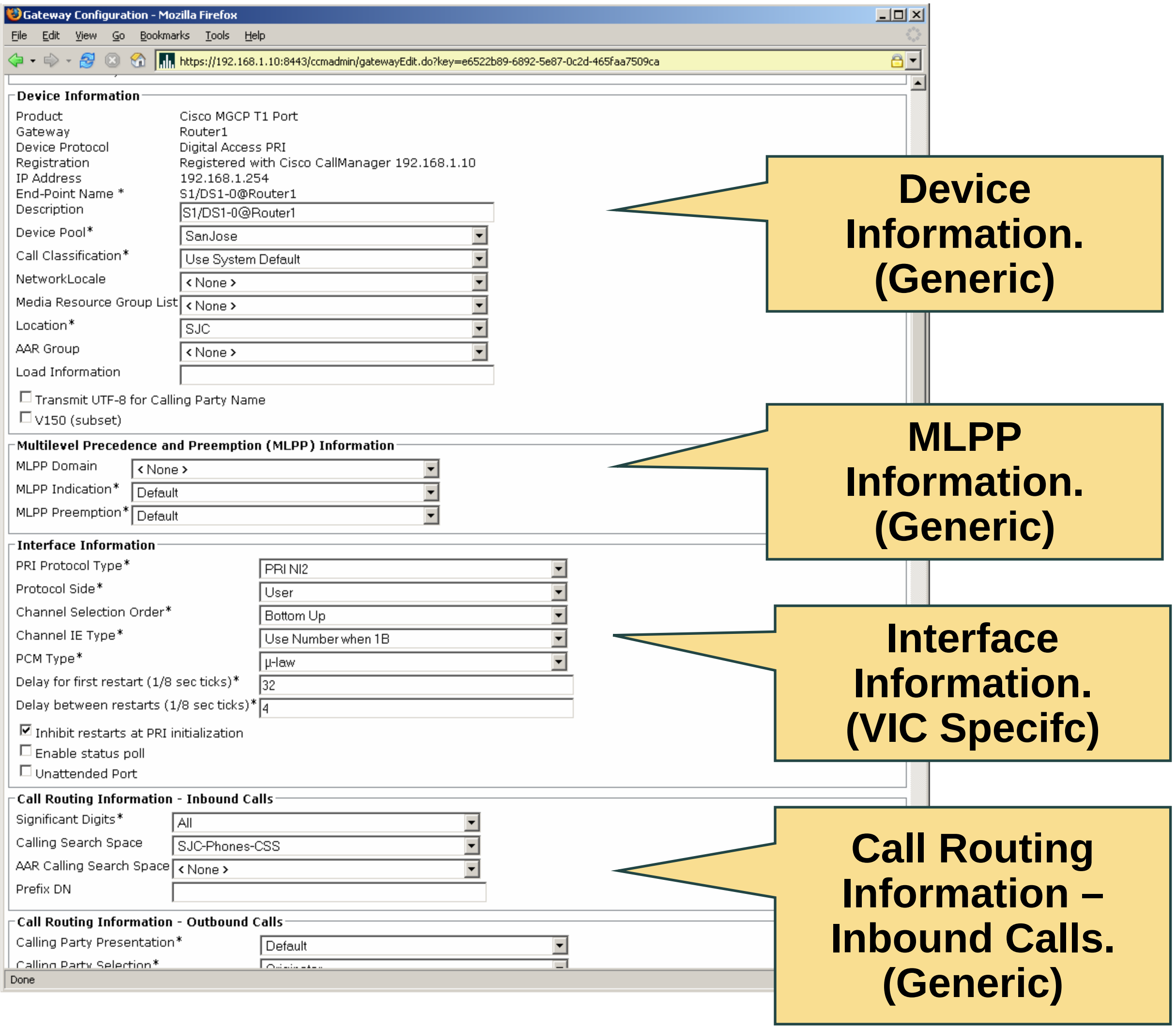
Device Protocol * Digital Access PRI

- – Not Selected –
- Digital Access T1
- Digital Access PRI

② Select the appropriate device protocol.

③ Click Next.

Configuring MGCP Gateways in Cisco Unified CallManager: Configure VICs


Gateway Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/gatewayEdit.do?key=e6522b89-6892-5e87-0c2d-465faa7509ca

Device Information

Product: Cisco MGCP T1 Port
Gateway: Router1
Device Protocol: Digital Access PRI
Registration: Registered with Cisco CallManager 192.168.1.10
IP Address: 192.168.1.254
End-Point Name *: S1/DS1-0@Router1
Description: S1/DS1-0@Router1
Device Pool*: SanJose
Call Classification*: Use System Default
NetworkLocale: < None >
Media Resource Group List: < None >
Location*: SJC
AAR Group: < None >
Load Information:

☐ Transmit UTF-8 for Calling Party Name
☐ V150 (subset)

Multilevel Precedence and Preemption (MLPP) Information

MLPP Domain: < None >
MLPP Indication*: Default
MLPP Preemption*: Default

Interface Information

PRI Protocol Type*: PRI NI2
Protocol Side*: User
Channel Selection Order*: Bottom Up
Channel IE Type*: Use Number when 1B
PCM Type*: µ-law
Delay for first restart (1/8 sec ticks)*: 32
Delay between restarts (1/8 sec ticks)*: 4

☑ Inhibit restarts at PRI initialization
☐ Enable status poll
☐ Unattended Port

Call Routing Information - Inbound Calls

Significant Digits*: All
Calling Search Space: SJC-Phones-CSS
AAR Calling Search Space: < None >
Prefix DN:

Call Routing Information - Outbound Calls

Calling Party Presentation*: Default
Calling Party Selection*:

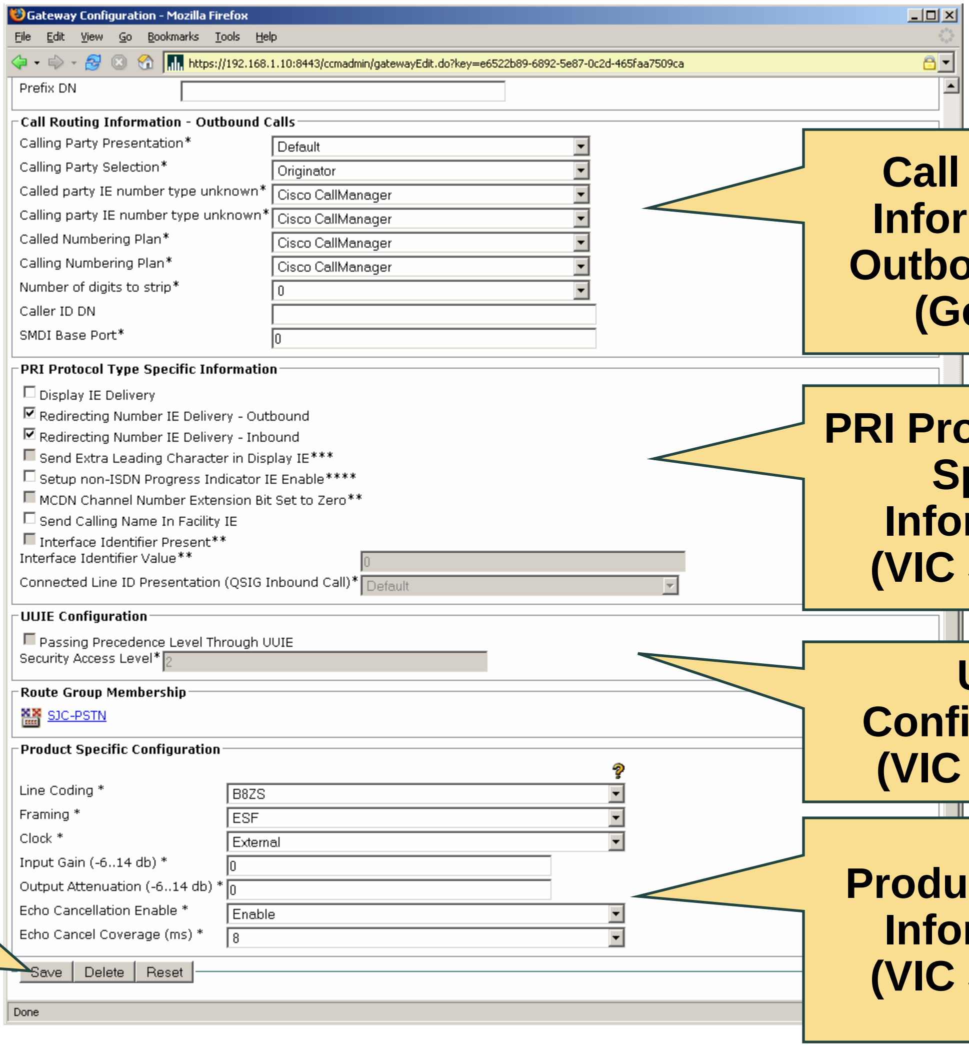
Device Information. (Generic)

MLPP Information. (Generic)

Interface Information. (VIC Specifc)

Call Routing Information – Inbound Calls. (Generic)

Configuring MGCP Gateways in Cisco Unified CallManager: Configure VICs


Gateway Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/gatewayEdit.do?key=e6522b89-6892-5e87-0c2d-465faa7509ca
Save
Delete
Reset
Done

Prefix DN

Call Routing Information - Outbound Calls

Calling Party Presentation*: Default
Calling Party Selection*: Originator
Called party IE number type unknown*: Cisco CallManager
Calling party IE number type unknown*: Cisco CallManager
Called Numbering Plan*: Cisco CallManager
Calling Numbering Plan*: Cisco CallManager
Number of digits to strip*: 0
Caller ID DN
SMDI Base Port*: 0

PRI Protocol Type Specific Information

☐ Display IE Delivery
☑ Redirecting Number IE Delivery - Outbound
☑ Redirecting Number IE Delivery - Inbound
☐ Send Extra Leading Character in Display IE***
☐ Setup non-ISDN Progress Indicator IE Enable****
☐ MCDN Channel Number Extension Bit Set to Zero**
☐ Send Calling Name In Facility IE
☐ Interface Identifier Present**
Interface Identifier Value**: 0
Connected Line ID Presentation (QSIG Inbound Call)*: Default

UUIE Configuration

☐ Passing Precedence Level Through UUIE
Security Access Level*: 2

Route Group Membership

SJC-PSTN

Product Specific Configuration

Line Coding *: B8ZS
Framing *: ESF
Clock *: External
Input Gain (-6..14 db) *: 0
Output Attenuation (-6..14 db) *: 0
Echo Cancellation Enable *: Enable
Echo Cancel Coverage (ms) *: 8

Call Routing Information – Outbound Calls (Generic)

PRI Protocol Type Specifc Information. (VIC Specific)

UUIE Configuration. (VIC Specifc)

Product Specifc Information. (VIC Specific)

Save/Reset Configuration.

Configuring MGCP Gateways in Cisco Unified CallManager: Configure VICs

Most important MGCP gateway configuration settings:

	Description	Example
Device Information	Includes device pool and location configuration.	Device Pool: SanJose Location: SanJose
Interface Information	Contains all settings used to configure the VIC, e.g. ISDN Layer 3	Switch Type: PRI NI2 Protocol Side: User
Call Routing Inbound Calls	Digit manipulation and routing for inbound calls.	Significant Digits: 4 Inbound CSS: None
Call Routing Outbound Calls	Digit manipulation and routing for outbound calls.	Number of Digits to strip: 0
VIC Specific Information	VIC dependant configuration, e.g. ISDN Layer 2	Line Code: B8ZS Framing: ESF

Configuring Gateways for MGCP

IOS MGCP gateway configuration steps:

1. Specify configuration server.
2. Enable configuration download.

Configuring Gateways for MGCP

`router(config)#`

```
ccm-manager config server <CCM TFTP IP>
```

- Specifies CallManager TFTP server hosting the gateway config XML file.

`router(config)#`

```
ccm-manager config
```

- Activates gateway to pull configuration from TFTP server.

`router#`

```
show ccm-manager
```

- Verify connection to CallManager

Configuring Gateways for MGCP

```
router#
show mgcp endpoint
```

- Displays mgcp controlled interfaces and channels.

```
router#
show isdn status
```

- Displays ISDN Layer 1, Layer 2 and Layer 3 information

```
router#
debug isdn q931
```

- Displays ISDN Q931 information.

Verifying MGCP Gateway Operation

```
Router1(config)#ccm-manager config server 192.168.1.10
Router1(config)#ccm-manager config
Router1#show ccm-manager
MGCP Domain Name: Router1
Priority        Status                   Host
============================================================
Primary         Registered               192.168.1.10
First Backup    None
Second Backup   None
…
Router1#sho mgcp endpoint

Interface T1 1/0

             ENDPOINT-NAME    V-PORT     SIG-TYPE   ADMIN
        S1/ds1-0/1@Router1     1/0:23        none   up
        S1/ds1-0/2@Router1     1/0:23        none   up
        S1/ds1-0/3@Router1     1/0:23        none   up
        S1/ds1-0/4@Router1     1/0:23        none   up
        S1/ds1-0/5@Router1     1/0:23        none   up
        S1/ds1-0/6@Router1     1/0:23        none   up
        S1/ds1-0/7@Router1     1/0:23        none   up
        S1/ds1-0/8@Router1     1/0:23        none   up
…
```

Registered with CallManager.

Registered MGCP endpoints.

Configuring Gateways for MGCP

```
Router1#sho isdn status
Global ISDN Switchtype = primary-ni

%Q.931 is backhauled to CCM MANAGER 0x0003 on DSL 0. Layer 3 output may not
appl
y

ISDN Serial1/0:23 interface
        dsl 0, interface ISDN Switchtype = primary-ni
        L2 Protocol = Q.921 0x0000  L3 Protocol(s) = CCM MANAGER 0x0003
    Layer 1 Status:
        ACTIVE
    Layer 2 Status:
        TEI = 0, Ces = 1, SAPI = 0, State = MULTIPLE_FRAME_ESTABLISHED
    Layer 3 Status:
        0 Active Layer 3 Call(s)
    Active dsl 0 CCBs = 0
    The Free Channel Mask:  0x807FFFFF
    Number of L2 Discards = 0, L2 Session ID = 2
    Total Allocated ISDN CCBs = 0
…
```

Backhauled to CallManager.

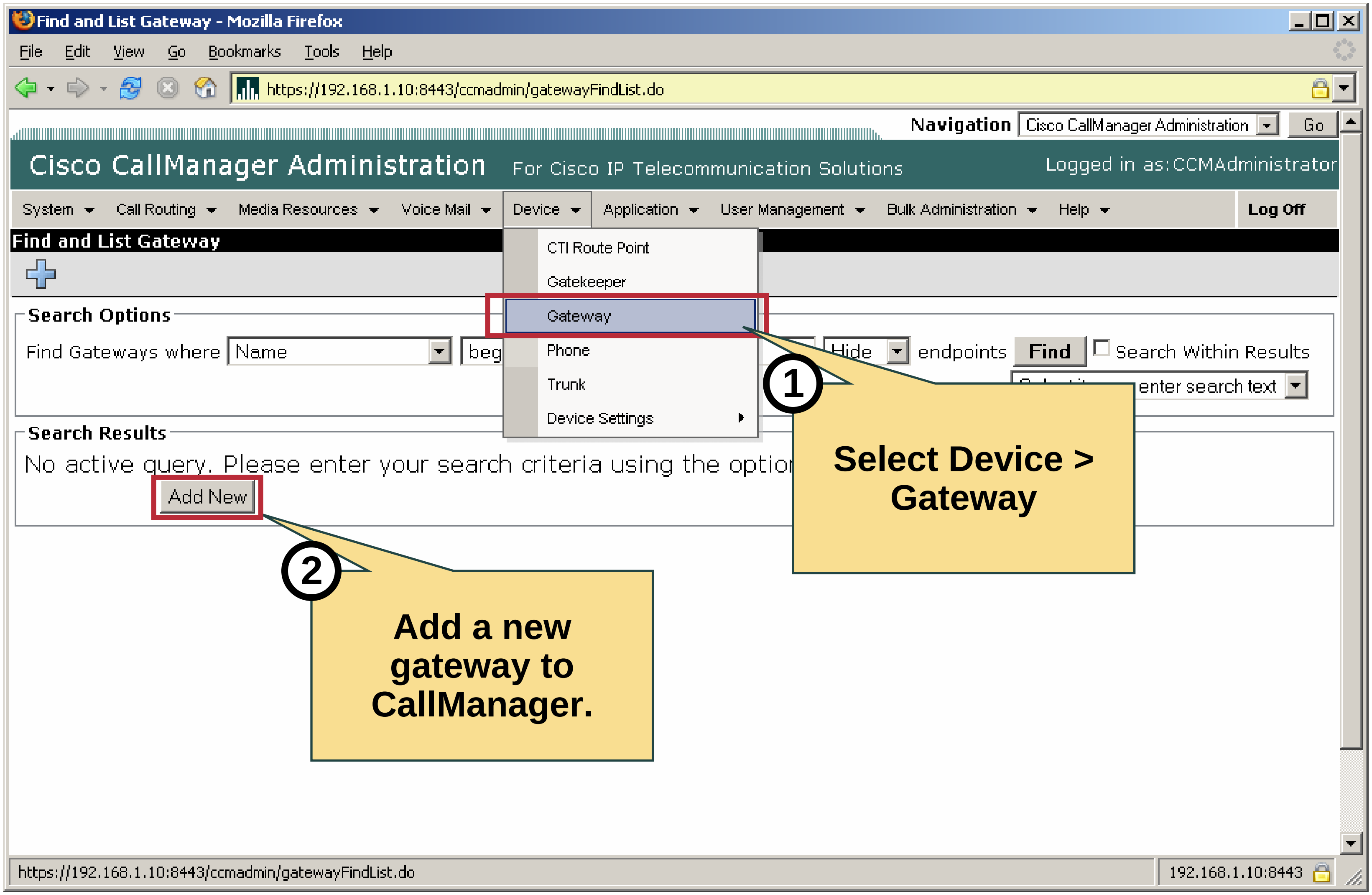
Layer 2 up.

Configuring H.323 Gateways in Cisco Unified CallManager

CallManager H.323 Gateway configuration steps:

1. **Add H.323 Gateway.**
2. **Configure H.323 Gateway settings.**

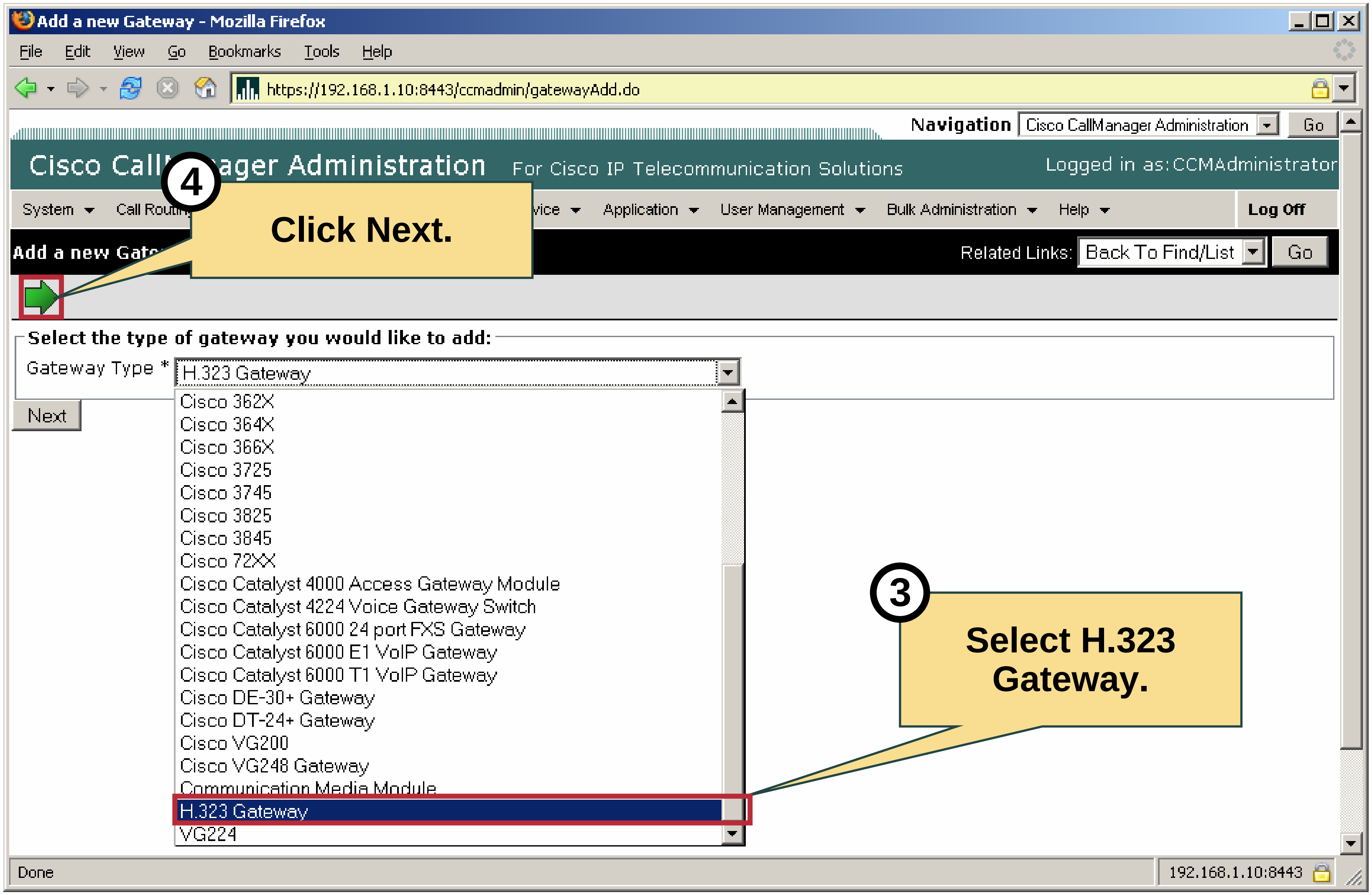
Configuring H.323 Gateways in Cisco Unified CallManager: Add Gateway


Find and List Gateway - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/gatewayFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Find and List Gateway
CTI Route Point
Gatekeeper
Gateway
Phone
Trunk
Device Settings
Search Options
Find Gateways where Name beg Hide endpoints Find
Search Within Results
enter search text
Search Results
No active query. Please enter your search criteria using the optior
Add New
https://192.168.1.10:8443/ccmadmin/gatewayFindList.do
192.168.1.10:8443

① Select Device > Gateway

② Add a new gateway to CallManager.

Configuring H.323 Gateways in Cisco Unified CallManager: Add Gateway


Add a new Gateway - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing vice Application User Management Bulk Administration Help
Log Off
Add a new Gateway
Related Links: Back To Find/List Go
Next
Done
192.168.1.10:8443

https://192.168.1.10:8443/ccmadmin/gatewayAdd.do

Select the type of gateway you would like to add:

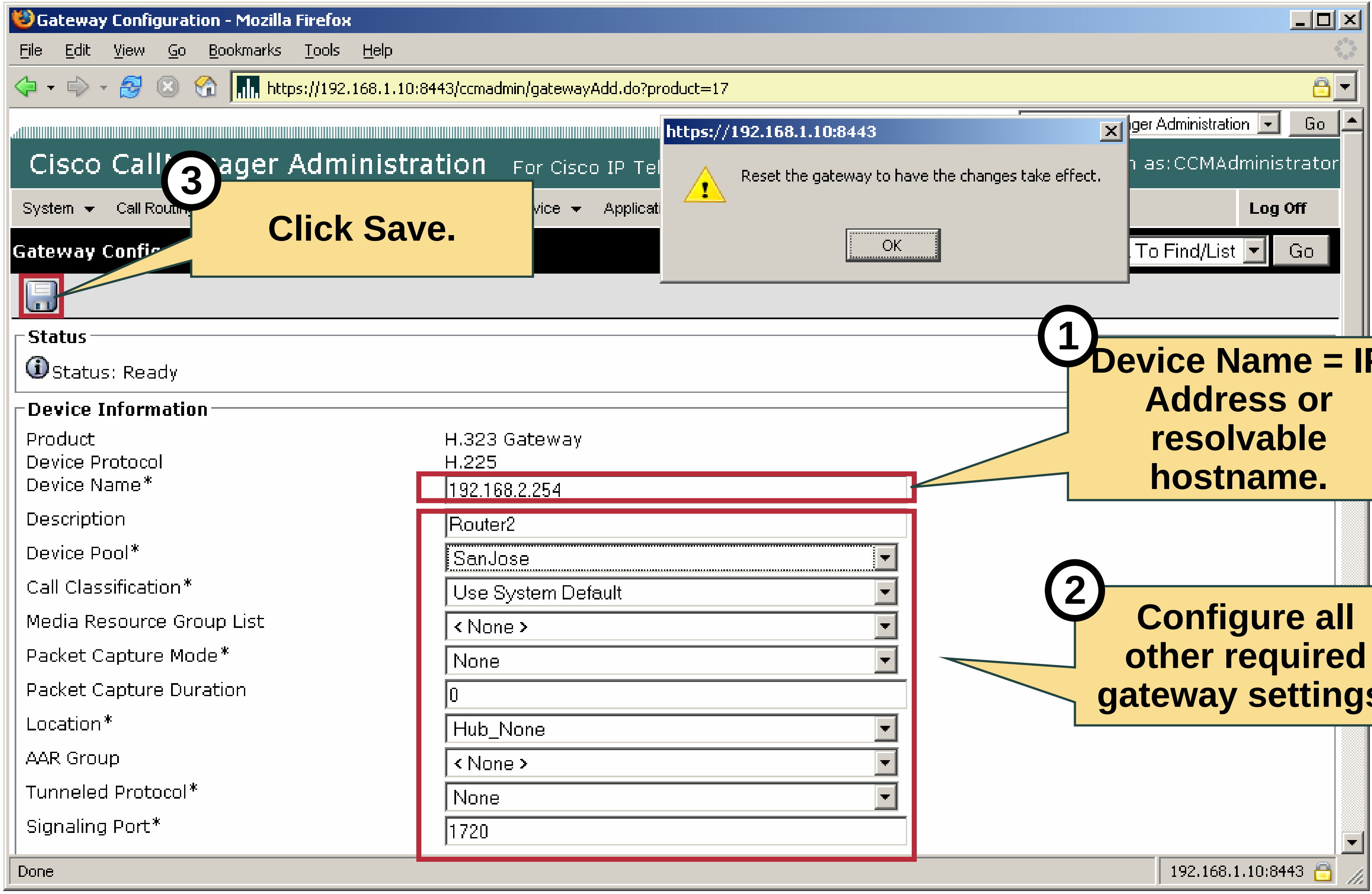
Gateway Type * H.323 Gateway

- Cisco 362X
- Cisco 364X
- Cisco 366X
- Cisco 3725
- Cisco 3745
- Cisco 3825
- Cisco 3845
- Cisco 72XX
- Cisco Catalyst 4000 Access Gateway Module
- Cisco Catalyst 4224 Voice Gateway Switch
- Cisco Catalyst 6000 24 port FXS Gateway
- Cisco Catalyst 6000 E1 VoIP Gateway
- Cisco Catalyst 6000 T1 VoIP Gateway
- Cisco DE-30+ Gateway
- Cisco DT-24+ Gateway
- Cisco VG200
- Cisco VG248 Gateway
- Communication Media Module
- H.323 Gateway
- VG224

④ Click Next.

③ Select H.323 Gateway.

Configuring H.323 Gateways in Cisco Unified CallManager: Gateway



Gateway Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/gatewayAdd.do?product=17
Cisco CallManager Administration
For Cisco IP Tel
ger Administration
Go
as: CCMAdministrator
System
Call Routi
vice
Applicati
Log Off
Gateway Confi
To Find/List
Go
Done
192.168.1.10:8443

https://192.168.1.10:8443

Reset the gateway to have the changes take effect.

OK

Status

Status: Ready

Device Information

Product	H.323 Gateway
Device Protocol	H.225
Device Name*	192.168.2.254
Description	Router2
Device Pool*	SanJose
Call Classification*	Use System Default
Media Resource Group List	< None >
Packet Capture Mode*	None
Packet Capture Duration	0
Location*	Hub_None
AAR Group	< None >
Tunneled Protocol*	None
Signaling Port*	1720

③ Click Save.

① Device Name = IP Address or resolvable hostname.

② Configure all other required gateway settings.

Configuring H.323 Gateways in Cisco Unified CallManager: Gateway

Most important H.323 gateway configuration settings:

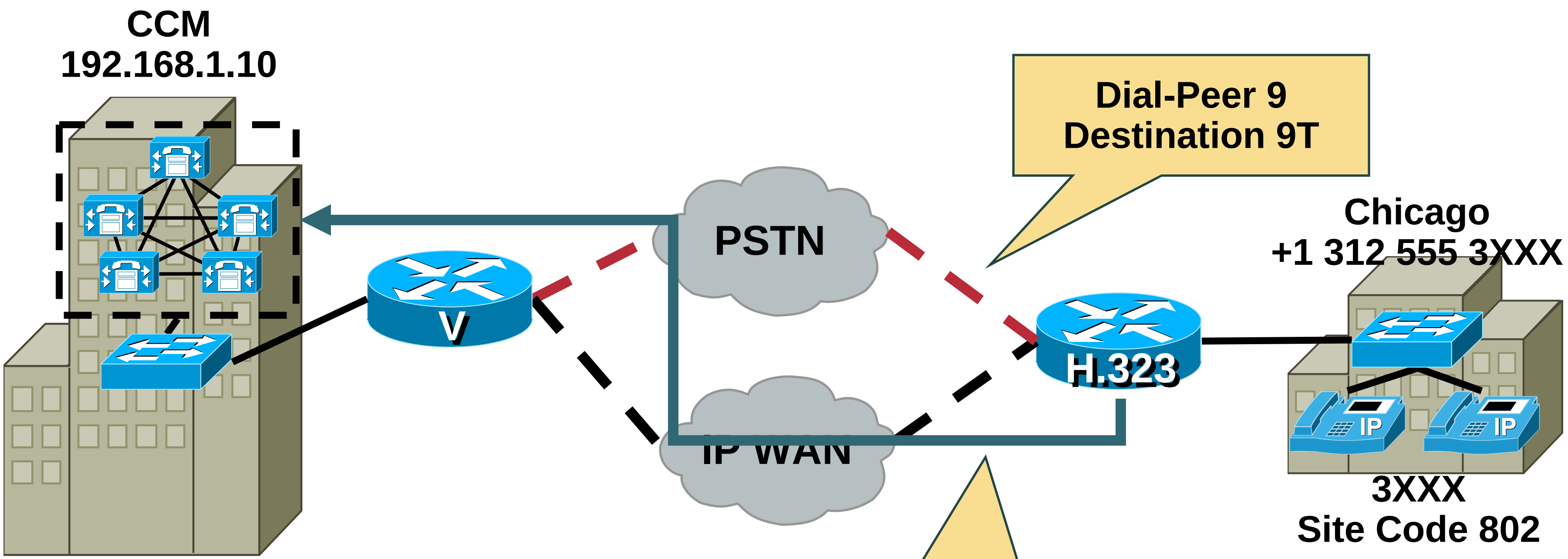
	Description	Example
Device Information	Includes device name, device pool and location configuration.	Device Name: 192.168.2.254 Device Pool: Chicago Location: Chicago
Call Routing Inbound Calls	Digit manipulation and routing for inbound calls.	Significant Digits: 4 Inbound CSS: None
Call Routing Outbound Calls	Digit manipulation and routing for outbound calls.	Number of Digits to strip: 0

Configuring Gateways for H.323

IOS H.323 gateway configuration steps:

1. Verify voice port configuration.
2. Configure H.323 source interface.
3. Configure H.323 dial-peers.

Configuring Gateways for H.323


CCM
192.168.1.10
PSTN
V
IP WAN
H.323
Chicago
+1 312 555 3XXX
IP
IP
3XXX
Site Code 802

Dial-Peer 9
Destination 9T

Dial-Peer 13125553
Destination
13125553…

Configuring Gateways for H.323: Verify Voice Port Configuration

```
Router2#show running-config
…
!
controller T1 1/0
 framing esf
 linecode b8zs
 pri-group timeslots 1-24
!
…
!
interface Serial1/0:23
 no ip address
 encapsulation hdlc
 isdn switch-type primary-ni
 isdn incoming-voice voice
 no cdp enable
!
```

Configuring Gateways for H.323: Source Interface

```
router(config-if)#
```

```
h323-gateway voip bind srcaddr <interface IP>
```

- **Specifies the source IP address used for H.323.**

```
Router2#show running-config
…
!
interface FastEthernet0/0
 description Site2 LAN
 ip address 192.168.2.254 255.255.255.0
 duplex auto
 speed auto
 h323-gateway voip bind srcaddr 192.168.2.254
!
```

Configuring Gateways for H.323: Dial-Peers

```
router(config)#
dial-peer voice <nr> voip|pots
```

- Configures a VoIP or POTS dial-peer.

```
router(config-dial-peer)#
destination-pattern <pattern>
```

- Configures the dialed destination of a dial-peer

```
router(config-dial-peer)#
session target ipv4:<ip address>
```

- Configures a H.323 target of a VoIP dial-peer

Configuring Gateways for H.323: Dial-Peers

```
router(config-dial-peer)#
```

```
codec <codec type>
```

- Configures the codec for a VoIP dial-peer.

```
router(config-dial-peer)#
```

```
port <VIC port>
```

- Configures a POTS target for POTS dial-peers

```
router(config-dial-peer)#
```

```
direct-inward-dial
```

- Enables DID calls.

```
router(config-dial-peer)#
```

```
incoming called-number
```

- Specifies the incoming called-number which needs to match.

Configuring Gateways for H.323: Dial-Peers

```
Router2#show running-config
!
dial-peer voice 9 pots
 destination-pattern 9T
 incoming called-number 13125552...
 direct-inward-dial
 port 1/0:23
!
dial-peer voice 13125552 voip
 destination-pattern 13125553...
 session target ipv4:192.168.1.10
 incoming called-number 9T
 codec g711ulaw
 no vad
 dtmf-relay h245-alphanumeric
!
```

Verifying H.323 Gateway Operation

```
router#
show voice port summary
```

- Displays voice-port information.

```
router#
debug isdn q931
```

- Displays ISDN Q931 information.

Verifying H.323 Gateway Operation

```
router#
debug voip dialpeer
```

- Debugs dial-peer matching.

```
Router2#debug voip dialpeer
*Apr 10 05:03:40.816: //-1/xxxxxxxxxxxx/DPM/dpAssociateIncomingPeerCore:
   Calling Number=14085556666, Called Number=13125552001, Voice-
Interface=0x855C
AE88,
   Timeout=TRUE, Peer Encap Type=ENCAP_VOICE, Peer Search
Type=PEER_TYPE_VOICE,
   Peer Info Type=DIALPEER_INFO_SPEECH
…
```

Verifying H.323 Gateway Operation

```
router#
Debug h225 asn1|events|q931
```

- **Debugs dial-peer matching.**

```
Router2#debug h225 asn1
*Apr 10 05:07:38.690: H225 NONSTD OUTGOING PDU ::=

value H323_UU_NonStdInfo ::=
    {
      version 2
      protoParam qsigNonStdInfo :
      {
        iei 4
        rawMesg '04038090A21803A983811E0285836C0D00803134...'H
      }
      progIndParam progIndIEinfo :
      {
        progIndIE '00000003'H
      }
    }
…
```

Summary

- MGCP gateway configuration depends on router model and used VICs.
- Configure IOS MGCP gateways to pull the configuration from CallManager to reduce manual configuration efforts.
- Debug and show commands can be used to verify the MGCP gateway and endpoint status.
- H.323 gateway is generic and does not depend on used IOS gateway.
- Configure IOS H.323 gateways with correct dial-peers to interact with CallManager.
- Debug commands can be used to verify dial-peer matching and H.225 signalling.

Deploying a Dial Plan on CallManager 5.0

Configuring Cisco Unified CallManager Trunks

Objectives

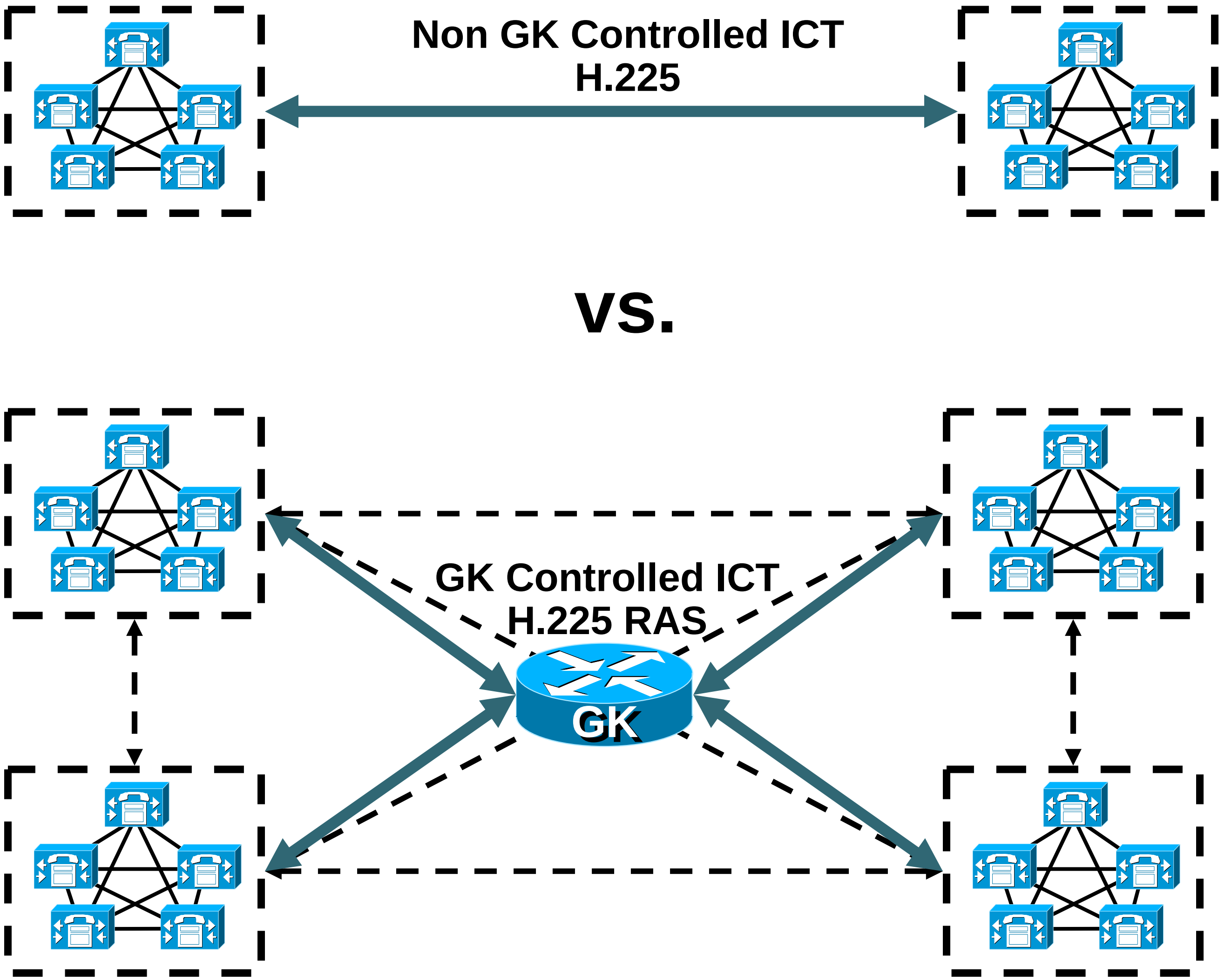
- **Trunk Overview**
- **Configuring Non-Gatekeeper Controlled Intercluster Trunks**
- **Configuring Gatekeeper Controlled Intercluster Trunks**
- **Configuring QSIG for Trunks**
- **Configuring SIP Trunks**

Trunk Overview

Trunks are Off-Cluster VoIP connection:

- Either H.323 or SIP
- Intercluster Trunks interconnect CCM clusters
  - H.323 Non-Gatekeeper controlled
  - H.323 Gatekeeper controlled
- SIP Trunks used to interwork with other VoIP networks
  - SIP Service Providers
  - SIP enabled PBXs
  - SIP enabled Applications

Trunk Overview

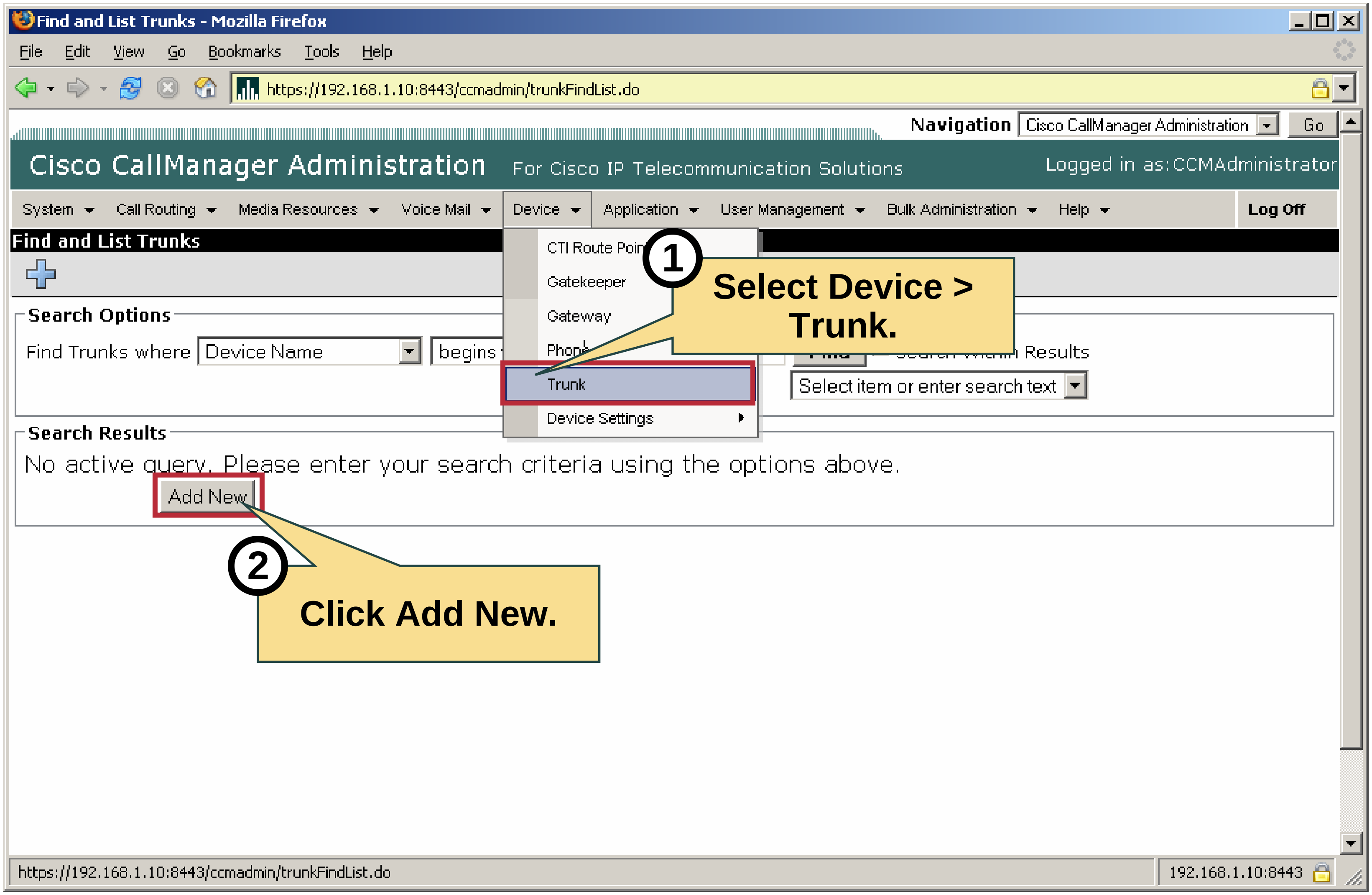

Non GK Controlled ICT
H.225
vs.
GK Controlled ICT
H.225 RAS
GK

Configuring Non-Gatekeeper Controlled Intercluster Trunks

Non-Gatekeeper Controlled Intercluster trunk configuration steps:

1. **Add Non-Gatekeeper Controlled intercluster trunk.**
2. **Specify trunk parameters.**

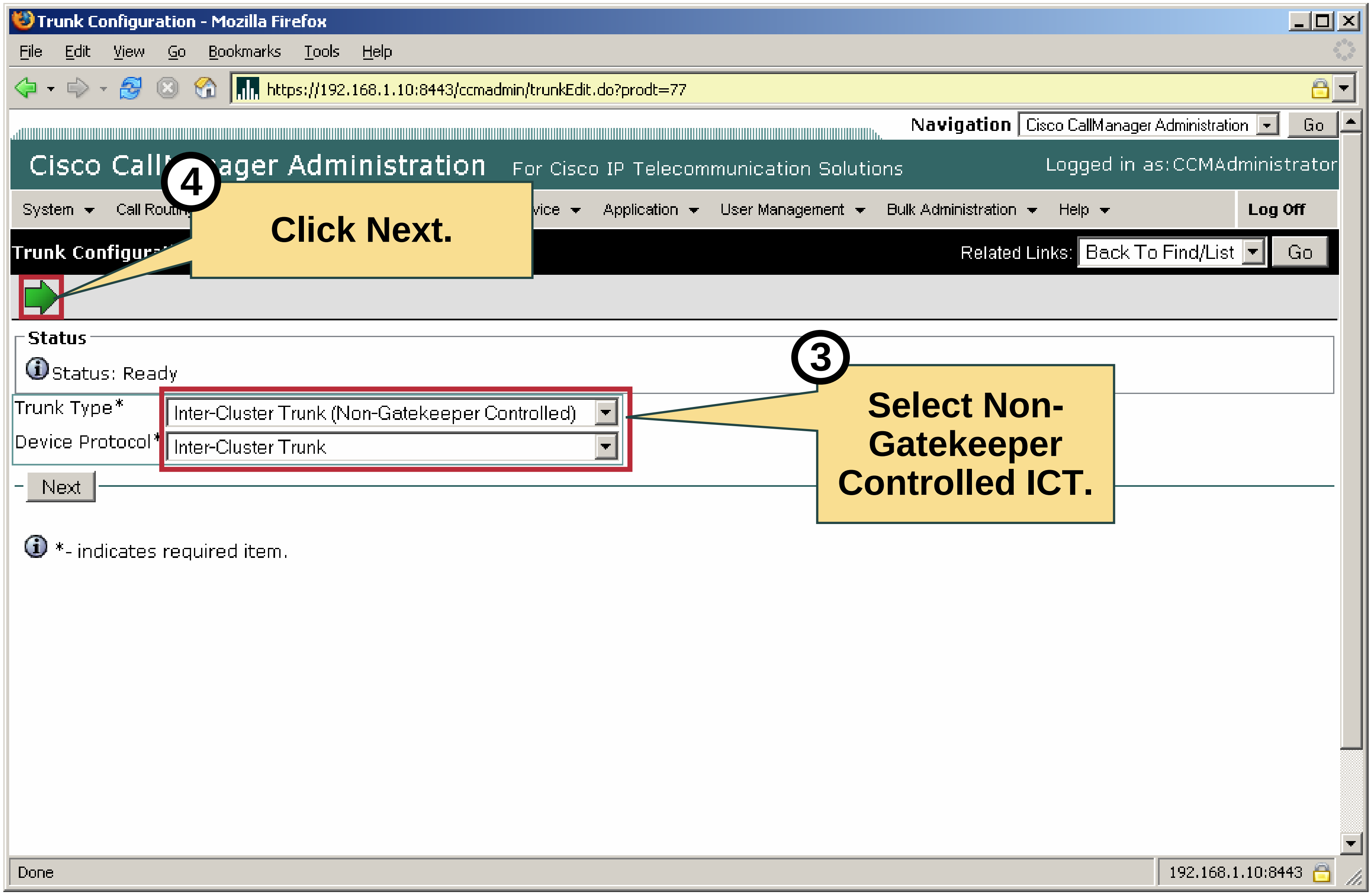
Configuring Non-Gatekeeper Controlled Intercluster Trunks: Adding a Trunk


Find and List Trunks - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/trunkFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
CTI Route Point
Gatekeeper
Gateway
Phone
Trunk
Device Settings
Find and List Trunks
Search Options
Find Trunks where Device Name begins
Search Within Results
Select item or enter search text
Search Results
No active query. Please enter your search criteria using the options above.
Add New
https://192.168.1.10:8443/ccmadmin/trunkFindList.do
192.168.1.10:8443

① Select Device > Trunk.

② Click Add New.

Configuring Non-Gatekeeper Controlled Intercluster Trunks: Adding a Trunk



Trunk Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/trunkEdit.do?prodt=77
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Device Application User Management Bulk Administration Help Log Off
Trunk Configuration
Related Links: Back To Find/List Go
Next
Done
192.168.1.10:8443

Status

Status: Ready

Trunk Type* Inter-Cluster Trunk (Non-Gatekeeper Controlled)

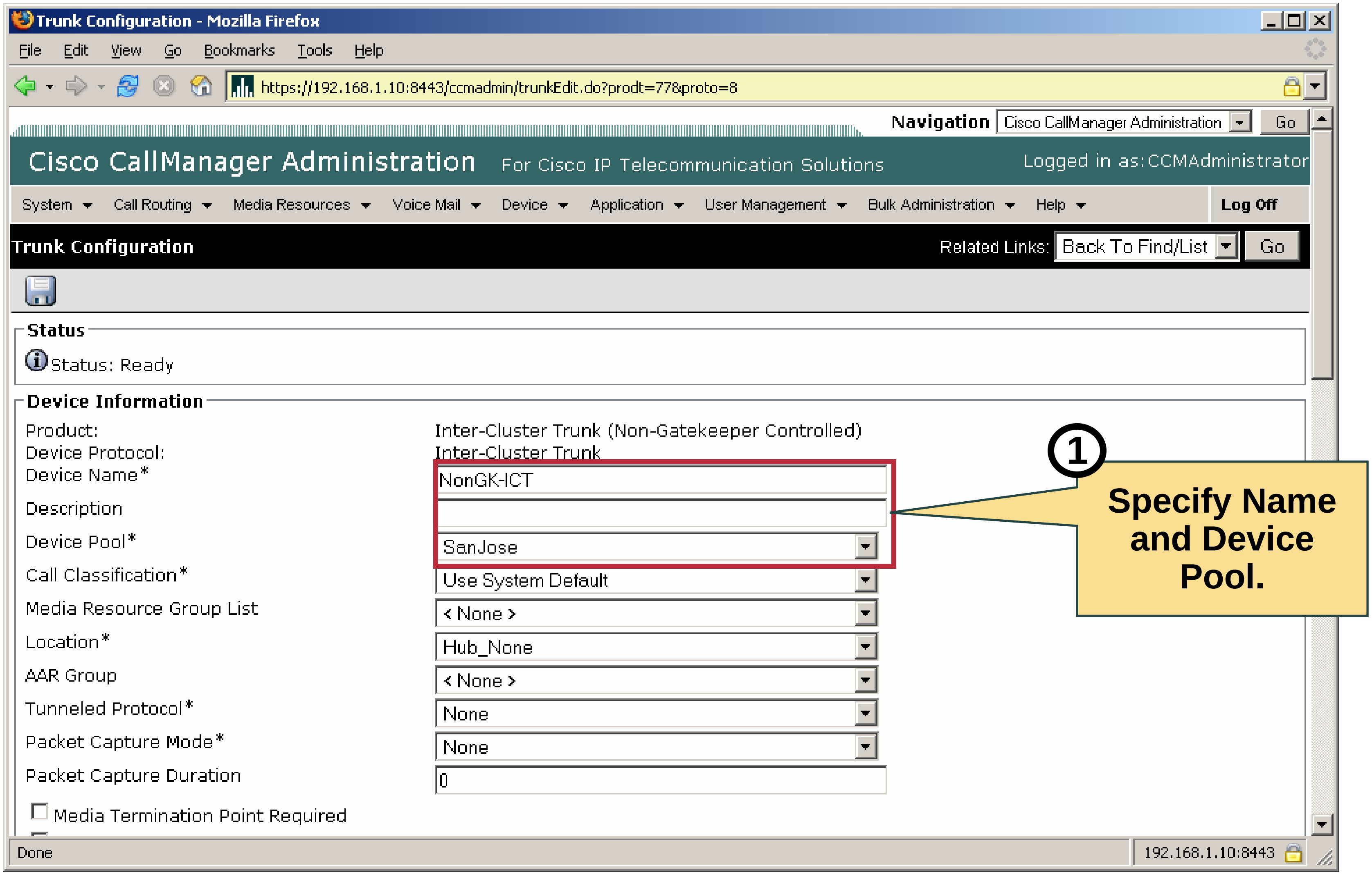
Device Protocol* Inter-Cluster Trunk

*- indicates required item.

④ Click Next.

③ Select Non-Gatekeeper Controlled ICT.

Configuring Non-Gatekeeper Controlled Intercluster Trunks: Configuring Options



Trunk Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/trunkEdit.do?prodt=77&proto=8
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Trunk Configuration
Related Links: Back To Find/List Go
Done
192.168.1.10:8443

Status

Status: Ready

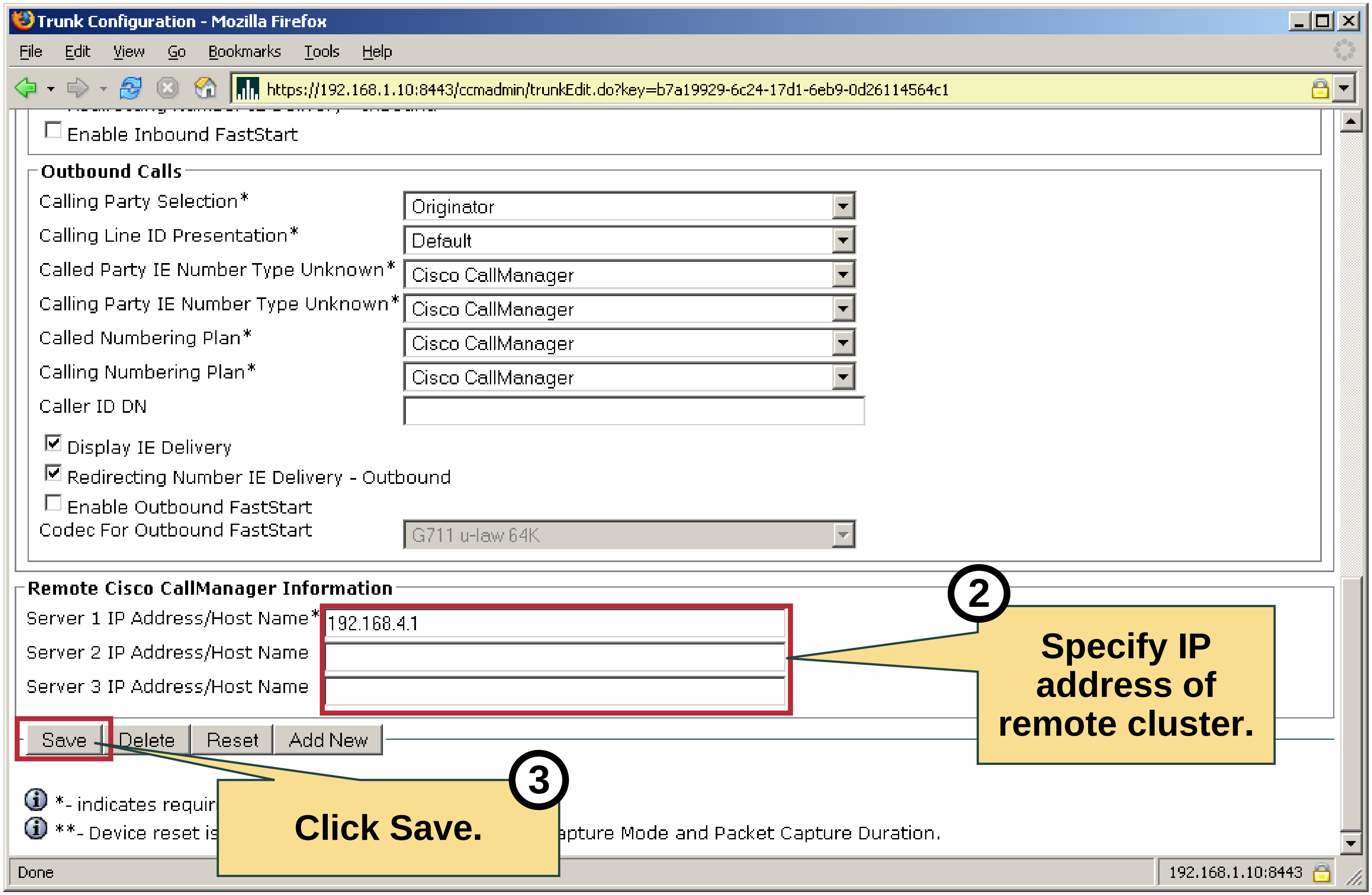
Device Information

Product:	Inter-Cluster Trunk (Non-Gatekeeper Controlled)
Device Protocol:	Inter-Cluster Trunk
Device Name*	NonGK-ICT
Description	
Device Pool*	SanJose
Call Classification*	Use System Default
Media Resource Group List	< None >
Location*	Hub_None
AAR Group	< None >
Tunneled Protocol*	None
Packet Capture Mode*	None
Packet Capture Duration	0

☐ Media Termination Point Required

① Specify Name and Device Pool.

Configuring Non-Gatekeeper Controlled Intercluster Trunks: Configuring Options


Trunk Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/trunkEdit.do?key=b7a19929-6c24-17d1-6eb9-0d26114564c1

☐ Enable Inbound FastStart

Outbound Calls

Calling Party Selection*	Originator
Calling Line ID Presentation*	Default
Called Party IE Number Type Unknown*	Cisco CallManager
Calling Party IE Number Type Unknown*	Cisco CallManager
Called Numbering Plan*	Cisco CallManager
Calling Numbering Plan*	Cisco CallManager
Caller ID DN	

☑ Display IE Delivery
☑ Redirecting Number IE Delivery - Outbound
☐ Enable Outbound FastStart
Codec For Outbound FastStart: G711 u-law 64K

Remote Cisco CallManager Information

Server 1 IP Address/Host Name*	192.168.4.1
Server 2 IP Address/Host Name	
Server 3 IP Address/Host Name	

Save
Delete
Reset
Add New

*- indicates requir

**- Device reset is apture Mode and Packet Capture Duration.

Done
192.168.1.10:8443

② Specify IP address of remote cluster.

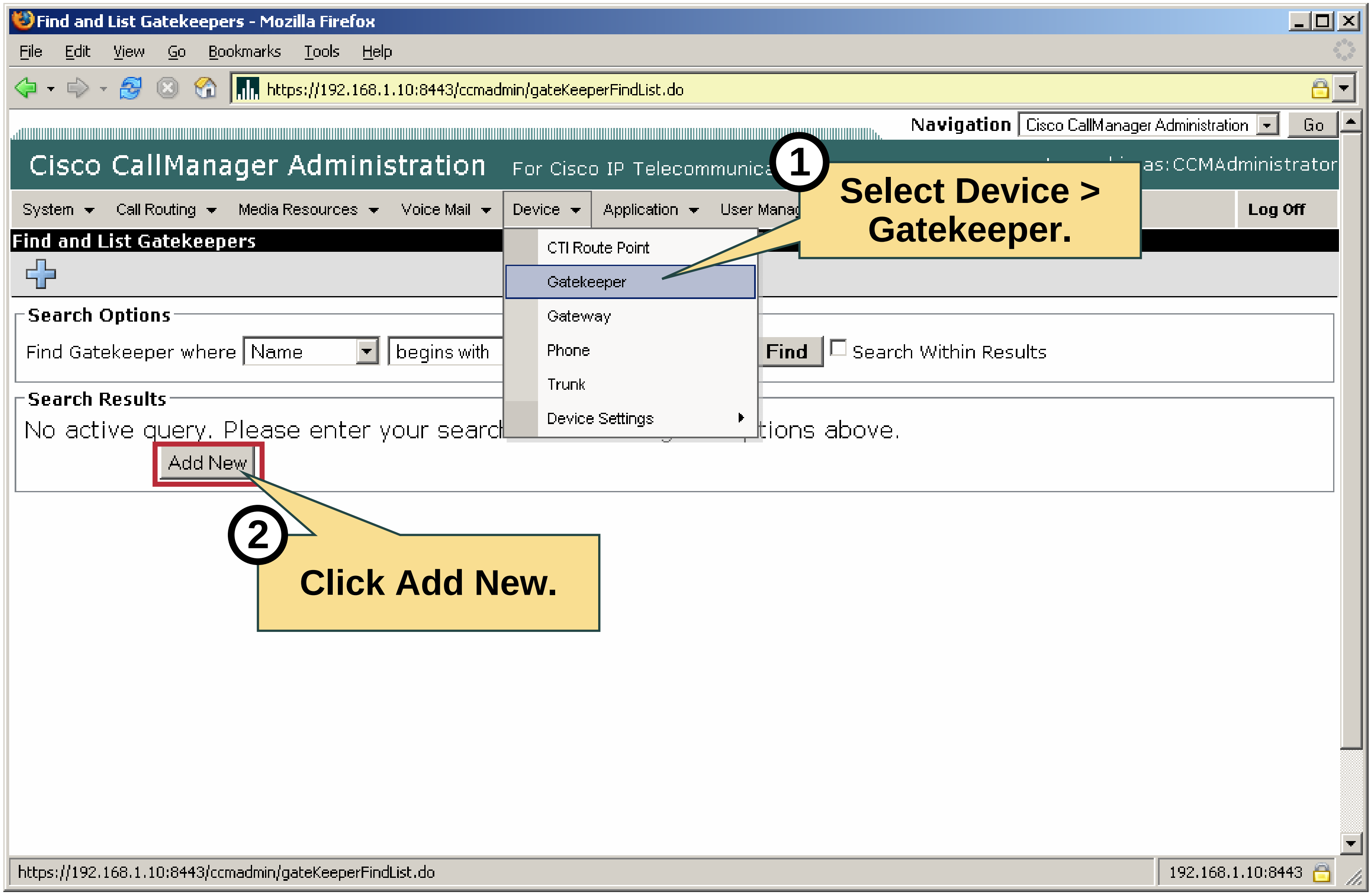
③ Click Save.

Configuring Gatekeeper Controlled Intercluster Trunks

Gatekeeper Controlled Intercluster trunk configuration steps:

1. Add Gatekeeper.
2. Add Gatekeeper Controlled ICT.
3. Specify trunk parameters.

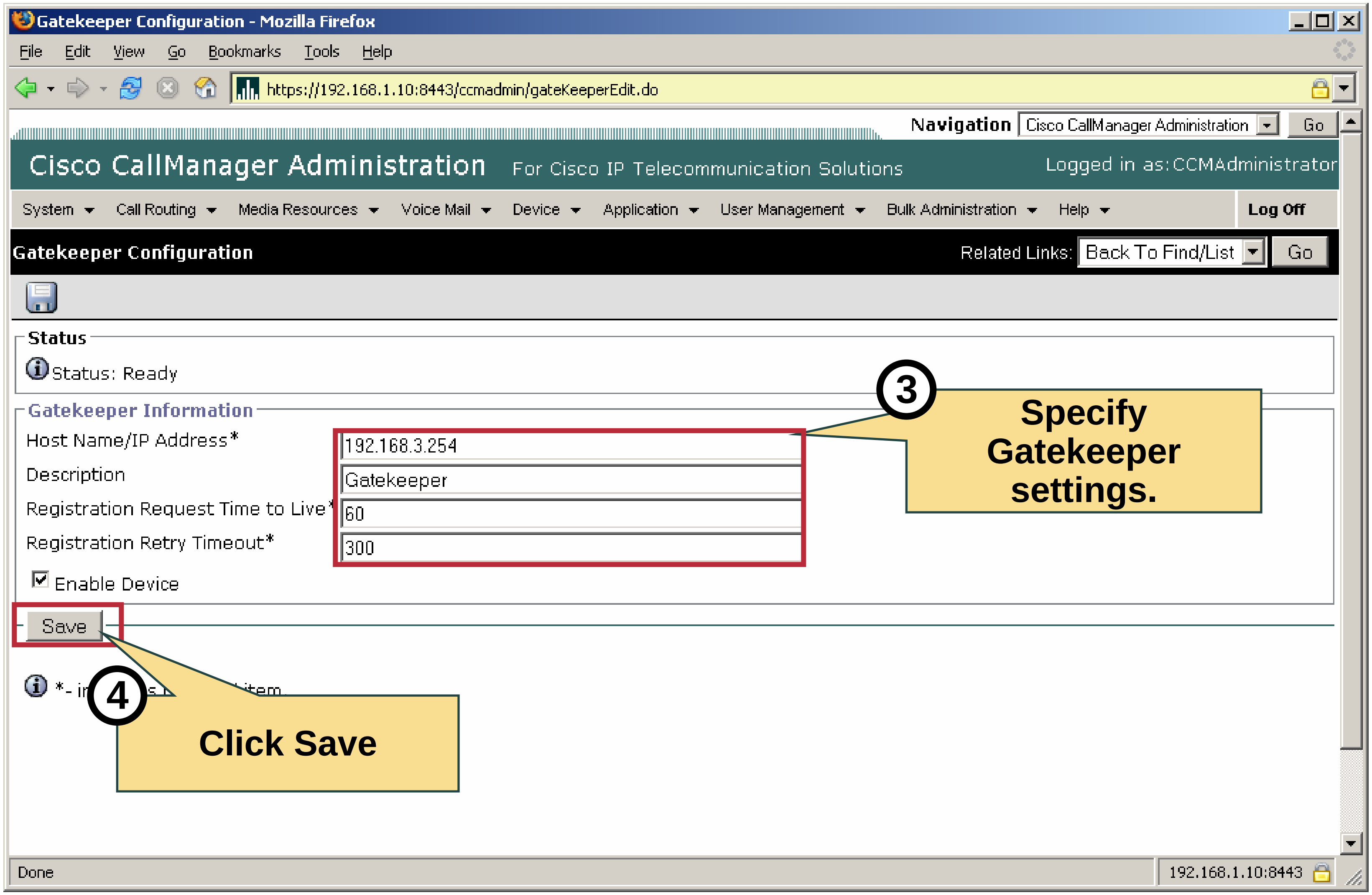
Configuring Gatekeeper Controlled Intercluster Trunks: Add Gatekeeper


Find and List Gatekeepers - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/gateKeeperFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunic
as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Manag
Log Off
Find and List Gatekeepers
CTI Route Point
Gatekeeper
Gateway
Phone
Trunk
Device Settings
Search Options
Find Gatekeeper where Name begins with
Find
☐ Search Within Results
Search Results
No active query. Please enter your search tions above.
Add New
https://192.168.1.10:8443/ccmadmin/gateKeeperFindList.do
192.168.1.10:8443

① Select Device > Gatekeeper.

② Click Add New.

Configuring Gatekeeper Controlled Intercluster Trunks: Add Gatekeeper


Gatekeeper Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/gateKeeperEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Gatekeeper Configuration
Related Links: Back To Find/List Go
Save
Done
192.168.1.10:8443

Status

Status: Ready

Gatekeeper Information

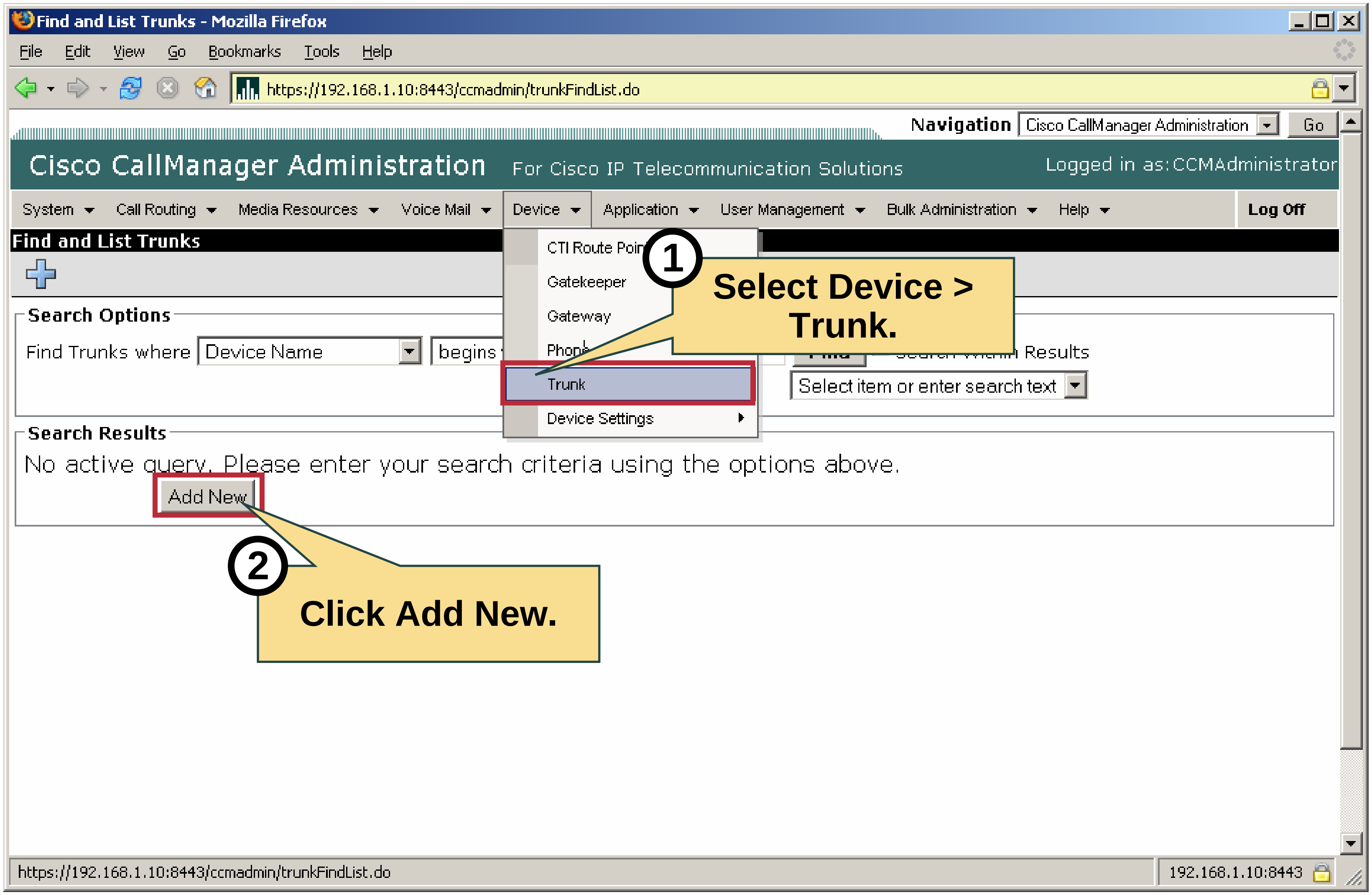
Host Name/IP Address*	192.168.3.254
Description	Gatekeeper
Registration Request Time to Live*	60
Registration Retry Timeout*	300

☑ Enable Device

③ Specify Gatekeeper settings.

④ Click Save

Configuring Gatekeeper Controlled Intercluster Trunks: Add Trunk


Find and List Trunks - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/trunkFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Find and List Trunks
CTI Route Point
Gatekeeper
Gateway
Phone
Trunk
Device Settings
Search Options
Search Results
Add New
https://192.168.1.10:8443/ccmadmin/trunkFindList.do
192.168.1.10:8443

Find Trunks where Device Name begins

Search Within Results

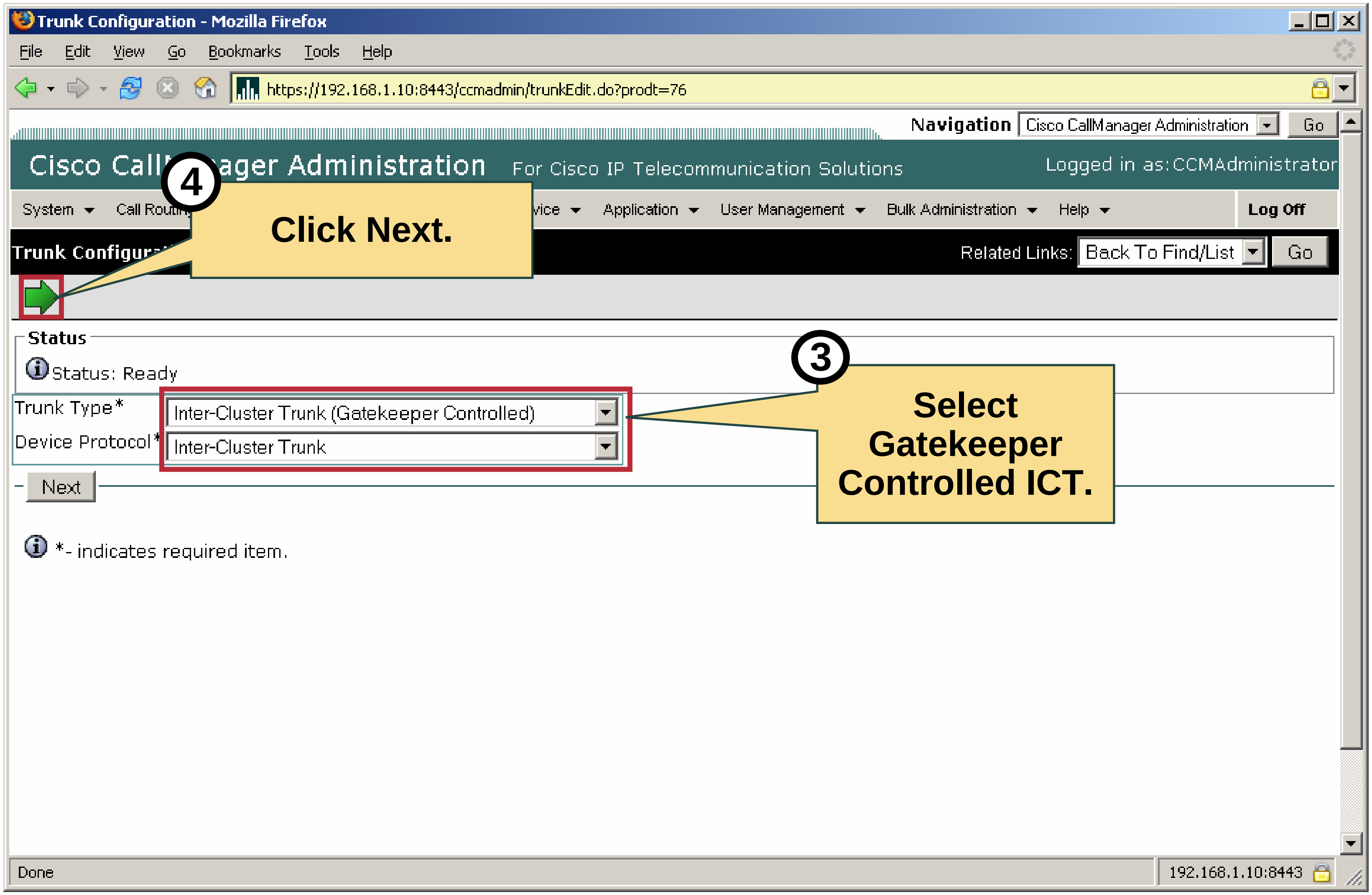
Select item or enter search text

No active query. Please enter your search criteria using the options above.

① Select Device > Trunk.

② Click Add New.

Configuring Gatekeeper Controlled Intercluster Trunks: Add Trunk


Trunk Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/trunkEdit.do?prodt=76
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System Call Routing Device Application User Management Bulk Administration Help Log Off
Trunk Configuration
Related Links: Back To Find/List Go
Next
Done
192.168.1.10:8443

Status

Status: Ready

Trunk Type* Inter-Cluster Trunk (Gatekeeper Controlled)

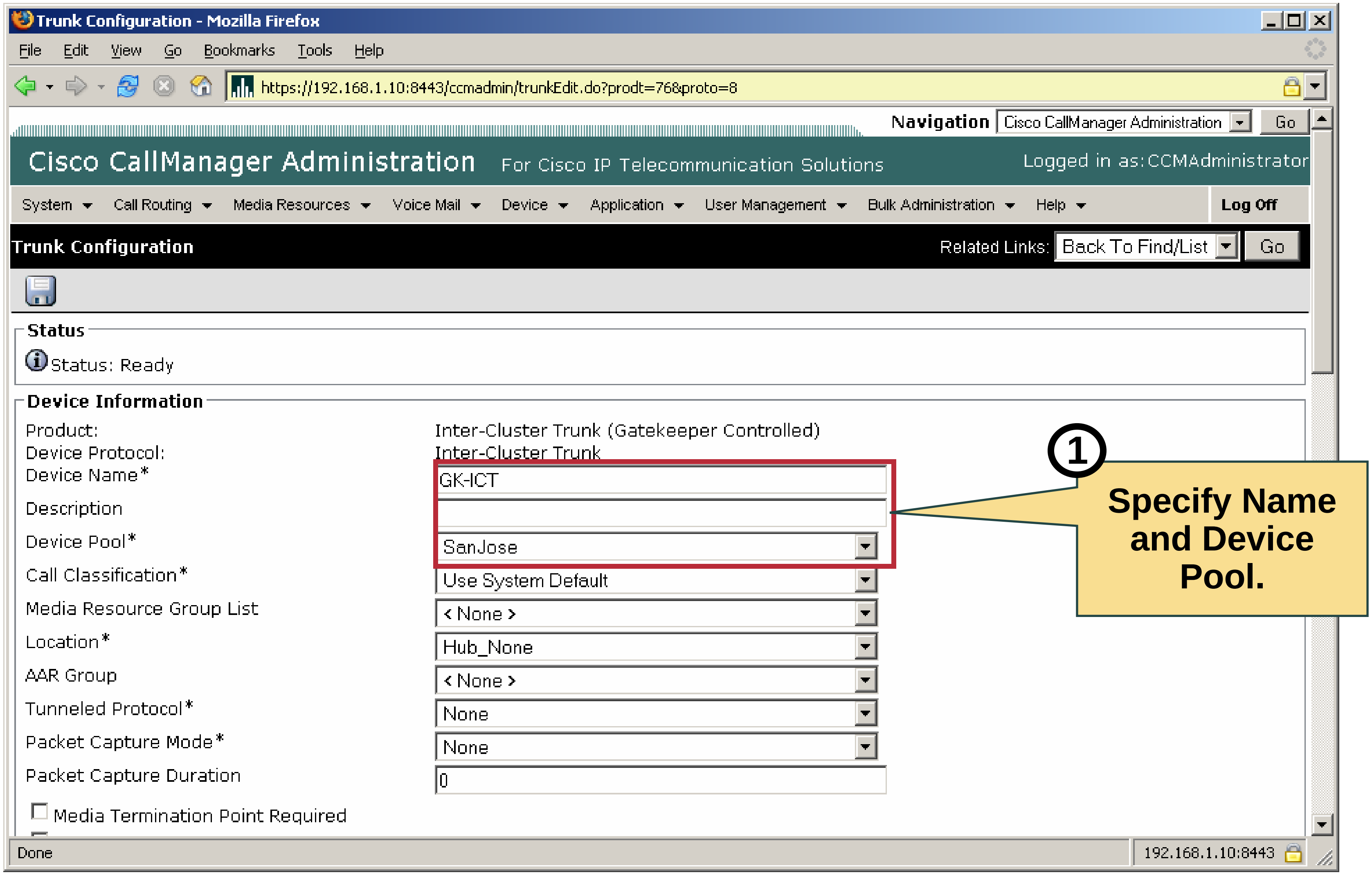
Device Protocol* Inter-Cluster Trunk

*- indicates required item.

④ Click Next.

③ Select Gatekeeper Controlled ICT.

Configuring Gatekeeper Controlled Intercluster Trunks: Configure Trunk


Trunk Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/trunkEdit.do?prodt=76&proto=8
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Trunk Configuration
Related Links: Back To Find/List Go
Done
192.168.1.10:8443

Status

Status: Ready

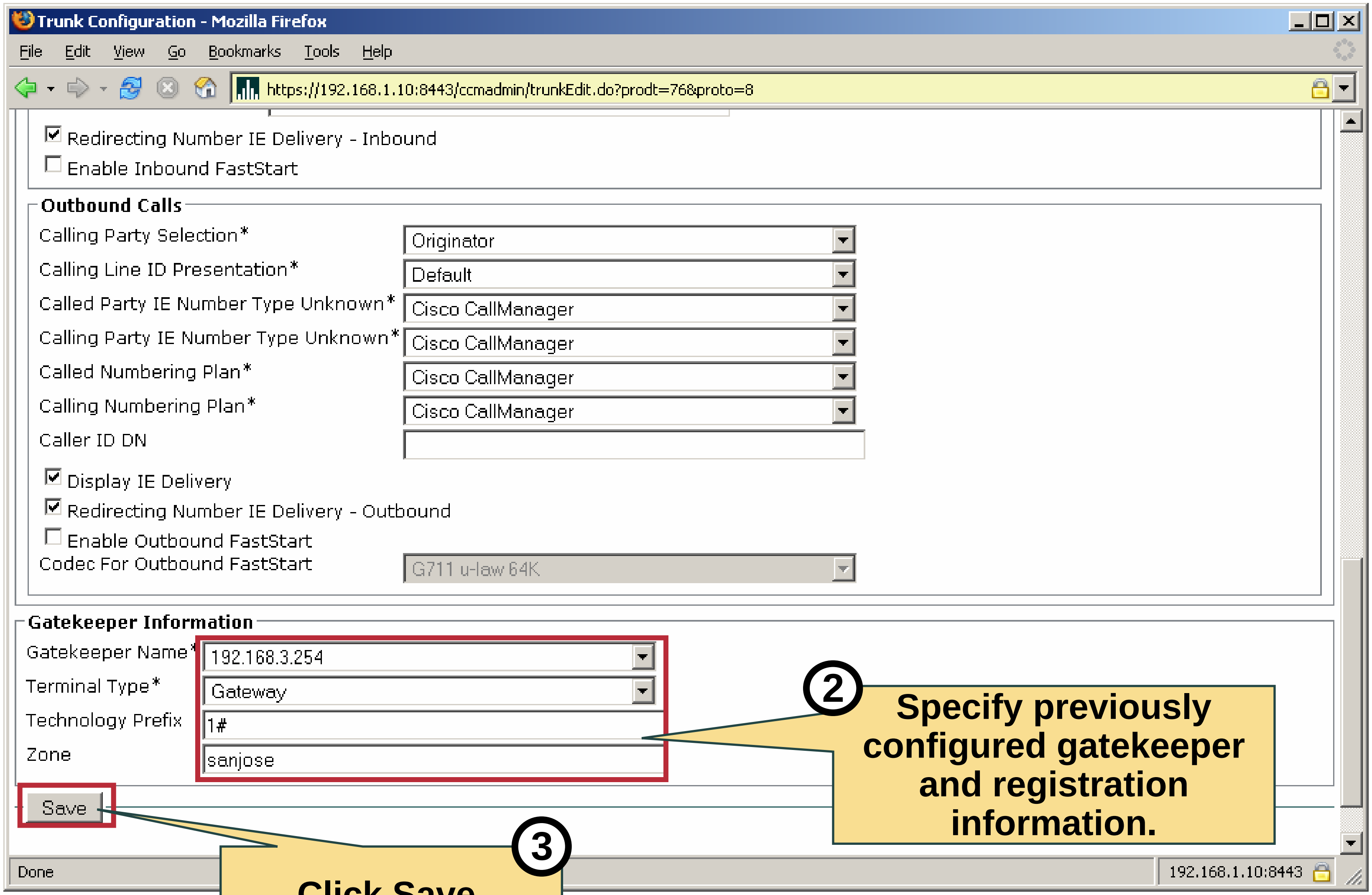
Device Information

Product:	Inter-Cluster Trunk (Gatekeeper Controlled)
Device Protocol:	Inter-Cluster Trunk
Device Name*	GK-ICT
Description	
Device Pool*	SanJose
Call Classification*	Use System Default
Media Resource Group List	< None >
Location*	Hub_None
AAR Group	< None >
Tunneled Protocol*	None
Packet Capture Mode*	None
Packet Capture Duration	0

☐ Media Termination Point Required

① Specify Name and Device Pool.

Configuring Gatekeeper Controlled Intercluster Trunks



Trunk Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/trunkEdit.do?prodt=76&proto=8

☑ Redirecting Number IE Delivery - Inbound
☐ Enable Inbound FastStart

Outbound Calls

Calling Party Selection*	Originator
Calling Line ID Presentation*	Default
Called Party IE Number Type Unknown*	Cisco CallManager
Calling Party IE Number Type Unknown*	Cisco CallManager
Called Numbering Plan*	Cisco CallManager
Calling Numbering Plan*	Cisco CallManager
Caller ID DN	

☑ Display IE Delivery
☑ Redirecting Number IE Delivery - Outbound
☐ Enable Outbound FastStart

Codec For Outbound FastStart	G711 u-law 64K

Gatekeeper Information

Gatekeeper Name*	192.168.3.254
Terminal Type*	Gateway
Technology Prefix	1#
Zone	sanjose

Save
Done
192.168.1.10:8443

② Specify previously configured gatekeeper and registration information.

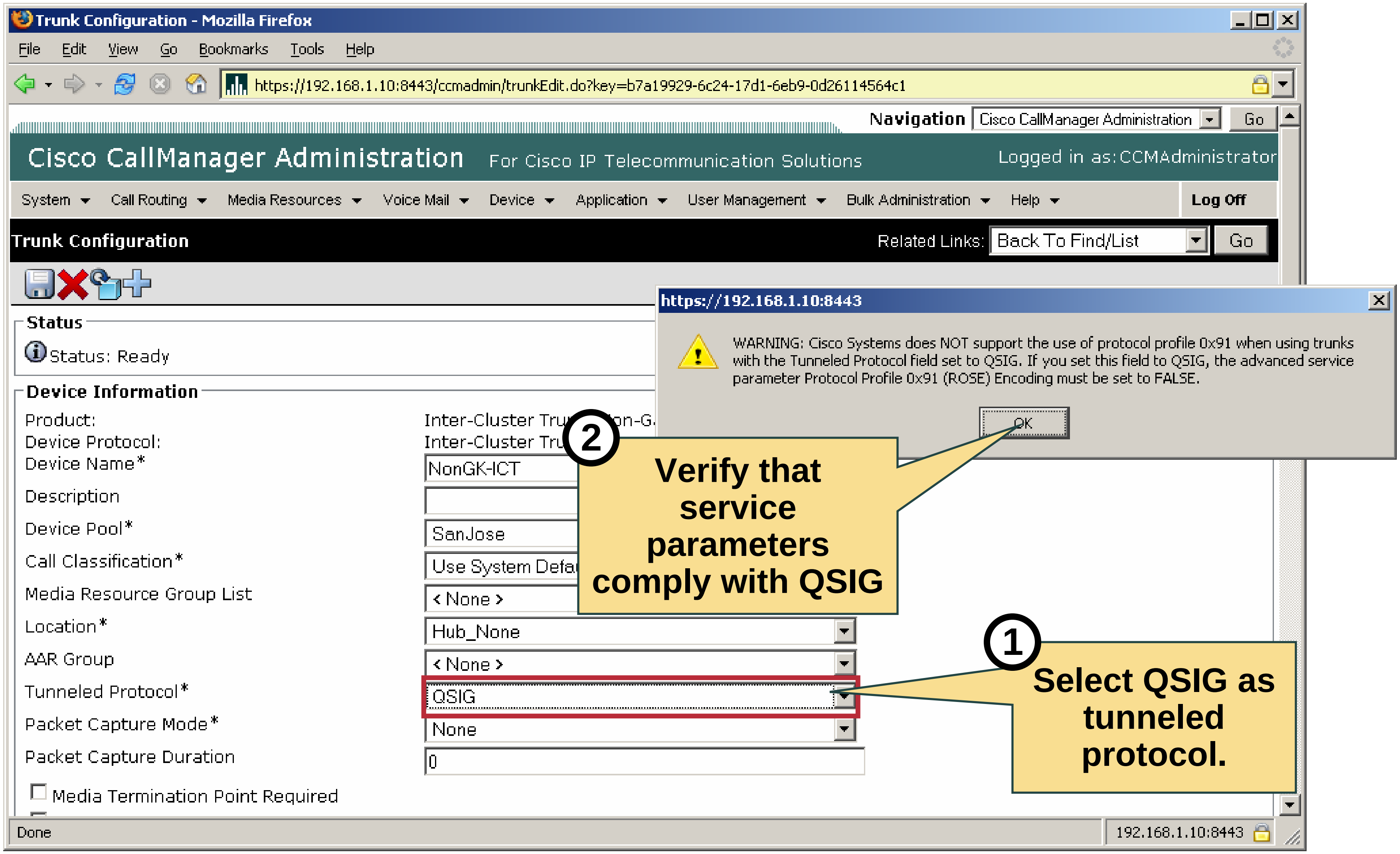
③ Click Save.

Configuring QSIG for Trunks

Any Inter-Cluster Trunk can be configured for QSIG:

- **Done via trunk configuration settings.**
- **Can change existing trunks to QSIG.**

Configuring QSIG for Trunks



Trunk Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/trunkEdit.do?key=b7a19929-6c24-17d1-6eb9-0d26114564c1
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Trunk Configuration
Related Links: Back To Find/List Go
OK
Done
192.168.1.10:8443

Status

Status: Ready

Device Information

Product:	Inter-Cluster Tru…on-G…
Device Protocol:	Inter-Cluster Tru…
Device Name*	NonGK-ICT
Description	
Device Pool*	SanJose
Call Classification*	Use System Defau…
Media Resource Group List	< None >
Location*	Hub_None
AAR Group	< None >
Tunneled Protocol*	QSIG
Packet Capture Mode*	None
Packet Capture Duration	0

☐ Media Termination Point Required

https://192.168.1.10:8443

WARNING: Cisco Systems does NOT support the use of protocol profile 0x91 when using trunks with the Tunneled Protocol field set to QSIG. If you set this field to QSIG, the advanced service parameter Protocol Profile 0x91 (ROSE) Encoding must be set to FALSE.

② Verify that service parameters comply with QSIG

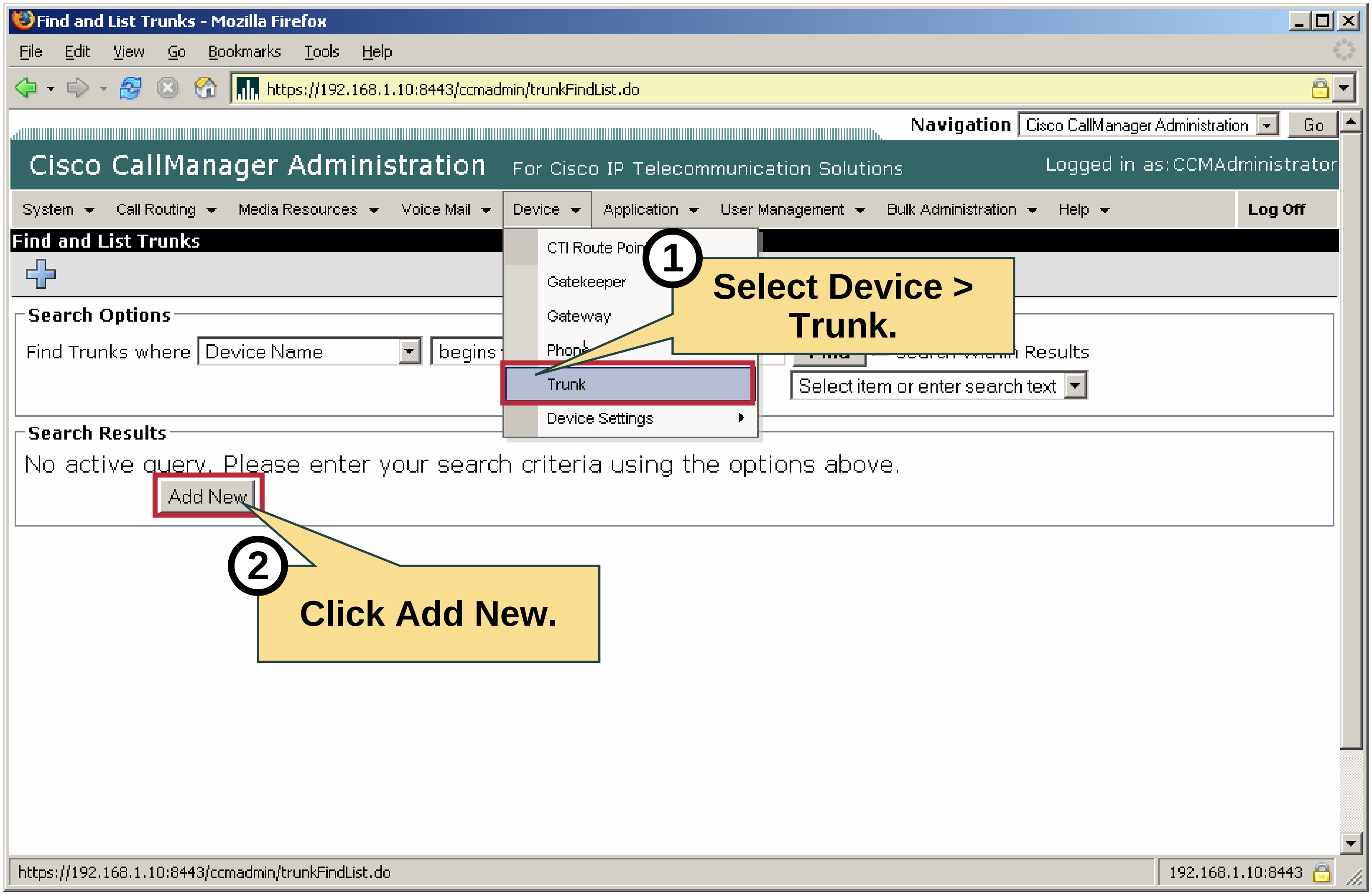
① Select QSIG as tunneled protocol.

Configuring SIP Trunks

SIP trunk configuration steps:

1. Add SIP trunk.
2. Specify trunk parameters.

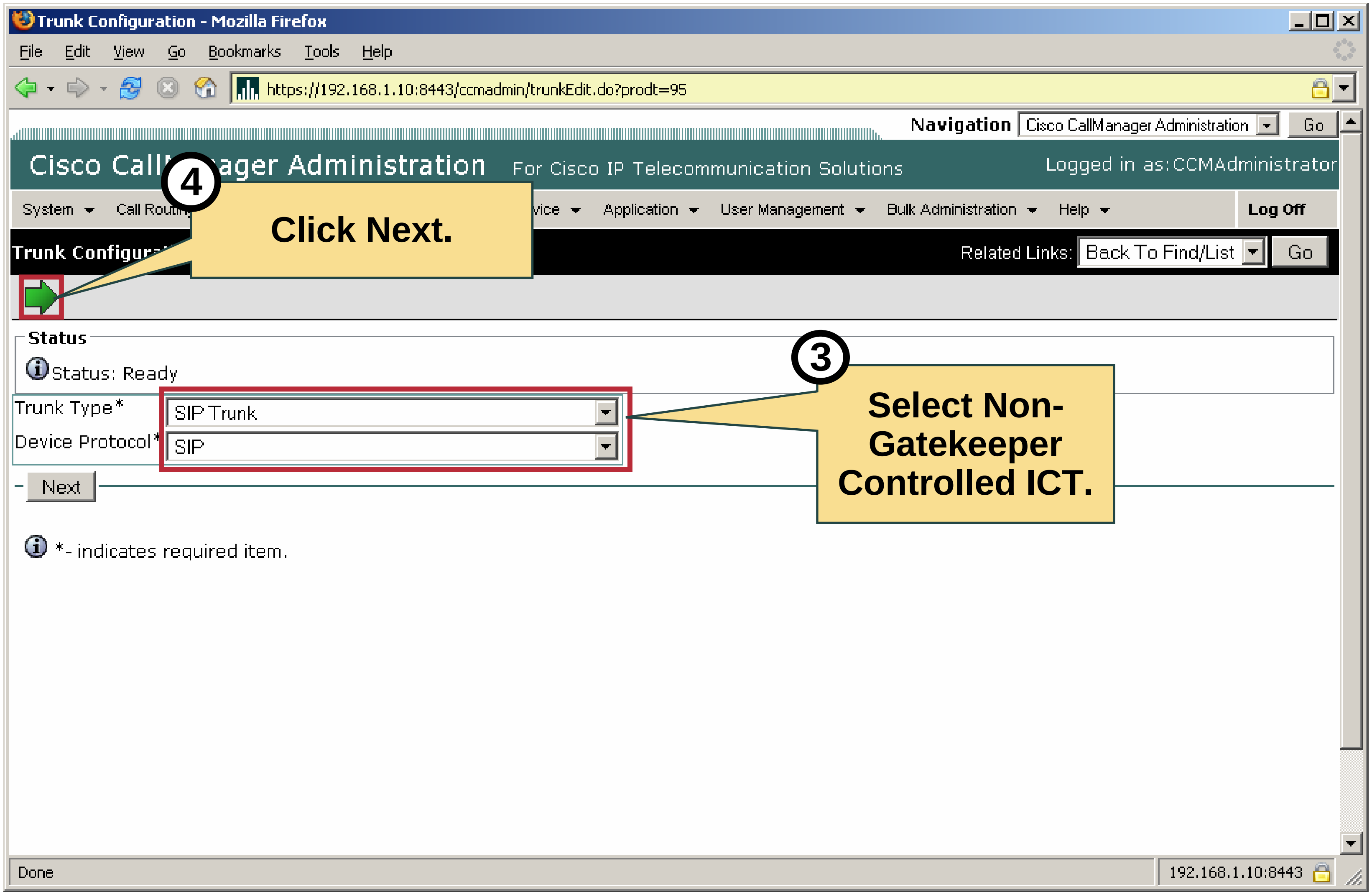
Configuring SIP Trunks: Add Trunk


Find and List Trunks - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/trunkFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Find and List Trunks
CTI Route Point
Gatekeeper
Gateway
Phone
Trunk
Device Settings
Search Options
Find Trunks where Device Name begins
Find
Search Within Results
Select item or enter search text
Search Results
No active query. Please enter your search criteria using the options above.
Add New
https://192.168.1.10:8443/ccmadmin/trunkFindList.do
192.168.1.10:8443

① Select Device > Trunk.

② Click Add New.

Configuring SIP Trunks: Add Trunk



Trunk Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/trunkEdit.do?prodt=95
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System Call Routing Device Application User Management Bulk Administration Help Log Off
Trunk Configuration
Related Links: Back To Find/List Go
Next
Done
192.168.1.10:8443

Status

Status: Ready

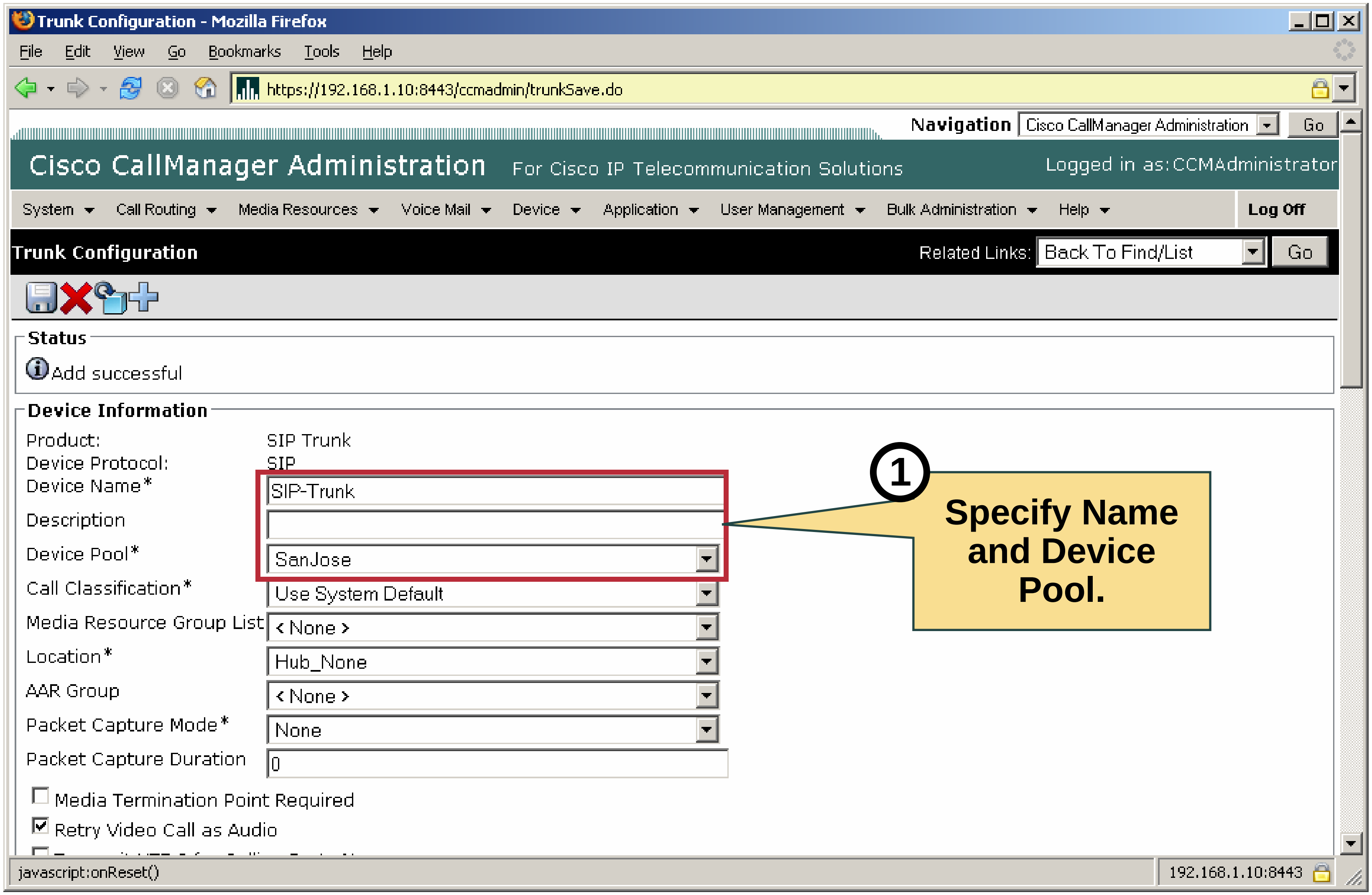
Trunk Type*	SIP Trunk
Device Protocol*	SIP

*- indicates required item.

③ Select Non-Gatekeeper Controlled ICT.

④ Click Next.

Configuring SIP Trunks: Configure Trunk


Trunk Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/trunkSave.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Trunk Configuration
Related Links: Back To Find/List Go
javascript:onReset()
192.168.1.10:8443

Status

Add successful

Device Information

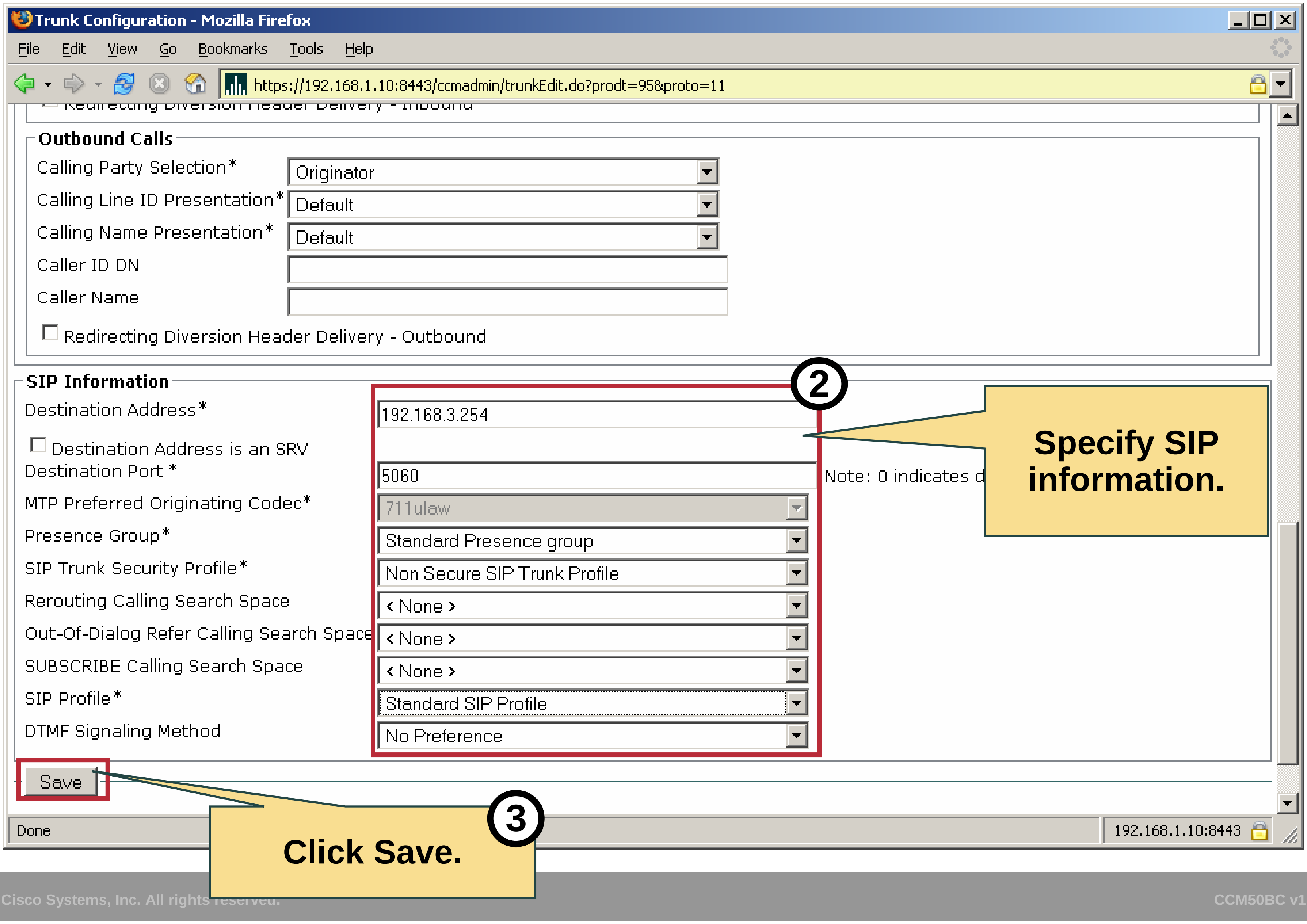
Product:	SIP Trunk
Device Protocol:	SIP
Device Name*	SIP-Trunk
Description	
Device Pool*	SanJose
Call Classification*	Use System Default
Media Resource Group List	< None >
Location*	Hub_None
AAR Group	< None >
Packet Capture Mode*	None
Packet Capture Duration	0

☐ Media Termination Point Required

☑ Retry Video Call as Audio

① Specify Name and Device Pool.

Configuring SIP Trunks: Configure Trunk


Trunk Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/trunkEdit.do?prodt=95&proto=11
Done
192.168.1.10:8443

Outbound Calls

Calling Party Selection*: Originator

Calling Line ID Presentation*: Default

Calling Name Presentation*: Default

Caller ID DN:

Caller Name:

☐ Redirecting Diversion Header Delivery - Outbound

SIP Information

Destination Address*: 192.168.3.254

☐ Destination Address is an SRV

Destination Port *: 5060

Note: 0 indicates d

MTP Preferred Originating Codec*: 711ulaw

Presence Group*: Standard Presence group

SIP Trunk Security Profile*: Non Secure SIP Trunk Profile

Rerouting Calling Search Space: < None >

Out-Of-Dialog Refer Calling Search Space: < None >

SUBSCRIBE Calling Search Space: < None >

SIP Profile*: Standard SIP Profile

DTMF Signaling Method: No Preference

② Specify SIP information.

③ Click Save.

Summary

- Trunks are used for intercluster signalling and interworking with other VoIP networks.
- Non-Gatekeeper Controlled Intercluster Trunks are configured between two CallManager clusters.
- Gatekeeper Controlled Intercluster Trunks are configured to use gatekeepers to interconnect multiple clusters.
- QSIG Intercluster Trunks are configured to provide supplementary services between clusters.
- SIP Trunks are configured to interconnect with SIP networks.

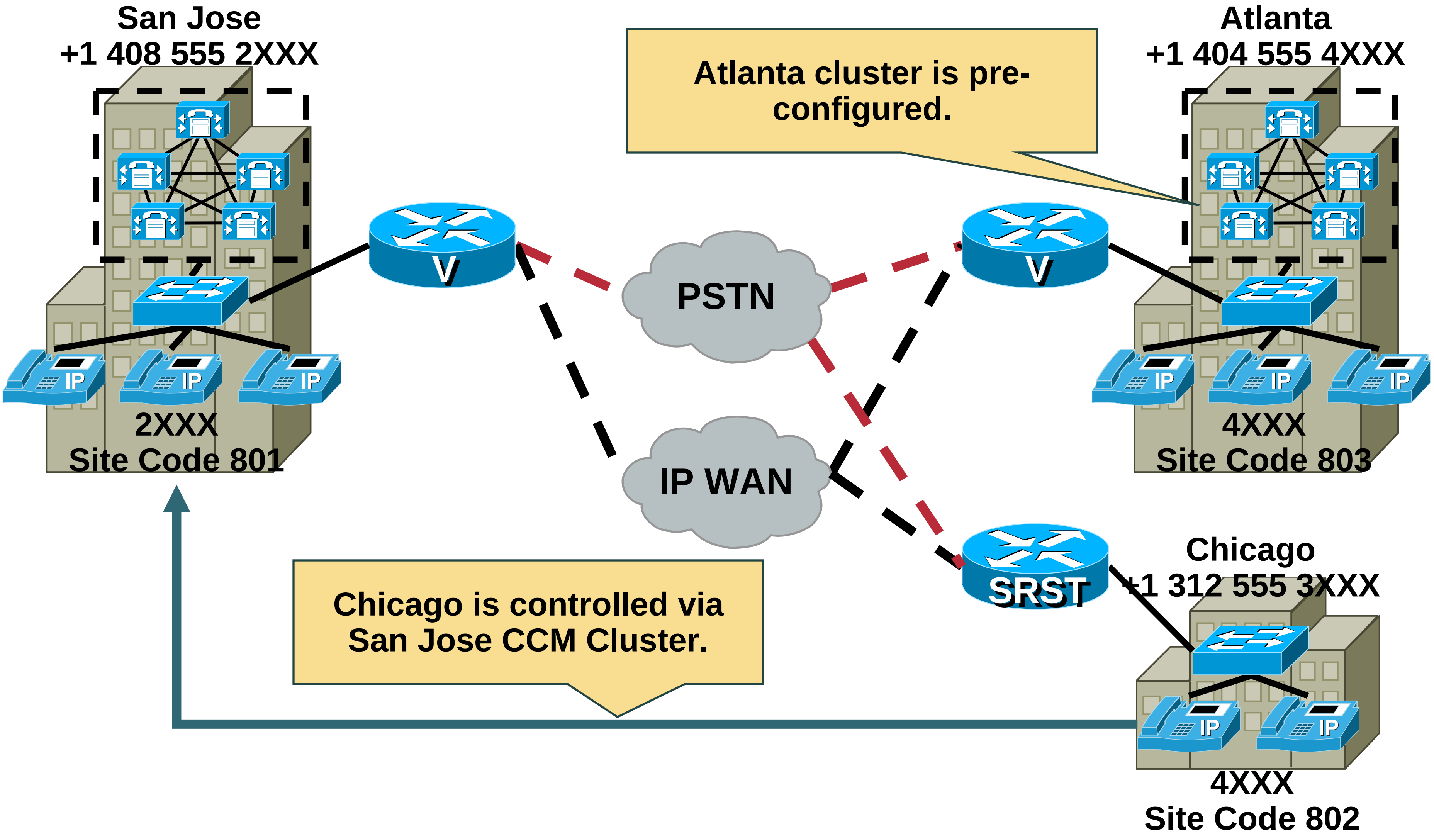
Deploying a Dial Plan on CallManager 5.0

Configuring a Dial Plan

Objectives

- Dial Plan Scenario
- Configuring Intrasite Routing
- Configuring On-Cluster Intersite Routing
- Configuring Off-Cluster Intersite Routing
- Configuring PSTN Routing and Calling Privileges

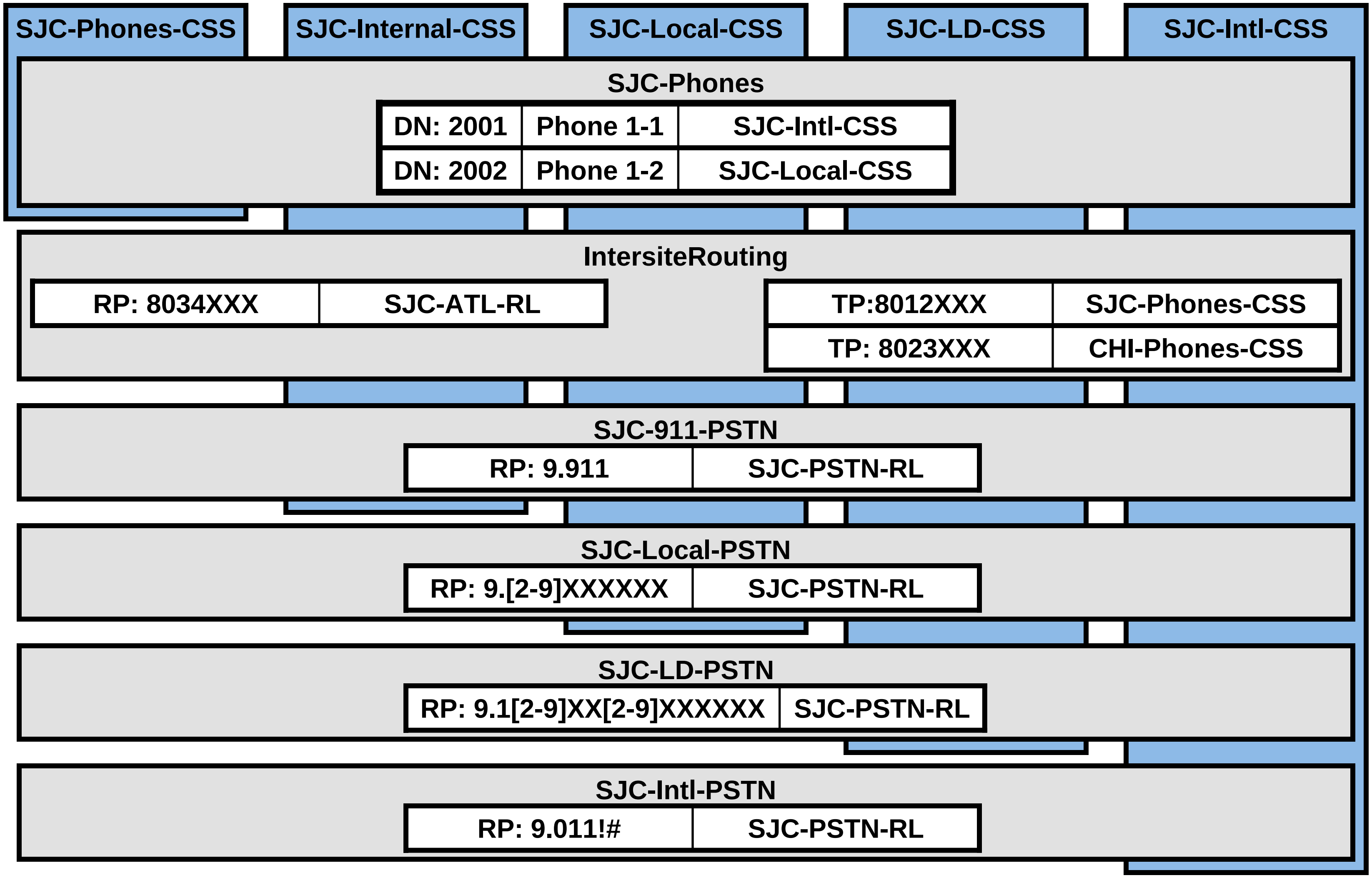
Dial Plan Scenario


San Jose
+1 408 555 2XXX
2XXX
Site Code 801
V
PSTN
IP WAN
V
Atlanta
+1 404 555 4XXX
4XXX
Site Code 803
SRST
Chicago
+1 312 555 3XXX
4XXX
Site Code 802
IP

Atlanta cluster is pre-configured.

Chicago is controlled via San Jose CCM Cluster.

Dial Plan Scenario: San Jose Partitions and CSSs



SJC-Phones-CSS

SJC-Internal-CSS

SJC-Local-CSS

SJC-LD-CSS

SJC-Intl-CSS

SJC-Phones

DN: 2001	Phone 1-1	SJC-Intl-CSS
DN: 2002	Phone 1-2	SJC-Local-CSS

IntersiteRouting

RP: 8034XXX	SJC-ATL-RL

TP:8012XXX	SJC-Phones-CSS
TP: 8023XXX	CHI-Phones-CSS

SJC-911-PSTN

RP: 9.911	SJC-PSTN-RL

SJC-Local-PSTN

RP: 9.[2-9]XXXXXX	SJC-PSTN-RL

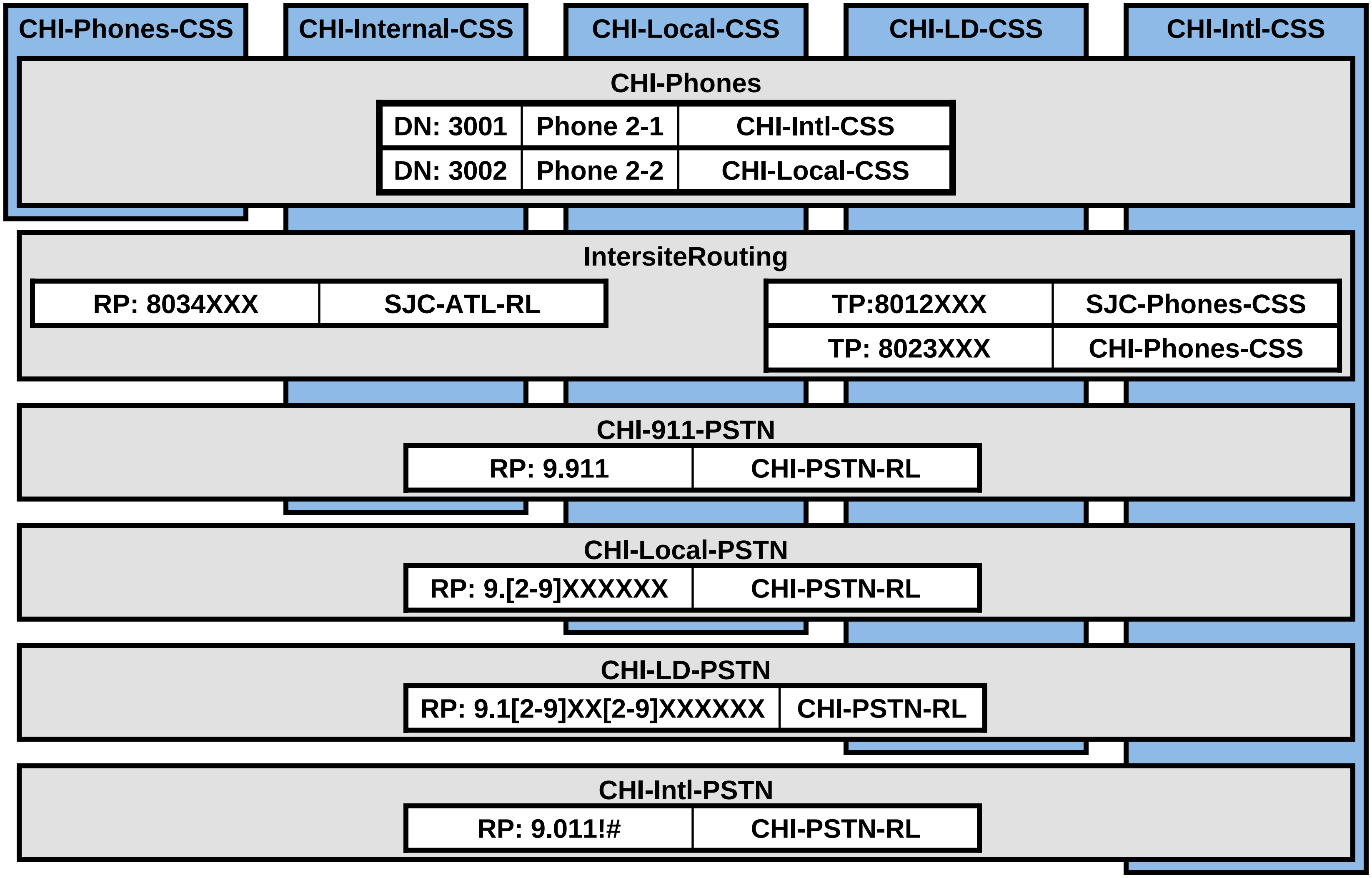
SJC-LD-PSTN

RP: 9.1[2-9]XX[2-9]XXXXXX	SJC-PSTN-RL

SJC-Intl-PSTN

RP: 9.011!#	SJC-PSTN-RL

Dial Plan Scenario: Chicago Partitions and CSSs



CHI-Phones-CSS

CHI-Internal-CSS

CHI-Local-CSS

CHI-LD-CSS

CHI-Intl-CSS

CHI-Phones

DN: 3001	Phone 2-1	CHI-Intl-CSS
DN: 3002	Phone 2-2	CHI-Local-CSS

IntersiteRouting

RP: 8034XXX	SJC-ATL-RL

TP:8012XXX	SJC-Phones-CSS
TP: 8023XXX	CHI-Phones-CSS

CHI-911-PSTN

RP: 9.911	CHI-PSTN-RL

CHI-Local-PSTN

RP: 9.[2-9]XXXXXX	CHI-PSTN-RL

CHI-LD-PSTN

RP: 9.1[2-9]XX[2-9]XXXXXX	CHI-PSTN-RL

CHI-Intl-PSTN

RP: 9.011!#	CHI-PSTN-RL

Dial Plan Scenario: RPs and TPs

Pattern	Partition	Type	Destination	Digit Manipulation	Description
Intersite Routing					
8012XXX	IntersiteRouting	TP	SJC-Phones-CSS	Called: 2XXX	Intersite Routing
8023XXX	IntersiteRouting	TP	CHI-Phones-CSS	Called: 3XXX	Intersite Routing
8034XXX	IntersiteRouting	RP	ATL-RL	NA	Intersite Routing
PSTN Routing					
911 9.911	SJC-911-PSTN CHI-911-PSTN	RP RP	SJC-PSTN-RL CHI-PSTN-RL	Called: PreDot Calling: ExMask	Emergency Calls
9.[2-9]XXXXXX	SJC-Local-PSTN CHI-Local-PSTN	RP RP	SJC-PSTN-RL CHI-PSTN-RL	Called: PreDot Calling: ExMask	Local PSTN Routing
9.1[2-9]XX[2-9]XXXXXX	SJC-LD-PSTN CHI-LD-PSTN	RP RP	SJC-PSTN-RL CHI-PSTN-RL	Called: PreDot Calling: ExMask	LD PSTN Routing
9.011! 9.011!#	SJC-Intl-PSTN CHI-Intl-PSTN	RP RP	SJC-PSTN-RL CHI-PSTN-RL	Called: PreDot Calling: ExMask	Intl PSTN Routing

Dial Plan Scenario: RGs and RLs

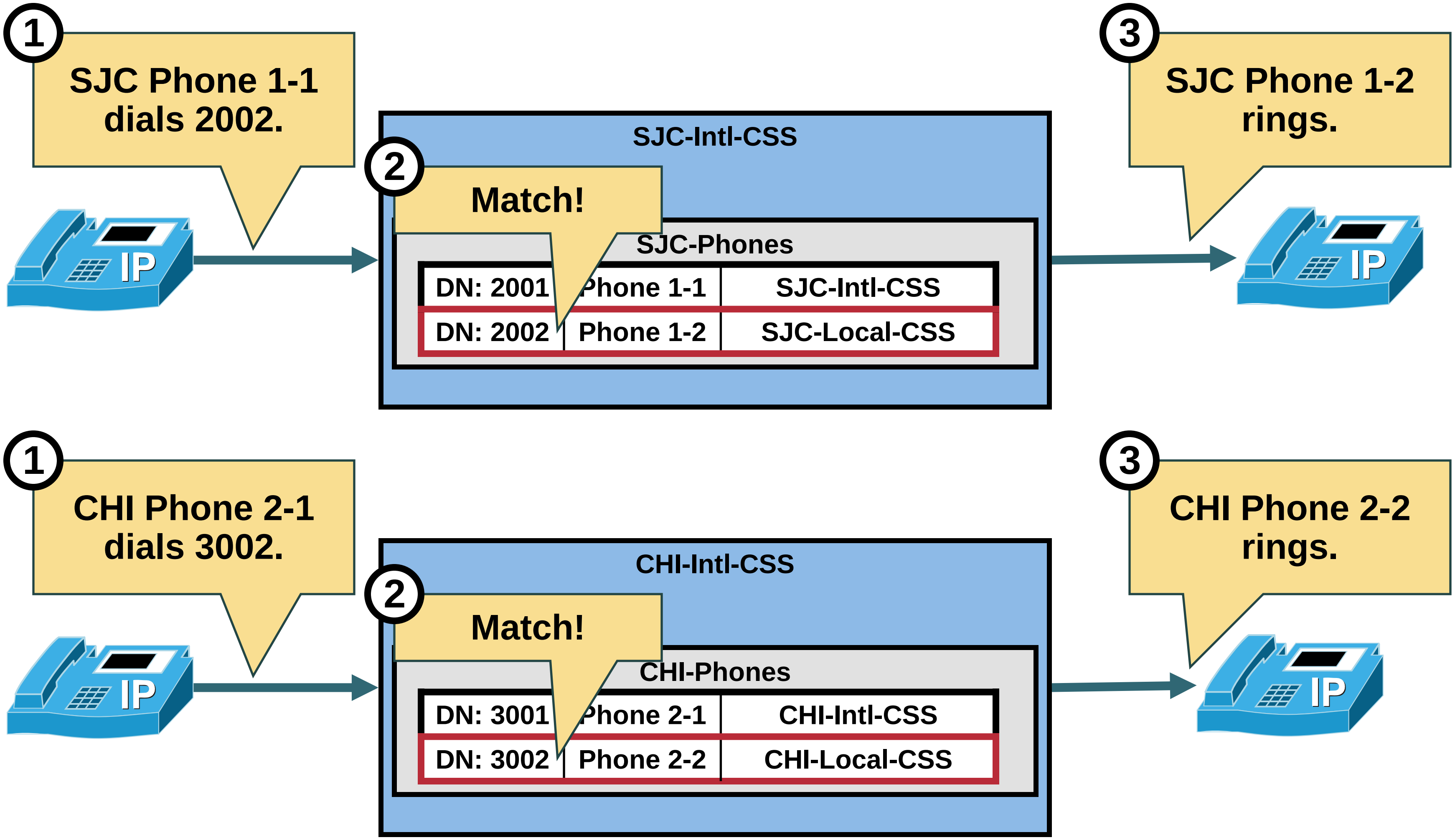
Route List	Route Groups	Gateway/Trunk	Digit Manipulation	Description
ATL-RL	ATL-Trunk SJC-PSTN	NonGK-ICT Router1	NA Called: 14045552XXX	Route List for Atlanta Calls.
SJC-PSTN-RL	SJC-PSTN	Router1	NA	Route List for SJC PSTN Calls
CHI-PSTN-RL	CHI-PSTN	192.168.2.254	NA	Route List for CHI PSTN Calls

Configuring Intrasite Routing

Intrasite routing is done via CSSs, Partitions and Translation Patterns:

1. **Review required dial plan components.**
2. **Configure Partitions.**
3. **Configure Calling Search Spaces**
4. **Assign phone DNs to correct partitions and configure CSSs.**

Configuring Intrasite Routing



1. SJC Phone 1-1 dials 2002.

SJC-Intl-CSS

2. Match!

SJC-Phones

DN: 2001	Phone 1-1	SJC-Intl-CSS
DN: 2002	Phone 1-2	SJC-Local-CSS

3. SJC Phone 1-2 rings.

1. CHI Phone 2-1 dials 3002.

CHI-Intl-CSS

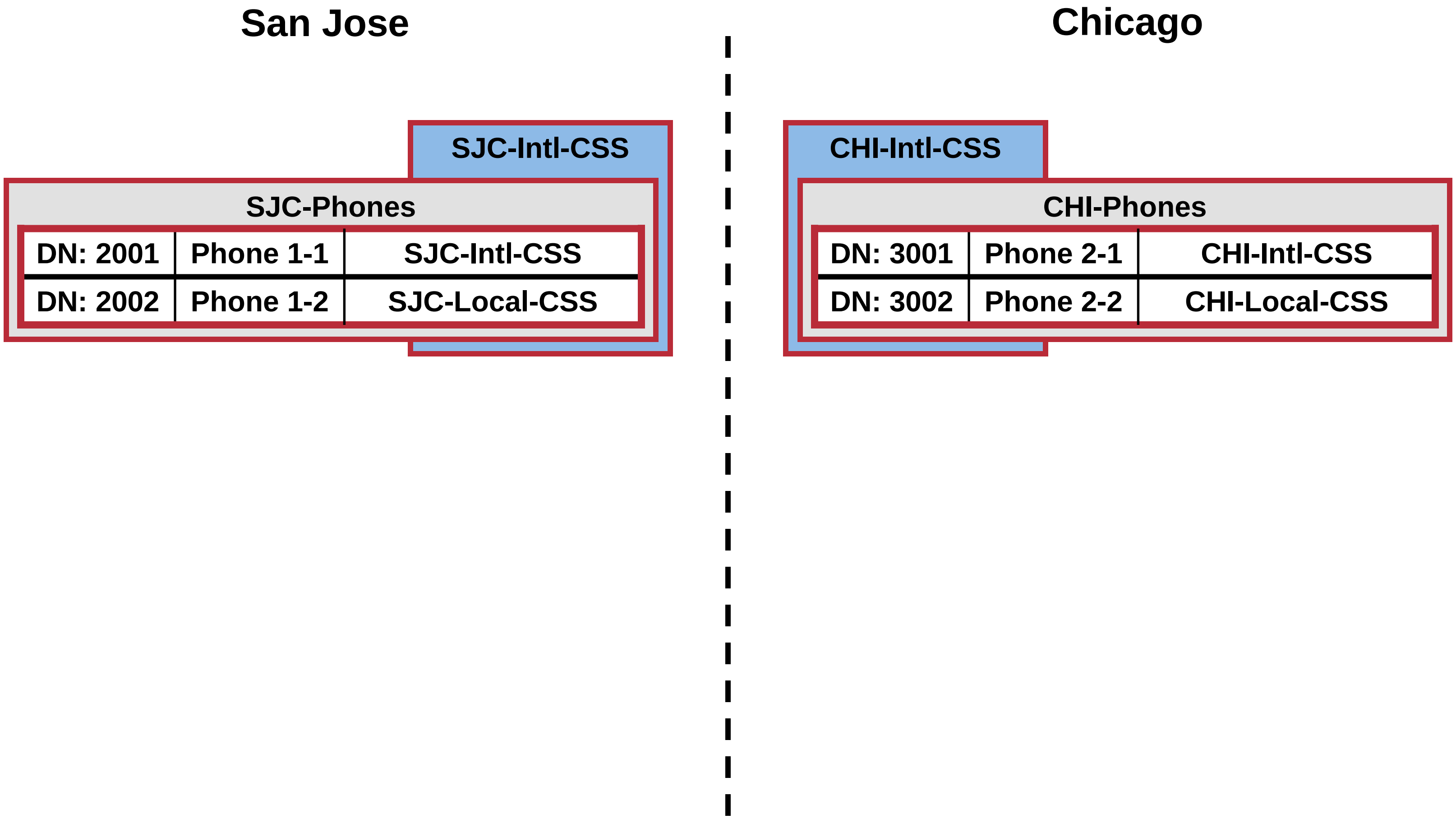
2. Match!

CHI-Phones

DN: 3001	Phone 2-1	CHI-Intl-CSS
DN: 3002	Phone 2-2	CHI-Local-CSS

3. CHI Phone 2-2 rings.

Configuring Intrasite Routing



San Jose

SJC-Intl-CSS

SJC-Phones

DN: 2001	Phone 1-1	SJC-Intl-CSS
DN: 2002	Phone 1-2	SJC-Local-CSS

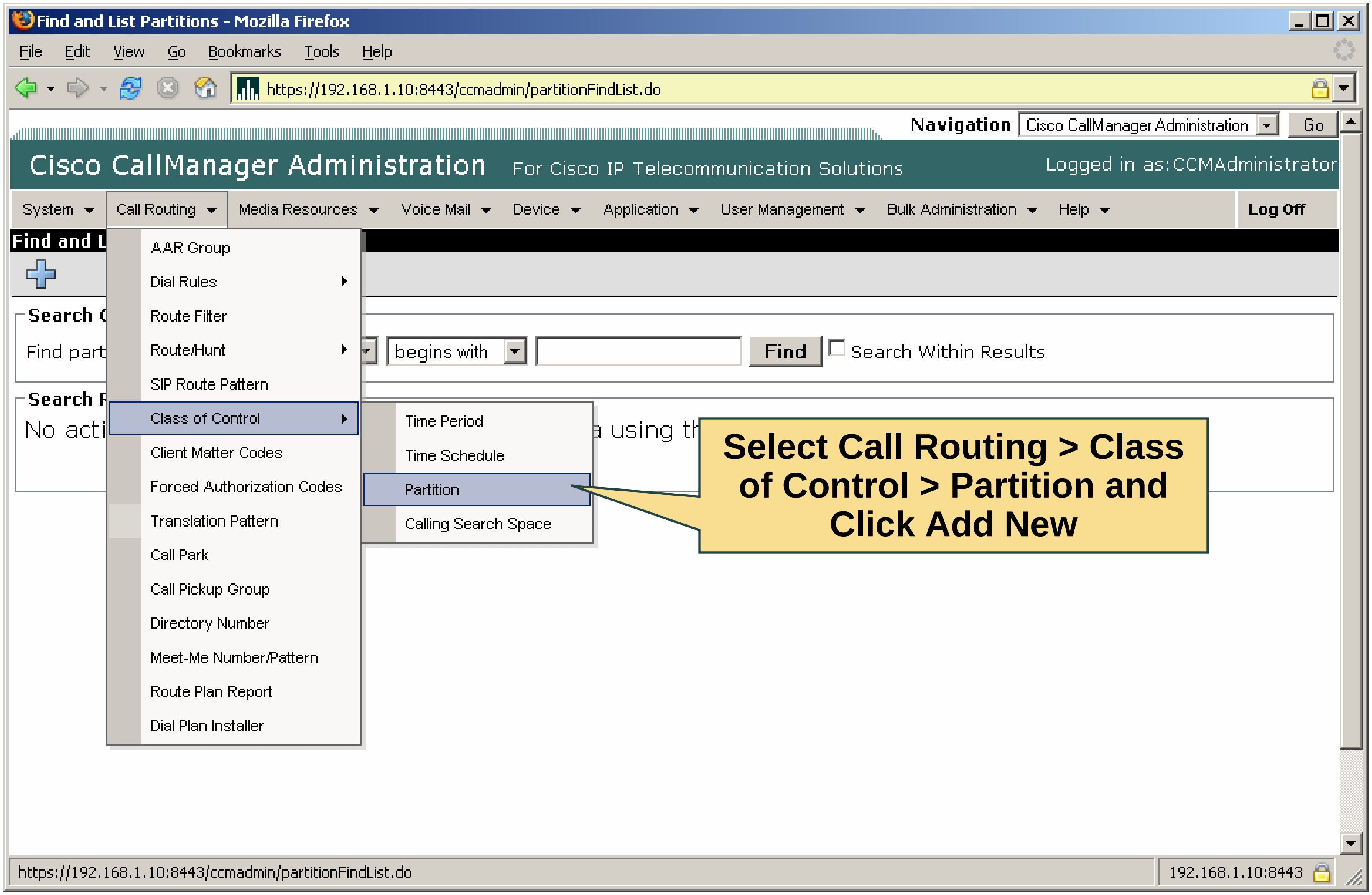
Chicago

CHI-Intl-CSS

CHI-Phones

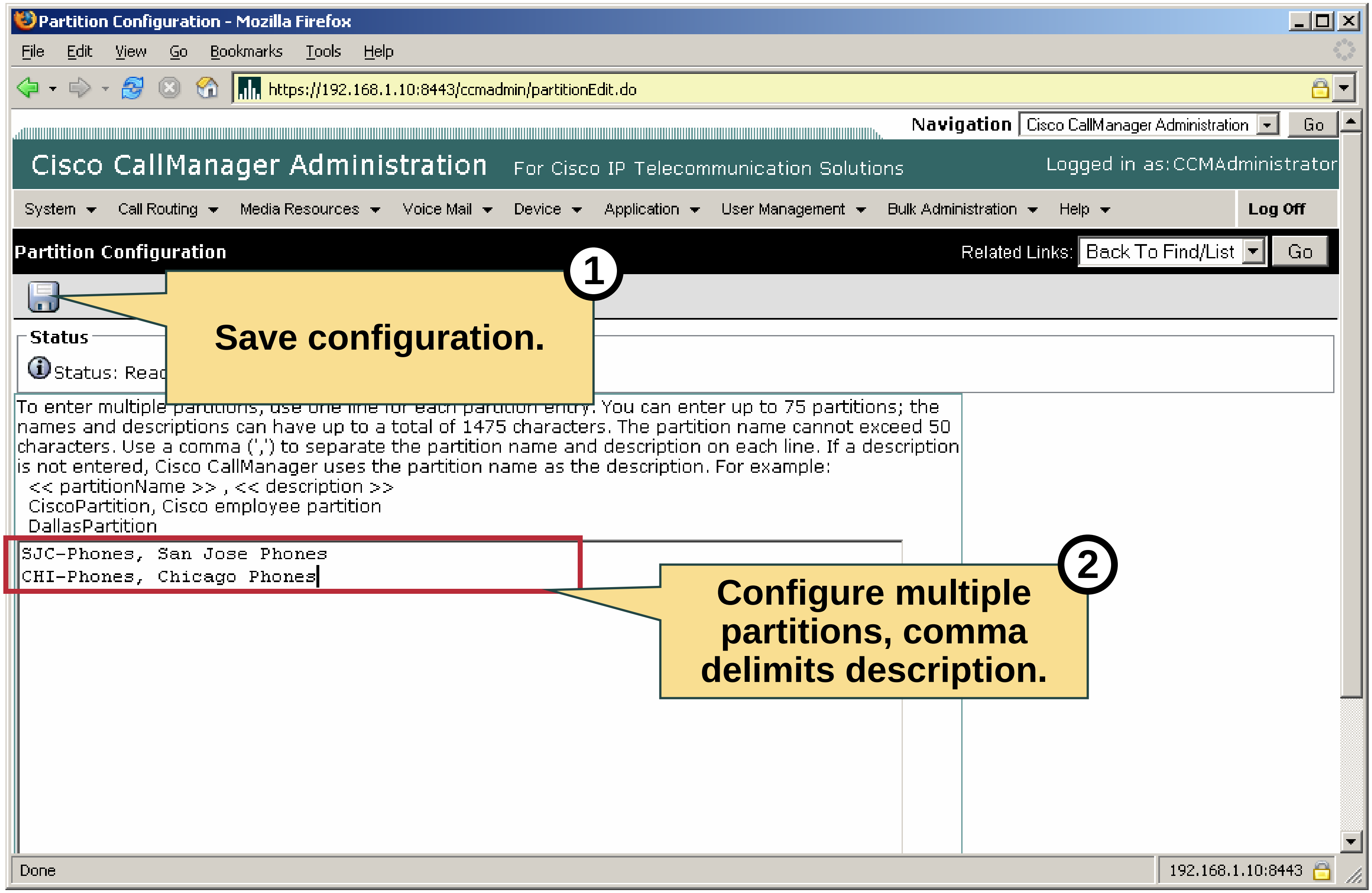
DN: 3001	Phone 2-1	CHI-Intl-CSS
DN: 3002	Phone 2-2	CHI-Local-CSS

Configuring Intrasite Routing


Find and List Partitions - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/partitionFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Find and L
Search C
Find part
begins with
Find
☐ Search Within Results
Search R
No acti
a using th
AAR Group
Dial Rules
Route Filter
Route/Hunt
SIP Route Pattern
Class of Control
Client Matter Codes
Forced Authorization Codes
Translation Pattern
Call Park
Call Pickup Group
Directory Number
Meet-Me Number/Pattern
Route Plan Report
Dial Plan Installer
Time Period
Time Schedule
Partition
Calling Search Space
https://192.168.1.10:8443/ccmadmin/partitionFindList.do
192.168.1.10:8443

Select Call Routing > Class of Control > Partition and Click Add New

Configuring Intrasite Routing


Partition Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/partitionEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Partition Configuration
Related Links: Back To Find/List Go
Status
Done
192.168.1.10:8443

Status: Read

To enter multiple partitions, use one line for each partition entry. You can enter up to 75 partitions; the names and descriptions can have up to a total of 1475 characters. The partition name cannot exceed 50 characters. Use a comma (',') to separate the partition name and description on each line. If a description is not entered, Cisco CallManager uses the partition name as the description. For example:

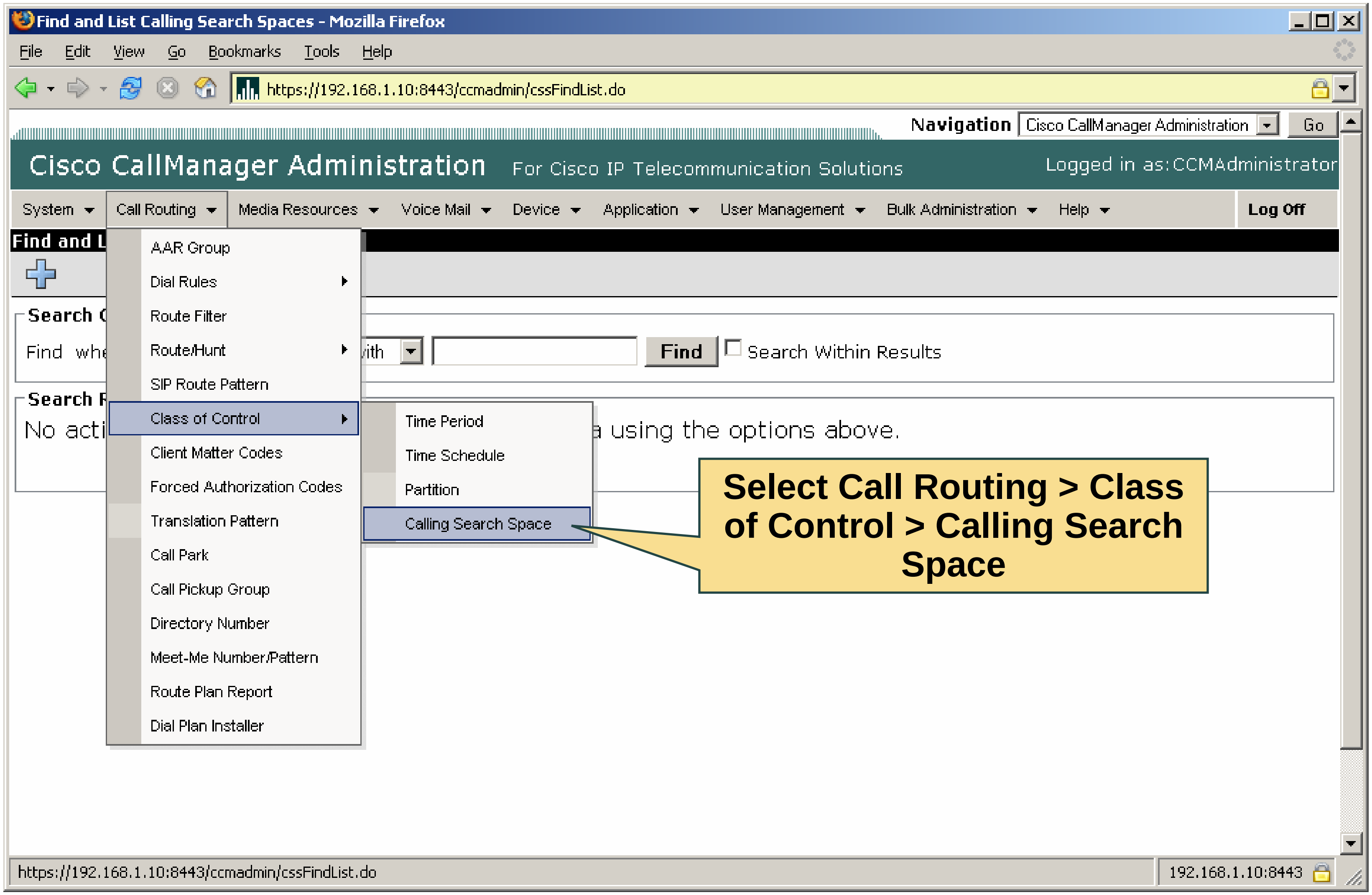
<< partitionName >> , << description >>
CiscoPartition, Cisco employee partition
DallasPartition

```
SJC-Phones, San Jose Phones
CHI-Phones, Chicago Phones
```

① Save configuration.

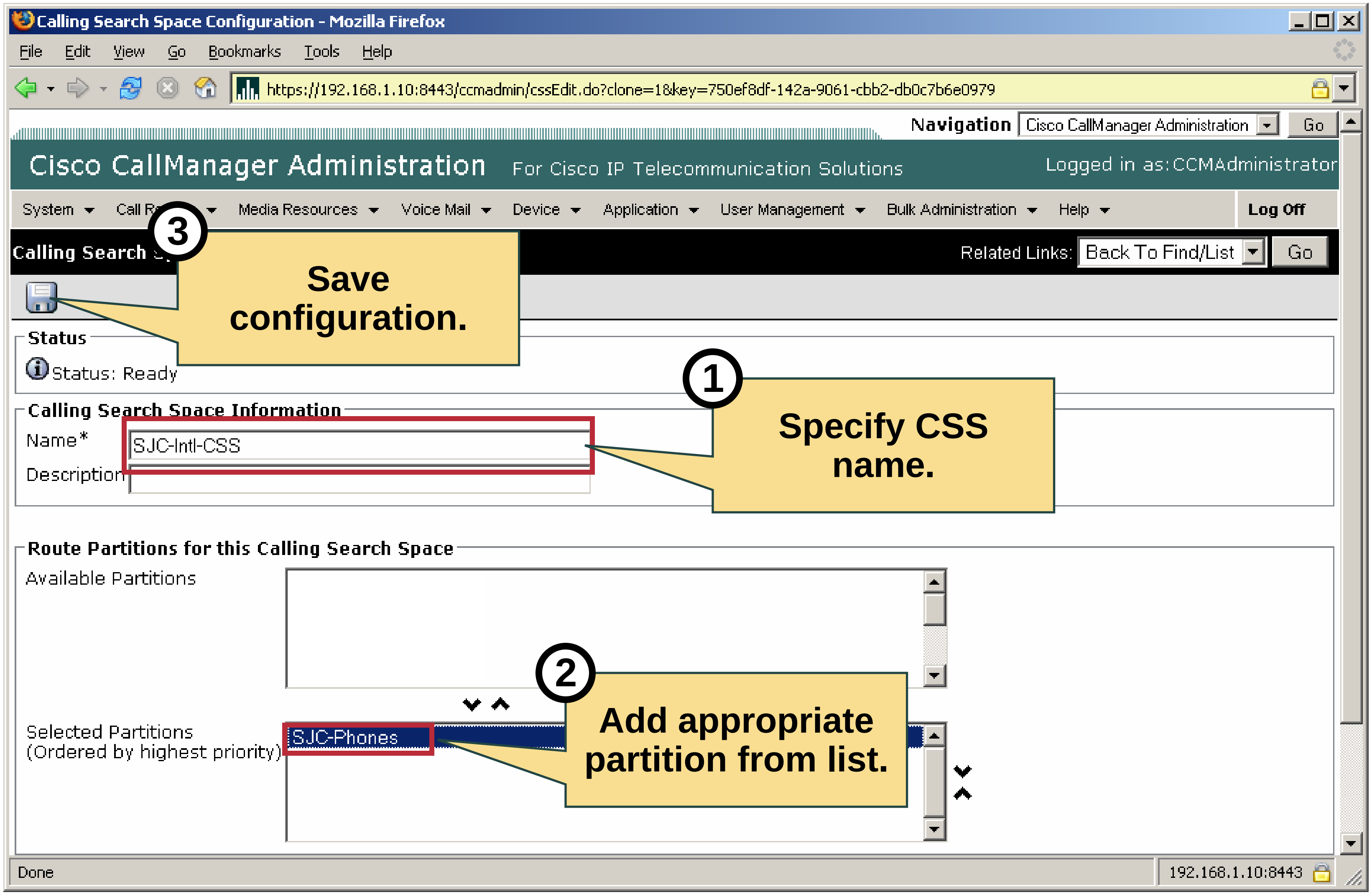
② Configure multiple partitions, comma delimits description.

Configuring Intrasite Routing


Find and List Calling Search Spaces - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/cssFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Find and L
Search C
Find whe
ith
Find
☐ Search Within Results
Search R
No acti
a using the options above.
AAR Group
Dial Rules
Route Filter
Route/Hunt
SIP Route Pattern
Class of Control
Client Matter Codes
Forced Authorization Codes
Translation Pattern
Call Park
Call Pickup Group
Directory Number
Meet-Me Number/Pattern
Route Plan Report
Dial Plan Installer
Time Period
Time Schedule
Partition
Calling Search Space
https://192.168.1.10:8443/ccmadmin/cssFindList.do
192.168.1.10:8443

Select Call Routing > Class of Control > Calling Search Space

Configuring Intrasite Routing



Calling Search Space Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/cssEdit.do?clone=1&key=750ef8df-142a-9061-cbb2-db0c7b6e0979
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call R Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Calling Search
Related Links: Back To Find/List Go
Done
192.168.1.10:8443

Status

Status: Ready

Calling Search Space Information

Name* SJC-Intl-CSS

Description

Route Partitions for this Calling Search Space

Available Partitions

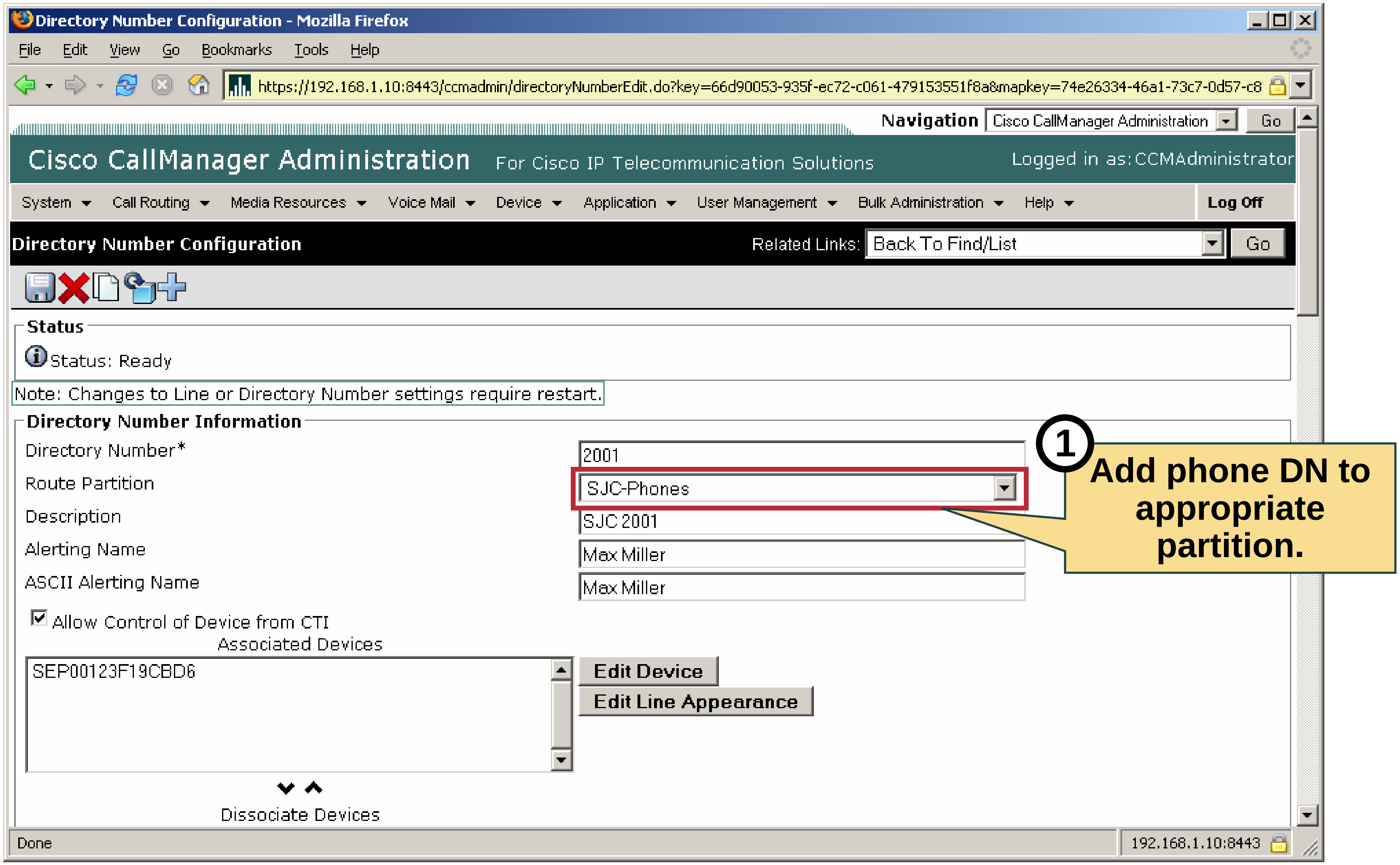
Selected Partitions (Ordered by highest priority) SJC-Phones

① Specify CSS name.

② Add appropriate partition from list.

③ Save configuration.

Configuring Intrasite Routing


Directory Number Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Directory Number Configuration
Related Links: Back To Find/List Go
Edit Device
Edit Line Appearance
Dissociate Devices
Done
192.168.1.10:8443

https://192.168.1.10:8443/ccmadmin/directoryNumberEdit.do?key=66d90053-935f-ec72-c061-479153551f8a&mapkey=74e26334-46a1-73c7-0d57-c8

Status

Status: Ready

Note: Changes to Line or Directory Number settings require restart.

Directory Number Information

Directory Number*	2001
Route Partition	SJC-Phones
Description	SJC 2001
Alerting Name	Max Miller
ASCII Alerting Name	Max Miller

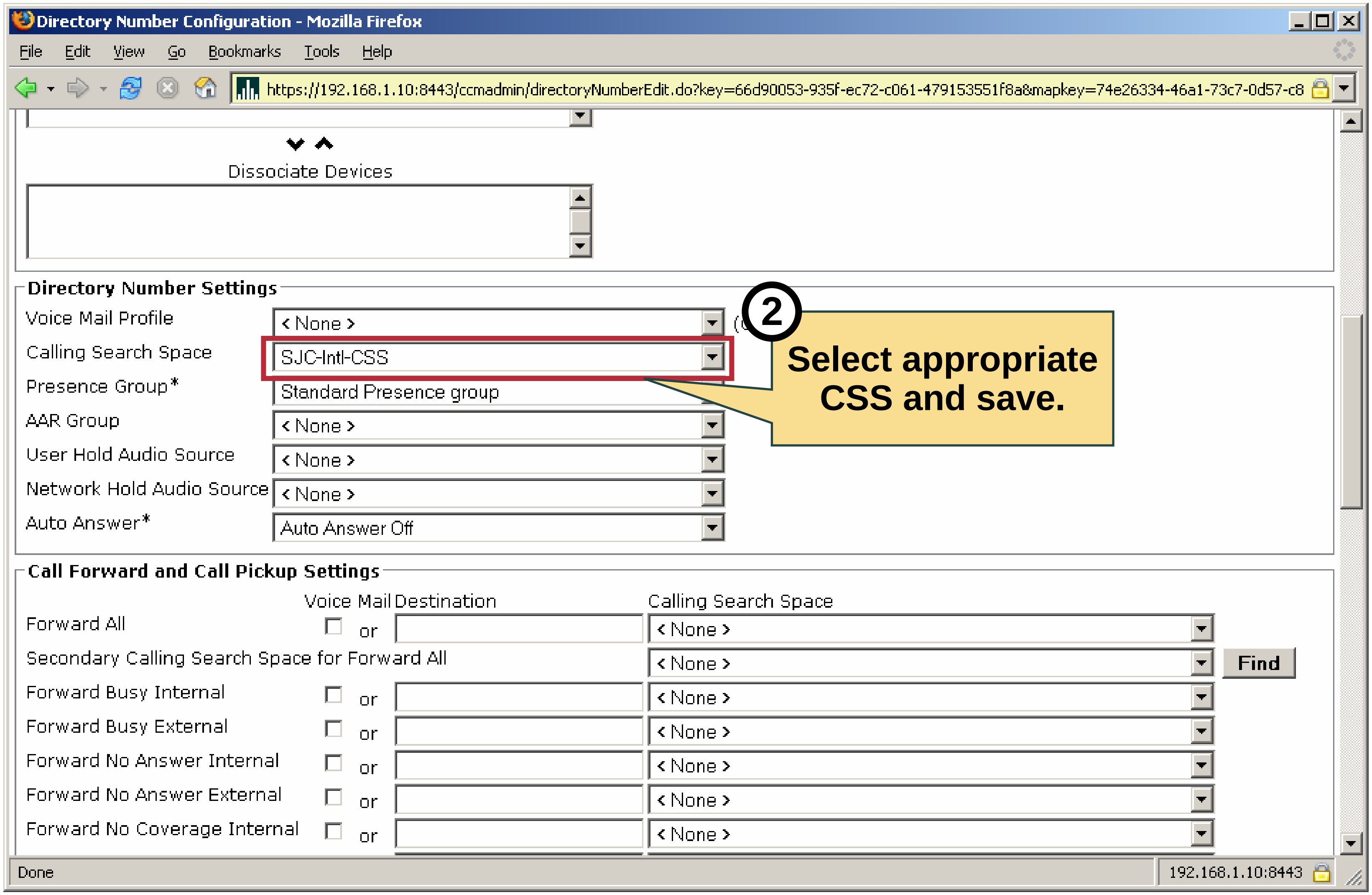
☑ Allow Control of Device from CTI

Associated Devices

SEP00123F19CBD6

① Add phone DN to appropriate partition.

Configuring Intrasite Routing


Directory Number Configuration - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
Dissociate Devices
Find
Done
192.168.1.10:8443

https://192.168.1.10:8443/ccmadmin/directoryNumberEdit.do?key=66d90053-935f-ec72-c061-479153551f8a&mapkey=74e26334-46a1-73c7-0d57-c8

Directory Number Settings

Voice Mail Profile	< None >
Calling Search Space	SJC-Intl-CSS
Presence Group*	Standard Presence group
AAR Group	< None >
User Hold Audio Source	< None >
Network Hold Audio Source	< None >
Auto Answer*	Auto Answer Off

Call Forward and Call Pickup Settings

	Voice Mail		Destination	Calling Search Space
Forward All	☐	or		< None >
Secondary Calling Search Space for Forward All				< None >
Forward Busy Internal	☐	or		< None >
Forward Busy External	☐	or		< None >
Forward No Answer Internal	☐	or		< None >
Forward No Answer External	☐	or		< None >
Forward No Coverage Internal	☐	or		< None >

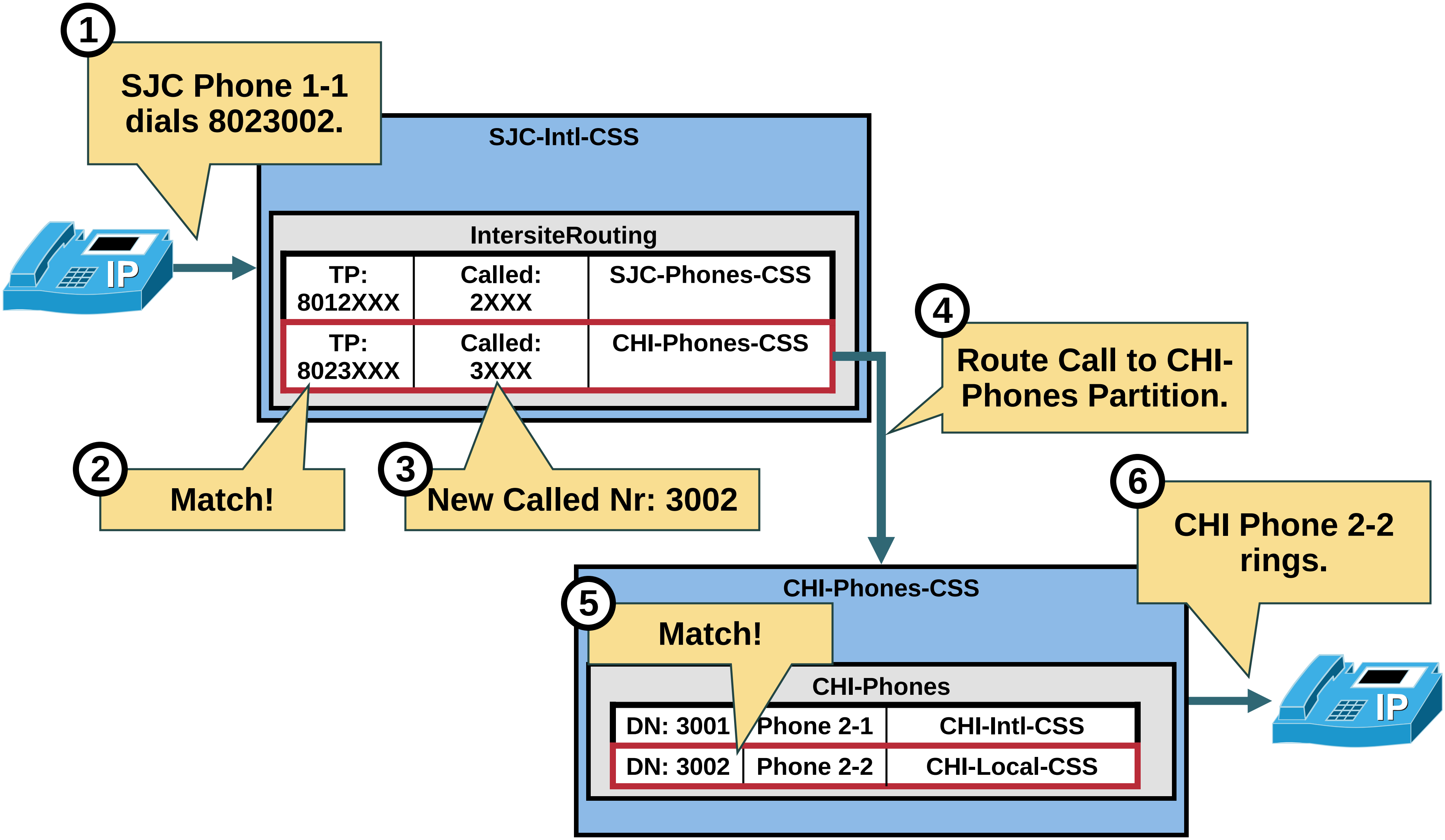
② Select appropriate CSS and save.

Configuring On-Cluster Intersite Routing

Intersite Routing configuration steps:

1. Review required dial-plan components.
2. Add additional partitions and CSSs.
3. Configure Translation Patterns for on-cluster routing.

Configuring On-Cluster Intersite Routing

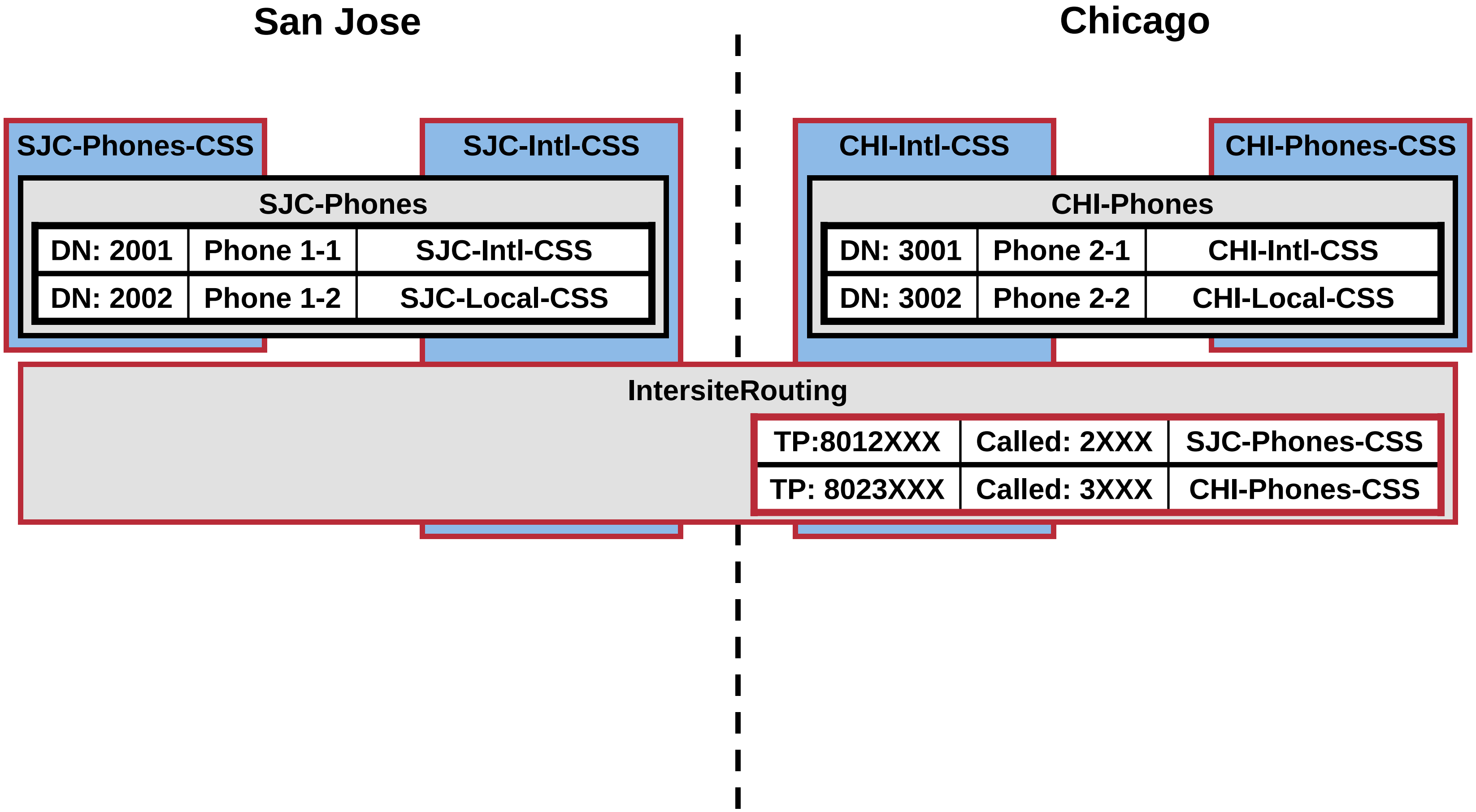


①
SJC Phone 1-1 dials 8023002.
SJC-Intl-CSS
IntersiteRouting
②
Match!
③
New Called Nr: 3002
④
Route Call to CHI-Phones Partition.
CHI-Phones-CSS
⑤
Match!
CHI-Phones
⑥
CHI Phone 2-2 rings.
IP
IP

TP: 8012XXX	Called: 2XXX	SJC-Phones-CSS
TP: 8023XXX	Called: 3XXX	CHI-Phones-CSS

DN: 3001	Phone 2-1	CHI-Intl-CSS
DN: 3002	Phone 2-2	CHI-Local-CSS

Configuring On-Cluster Intersite Routing



San Jose

Chicago

SJC-Phones-CSS

SJC-Intl-CSS

CHI-Intl-CSS

CHI-Phones-CSS

SJC-Phones

DN: 2001	Phone 1-1	SJC-Intl-CSS
DN: 2002	Phone 1-2	SJC-Local-CSS

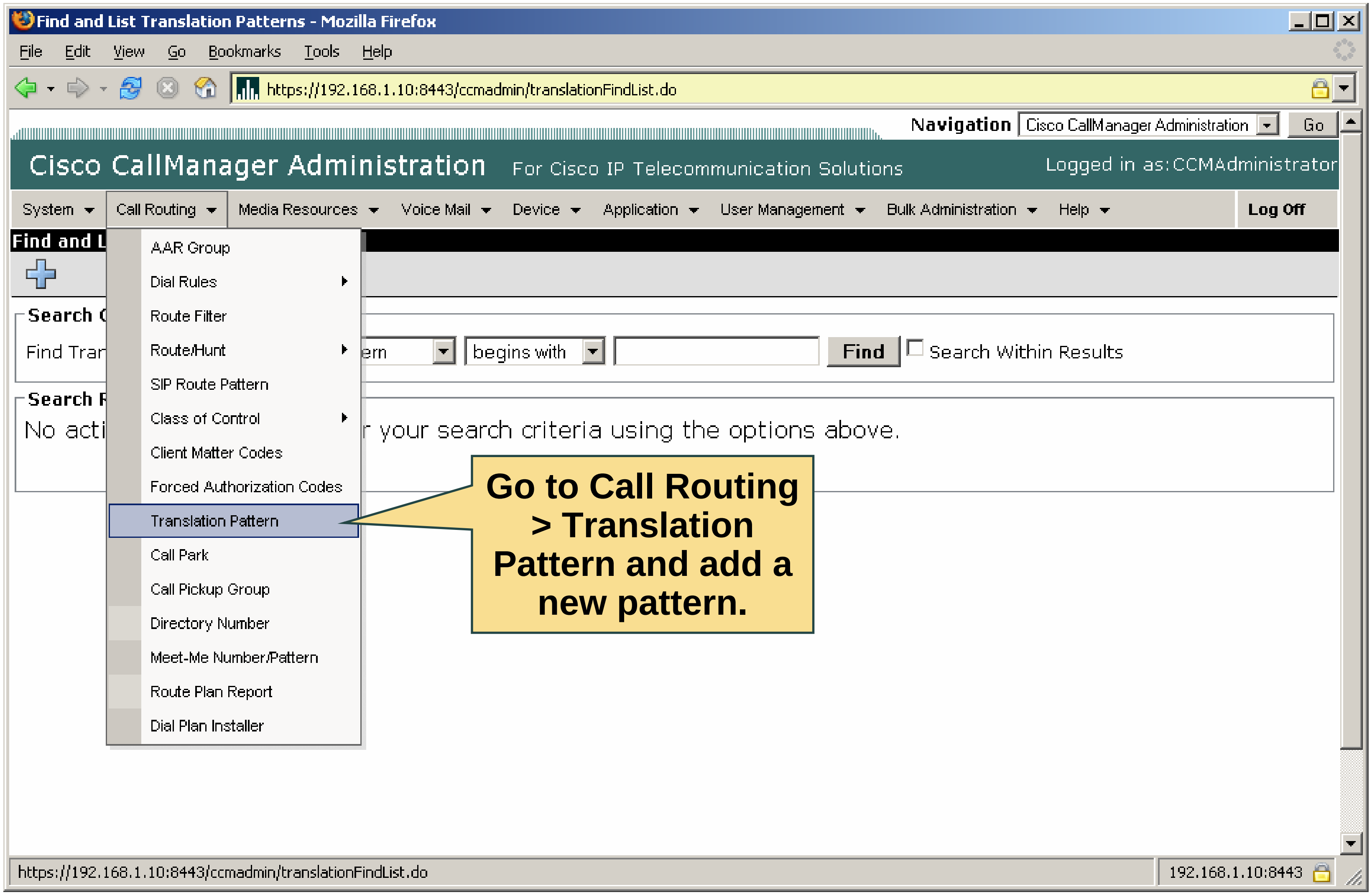
CHI-Phones

DN: 3001	Phone 2-1	CHI-Intl-CSS
DN: 3002	Phone 2-2	CHI-Local-CSS

IntersiteRouting

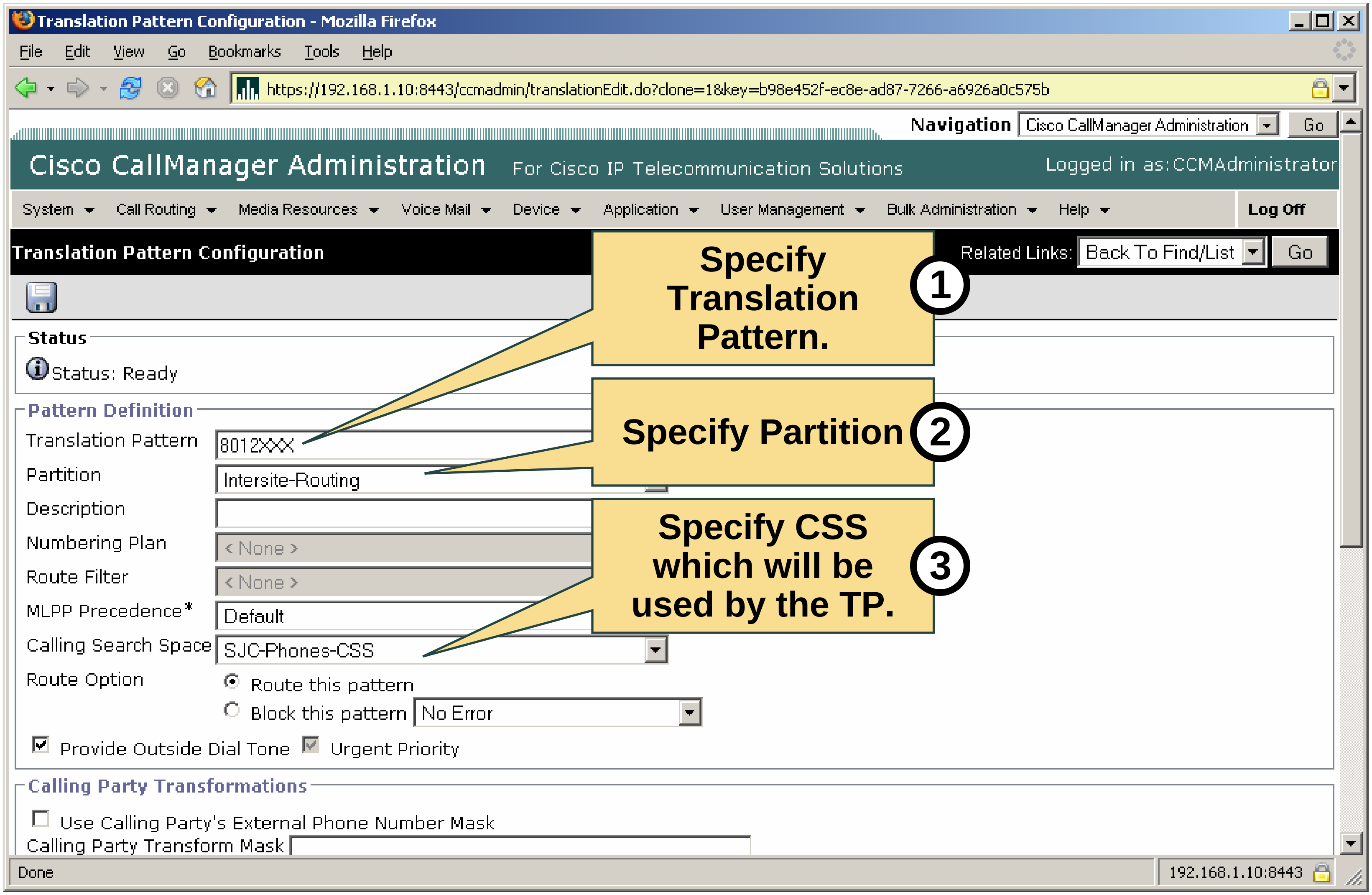
TP:8012XXX	Called: 2XXX	SJC-Phones-CSS
TP: 8023XXX	Called: 3XXX	CHI-Phones-CSS

Configuring On-Cluster Intersite Routing


Find and List Translation Patterns - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/translationFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
AAR Group
Dial Rules
Route Filter
Route/Hunt
SIP Route Pattern
Class of Control
Client Matter Codes
Forced Authorization Codes
Translation Pattern
Call Park
Call Pickup Group
Directory Number
Meet-Me Number/Pattern
Route Plan Report
Dial Plan Installer
Find and L
Search
Find Tran
ern begins with Find ☐ Search Within Results
Search R
No acti
r your search criteria using the options above.
https://192.168.1.10:8443/ccmadmin/translationFindList.do
192.168.1.10:8443

Go to Call Routing > Translation Pattern and add a new pattern.

Configuring On-Cluster Intersite Routing


Translation Pattern Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Related Links: Back To Find/List Go
Done

https://192.168.1.10:8443/ccmadmin/translationEdit.do?clone=1&key=b98e452f-ec8e-ad87-7266-a6926a0c575b

Logged in as: CCMAdministrator

Translation Pattern Configuration

Status

Status: Ready

Pattern Definition

Translation Pattern	8012XXX
Partition	Intersite-Routing
Description	
Numbering Plan	< None >
Route Filter	< None >
MLPP Precedence*	Default
Calling Search Space	SJC-Phones-CSS
Route Option	● Route this pattern ○ Block this pattern No Error

☑ Provide Outside Dial Tone ☑ Urgent Priority

Calling Party Transformations

☐ Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

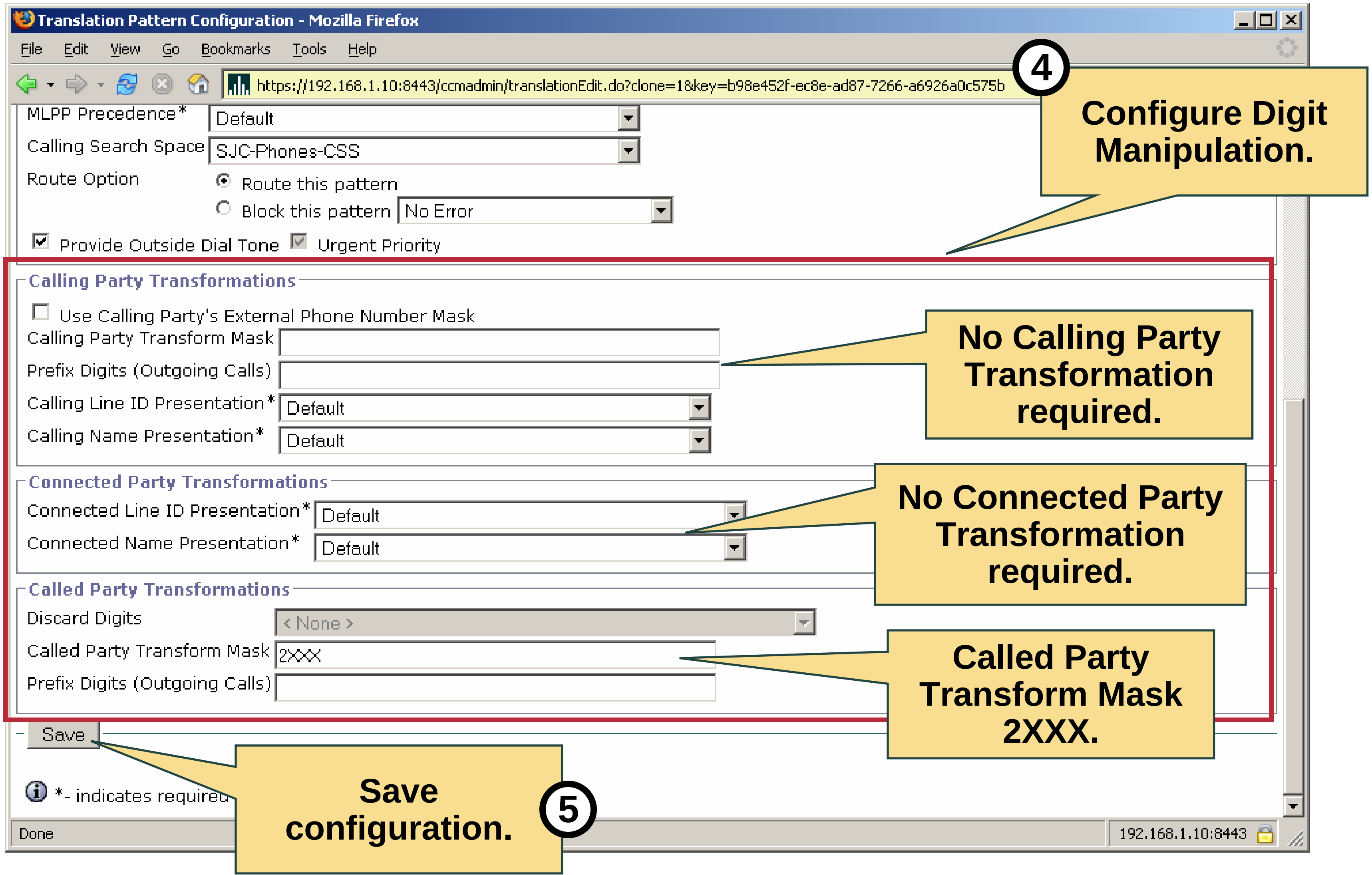
192.168.1.10:8443

Specify Translation Pattern. ①

Specify Partition ②

Specify CSS which will be used by the TP. ③

Configuring On-Cluster Intersite Routing



Translation Pattern Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/translationEdit.do?clone=1&key=b98e452f-ec8e-ad87-7266-a6926a0c575b

MLPP Precedence* Default

Calling Search Space SJC-Phones-CSS

Route Option ● Route this pattern

○ Block this pattern No Error

☑ Provide Outside Dial Tone ☑ Urgent Priority

Calling Party Transformations

☐ Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation* Default

Calling Name Presentation* Default

Connected Party Transformations

Connected Line ID Presentation* Default

Connected Name Presentation* Default

Called Party Transformations

Discard Digits < None >

Called Party Transform Mask 2XXX

Prefix Digits (Outgoing Calls)

Save
*- indicates required
Done
192.168.1.10:8443

④ Configure Digit Manipulation.

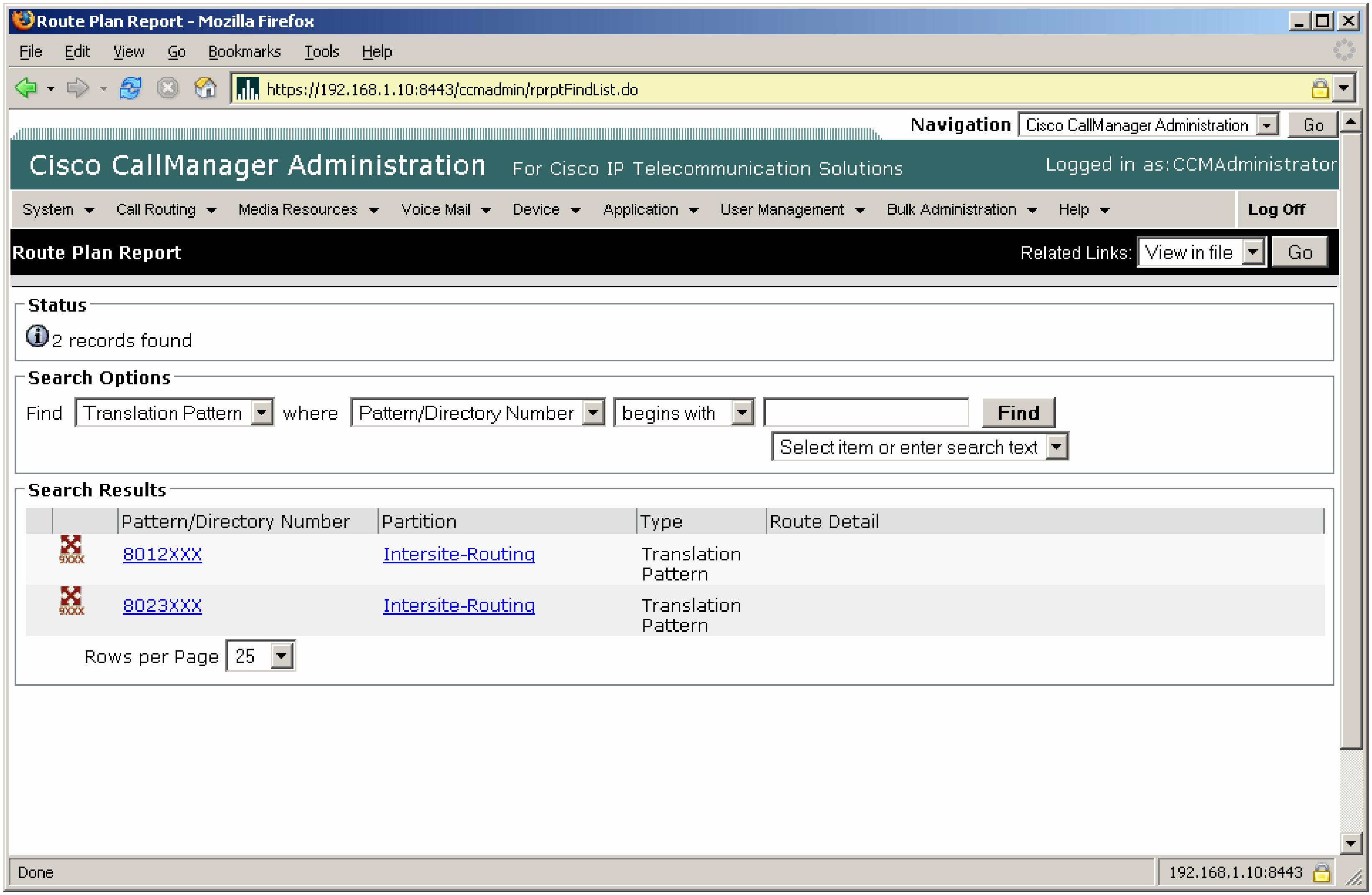
No Calling Party Transformation required.

No Connected Party Transformation required.

Called Party Transform Mask 2XXX.

Save configuration. ⑤

Configuring On-Cluster Intersite Routing


Route Plan Report - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/rprptFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Related Links: View in file Go
Find
Select item or enter search text
Done
192.168.1.10:8443

Route Plan Report

Status

2 records found

Search Options

Find Translation Pattern where Pattern/Directory Number begins with

Search Results

Pattern/Directory Number	Partition	Type	Route Detail
8012XXX	Intersite-Routing	Translation Pattern	
8023XXX	Intersite-Routing	Translation Pattern	

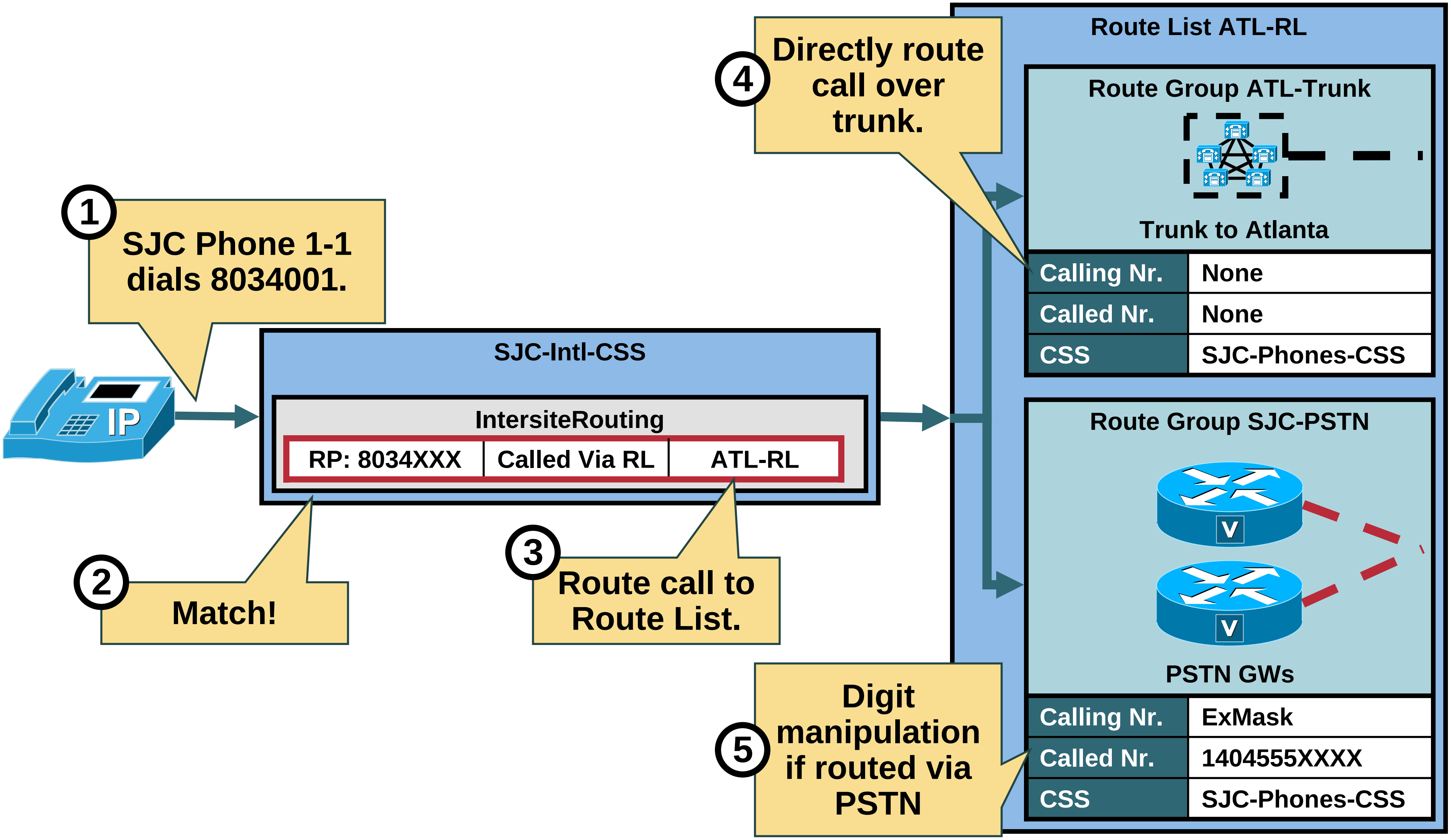
Rows per Page 25

Configuring Off-Cluster Intersite Routing

Intersite Routing configuration steps:

1. Review required dial-plan components.
2. Configure Route Groups and Route Lists.
3. Configure Route Patterns.

Configuring Off-Cluster Intersite Routing



① SJC Phone 1-1 dials 8034001.

② Match!

③ Route call to Route List.

④ Directly route call over trunk.

⑤ Digit manipulation if routed via PSTN

SJC-Intl-CSS

IntersiteRouting

RP: 8034XXX	Called Via RL	ATL-RL

Route List ATL-RL

Route Group ATL-Trunk

Trunk to Atlanta

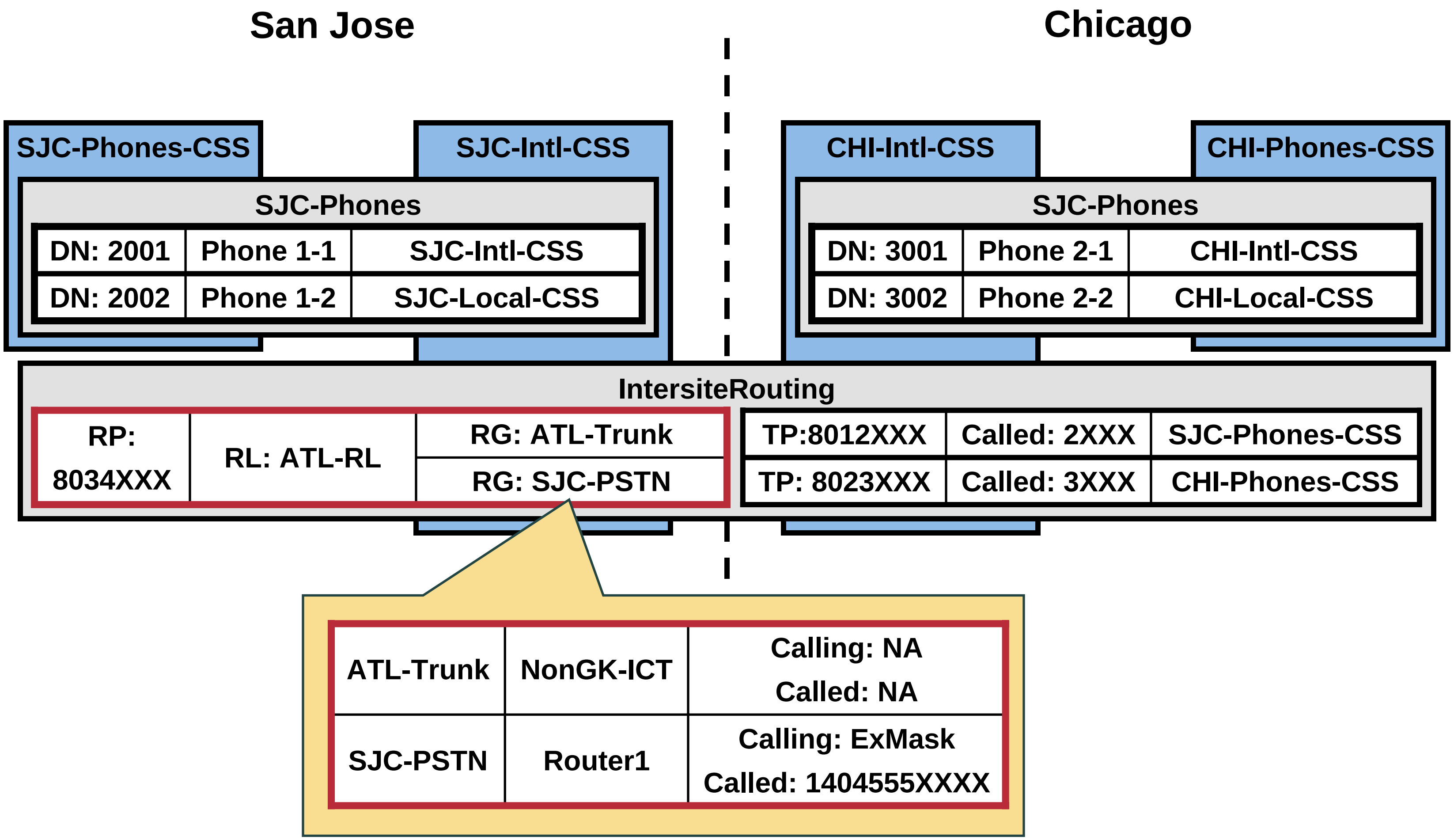
Calling Nr.	None
Called Nr.	None
CSS	SJC-Phones-CSS

Route Group SJC-PSTN

PSTN GWs

Calling Nr.	ExMask
Called Nr.	1404555XXXX
CSS	SJC-Phones-CSS

Configuring Off-Cluster Intersite Routing



San Jose

Chicago

SJC-Phones-CSS

SJC-Intl-CSS

SJC-Phones

DN: 2001	Phone 1-1	SJC-Intl-CSS
DN: 2002	Phone 1-2	SJC-Local-CSS

CHI-Intl-CSS

CHI-Phones-CSS

SJC-Phones

DN: 3001	Phone 2-1	CHI-Intl-CSS
DN: 3002	Phone 2-2	CHI-Local-CSS

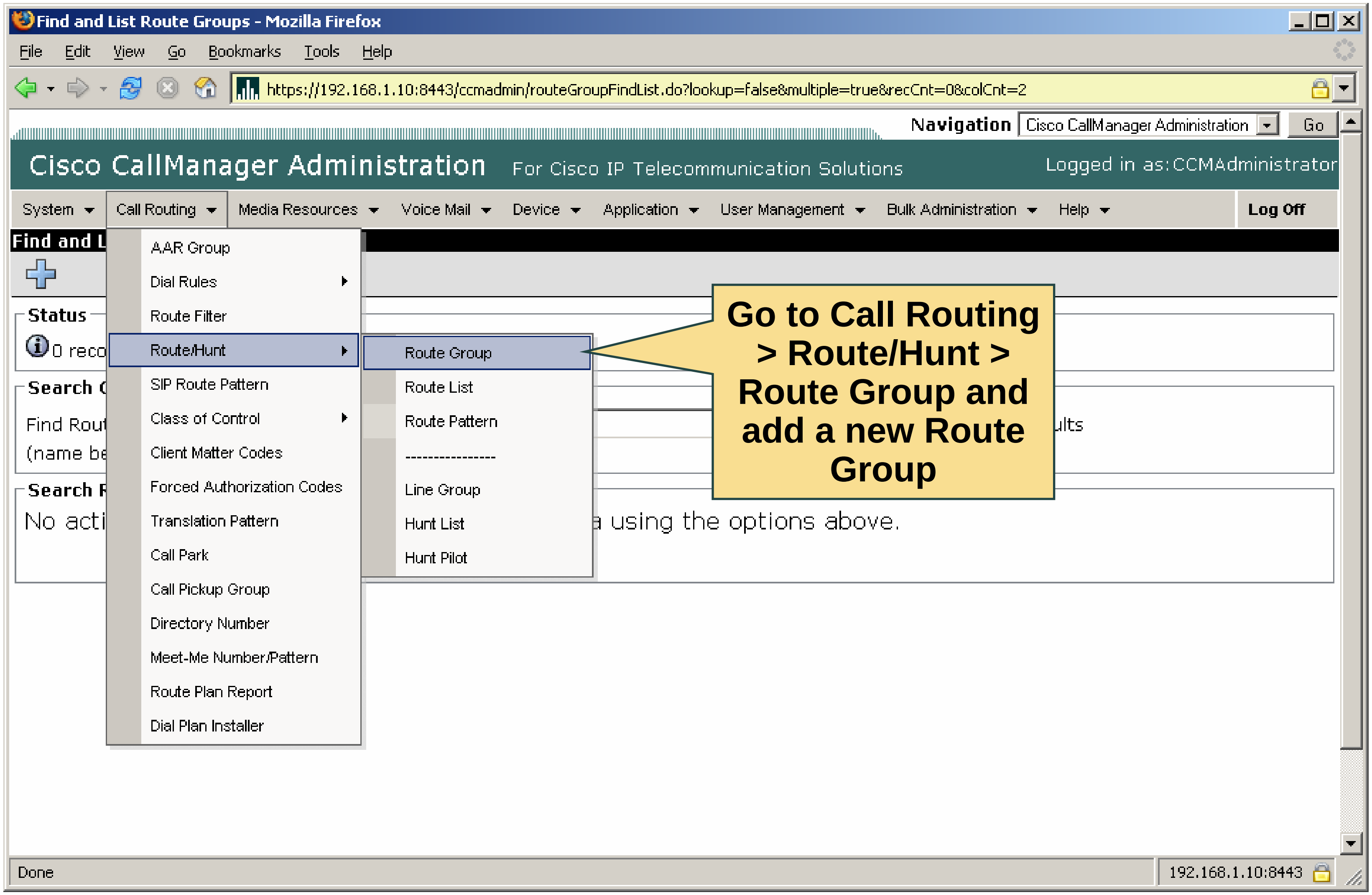
IntersiteRouting

RP: 8034XXX	RL: ATL-RL	RG: ATL-Trunk RG: SJC-PSTN

TP:8012XXX	Called: 2XXX	SJC-Phones-CSS
TP: 8023XXX	Called: 3XXX	CHI-Phones-CSS

ATL-Trunk	NonGK-ICT	Calling: NA Called: NA
SJC-PSTN	Router1	Calling: ExMask Called: 1404555XXXX

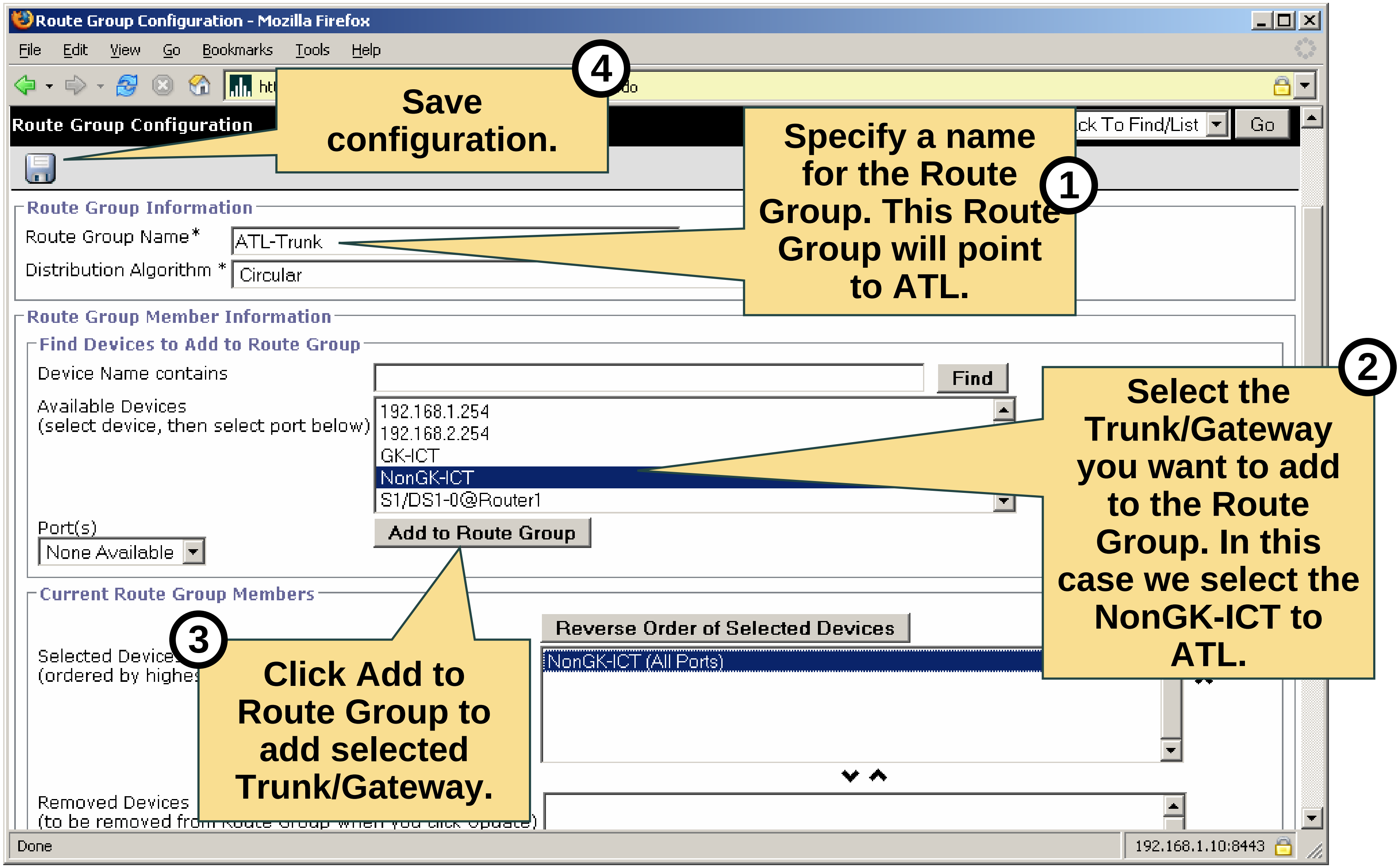
Configuring Off-Cluster Intersite Routing: Adding Route Groups


Find and List Route Groups - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/routeGroupFindList.do?lookup=false&multiple=true&recCnt=0&colCnt=2
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
AAR Group
Dial Rules
Route Filter
Route/Hunt
SIP Route Pattern
Class of Control
Client Matter Codes
Forced Authorization Codes
Translation Pattern
Call Park
Call Pickup Group
Directory Number
Meet-Me Number/Pattern
Route Plan Report
Dial Plan Installer
Route Group
Route List
Route Pattern

Line Group
Hunt List
Hunt Pilot
Find and L
Status
0 reco
Search C
Find Rout
(name be
ults
Search R
No acti
a using the options above.
Done
192.168.1.10:8443

Go to Call Routing > Route/Hunt > Route Group and add a new Route Group

Configuring Off-Cluster Intersite Routing: Configuring Route Groups


Route Group Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Route Group Configuration
ck To Find/List
Go
Route Group Information
Route Group Member Information
Find Devices to Add to Route Group
Find
Add to Route Group
Current Route Group Members
Reverse Order of Selected Devices
Done
192.168.1.10:8443

Route Group Name* ATL-Trunk

Distribution Algorithm * Circular

Device Name contains

Available Devices (select device, then select port below)
- 192.168.1.254
- 192.168.2.254
- GK-ICT
- NonGK-ICT
- S1/DS1-0@Router1

Port(s) None Available

Selected Devices (ordered by highes
- NonGK-ICT (All Ports)

Removed Devices (to be removed from Route Group when you click Update)

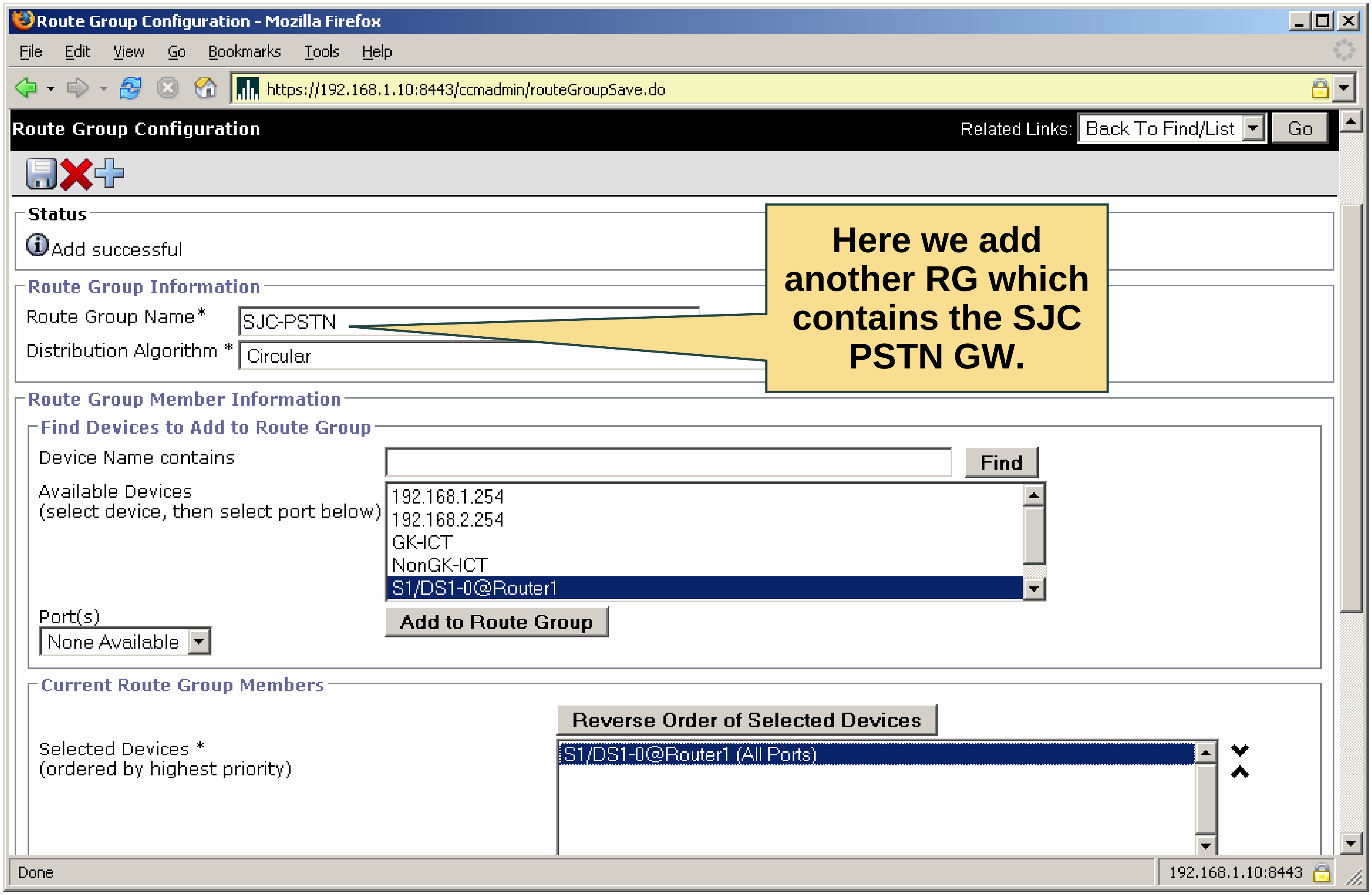
① Specify a name for the Route Group. This Route Group will point to ATL.

② Select the Trunk/Gateway you want to add to the Route Group. In this case we select the NonGK-ICT to ATL.

③ Click Add to Route Group to add selected Trunk/Gateway.

④ Save configuration.

Configuring Off-Cluster Intersite Routing: Configuring Route Groups



Route Group Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/routeGroupSave.do
Route Group Configuration
Related Links: Back To Find/List
Go

Status

Add successful

Route Group Information

Route Group Name* SJC-PSTN

Distribution Algorithm * Circular

Route Group Member Information

Find Devices to Add to Route Group

Device Name contains

Find

Available Devices
(select device, then select port below)

- 192.168.1.254
- 192.168.2.254
- GK-ICT
- NonGK-ICT
- S1/DS1-0@Router1

Port(s) None Available

Add to Route Group

Current Route Group Members

Reverse Order of Selected Devices

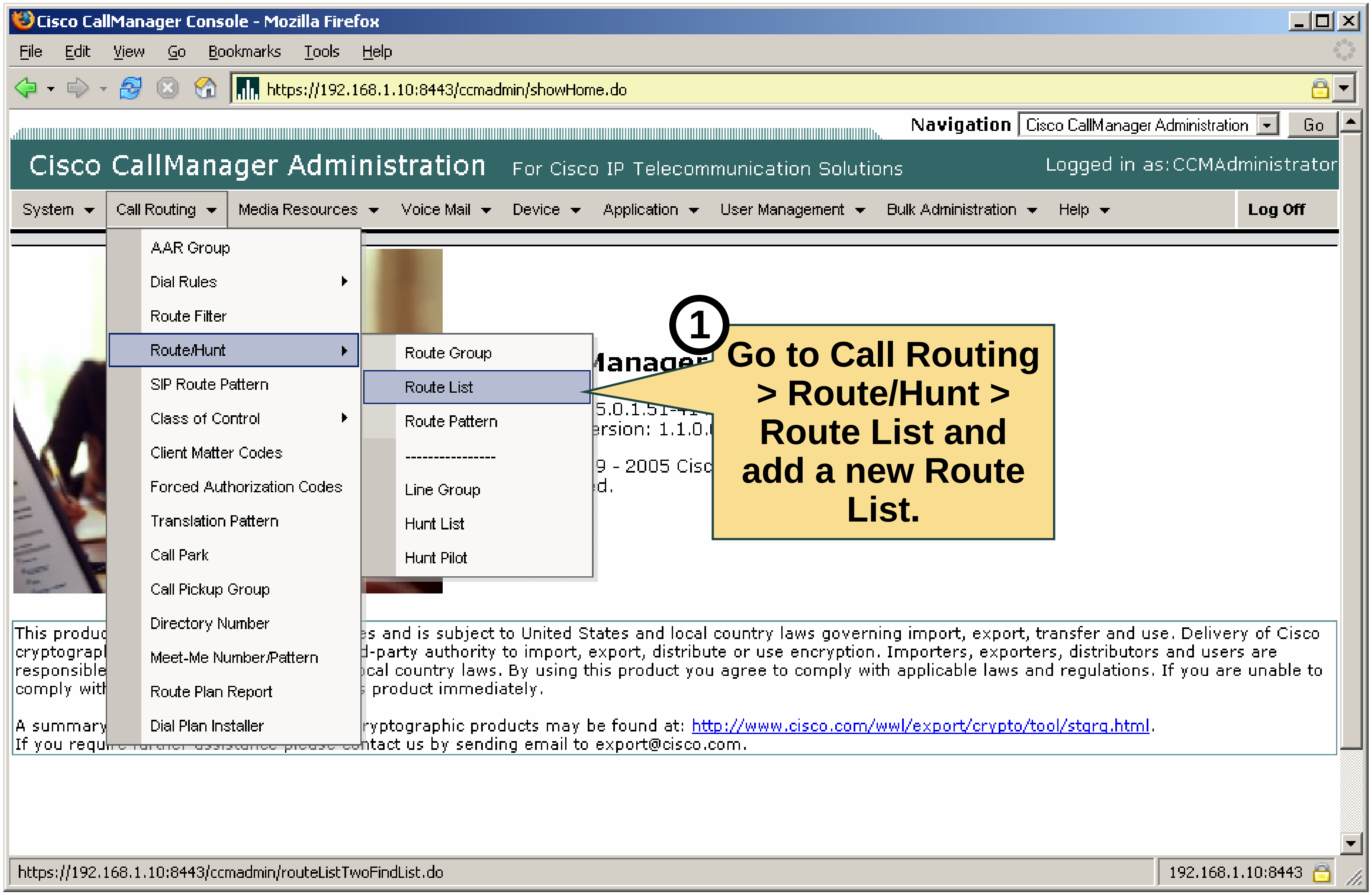
Selected Devices *
(ordered by highest priority)

S1/DS1-0@Router1 (All Ports)

Done
192.168.1.10:8443

Here we add another RG which contains the SJC PSTN GW.

Configuring Off-Cluster Intersite Routing: Adding Route Lists


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/showHome.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
AAR Group
Dial Rules
Route Filter
Route/Hunt
SIP Route Pattern
Class of Control
Client Matter Codes
Forced Authorization Codes
Translation Pattern
Call Park
Call Pickup Group
Directory Number
Meet-Me Number/Pattern
Route Plan Report
Dial Plan Installer
Route Group
Route List
Route Pattern

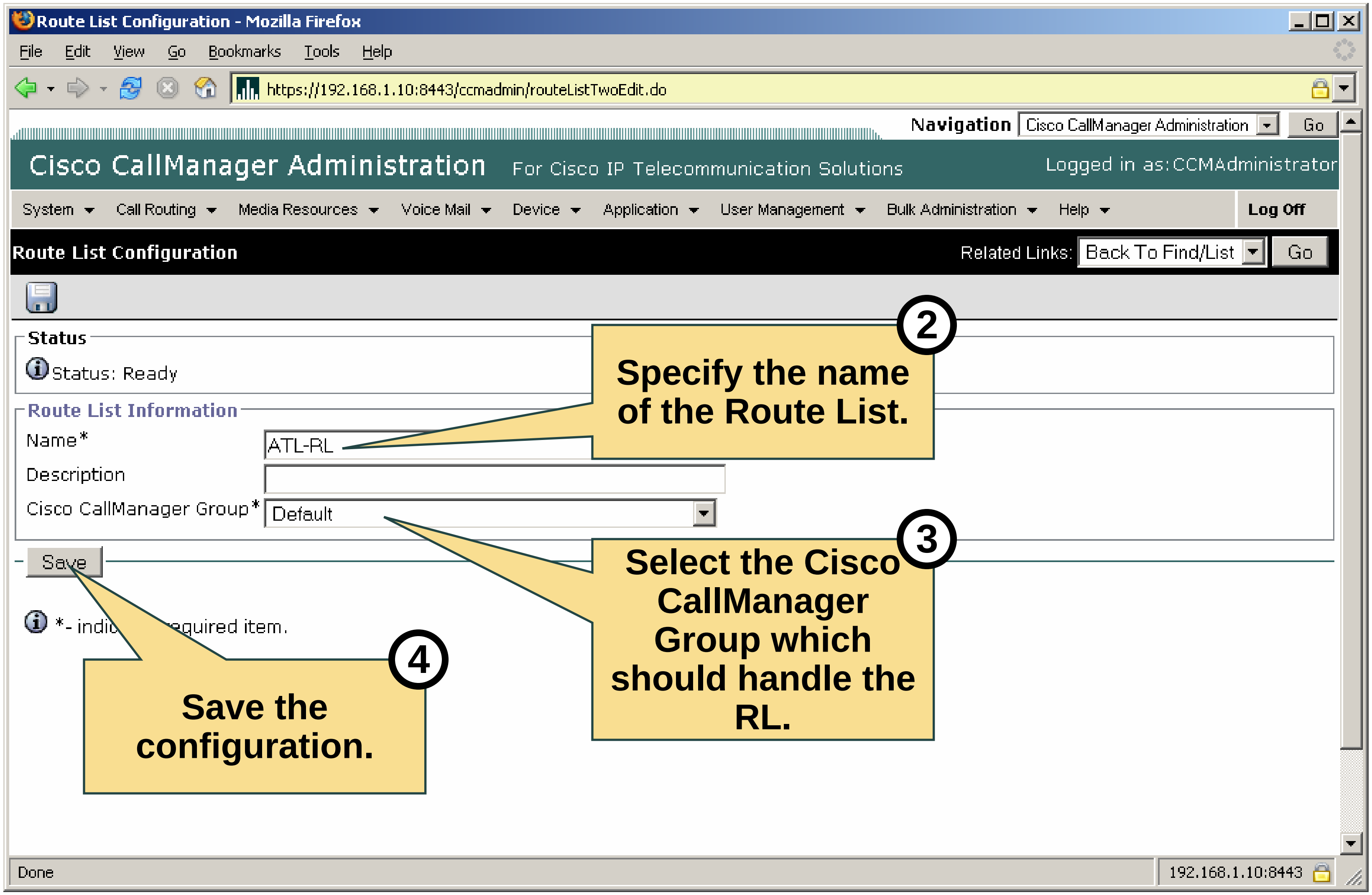
Line Group
Hunt List
Hunt Pilot
Manage
5.0.1.51-41
ersion: 1.1.0.
9 - 2005 Cisc
d.
https://192.168.1.10:8443/ccmadmin/routeListTwoFindList.do
192.168.1.10:8443

This produc… …es and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptograp… …d-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible… …ocal country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply wit… …s product immediately.

A summary… …ryptographic products may be found at: http://www.cisco.com/wwl/export/crypto/tool/stqrg.html.
If you requ… …ntact us by sending email to export@cisco.com.

① **Go to Call Routing > Route/Hunt > Route List and add a new Route List.**

Configuring Off-Cluster Intersite Routing: Adding Route Lists


Route List Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/routeListTwoEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Related Links: Back To Find/List Go
Save
Done
192.168.1.10:8443

Route List Configuration

Status

Status: Ready

Route List Information

Name* ATL-RL

Description

Cisco CallManager Group* Default

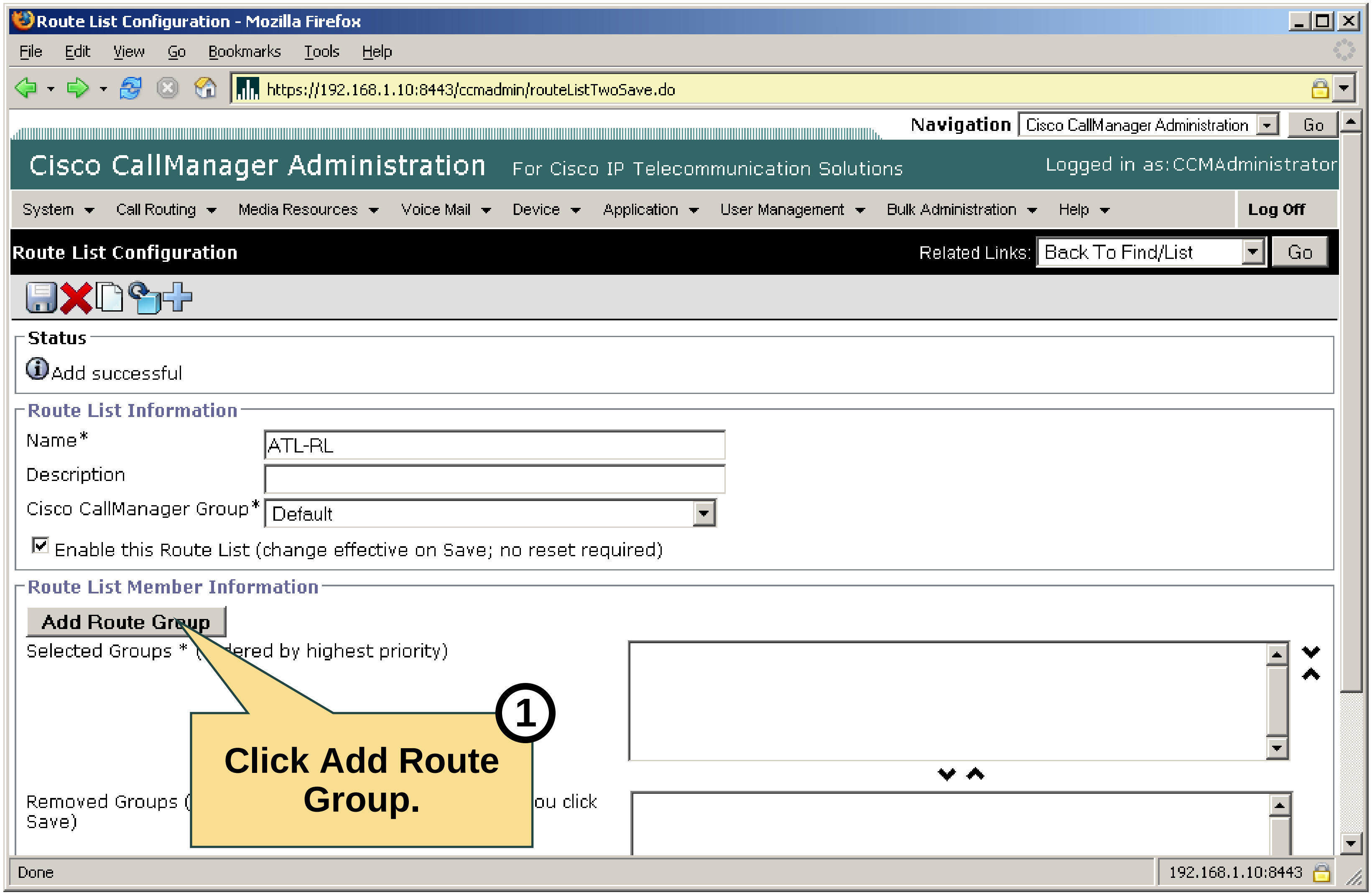
*- indicates required item.

② Specify the name of the Route List.

③ Select the Cisco CallManager Group which should handle the RL.

④ Save the configuration.

Configuring Off-Cluster Intersite Routing: Adding Route Groups to Route Lists


Route List Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/routeListTwoSave.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Related Links: Back To Find/List Go
Add Route Group
Done
192.168.1.10:8443

Route List Configuration

Status

Add successful

Route List Information

Name* ATL-RL

Description

Cisco CallManager Group* Default

☑ Enable this Route List (change effective on Save; no reset required)

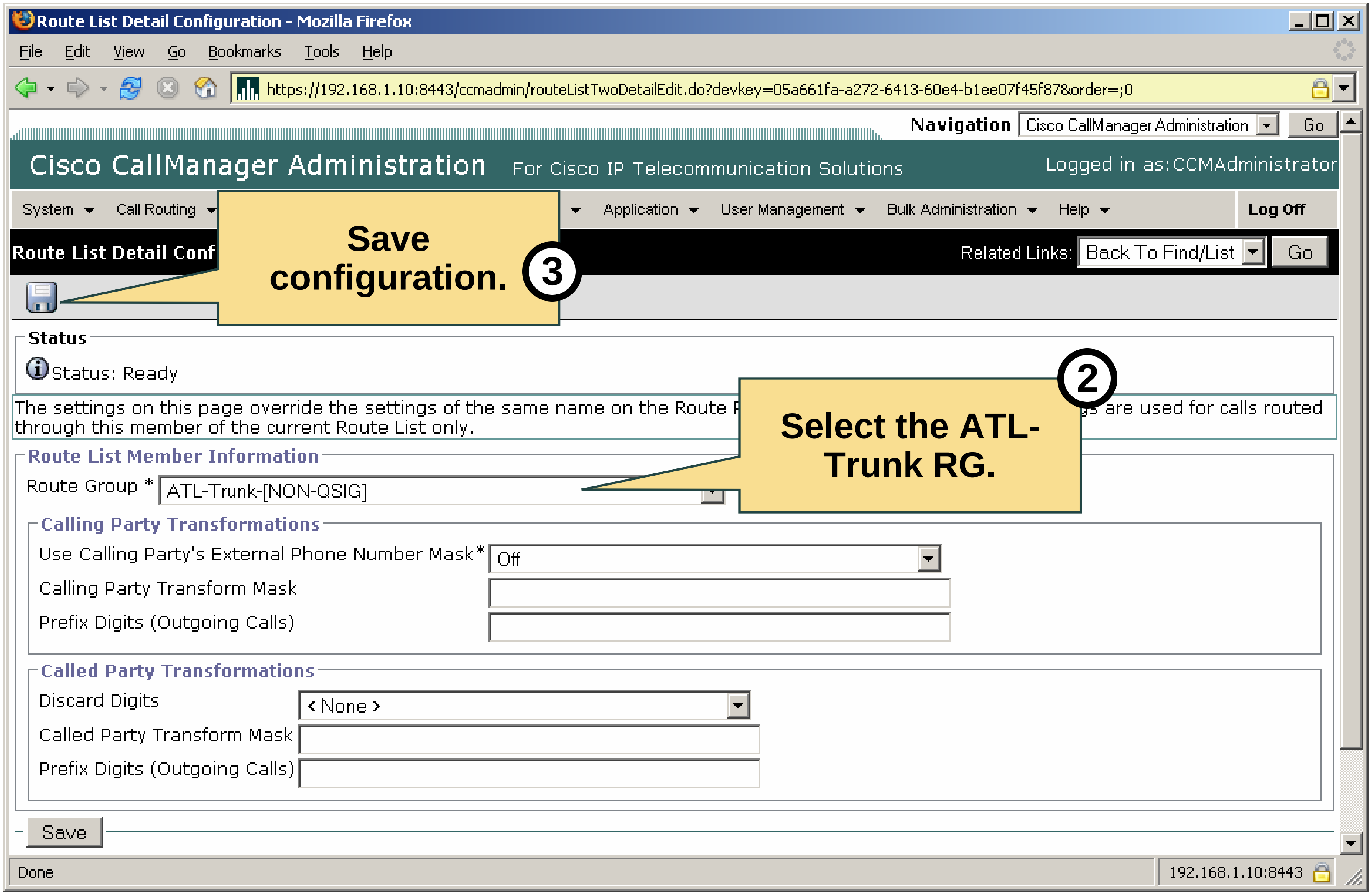
Route List Member Information

Selected Groups * (ered by highest priority)

Removed Groups (ou click Save)

① Click Add Route Group.

Configuring Off-Cluster Intersite Routing: Adding Route Groups to Route Lists


Route List Detail Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Application
User Management
Bulk Administration
Help
Log Off
Route List Detail Conf
Related Links:
Back To Find/List
Go
Save
Done
192.168.1.10:8443

https://192.168.1.10:8443/ccmadmin/routeListTwoDetailEdit.do?devkey=05a661fa-a272-6413-60e4-b1ee07f45f87&order=;0

③ Save configuration.

Status

Status: Ready

The settings on this page override the settings of the same name on the Route P... ...s are used for calls routed through this member of the current Route List only.

② Select the ATL-Trunk RG.

Route List Member Information

Route Group * ATL-Trunk-[NON-QSIG]

Calling Party Transformations

Use Calling Party's External Phone Number Mask* Off

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

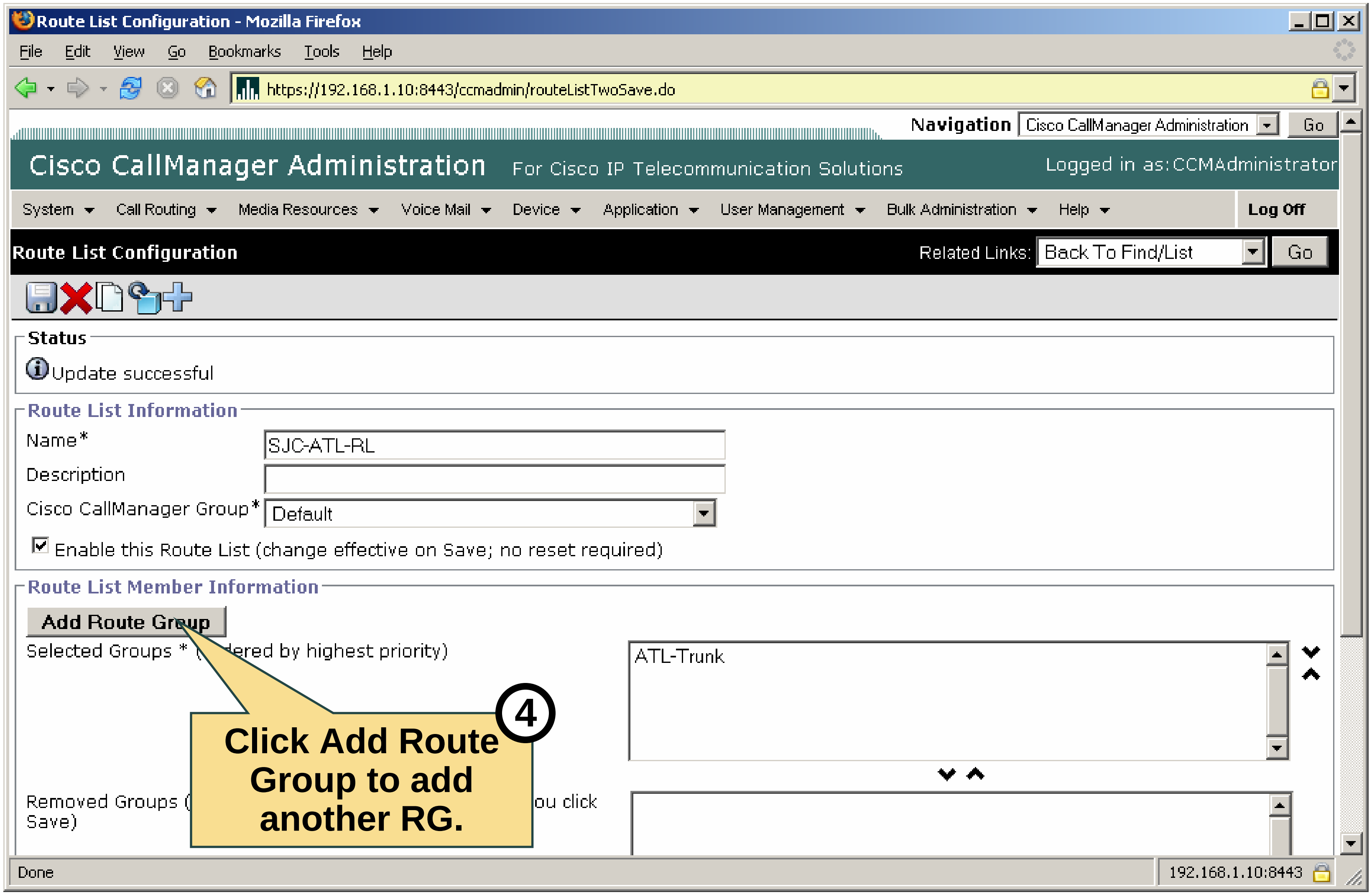
Called Party Transformations

Discard Digits < None >

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

Configuring Off-Cluster Intersite Routing: Adding Route Groups to Route Lists



Route List Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/routeListTwoSave.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Route List Configuration
Related Links: Back To Find/List Go
Add Route Group
Done
192.168.1.10:8443

Status

Update successful

Route List Information

Name* SJC-ATL-RL

Description

Cisco CallManager Group* Default

☑ Enable this Route List (change effective on Save; no reset required)

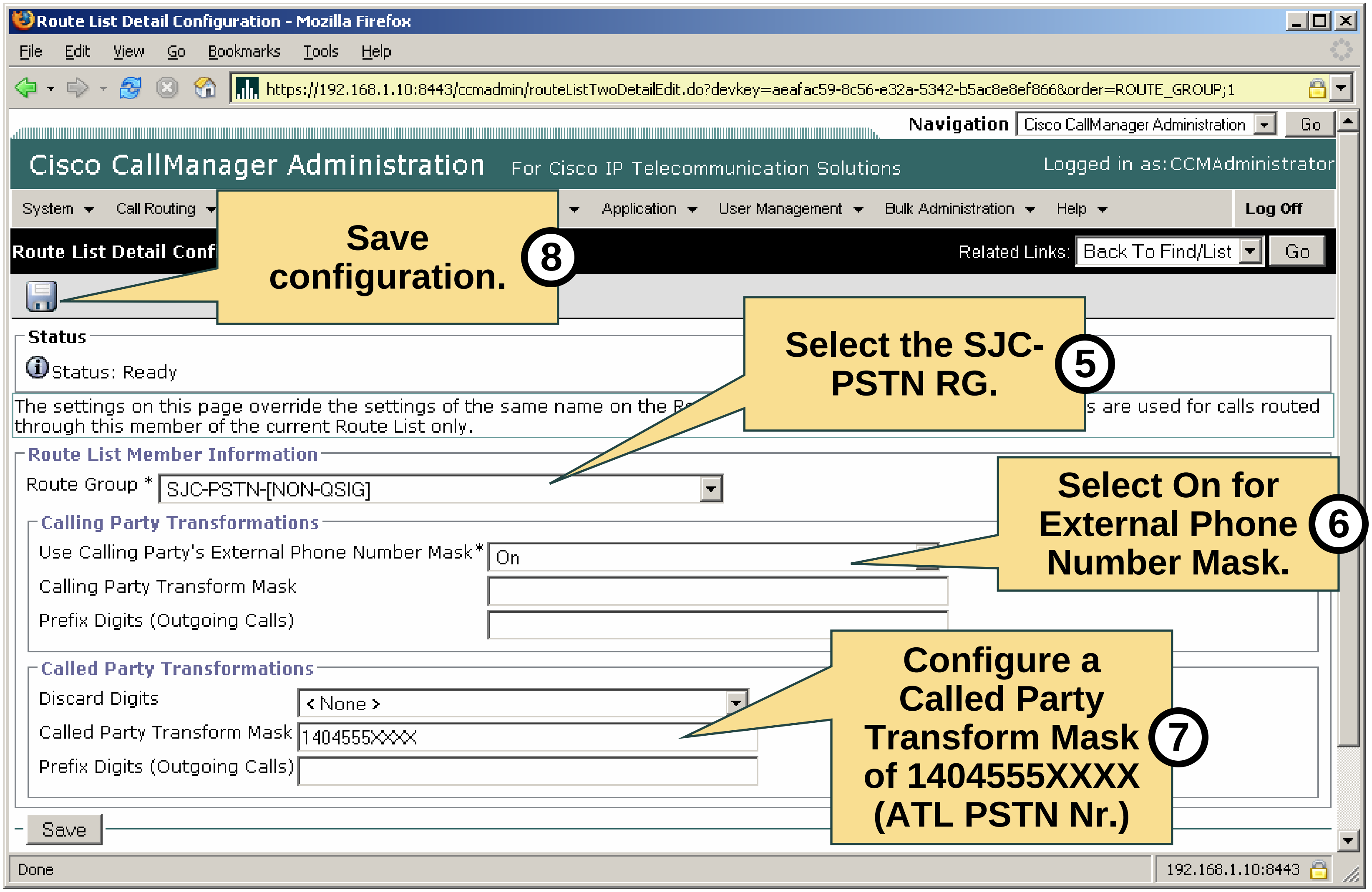
Route List Member Information

Selected Groups * (ordered by highest priority): ATL-Trunk

Removed Groups (to be removed from Route List when you click Save)

④ Click Add Route Group to add another RG.

Configuring Off-Cluster Intersite Routing: Adding Route Groups to Route Lists


Route List Detail Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
System
Call Routing
Application
User Management
Bulk Administration
Help
Log Off
Route List Detail Conf
Related Links:
Back To Find/List
Go
Save
Done
192.168.1.10:8443

https://192.168.1.10:8443/ccmadmin/routeListTwoDetailEdit.do?devkey=aeafac59-8c56-e32a-5342-b5ac8e8ef866&order=ROUTE_GROUP;1

Logged in as: CCMAdministrator

Status

Status: Ready

The settings on this page override the settings of the same name on the R… …s are used for calls routed through this member of the current Route List only.

Route List Member Information

Route Group * SJC-PSTN-[NON-QSIG]

Calling Party Transformations

Use Calling Party's External Phone Number Mask* On

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Called Party Transformations

Discard Digits < None >

Called Party Transform Mask 1404555XXXX

Prefix Digits (Outgoing Calls)

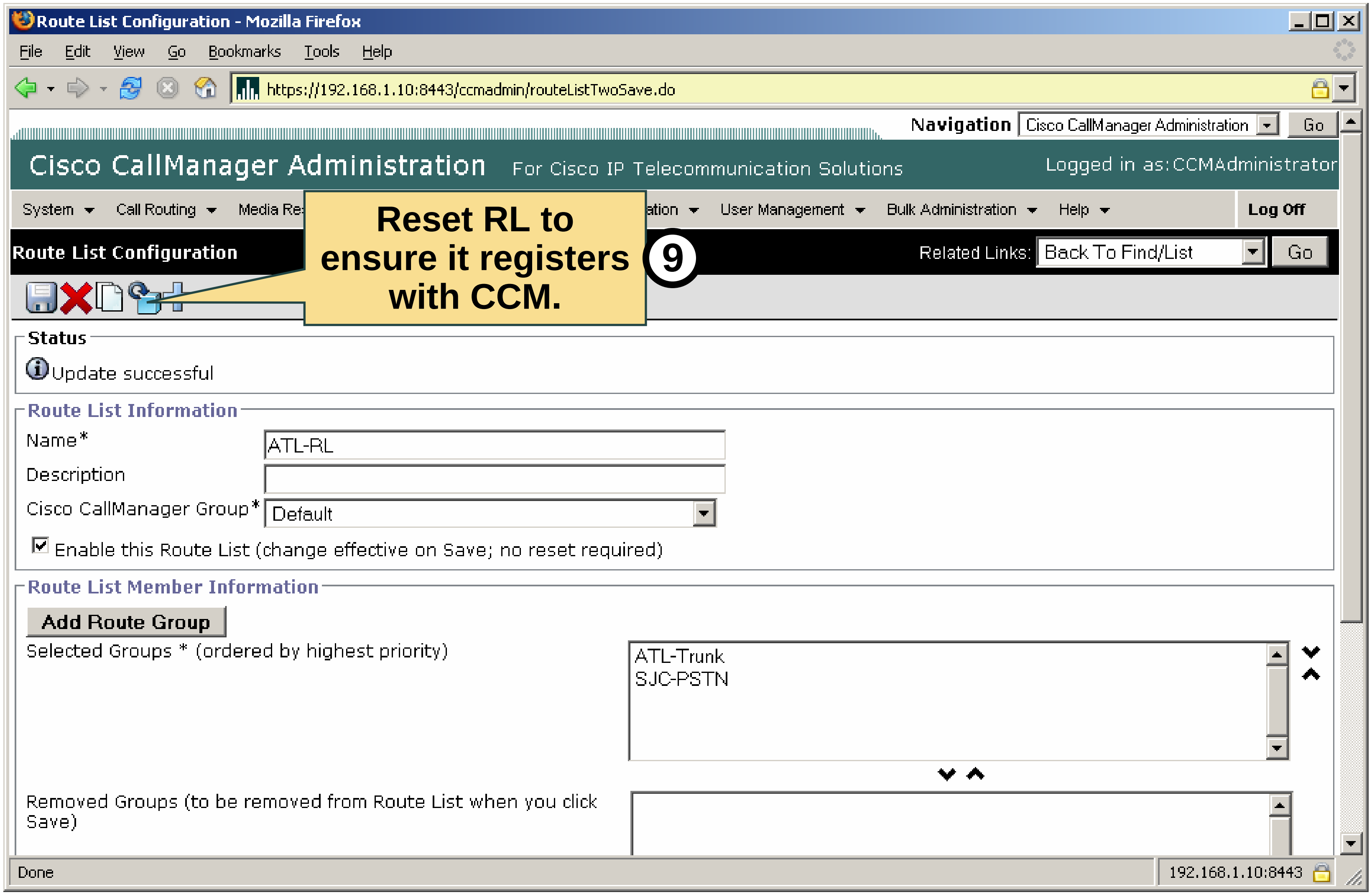
⑤ Select the SJC-PSTN RG.

⑥ Select On for External Phone Number Mask.

⑦ Configure a Called Party Transform Mask of 1404555XXXX (ATL PSTN Nr.)

⑧ Save configuration.

Configuring Off-Cluster Intersite Routing: Adding Route Groups to Route Lists


Route List Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/routeListTwoSave.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Re ation User Management Bulk Administration Help Log Off
Route List Configuration
Related Links: Back To Find/List Go
9
Add Route Group
Done
192.168.1.10:8443

Reset RL to ensure it registers with CCM.

Status

Update successful

Route List Information

Name* ATL-RL

Description

Cisco CallManager Group* Default

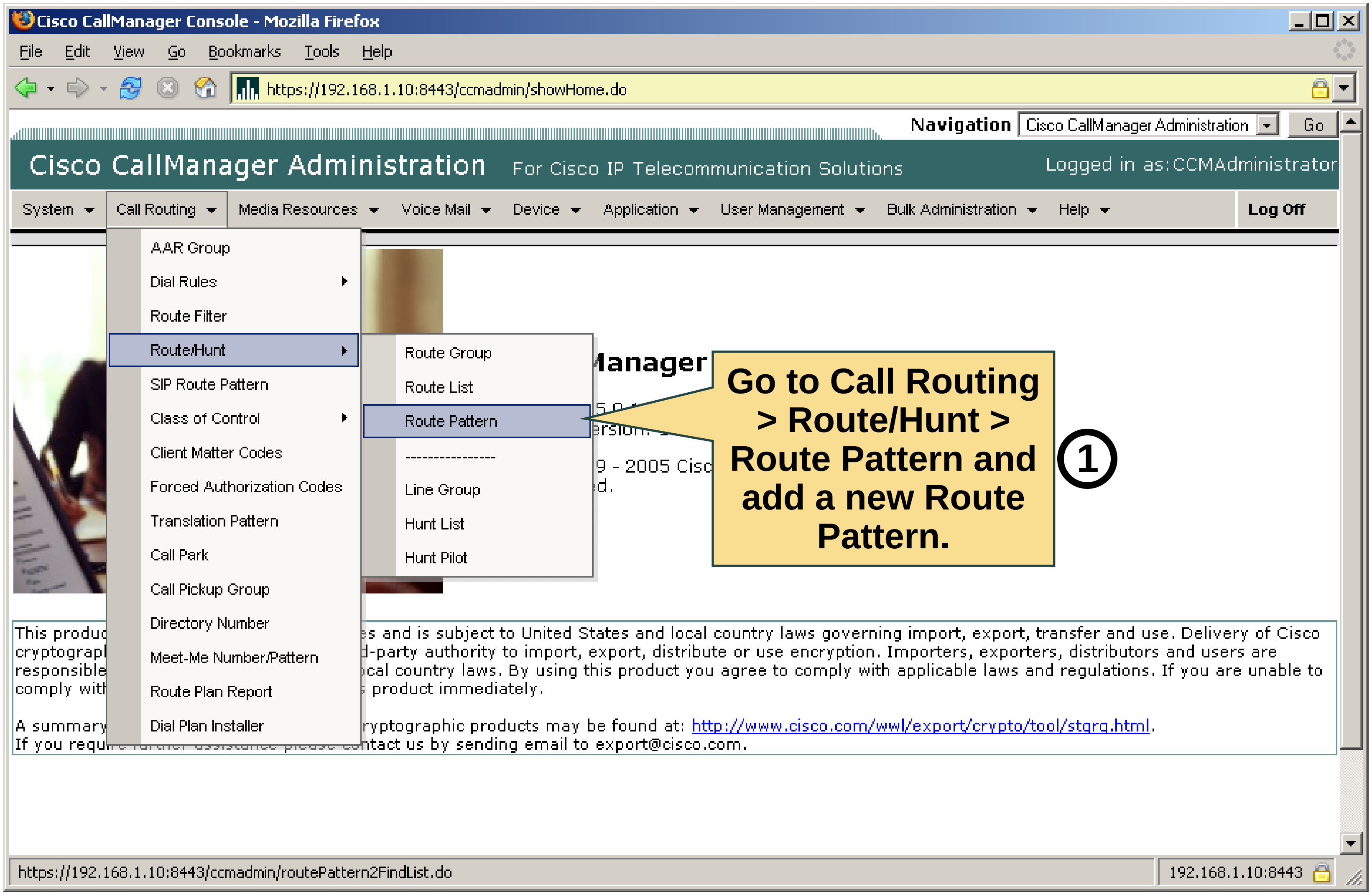
☑ Enable this Route List (change effective on Save; no reset required)

Route List Member Information

Selected Groups * (ordered by highest priority)
ATL-Trunk
SJC-PSTN

Removed Groups (to be removed from Route List when you click Save)

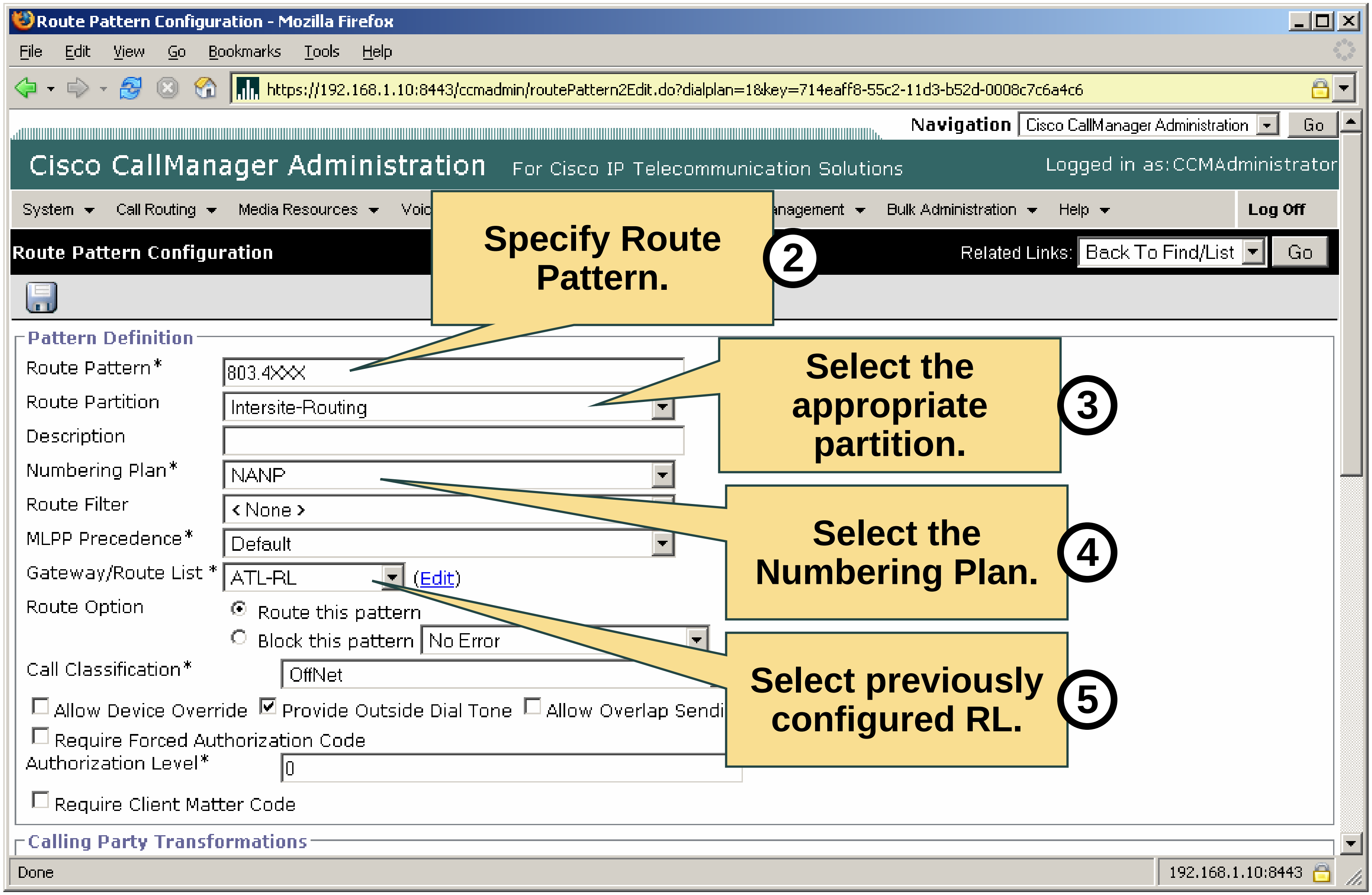
Configuring Off-Cluster Intersite Routing: Configuring Route Patterns


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/showHome.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
AAR Group
Dial Rules
Route Filter
Route/Hunt
SIP Route Pattern
Class of Control
Client Matter Codes
Forced Authorization Codes
Translation Pattern
Call Park
Call Pickup Group
Directory Number
Meet-Me Number/Pattern
Route Plan Report
Dial Plan Installer
Route Group
Route List
Route Pattern
Line Group
Hunt List
Hunt Pilot
https://192.168.1.10:8443/ccmadmin/routePattern2FindList.do
192.168.1.10:8443

Go to Call Routing > Route/Hunt > Route Pattern and add a new Route Pattern.

①

Configuring Off-Cluster Intersite Routing: Configuring Route Patterns



Route Pattern Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/routePattern2Edit.do?dialplan=1&key=714eaff8-55c2-11d3-b52d-0008c7c6a4c6
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voic… …nagement Bulk Administration Help Log Off
Route Pattern Configuration
Related Links: Back To Find/List Go

Pattern Definition

Route Pattern* 803.4XXX

Route Partition Intersite-Routing

Description

Numbering Plan* NANP

Route Filter < None >

MLPP Precedence* Default

Gateway/Route List * ATL-RL (Edit)

Route Option ● Route this pattern ○ Block this pattern No Error

Call Classification* OffNet

☐ Allow Device Override ☑ Provide Outside Dial Tone ☐ Allow Overlap Sendi

☐ Require Forced Authorization Code

Authorization Level* 0

☐ Require Client Matter Code

Calling Party Transformations

Done
192.168.1.10:8443

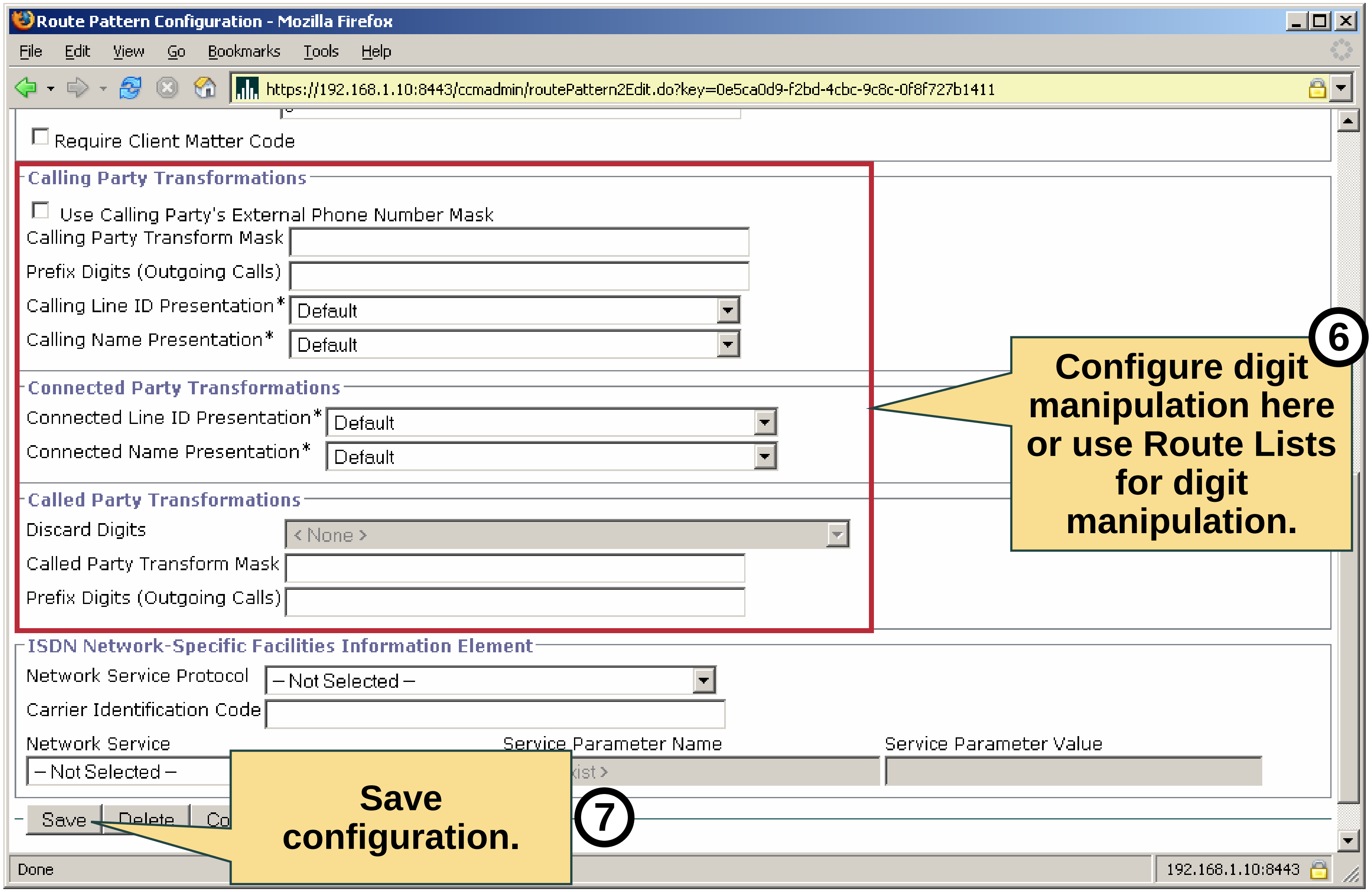
Specify Route Pattern. ②

Select the appropriate partition. ③

Select the Numbering Plan. ④

Select previously configured RL. ⑤

Configuring Off-Cluster Intersite Routing: Configuring Route Patterns



Route Pattern Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/routePattern2Edit.do?key=0e5ca0d9-f2bd-4cbc-9c8c-0f8f727b1411
Save
Delete
Co
Done
192.168.1.10:8443

☐ Require Client Matter Code

Calling Party Transformations

☐ Use Calling Party's External Phone Number Mask
Calling Party Transform Mask
Prefix Digits (Outgoing Calls)
Calling Line ID Presentation* Default
Calling Name Presentation* Default

Connected Party Transformations

Connected Line ID Presentation* Default
Connected Name Presentation* Default

Called Party Transformations

Discard Digits < None >
Called Party Transform Mask
Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Network Service Protocol – Not Selected –
Carrier Identification Code

Network Service	Service Parameter Name	Service Parameter Value
– Not Selected –	ist >	

⑥ Configure digit manipulation here or use Route Lists for digit manipulation.

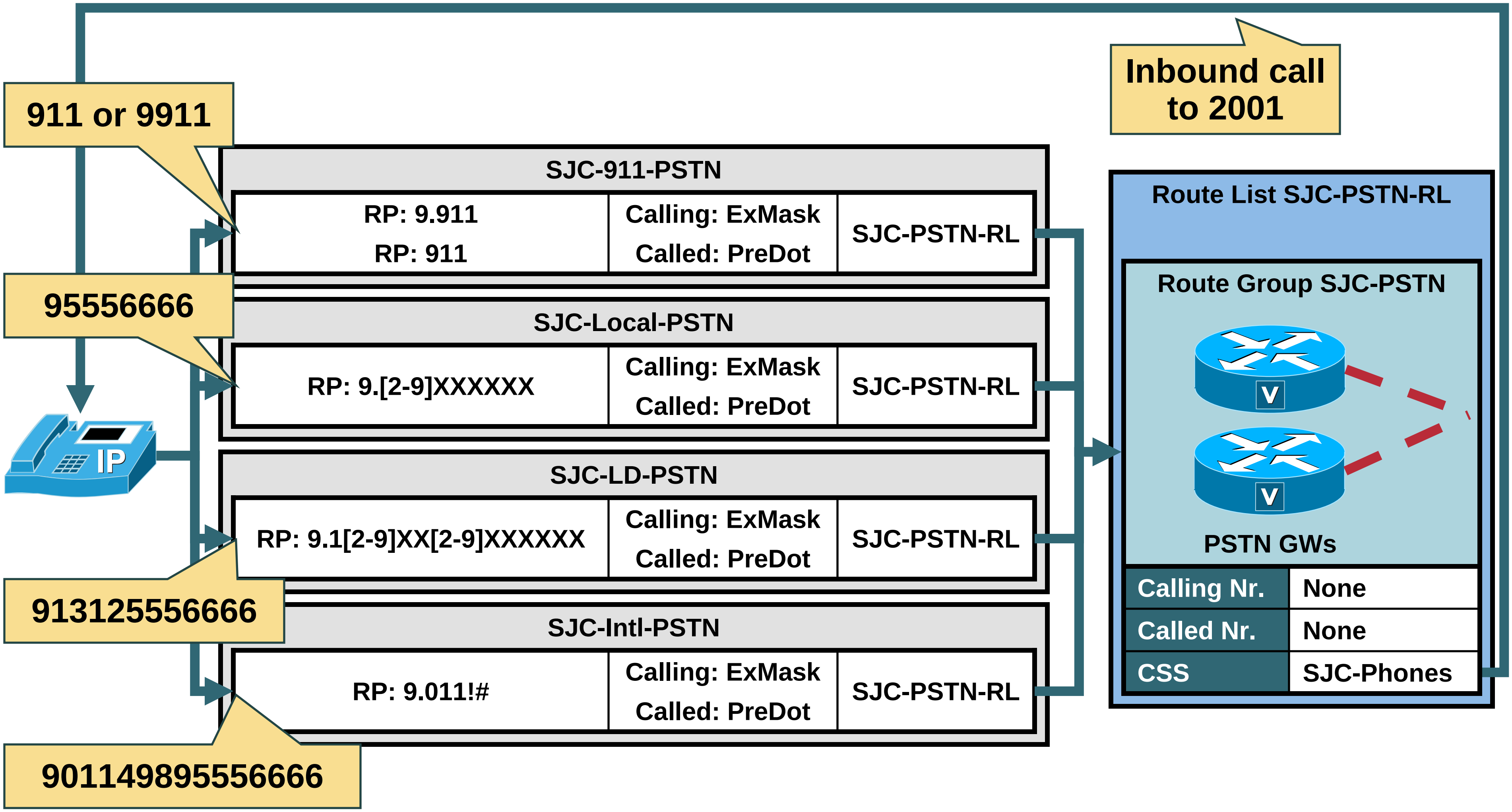
⑦ Save configuration.

Configuring PSTN Routing and Calling Privileges

PSTN Routing and Calling Privileges configuration steps:

1. Review required dial-plan components.
2. Add additional partitions and CSSs.
3. Add additional route lists.
4. Configure additional route patterns.
5. Assign inbound CSSs to gateways.

Configuring PSTN Routing and Calling Privileges



911 or 9911

95556666

913125556666

901149895556666

Inbound call to 2001

SJC-911-PSTN

RP: 9.911 RP: 911	Calling: ExMask Called: PreDot	SJC-PSTN-RL

SJC-Local-PSTN

RP: 9.[2-9]XXXXXX	Calling: ExMask Called: PreDot	SJC-PSTN-RL

SJC-LD-PSTN

RP: 9.1[2-9]XX[2-9]XXXXXX	Calling: ExMask Called: PreDot	SJC-PSTN-RL

SJC-Intl-PSTN

RP: 9.011!#	Calling: ExMask Called: PreDot	SJC-PSTN-RL

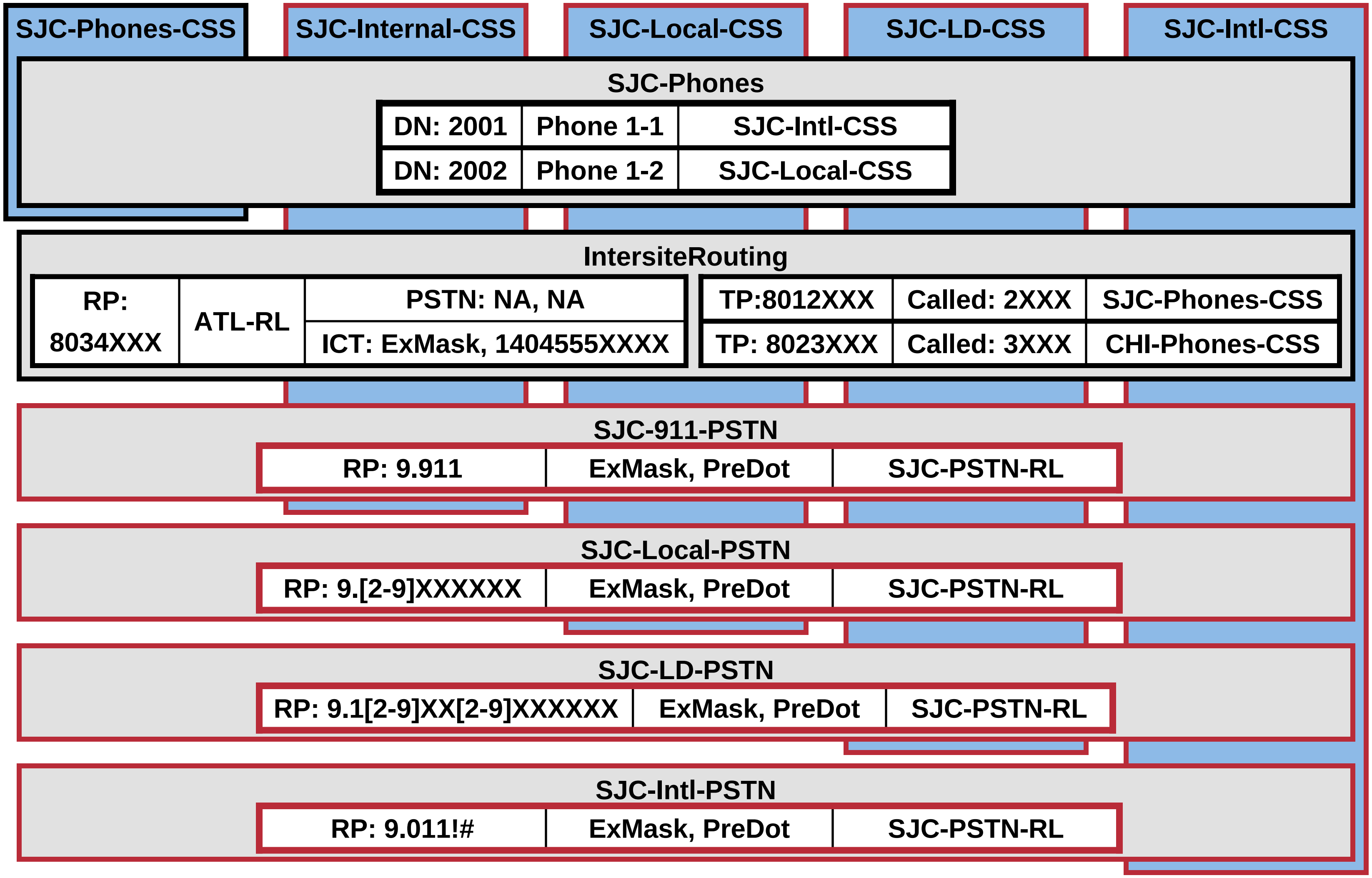
Route List SJC-PSTN-RL

Route Group SJC-PSTN

PSTN GWs

Calling Nr.	None
Called Nr.	None
CSS	SJC-Phones

Configuring PSTN Routing and Calling Privileges: San Jose



SJC-Phones-CSS | SJC-Internal-CSS | SJC-Local-CSS | SJC-LD-CSS | SJC-Intl-CSS

SJC-Phones

DN: 2001	Phone 1-1	SJC-Intl-CSS
DN: 2002	Phone 1-2	SJC-Local-CSS

IntersiteRouting

RP: 8034XXX	ATL-RL	PSTN: NA, NA ICT: ExMask, 1404555XXXX

TP:8012XXX	Called: 2XXX	SJC-Phones-CSS
TP: 8023XXX	Called: 3XXX	CHI-Phones-CSS

SJC-911-PSTN

RP: 9.911	ExMask, PreDot	SJC-PSTN-RL

SJC-Local-PSTN

RP: 9.[2-9]XXXXXX	ExMask, PreDot	SJC-PSTN-RL

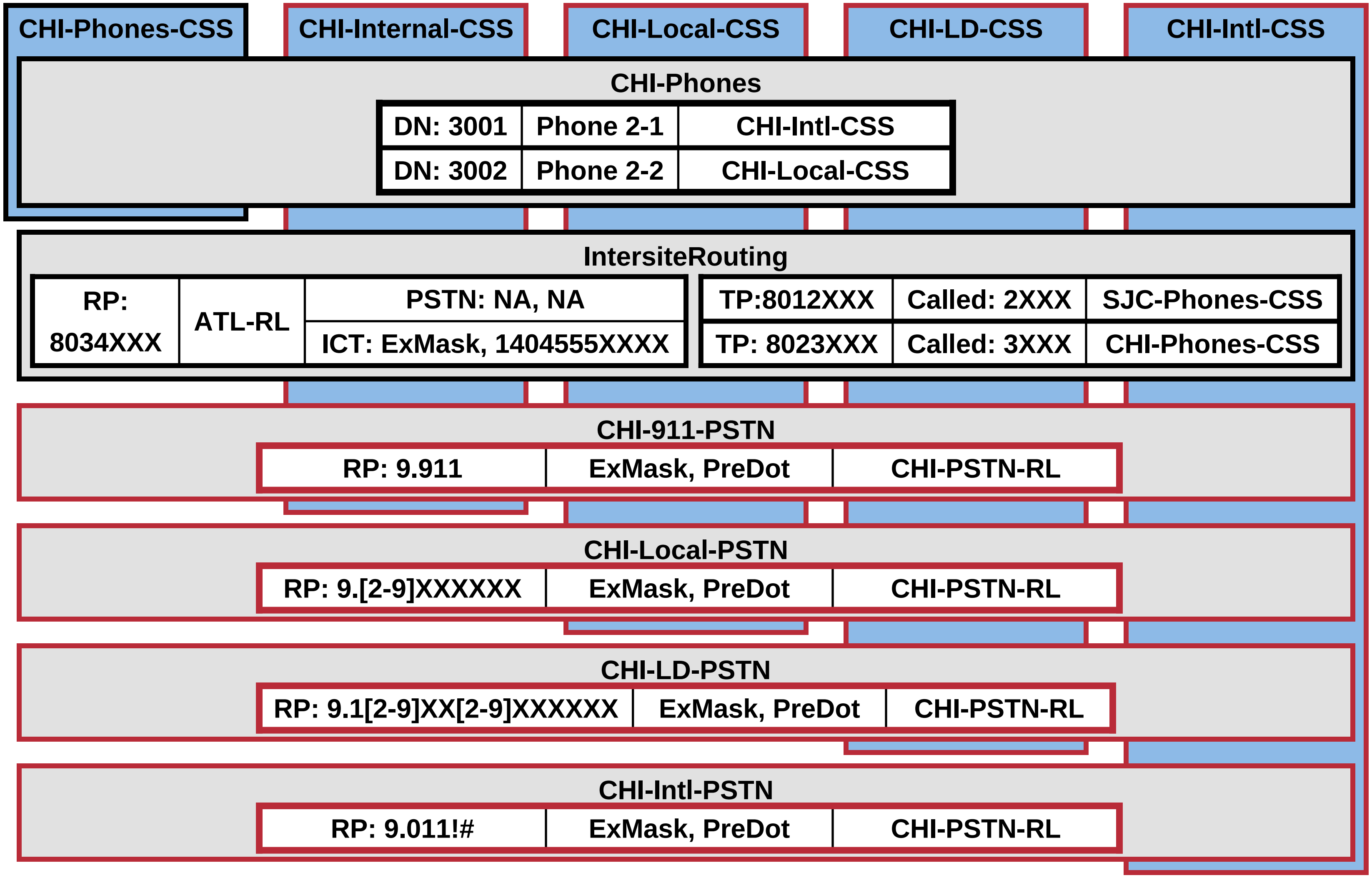
SJC-LD-PSTN

RP: 9.1[2-9]XX[2-9]XXXXXX	ExMask, PreDot	SJC-PSTN-RL

SJC-Intl-PSTN

RP: 9.011!#	ExMask, PreDot	SJC-PSTN-RL

Configuring PSTN Routing and Calling Privileges: Chicago



CHI-Phones-CSS

CHI-Internal-CSS

CHI-Local-CSS

CHI-LD-CSS

CHI-Intl-CSS

CHI-Phones

DN: 3001	Phone 2-1	CHI-Intl-CSS
DN: 3002	Phone 2-2	CHI-Local-CSS

IntersiteRouting

RP: 8034XXX	ATL-RL	PSTN: NA, NA ICT: ExMask, 1404555XXXX

TP:8012XXX	Called: 2XXX	SJC-Phones-CSS
TP: 8023XXX	Called: 3XXX	CHI-Phones-CSS

CHI-911-PSTN

RP: 9.911	ExMask, PreDot	CHI-PSTN-RL

CHI-Local-PSTN

RP: 9.[2-9]XXXXXX	ExMask, PreDot	CHI-PSTN-RL

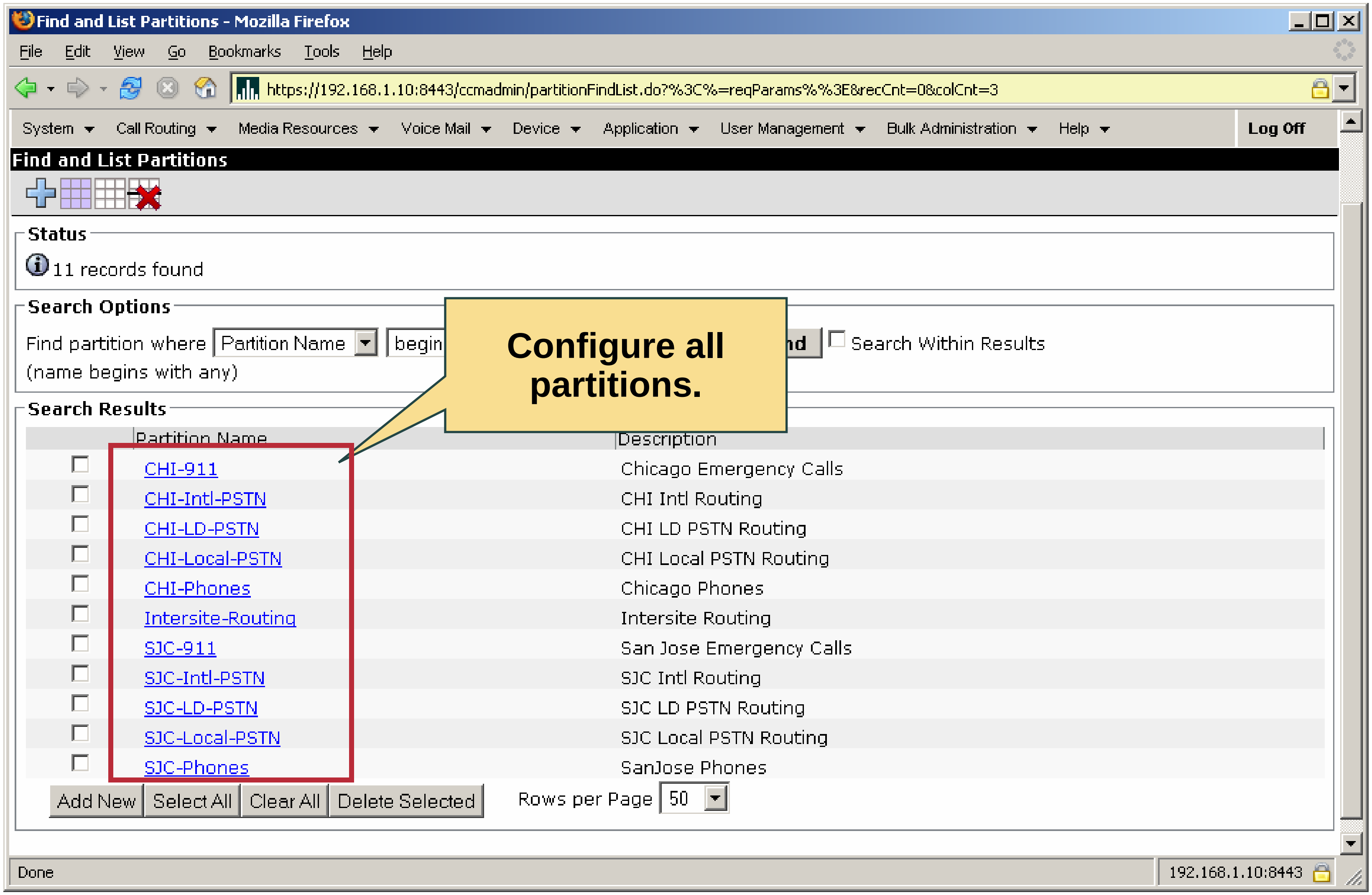
CHI-LD-PSTN

RP: 9.1[2-9]XX[2-9]XXXXXX	ExMask, PreDot	CHI-PSTN-RL

CHI-Intl-PSTN

RP: 9.011!#	ExMask, PreDot	CHI-PSTN-RL

Configuring PSTN Routing and Calling Privileges: Revised Partitions and CSSs


Find and List Partitions - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Add New
Select All
Clear All
Delete Selected
Done
192.168.1.10:8443

https://192.168.1.10:8443/ccmadmin/partitionFindList.do?%3C%=reqParams%%3E&recCnt=0&colCnt=3

Find and List Partitions

Status

11 records found

Search Options

Find partition where Partition Name begin … nd ☐ Search Within Results

(name begins with any)

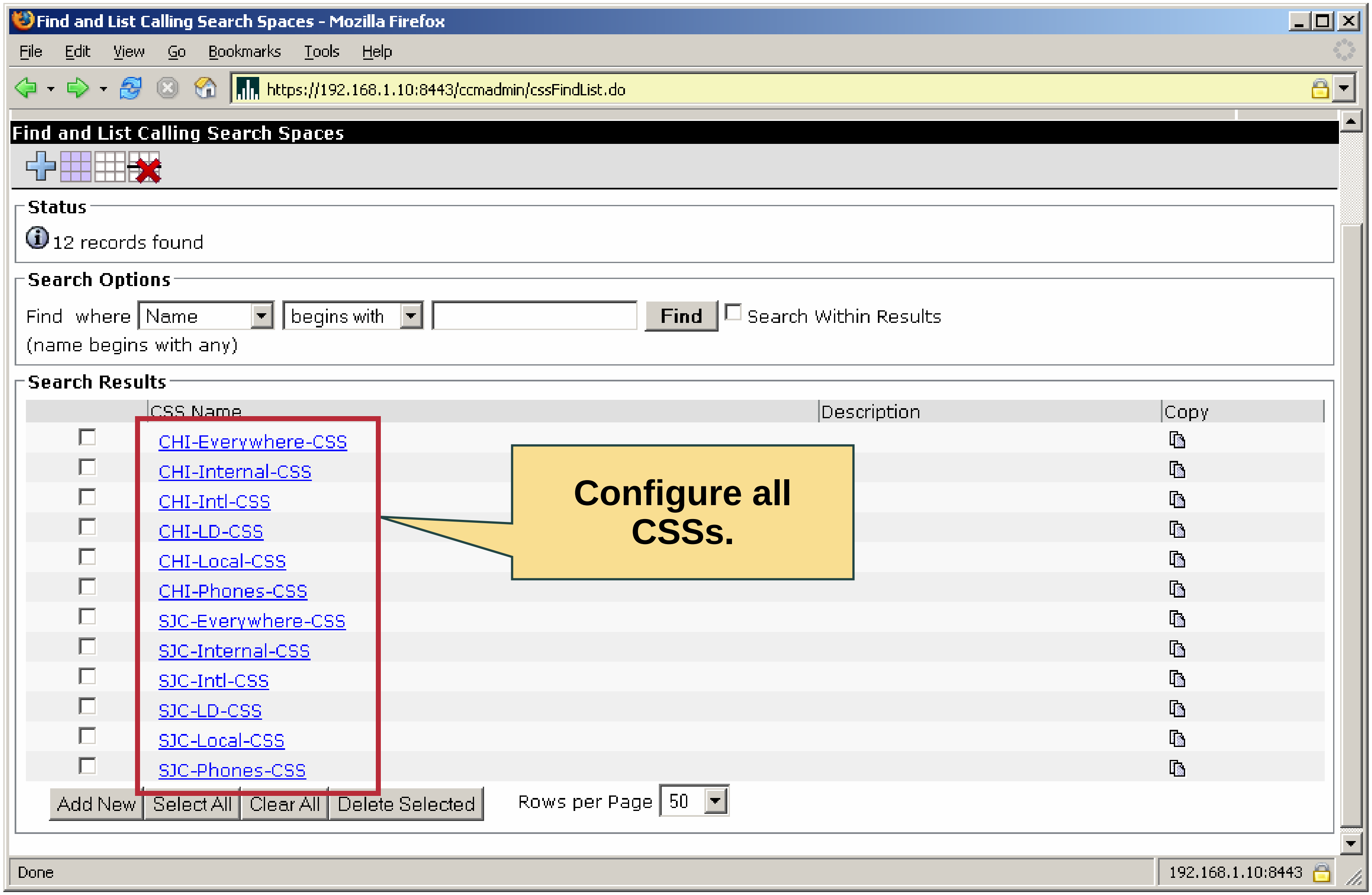
Search Results

	Partition Name	Description
☐	CHI-911	Chicago Emergency Calls
☐	CHI-Intl-PSTN	CHI Intl Routing
☐	CHI-LD-PSTN	CHI LD PSTN Routing
☐	CHI-Local-PSTN	CHI Local PSTN Routing
☐	CHI-Phones	Chicago Phones
☐	Intersite-Routing	Intersite Routing
☐	SJC-911	San Jose Emergency Calls
☐	SJC-Intl-PSTN	SJC Intl Routing
☐	SJC-LD-PSTN	SJC LD PSTN Routing
☐	SJC-Local-PSTN	SJC Local PSTN Routing
☐	SJC-Phones	SanJose Phones

Rows per Page 50

Configure all partitions.

Configuring PSTN Routing and Calling Privileges: Revised Partitions and CSSs


Find and List Calling Search Spaces - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/cssFindList.do

Find and List Calling Search Spaces

Status

12 records found

Search Options

Find where Name begins with [Find] ☐ Search Within Results

(name begins with any)

Search Results

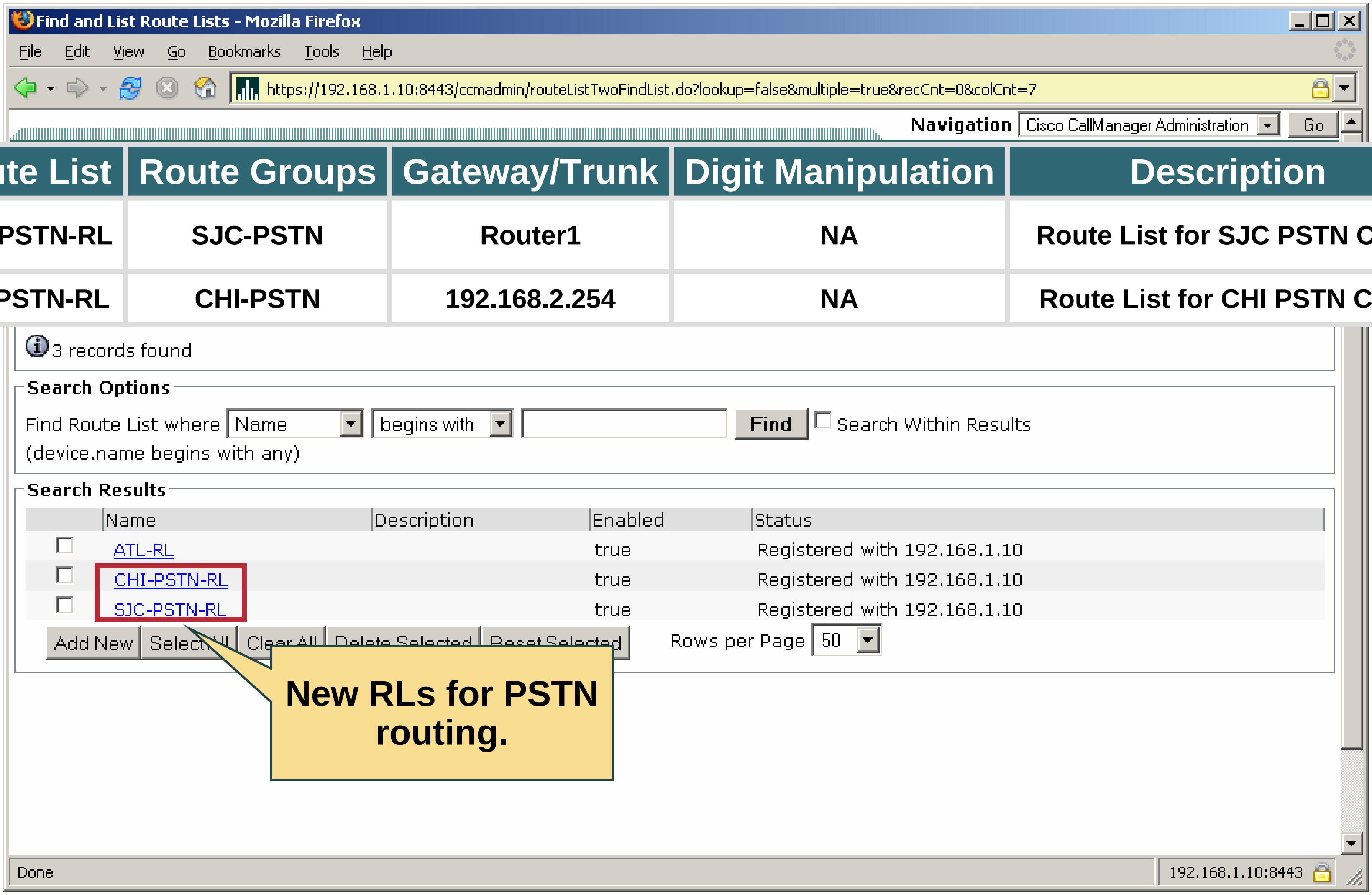
	CSS Name	Description	Copy
☐	CHI-Everywhere-CSS		
☐	CHI-Internal-CSS		
☐	CHI-Intl-CSS		
☐	CHI-LD-CSS		
☐	CHI-Local-CSS		
☐	CHI-Phones-CSS		
☐	SJC-Everywhere-CSS		
☐	SJC-Internal-CSS		
☐	SJC-Intl-CSS		
☐	SJC-LD-CSS		
☐	SJC-Local-CSS		
☐	SJC-Phones-CSS		

Add New
Select All
Clear All
Delete Selected
Rows per Page 50
Done
192.168.1.10:8443

Configure all CSSs.

Configuring PSTN Routing and Calling Privileges: Additional Route Lists

Route List	Route Groups	Gateway/Trunk	Digit Manipulation	Description
SJC-PSTN-RL	SJC-PSTN	Router1	NA	Route List for SJC PSTN Calls
CHI-PSTN-RL	CHI-PSTN	192.168.2.254	NA	Route List for CHI PSTN Calls


Find and List Route Lists - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation
Cisco CallManager Administration
Go
Add New
Select All
Clear All
Delete Selected
Reset Selected
Done
192.168.1.10:8443

https://192.168.1.10:8443/ccmadmin/routeListTwoFindList.do?lookup=false&multiple=true&recCnt=0&colCnt=7

3 records found

Search Options

Find Route List where Name ▾ begins with ▾ [ ] **Find** ☐ Search Within Results

(device.name begins with any)

Search Results

	Name	Description	Enabled	Status
☐	ATL-RL		true	Registered with 192.168.1.10
☐	CHI-PSTN-RL		true	Registered with 192.168.1.10
☐	SJC-PSTN-RL		true	Registered with 192.168.1.10

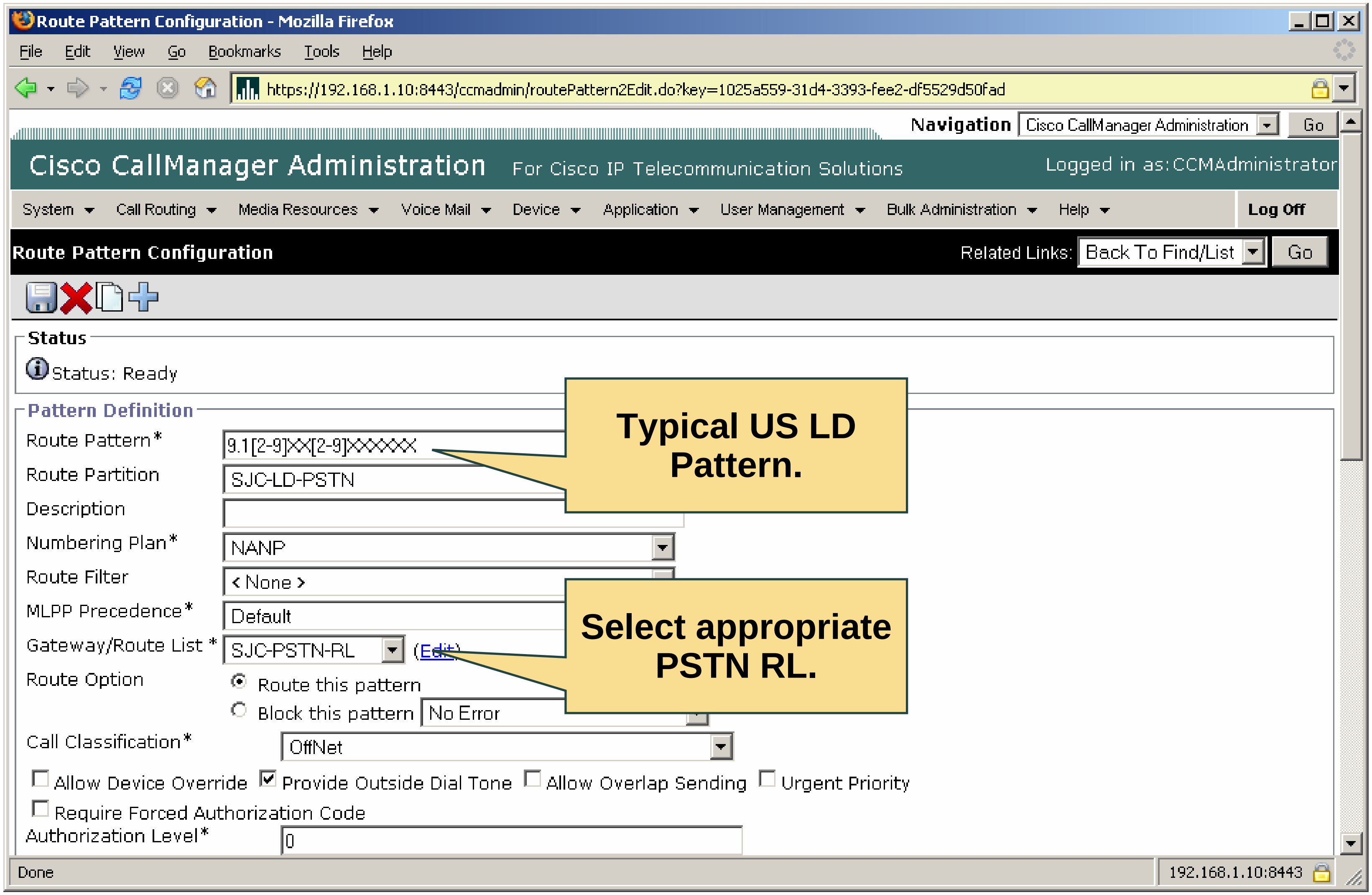
Rows per Page 50 ▾

New RLs for PSTN routing.

Configuring PSTN Routing and Calling Privileges: Additional Route Patterns

Pattern	Partition	Type	Destination	Digit Manipulation	Description
PSTN Routing					
911 9.911	SJC-911-PSTN CHI-911-PSTN	RP RP	SJC-PSTN-RL CHI-PSTN-RL	Called: PreDot Calling: ExMask	Emergency Calls
9.[2-9]XXXXXX	SJC-Local-PSTN CHI-Local-PSTN	RP RP	SJC-PSTN-RL CHI-PSTN-RL	Called: PreDot Calling: ExMask	Local PSTN Routing
9.1[2-9]XX[2-9]XXXXXX	SJC-LD-PSTN CHI-LD-PSTN	RP RP	SJC-PSTN-RL CHI-PSTN-RL	Called: PreDot Calling: ExMask	LD PSTN Routing
9.011! 9.011!#	SJC-Intl-PSTN CHI-Intl-PSTN	RP RP	SJC-PSTN-RL CHI-PSTN-RL	Called: PreDot Calling: ExMask	Intl PSTN Routing

Configuring PSTN Routing and Calling Privileges: Additional Route Patterns


Route Pattern Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/routePattern2Edit.do?key=1025a559-31d4-3393-fee2-df5529d50fad
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Related Links: Back To Find/List Go
Done
192.168.1.10:8443

Route Pattern Configuration

Status

Status: Ready

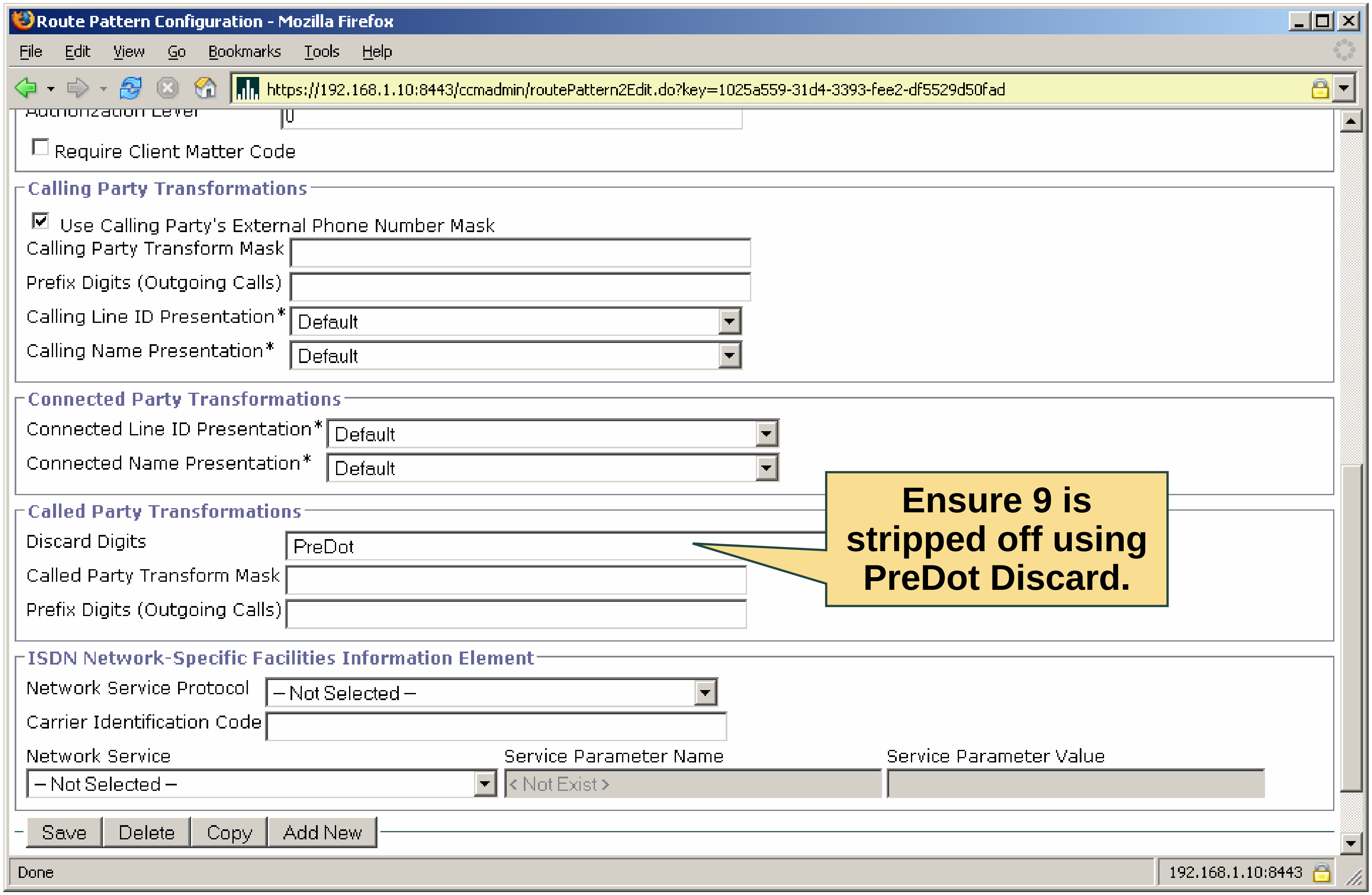
Pattern Definition

Route Pattern* 9.1[2-9]XX[2-9]XXXXXX
Route Partition SJC-LD-PSTN
Description
Numbering Plan* NANP
Route Filter < None >
MLPP Precedence* Default
Gateway/Route List * SJC-PSTN-RL (Edit)
Route Option ● Route this pattern ○ Block this pattern No Error
Call Classification* OffNet
☐ Allow Device Override ☑ Provide Outside Dial Tone ☐ Allow Overlap Sending ☐ Urgent Priority
☐ Require Forced Authorization Code
Authorization Level* 0

Typical US LD Pattern.

Select appropriate PSTN RL.

Configuring PSTN Routing and Calling Privileges: Additional Route Patterns


Route Pattern Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/routePattern2Edit.do?key=1025a559-31d4-3393-fee2-df5529d50fad
Save
Delete
Copy
Add New
Done
192.168.1.10:8443

Authorization Level: 0

☐ Require Client Matter Code

Calling Party Transformations

☑ Use Calling Party's External Phone Number Mask

Calling Party Transform Mask:

Prefix Digits (Outgoing Calls):

Calling Line ID Presentation*: Default

Calling Name Presentation*: Default

Connected Party Transformations

Connected Line ID Presentation*: Default

Connected Name Presentation*: Default

Called Party Transformations

Discard Digits: PreDot

Called Party Transform Mask:

Prefix Digits (Outgoing Calls):

ISDN Network-Specific Facilities Information Element

Network Service Protocol: – Not Selected –

Carrier Identification Code:

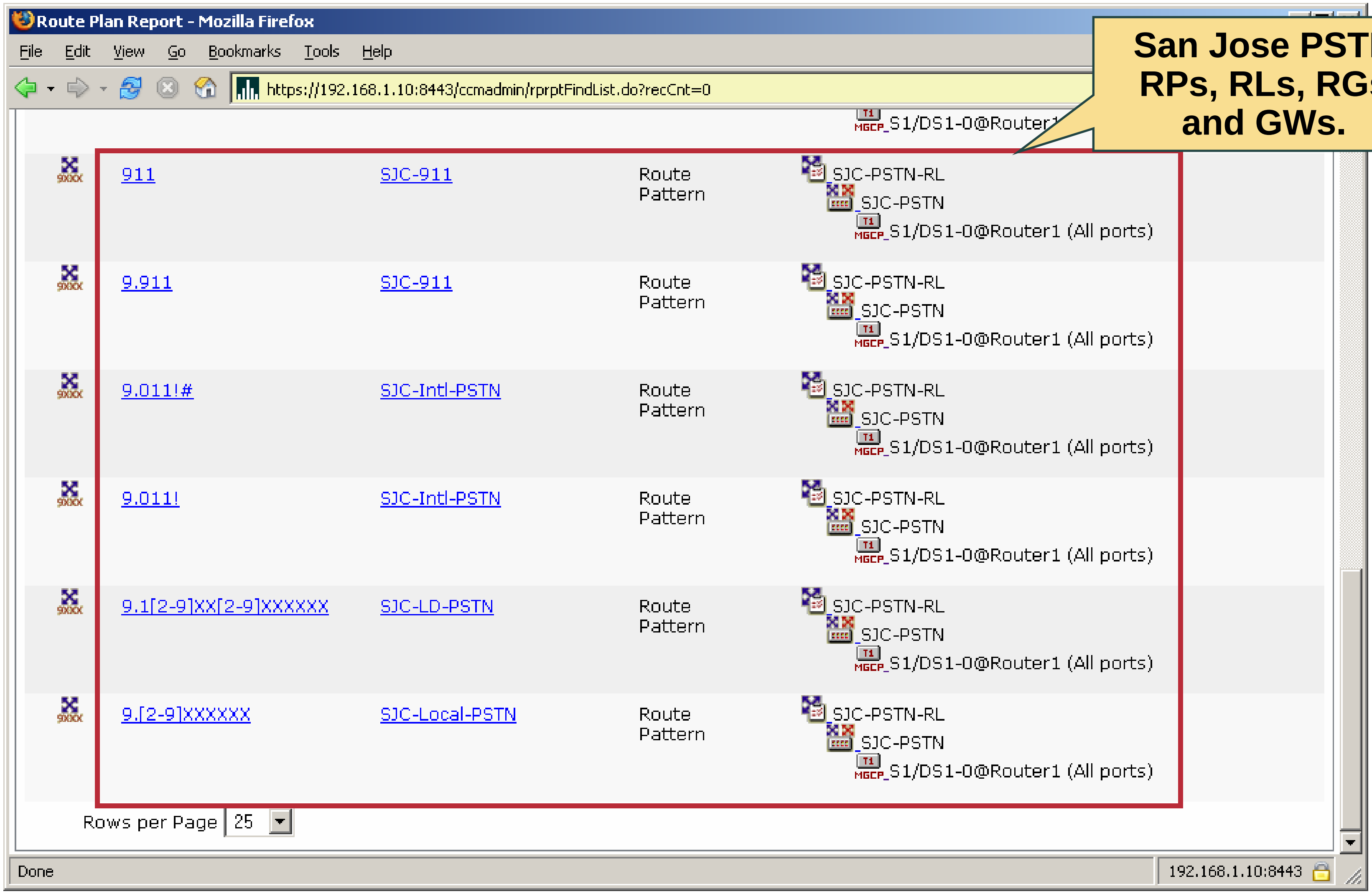
Network Service: – Not Selected –

Service Parameter Name: < Not Exist >

Service Parameter Value:

Ensure 9 is stripped off using PreDot Discard.

Configuring PSTN Routing and Calling Privileges: Additional Route Patterns


Route Plan Report - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
Done
192.168.1.10:8443

https://192.168.1.10:8443/ccmadmin/rprptFindList.do?recCnt=0

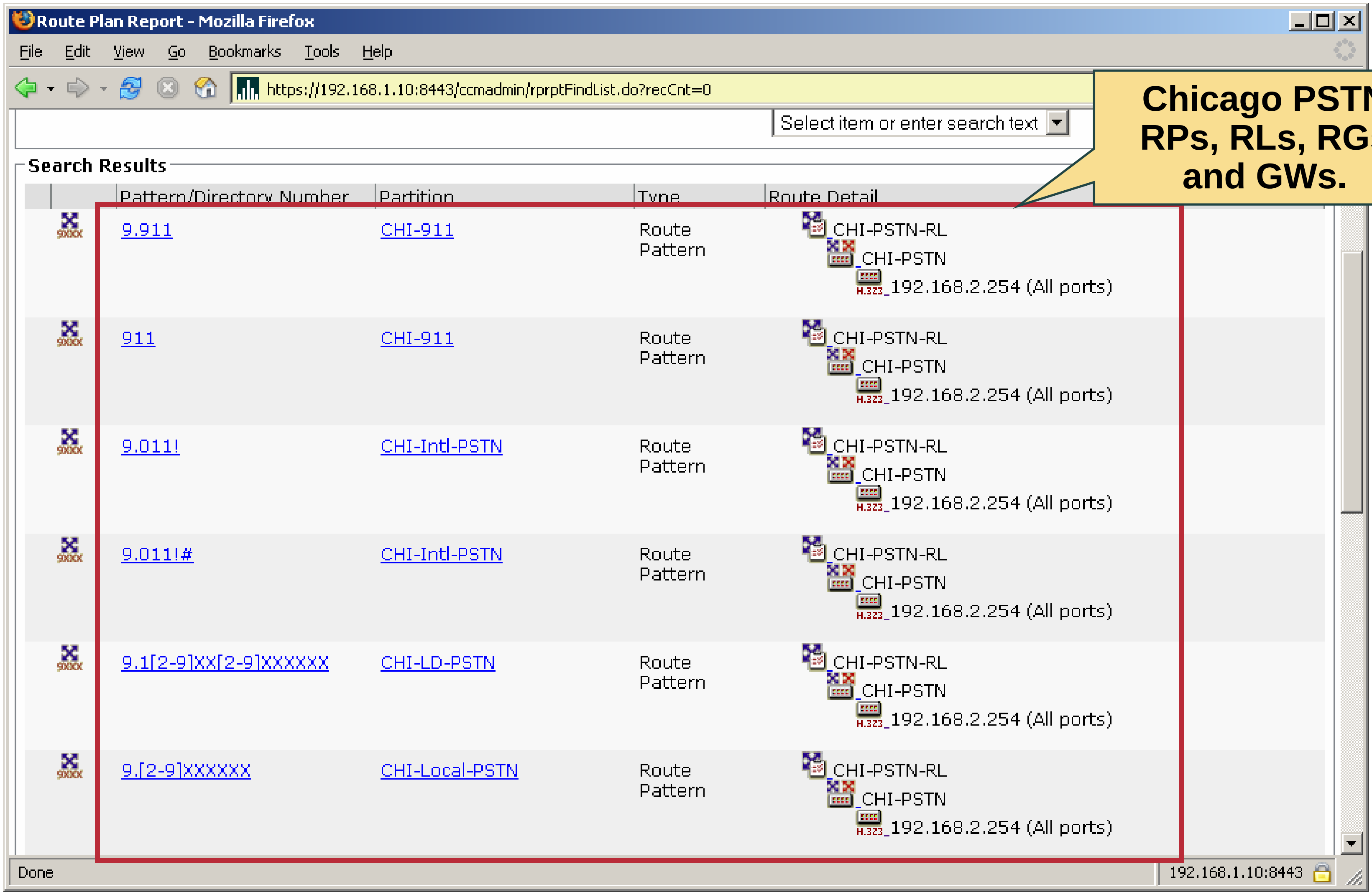
S1/DS1-0@Router

911	SJC-911	Route Pattern	SJC-PSTN-RL SJC-PSTN S1/DS1-0@Router1 (All ports)
9.911	SJC-911	Route Pattern	SJC-PSTN-RL SJC-PSTN S1/DS1-0@Router1 (All ports)
9.011!#	SJC-Intl-PSTN	Route Pattern	SJC-PSTN-RL SJC-PSTN S1/DS1-0@Router1 (All ports)
9.011!	SJC-Intl-PSTN	Route Pattern	SJC-PSTN-RL SJC-PSTN S1/DS1-0@Router1 (All ports)
9.1[2-9]XX[2-9]XXXXXX	SJC-LD-PSTN	Route Pattern	SJC-PSTN-RL SJC-PSTN S1/DS1-0@Router1 (All ports)
9.[2-9]XXXXXX	SJC-Local-PSTN	Route Pattern	SJC-PSTN-RL SJC-PSTN S1/DS1-0@Router1 (All ports)

Rows per Page 25

San Jose PSTN RPs, RLs, RGs and GWs.

Configuring PSTN Routing and Calling Privileges: Additional Route Patterns


Route Plan Report - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Select item or enter search text
Done
192.168.1.10:8443

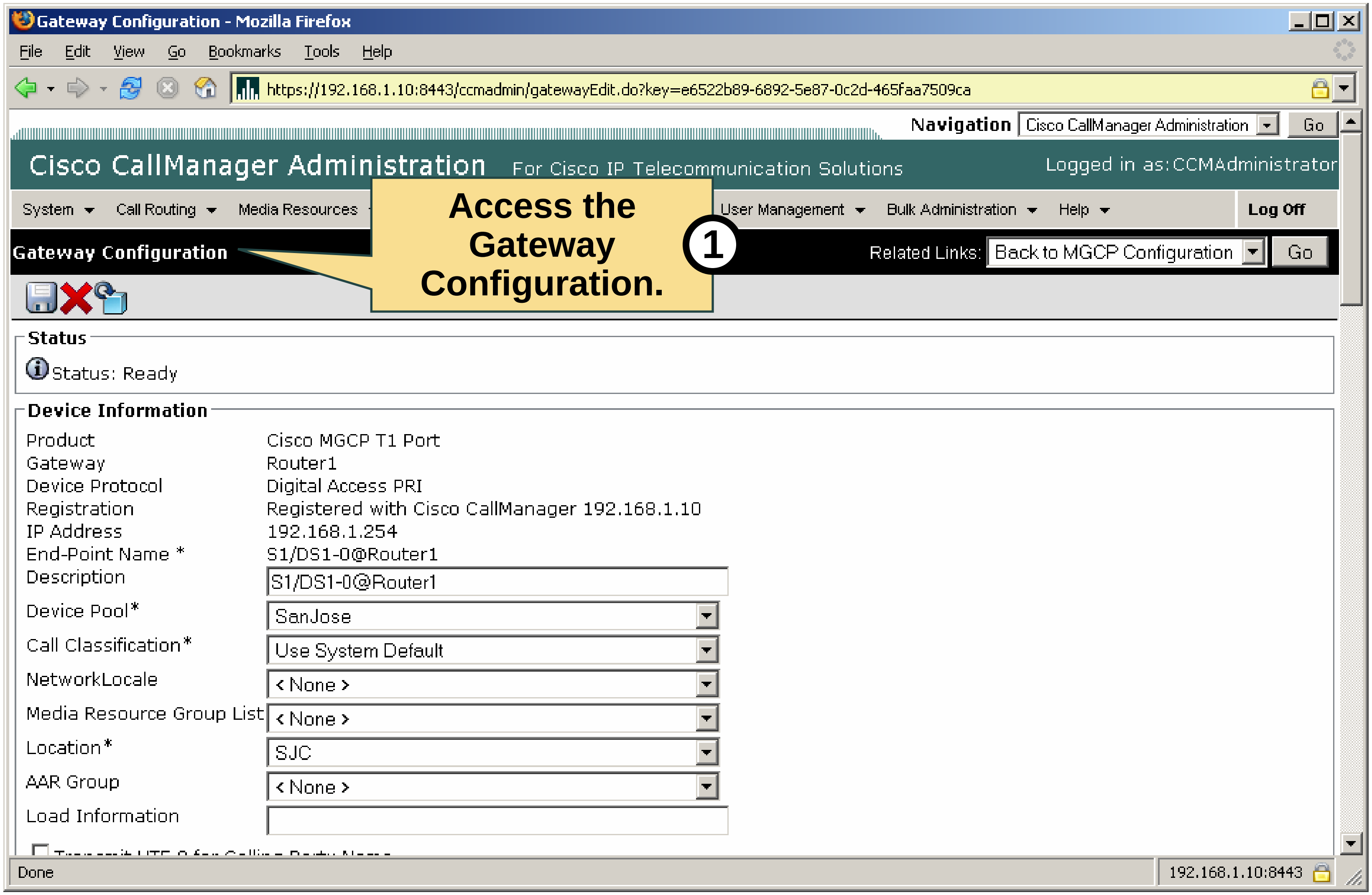
https://192.168.1.10:8443/ccmadmin/rprptFindList.do?recCnt=0

Search Results

Pattern/Directory Number	Partition	Type	Route Detail
9.911	CHI-911	Route Pattern	CHI-PSTN-RL CHI-PSTN 192.168.2.254 (All ports)
911	CHI-911	Route Pattern	CHI-PSTN-RL CHI-PSTN 192.168.2.254 (All ports)
9.011!	CHI-Intl-PSTN	Route Pattern	CHI-PSTN-RL CHI-PSTN 192.168.2.254 (All ports)
9.011!#	CHI-Intl-PSTN	Route Pattern	CHI-PSTN-RL CHI-PSTN 192.168.2.254 (All ports)
9.1[2-9]XX[2-9]XXXXXX	CHI-LD-PSTN	Route Pattern	CHI-PSTN-RL CHI-PSTN 192.168.2.254 (All ports)
9.[2-9]XXXXXX	CHI-Local-PSTN	Route Pattern	CHI-PSTN-RL CHI-PSTN 192.168.2.254 (All ports)

Chicago PSTN RPs, RLs, RGs and GWs.

Configuring PSTN Routing and Calling Privileges: Inbound PSTN CSS


Gateway Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/gatewayEdit.do?key=e6522b89-6892-5e87-0c2d-465faa7509ca
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources User Management Bulk Administration Help Log Off
Gateway Configuration
Related Links: Back to MGCP Configuration Go
Done
192.168.1.10:8443

1 Access the Gateway Configuration.

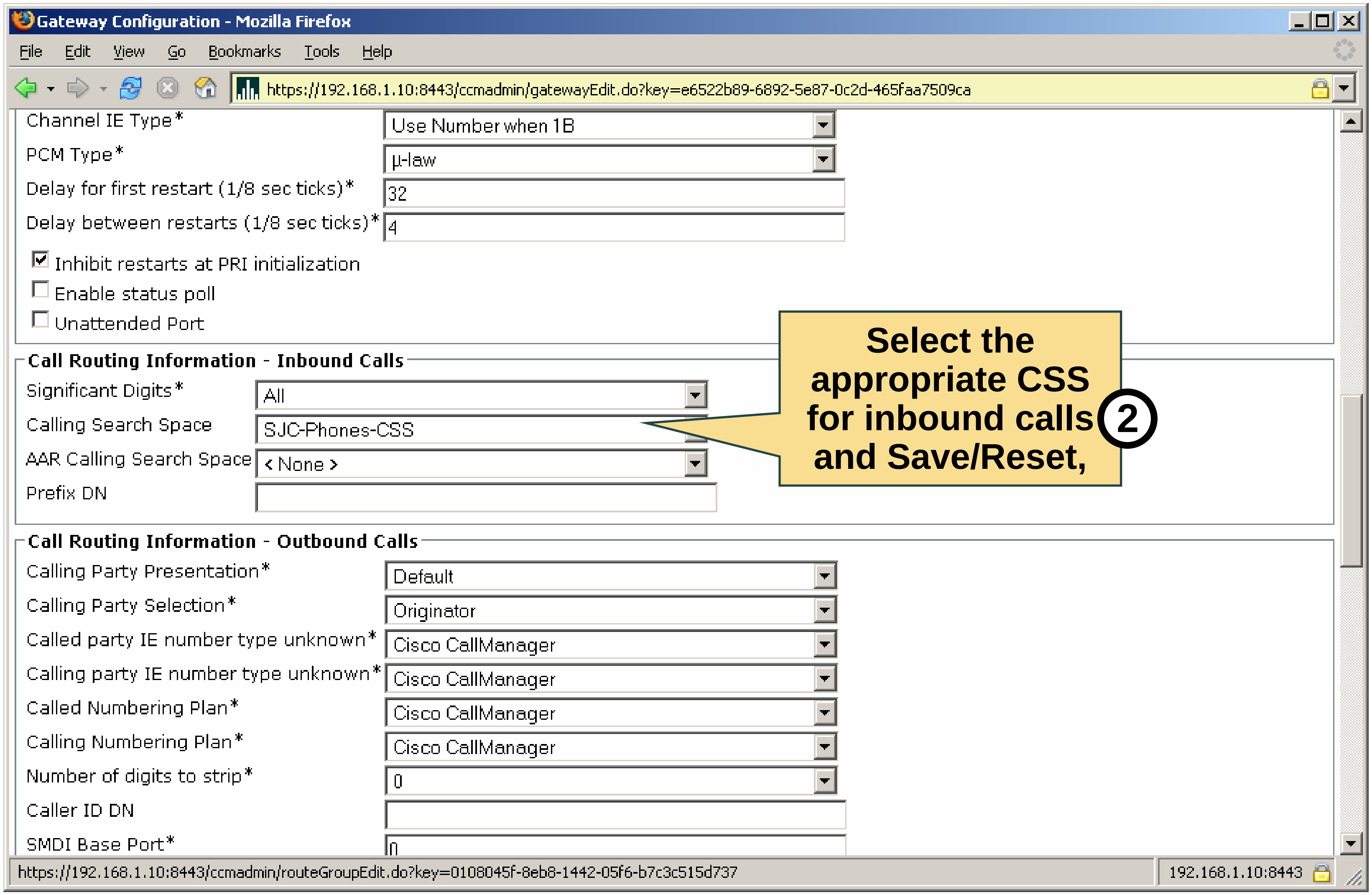
Status

Status: Ready

Device Information

Product	Cisco MGCP T1 Port
Gateway	Router1
Device Protocol	Digital Access PRI
Registration	Registered with Cisco CallManager 192.168.1.10
IP Address	192.168.1.254
End-Point Name *	S1/DS1-0@Router1
Description	S1/DS1-0@Router1
Device Pool*	SanJose
Call Classification*	Use System Default
NetworkLocale	< None >
Media Resource Group List	< None >
Location*	SJC
AAR Group	< None >
Load Information	

Configuring PSTN Routing and Calling Privileges: Inbound PSTN CSS


Gateway Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help

https://192.168.1.10:8443/ccmadmin/gatewayEdit.do?key=e6522b89-6892-5e87-0c2d-465faa7509ca

Channel IE Type*	Use Number when 1B
PCM Type*	µ-law
Delay for first restart (1/8 sec ticks)*	32
Delay between restarts (1/8 sec ticks)*	4

☑ Inhibit restarts at PRI initialization
☐ Enable status poll
☐ Unattended Port

Call Routing Information - Inbound Calls

Significant Digits*	All
Calling Search Space	SJC-Phones-CSS
AAR Calling Search Space	< None >
Prefix DN	

Call Routing Information - Outbound Calls

Calling Party Presentation*	Default
Calling Party Selection*	Originator
Called party IE number type unknown*	Cisco CallManager
Calling party IE number type unknown*	Cisco CallManager
Called Numbering Plan*	Cisco CallManager
Calling Numbering Plan*	Cisco CallManager
Number of digits to strip*	0
Caller ID DN	
SMDI Base Port*	0

https://192.168.1.10:8443/ccmadmin/routeGroupEdit.do?key=0108045f-8eb8-1442-05f6-b7c3c515d737
192.168.1.10:8443

Select the appropriate CSS for inbound calls and Save/Reset, ②

Summary

- Predefined dial-plan design will be used.
- Intrasite routing are configured using partitions and CSSs.
- On-Cluster intersite routing are configured using Translation Patterns.
- Off-Cluster intersite routing are configured using Route Patterns, Route Lists and Route Groups.
- Calling Privileges are configured via partitions, CSSs and Route Patterns.

Configuring CallManager for Multi Site Deployments

Understanding Cisco Unified CallManager Codecs and Call Admission Control

Objectives

- Multi-Site Characteristics
- Cisco Unified CallManager 5.0 Supported Codecs
- Understanding Regions
- CAC Mechanisms
- Understanding Locations
- Understanding Resource Reservation Protocol (RSVP) Based CAC

Multi-Site Characteristics

Multi-Site deployments have the following characteristics:

- Calls travel across the WAN.
  - Bandwidth is more limited.
  - Quality is harder to control.
- Different codec might be used to save bandwidth.
- Number of concurrent calls needs to be controlled to reflect available bandwidth.
  - Oversubscribing available bandwidth leads to degraded voice quality for ALL active calls.

Cisco Unified CallManager 5.0 Supported Codecs

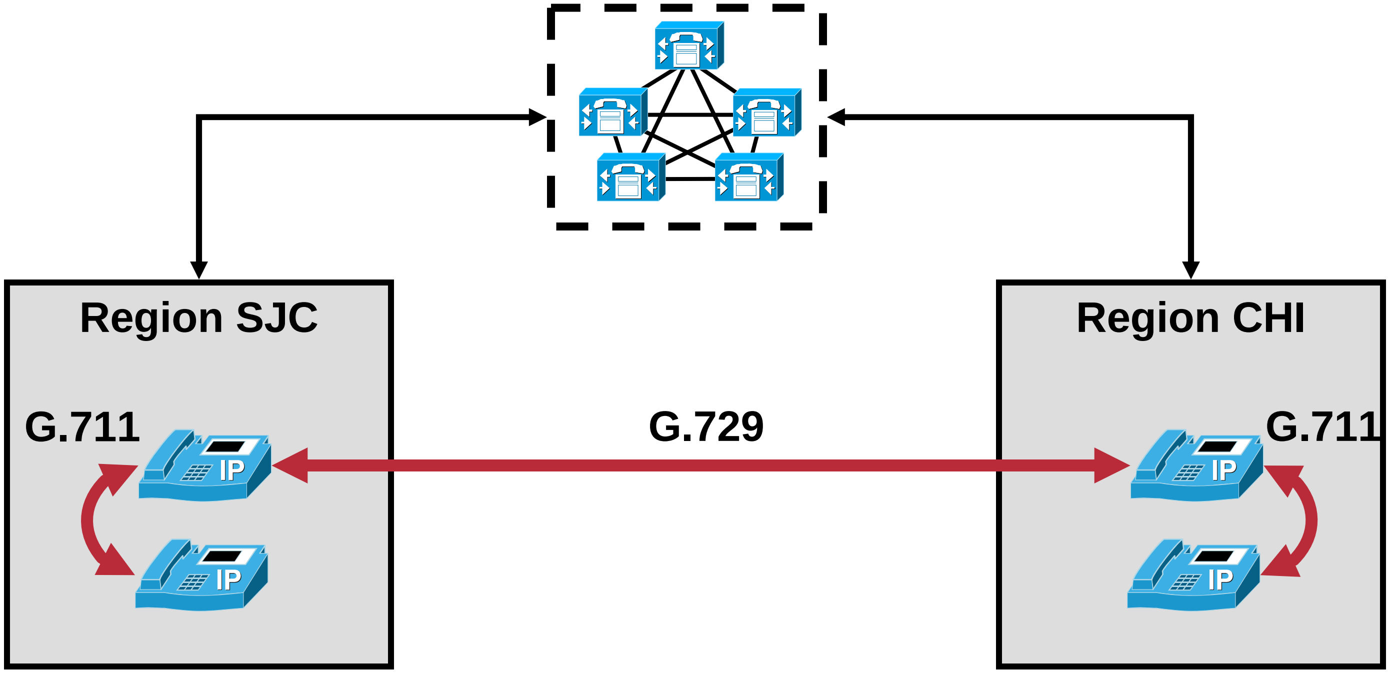
Codec	Layer 3 Bandwidth	Description
G.711	80 kbps	This codec represents the default codec for all Cisco Unified CallManager calls.
G.722	80 kbps	Video endpoints typically prefer this codec.
G.723	24 kbps	The system supports this low-bit-rate codec for use with older Cisco IP Phone model 12 SP Series and Cisco IP Phone model 30 VIP.
G.728	16 kbps	Video endpoints support this low-bit-rate codec.
G.729	24 kbps	The system supports this low bit-rate codec for Cisco IP Phone 7900 models.
Wideband	272 kbps	The system supports this high-quality, high-bandwidth audio codec for IP-phone to IP-phone calls that the Cisco IP Phone 7900 models support.
GSM	29 kbps	The Global System for Mobile Communications (GSM) codec enables the MNET system for GSM wireless handsets to interoperate with Cisco Unified CallManager.

Understanding Regions

CallManager uses regions to determine the codec to be used:

- **Used for on-cluster codec selection.**
- **Regions are assigned to device pools.**
- **A matrix is used to define:**
  - **Codec for intra-region calls.**
  - **Codec for inter-region calls.**

Understanding Regions


Region SJC
G.711
G.729
Region CHI
G.711
IP
IP
IP
IP

Site	Codec
With this Region (SJC)	G.711
To CHI	G.729

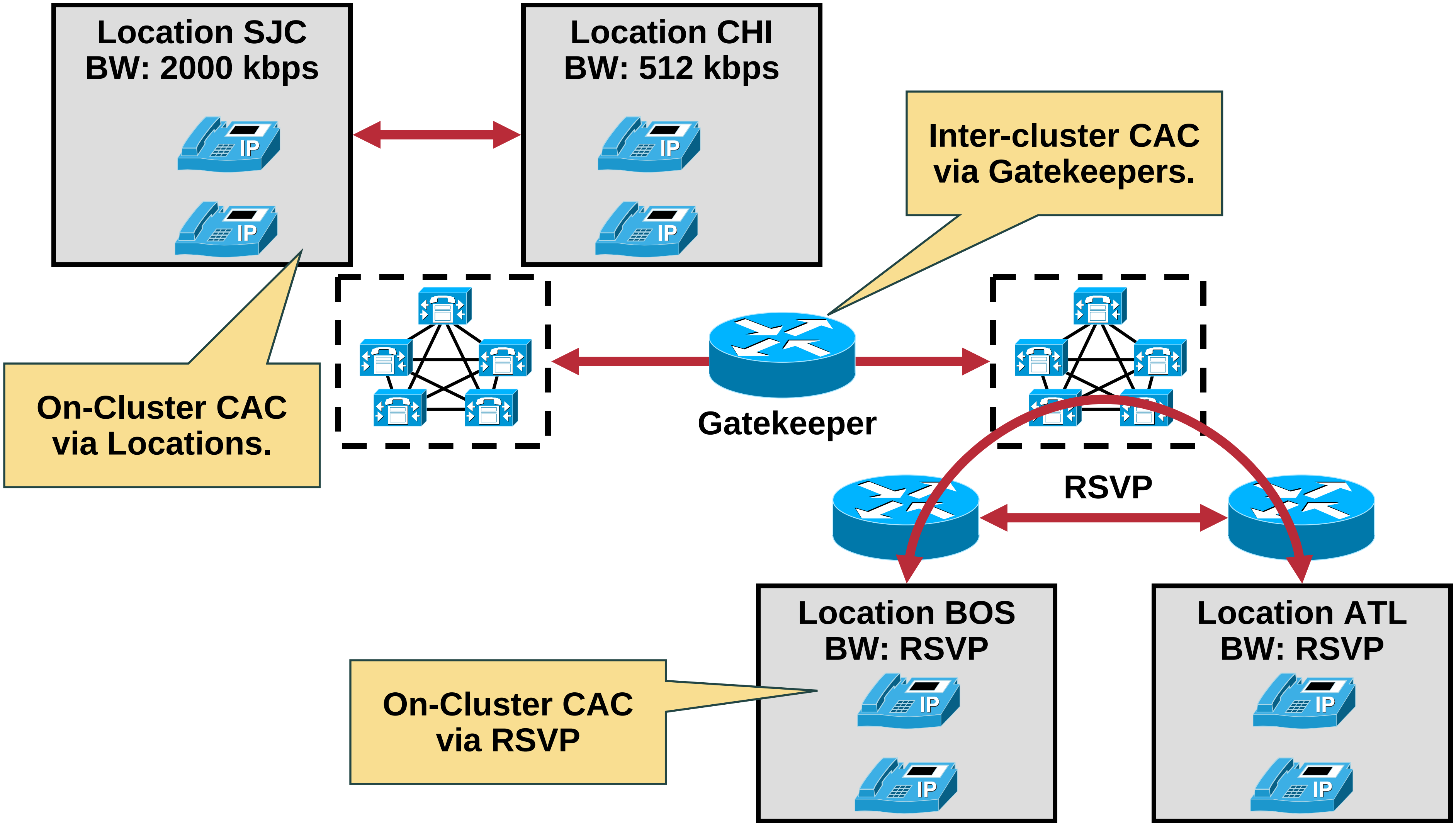
Site	Codec
With this Region (CHI)	G.711
To SJC	G.729

CAC Mechanisms

Cisco Unified CallManager 5.0 can use the following CAC mechanisms:

- On-Cluster CAC:
  - Location based CAC
    - Configured purely in Cisco Unified CallManager, Infrastructure unaware
  - RSVP based CAC
    - Uses Locations and IOS RSVP agents, Infrastructure aware
- Gatekeeper controlled
  - Used for inter-cluster routing
  - Bandwidth configured in gatekeepers, Infrastructure unaware

CAC Mechanisms



Location SJC
BW: 2000 kbps

Location CHI
BW: 512 kbps

Inter-cluster CAC
via Gatekeepers.

On-Cluster CAC
via Locations.

Gatekeeper

RSVP

Location BOS
BW: RSVP

Location ATL
BW: RSVP

On-Cluster CAC
via RSVP

Understanding Locations

Locations are configured in Cisco Unified CallManager:

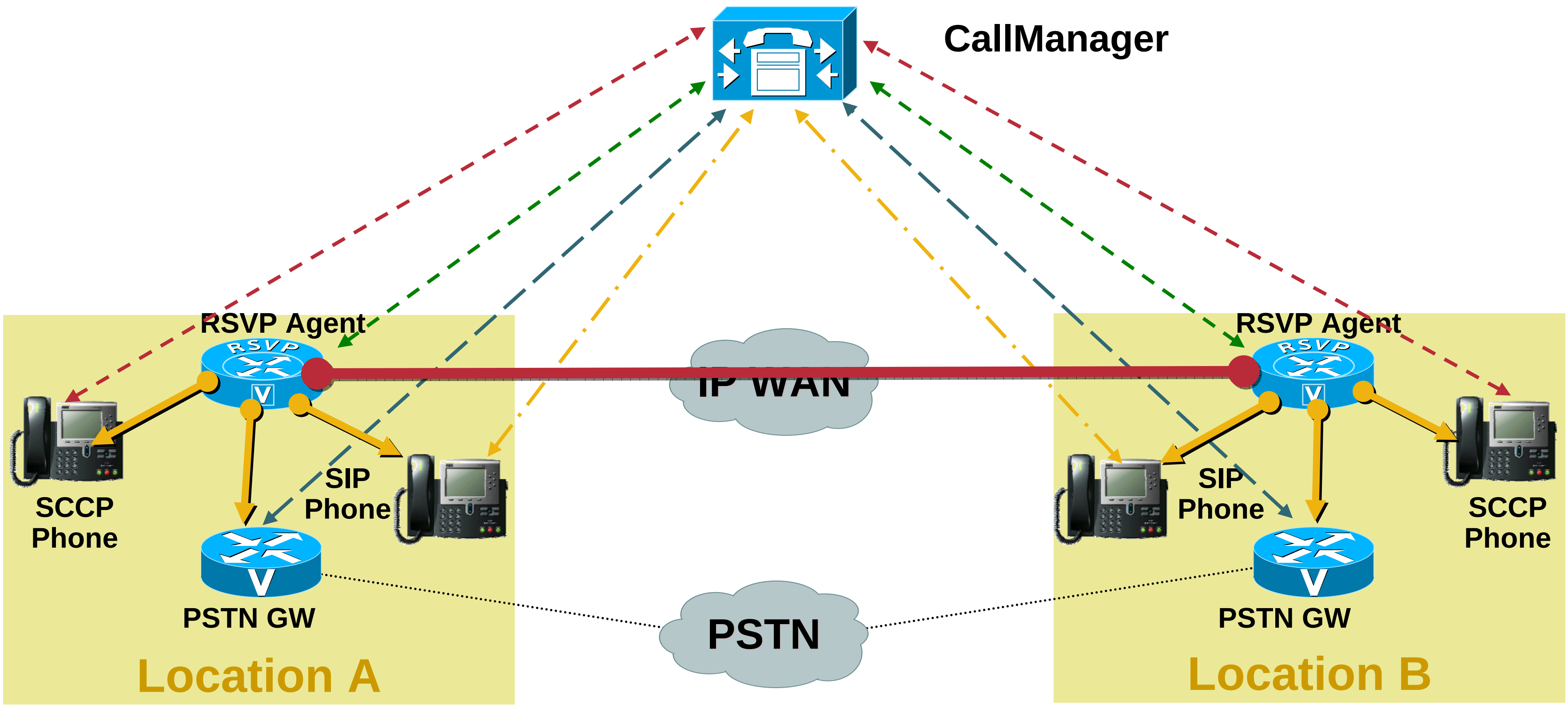
- **Devices are assigned to locations.**
- **Locations can control bandwidth individually for:**
  - **Audio**
  - **Video**
- **Bandwidth is statically defined by the administrator.**
  - **Option to use RSVP instead of bandwidth.**

Understanding RSVP-Based CAC

RSVP can be used to control inter-location bandwidth:

- Configure locations to use RSVP.
- For every inter-location call:
  - Cisco Unified CallManager routes call using IOS Media Termination Point (MTP).
  - IOS gateways use RSVP to control MTP – MTP connections.
- Flexible, topology aware CAC.

Understanding RSVP-Based CAC


CallManager
RSVP Agent
RSVP
V
SCCP Phone
SIP Phone
PSTN GW
Location A
IP WAN
PSTN
RSVP Agent
RSVP
V
SIP Phone
SCCP Phone
PSTN GW
Location B

SCCP

Media Resource Control

MGCP or H.323

RSVP-RTP

RTP

Summary

- Multi-Site deployments use various codecs and have the requirement to control bandwidth.
- Cisco Unified CallManager support various codecs.
- Regions are used for codec selections.
- Cisco Unified CallManager has three CAC mechanisms: Locations, Locations with RSVP and GK controlled CAC.
- Location based CAC is simply to set-up but topology unaware.
- RSVP can extend location based CAC via IOS MTPs using RSVP for bandwidth control.

CISCO SYSTEMS

Configuring CallManager for Multi Site Deployments

Configuring Regions, Locations and RSVP-Based CAC

Objectives

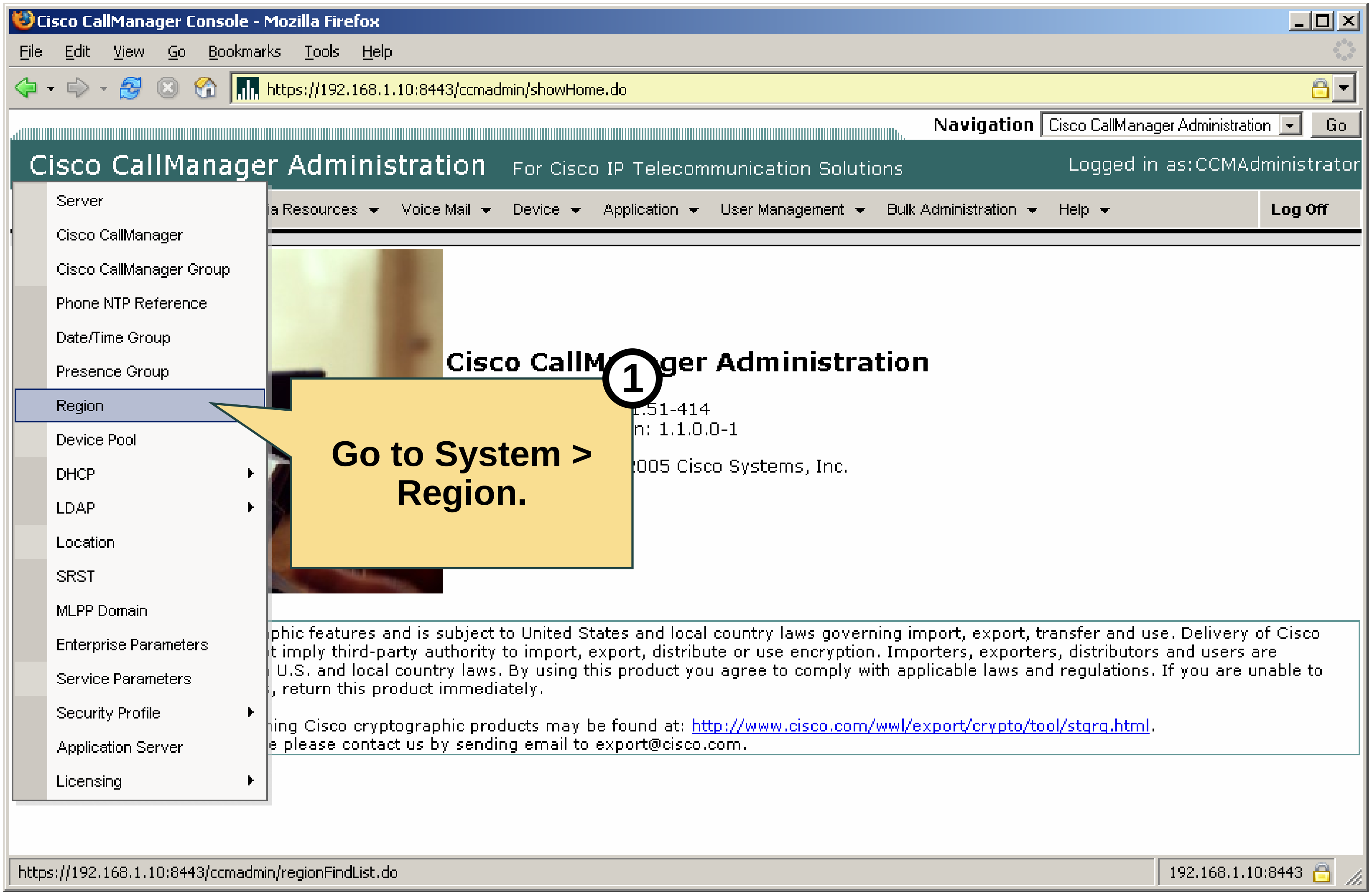
- Regions Configuration
- Locations Configuration
- RSVP Concepts
- RSVP-Based CAC Configuration on Cisco CallManager
- RSVP-Based CAC Configuration on Gateways

Regions Configuration

Region configuration steps:

1. Add regions and specify codecs.
2. Assign region to device pools.

Regions Configuration


Cisco CallManager Console - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
https://192.168.1.10:8443/ccmadmin/showHome.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
a Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Server
Cisco CallManager
Cisco CallManager Group
Phone NTP Reference
Date/Time Group
Presence Group
Region
Device Pool
DHCP
LDAP
Location
SRST
MLPP Domain
Enterprise Parameters
Service Parameters
Security Profile
Application Server
Licensing
Cisco CallM
ger Administration
1
https://192.168.1.10:8443/ccmadmin/regionFindList.do
192.168.1.10:8443

1.51-414
n: 1.1.0.0-1

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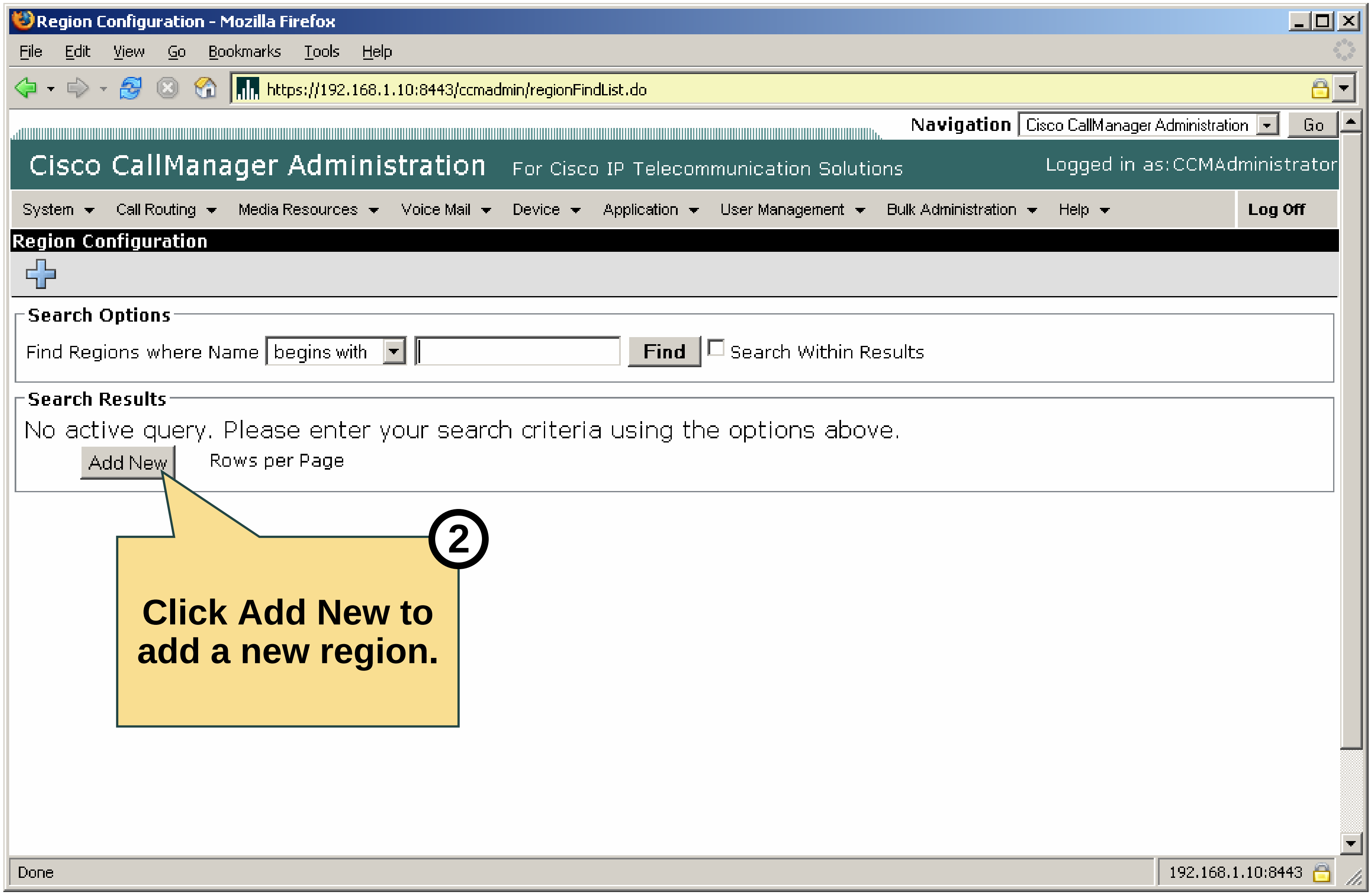
ing Cisco cryptographic products may be found at: http://www.cisco.com/wwl/export/crypto/tool/stqrg.html.
e please contact us by sending email to export@cisco.com.

Go to System > Region.

Regions Configuration

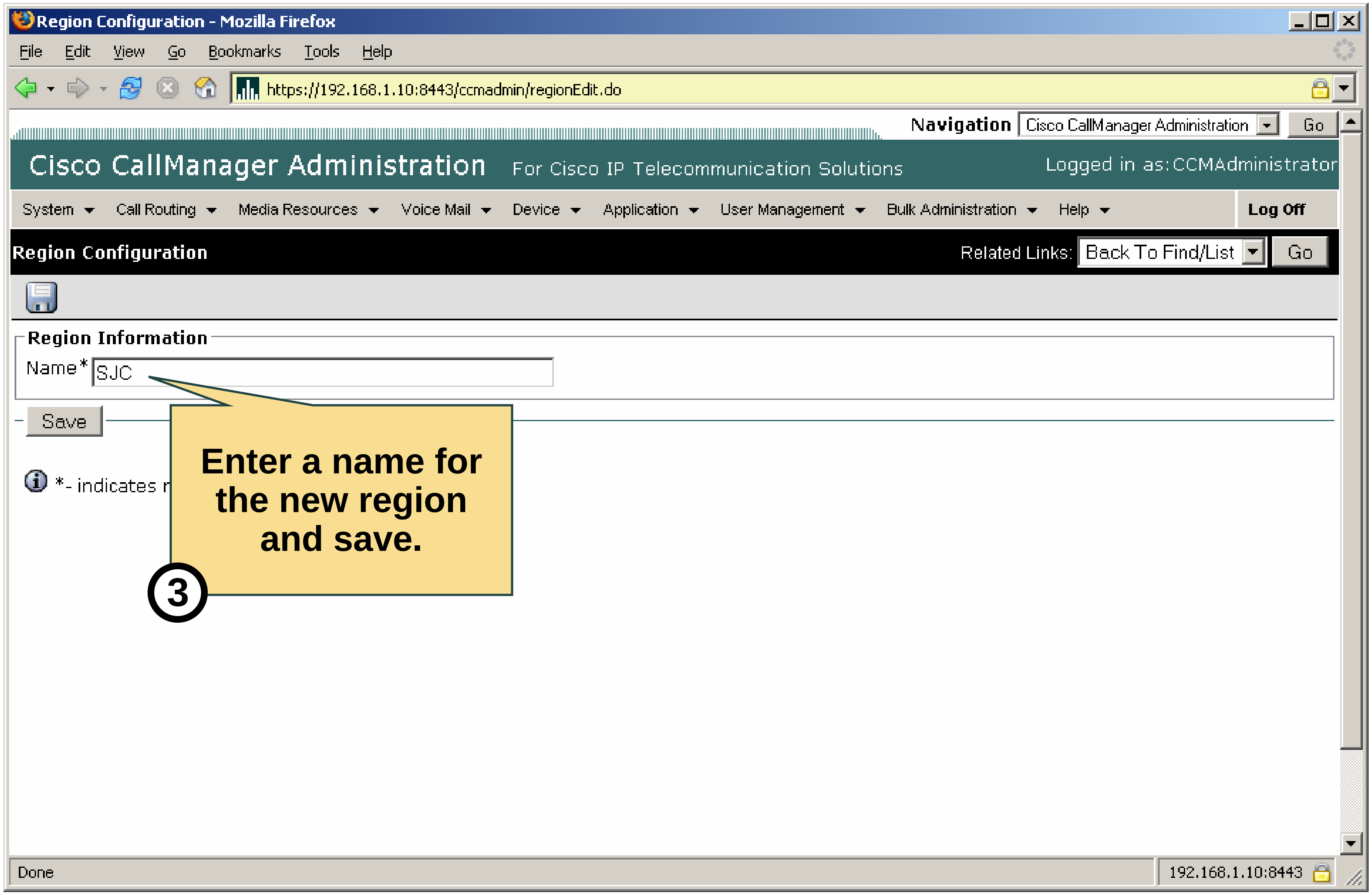

Region Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/regionFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Region Configuration
Search Options
Find Regions where Name begins with
Find
☐ Search Within Results
Search Results
Add New
Rows per Page
Done
192.168.1.10:8443

No active query. Please enter your search criteria using the options above.

②

Click Add New to add a new region.

Regions Configuration

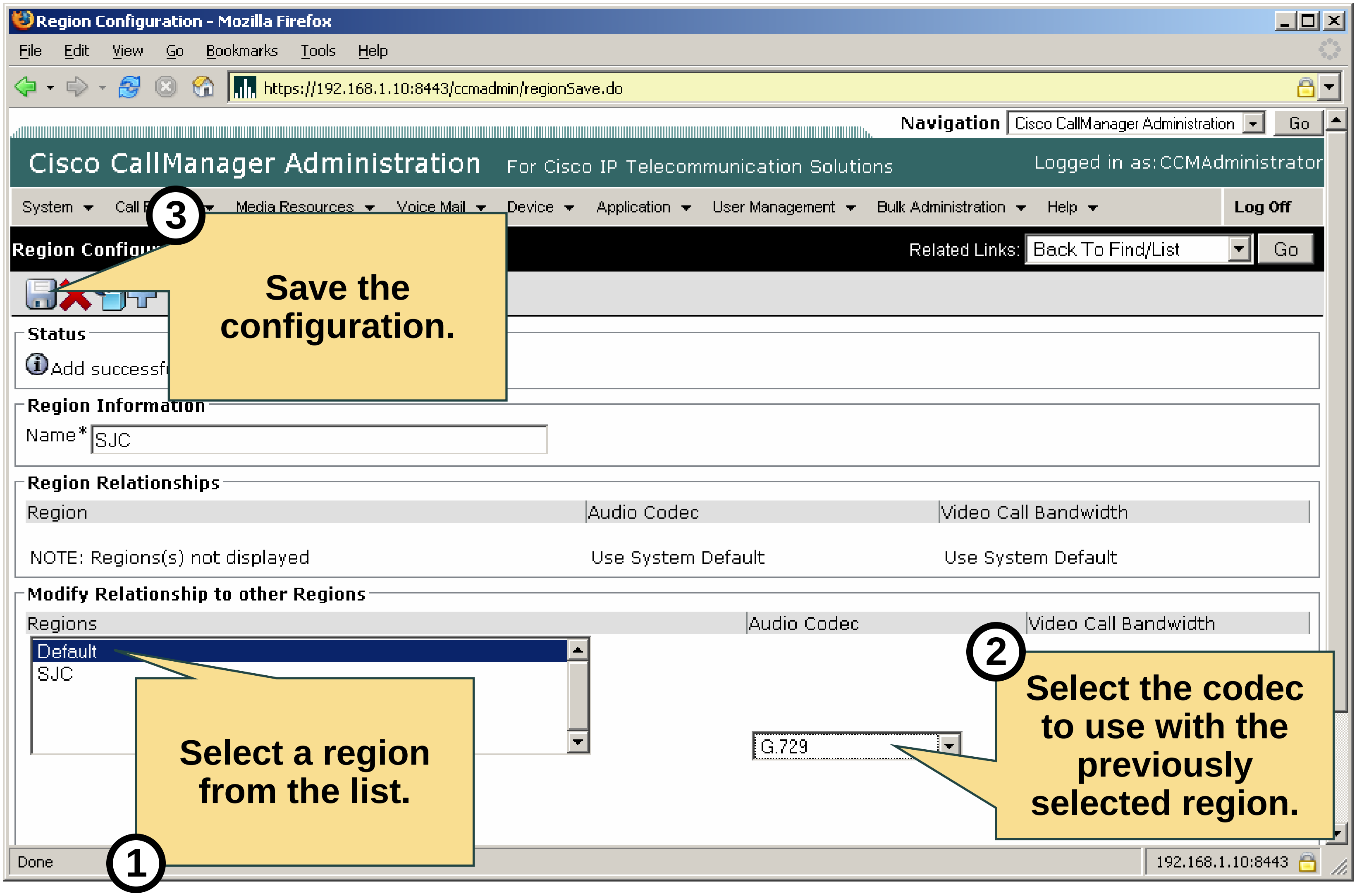

Region Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/regionEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Region Configuration
Related Links: Back To Find/List Go
Region Information
Save
*- indicates r
Done
192.168.1.10:8443

Name* SJC

Enter a name for the new region and save.

③

Regions Configuration


Region Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/regionSave.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System Call Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Region Configu
Related Links: Back To Find/List Go
Done
192.168.1.10:8443

Status

Add successf

Region Information

Name* SJC

Region Relationships

Region	Audio Codec	Video Call Bandwidth
NOTE: Regions(s) not displayed	Use System Default	Use System Default

Modify Relationship to other Regions

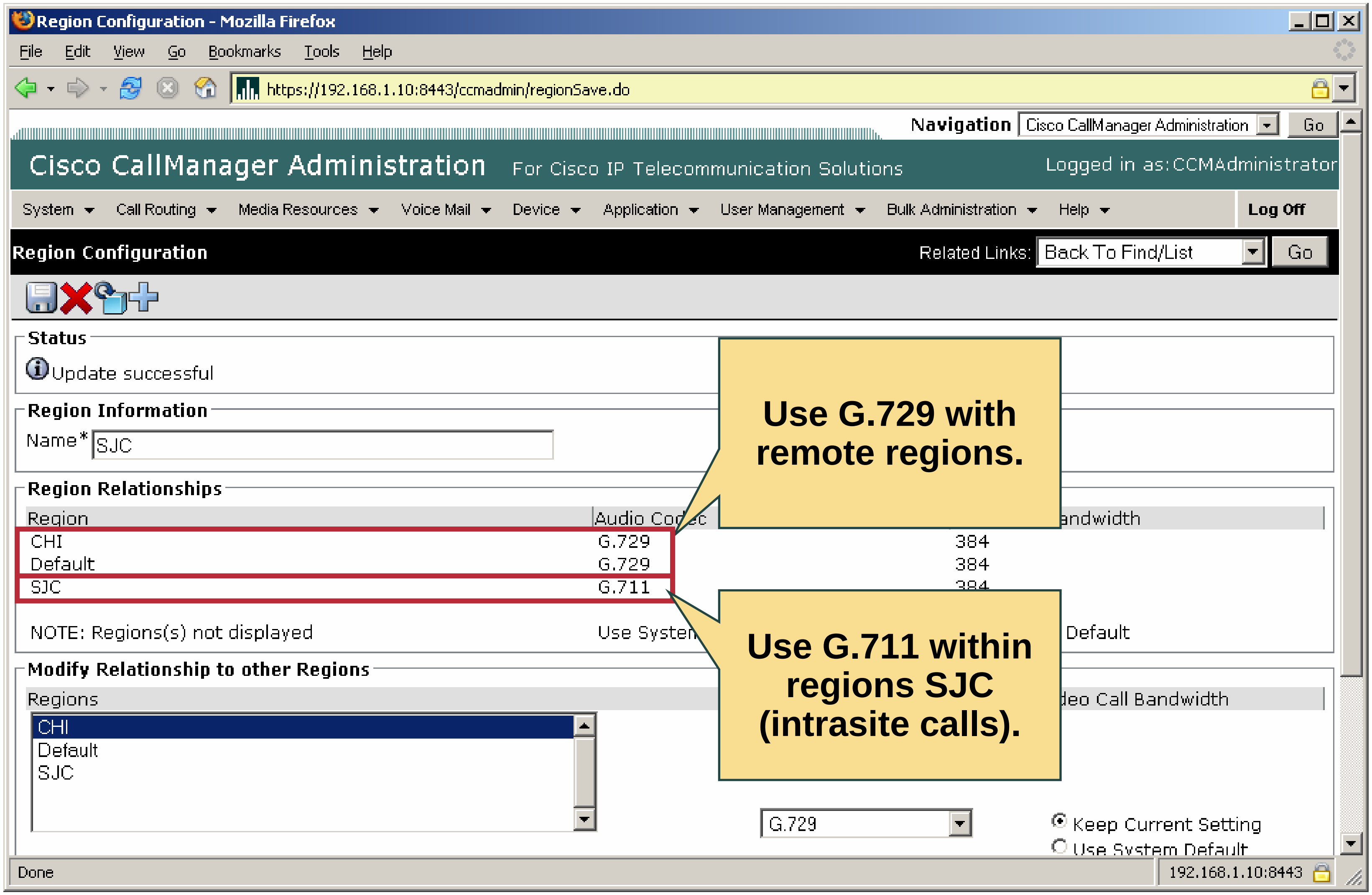
Regions	Audio Codec	Video Call Bandwidth
Default SJC	G.729	

3 Save the configuration.

2 Select the codec to use with the previously selected region.

1 Select a region from the list.

Regions Configuration


Region Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/regionSave.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Related Links: Back To Find/List Go
Done
192.168.1.10:8443

Region Configuration

Status

Update successful

Region Information

Name* SJC

Region Relationships

Region	Audio Codec	andwidth
CHI	G.729	384
Default	G.729	384
SJC	G.711	384
NOTE: Regions(s) not displayed	Use System	Default

Modify Relationship to other Regions

Regions | deo Call Bandwidth

CHI
Default
SJC

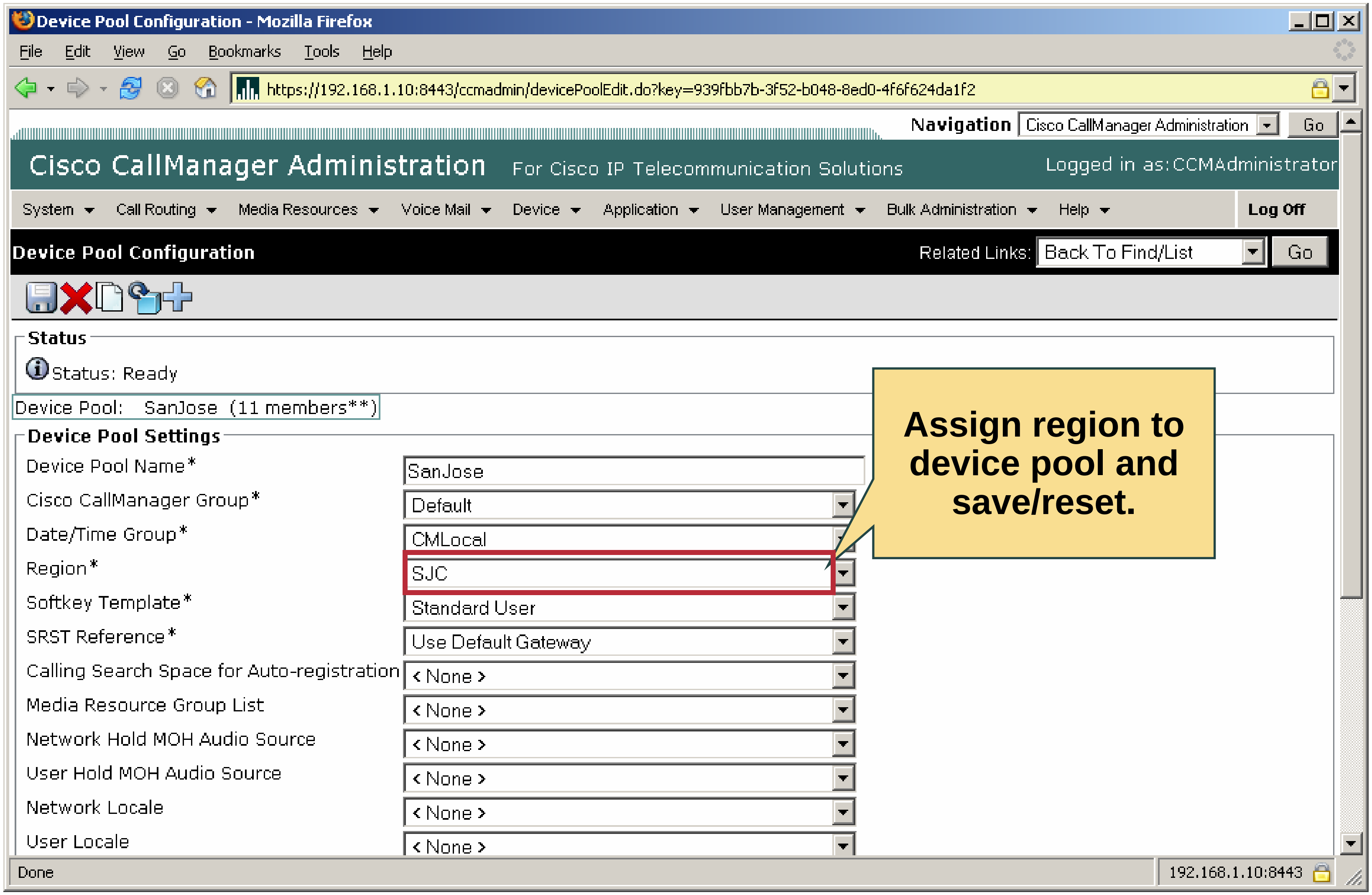
G.729

● Keep Current Setting
○ Use System Default

Use G.729 with remote regions.

Use G.711 within regions SJC (intrasite calls).

Regions Configuration


Device Pool Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/devicePoolEdit.do?key=939fbb7b-3f52-b048-8ed0-4f6f624da1f2
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Related Links: Back To Find/List Go
Done
192.168.1.10:8443

Device Pool Configuration

Status

Status: Ready

Device Pool: SanJose (11 members**)

Device Pool Settings

Device Pool Name*	SanJose
Cisco CallManager Group*	Default
Date/Time Group*	CMLocal
Region*	SJC
Softkey Template*	Standard User
SRST Reference*	Use Default Gateway
Calling Search Space for Auto-registration	< None >
Media Resource Group List	< None >
Network Hold MOH Audio Source	< None >
User Hold MOH Audio Source	< None >
Network Locale	< None >
User Locale	< None >

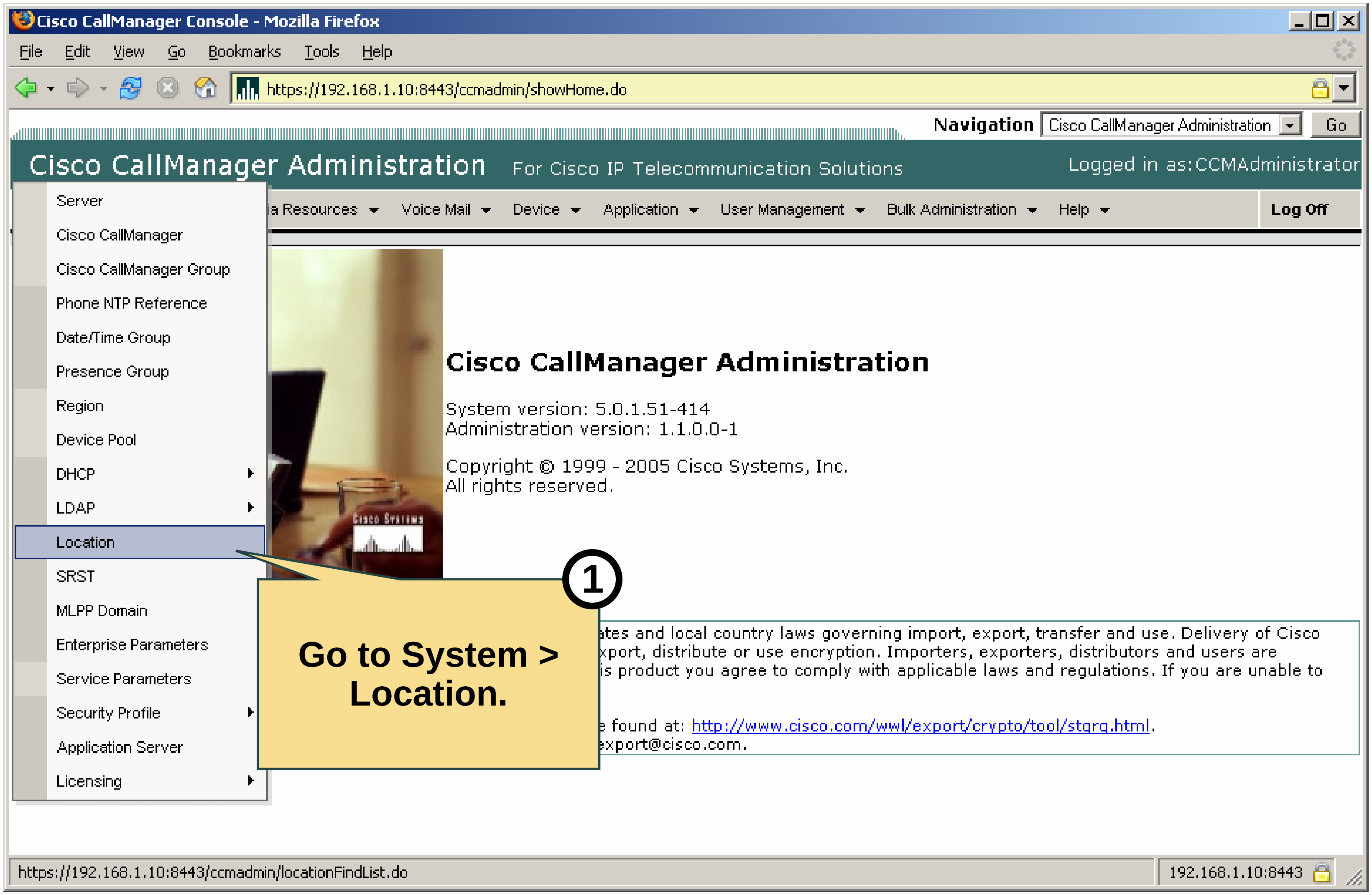
Assign region to device pool and save/reset.

Locations Configuration

Locations configuration steps:

1. Add locations and configure bandwidth.
2. Assign location to device.

Locations Configuration


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/showHome.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
a Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Server
Cisco CallManager
Cisco CallManager Group
Phone NTP Reference
Date/Time Group
Presence Group
Region
Device Pool
DHCP
LDAP
Location
SRST
MLPP Domain
Enterprise Parameters
Service Parameters
Security Profile
Application Server
Licensing
Cisco Systems

Cisco CallManager Administration

System version: 5.0.1.51-414
Administration version: 1.1.0.0-1

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ates and local country laws governing import, export, transfer and use. Delivery of Cisco
xport, distribute or use encryption. Importers, exporters, distributors and users are
is product you agree to comply with applicable laws and regulations. If you are unable to

found at: http://www.cisco.com/wwl/export/crypto/tool/stqrg.html.
xport@cisco.com.

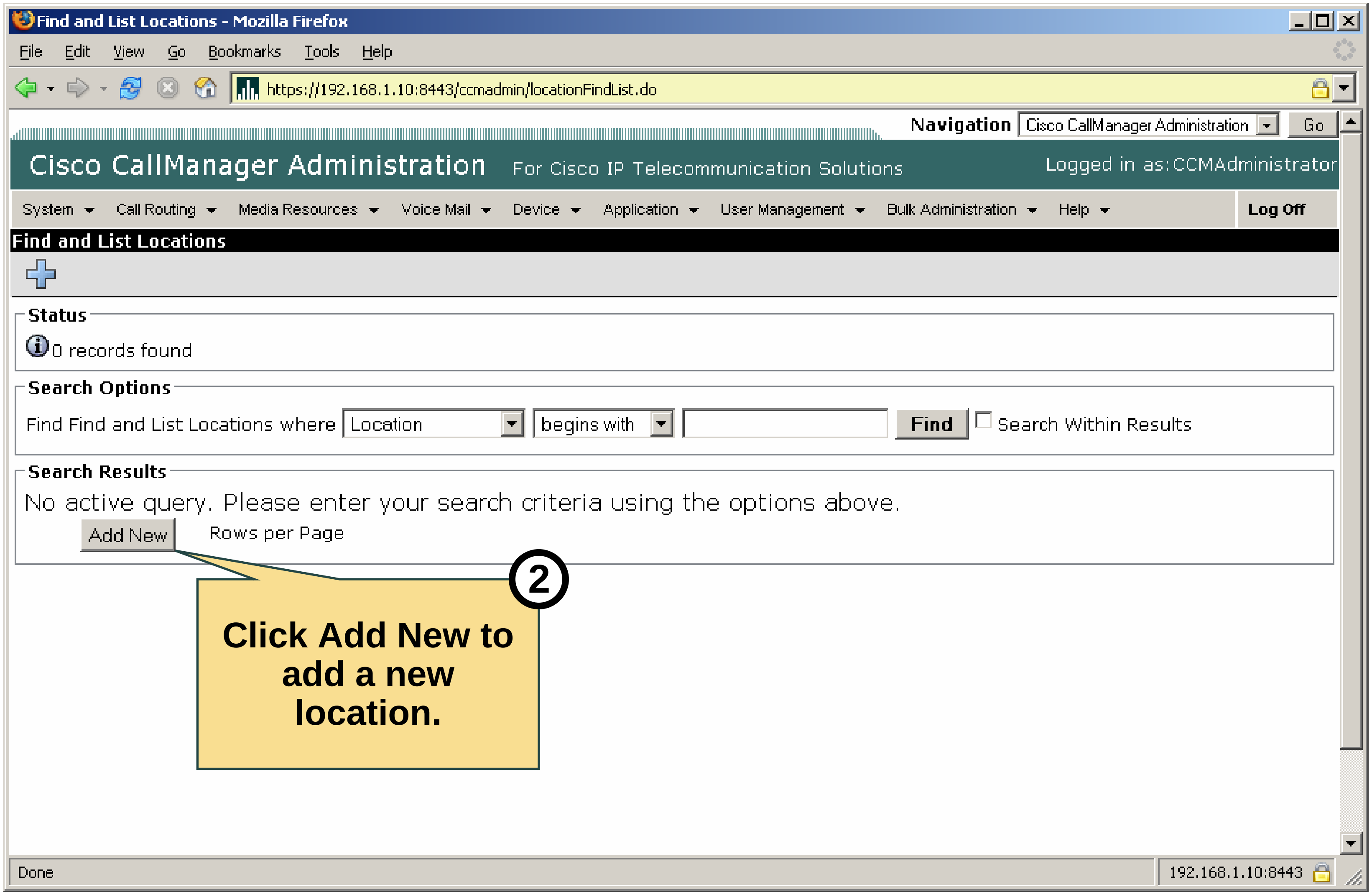
https://192.168.1.10:8443/ccmadmin/locationFindList.do

192.168.1.10:8443

①

Go to System > Location.

Locations Configuration


Find and List Locations - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/locationFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Find and List Locations

Status

0 records found

Search Options

Find Find and List Locations where Location begins with Find ☐ Search Within Results

Search Results

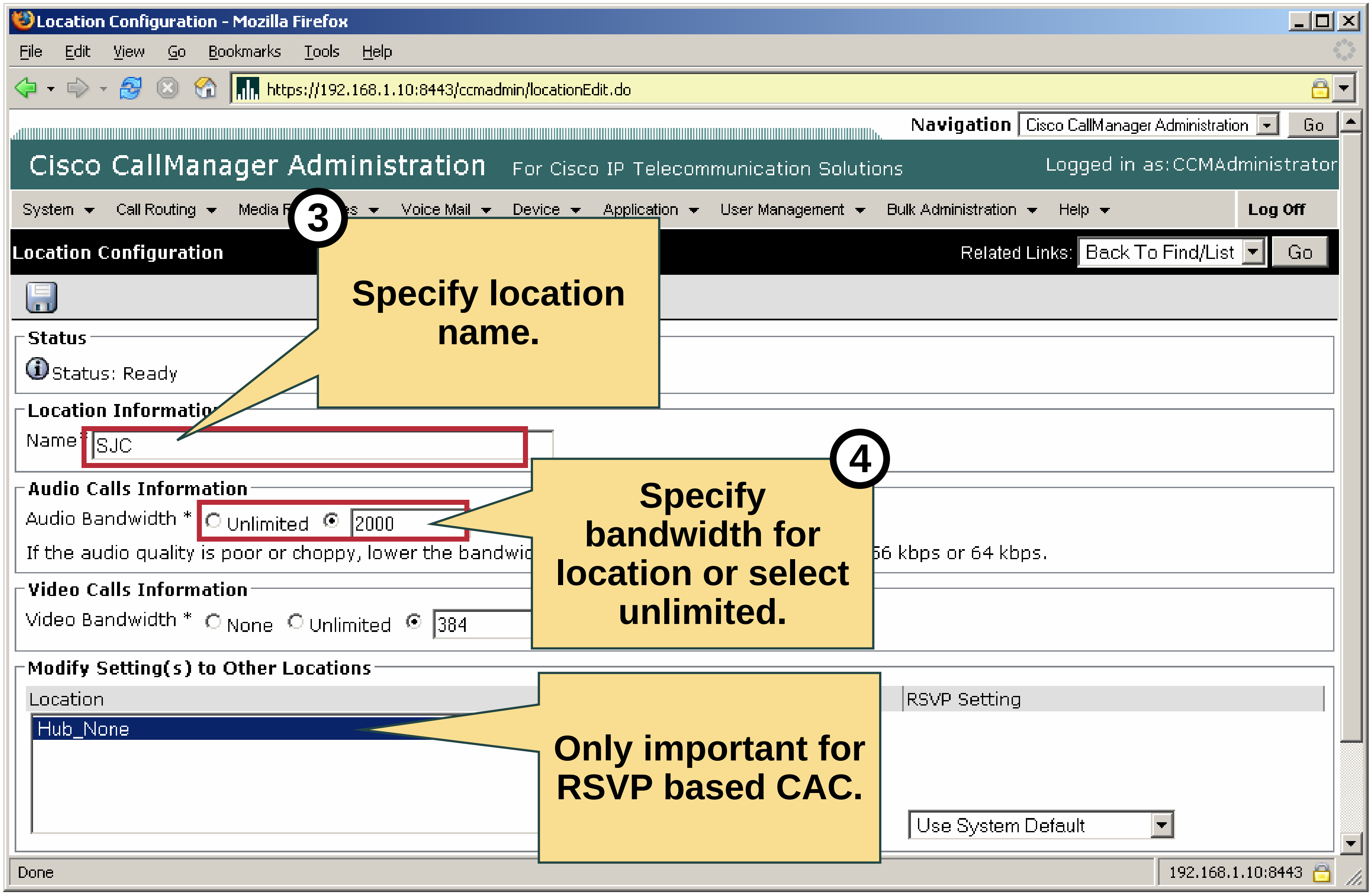
No active query. Please enter your search criteria using the options above.

Add New Rows per Page

Done
192.168.1.10:8443

② Click Add New to add a new location.

Locations Configuration



Location Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/locationEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media R…s Voice Mail Device Application User Management Bulk Administration Help Log Off
Location Configuration
Related Links: Back To Find/List Go
Done
192.168.1.10:8443

Status

Status: Ready

Location Information

Name * SJC

Audio Calls Information

Audio Bandwidth * ○ Unlimited ● 2000

If the audio quality is poor or choppy, lower the bandwid… 56 kbps or 64 kbps.

Video Calls Information

Video Bandwidth * ○ None ○ Unlimited ● 384

Modify Setting(s) to Other Locations

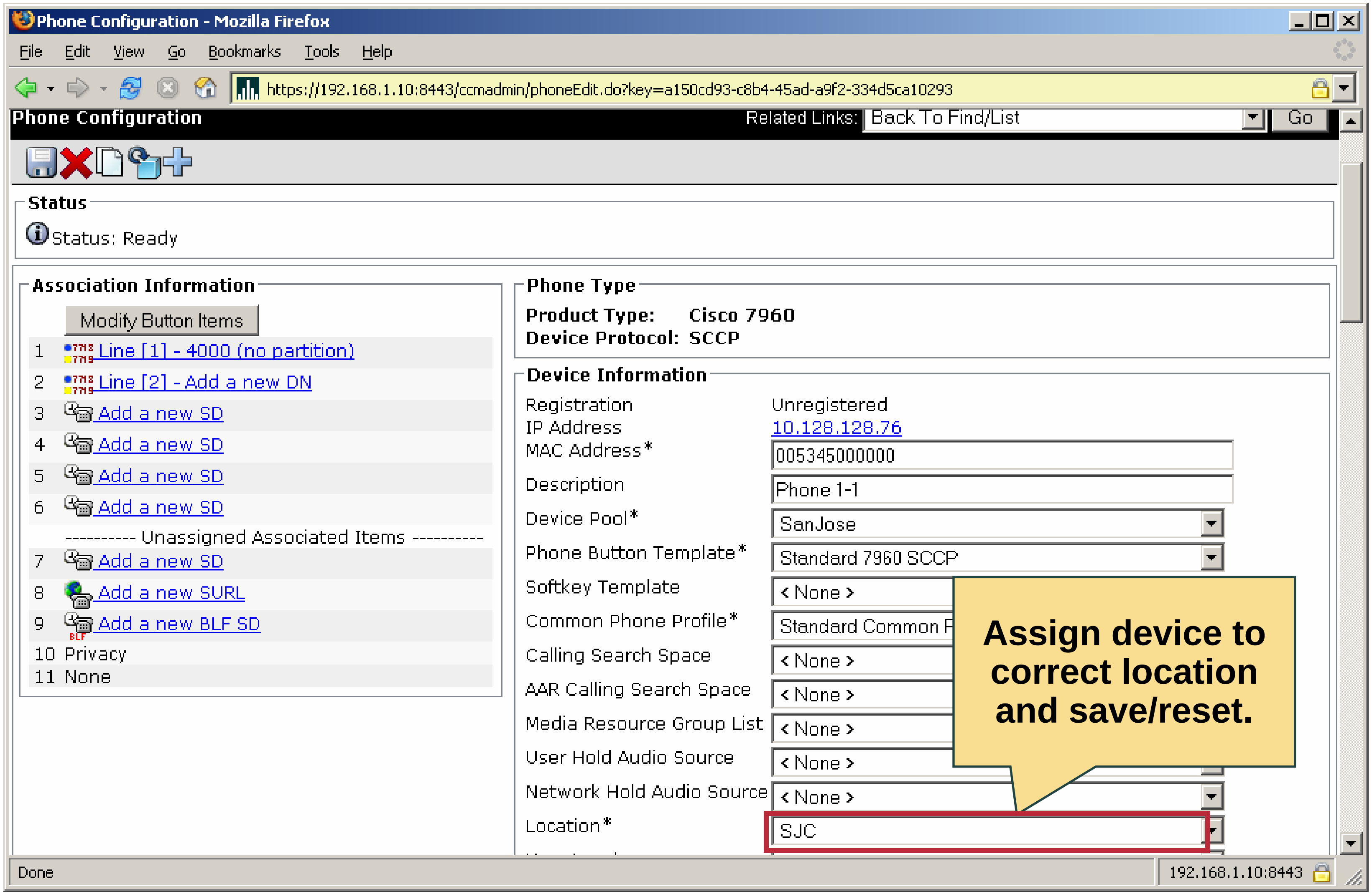
Location	RSVP Setting
Hub_None	Use System Default

③ Specify location name.

④ Specify bandwidth for location or select unlimited.

Only important for RSVP based CAC.

Locations Configuration



Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/phoneEdit.do?key=a150cd93-c8b4-45ad-a9f2-334d5ca10293
Related Links: Back To Find/List
Go
Modify Button Items
Done
192.168.1.10:8443

Phone Configuration

Status

Status: Ready

Association Information

1 Line [1] - 4000 (no partition)
2 Line [2] - Add a new DN
3 Add a new SD
4 Add a new SD
5 Add a new SD
6 Add a new SD
---------- Unassigned Associated Items ----------
7 Add a new SD
8 Add a new SURL
9 Add a new BLF SD
10 Privacy
11 None

Phone Type

Product Type: Cisco 7960
Device Protocol: SCCP

Device Information

Registration	Unregistered
IP Address	10.128.128.76
MAC Address*	005345000000
Description	Phone 1-1
Device Pool*	SanJose
Phone Button Template*	Standard 7960 SCCP
Softkey Template	< None >
Common Phone Profile*	Standard Common F
Calling Search Space	< None >
AAR Calling Search Space	< None >
Media Resource Group List	< None >
User Hold Audio Source	< None >
Network Hold Audio Source	< None >
Location*	SJC

Assign device to correct location and save/reset.

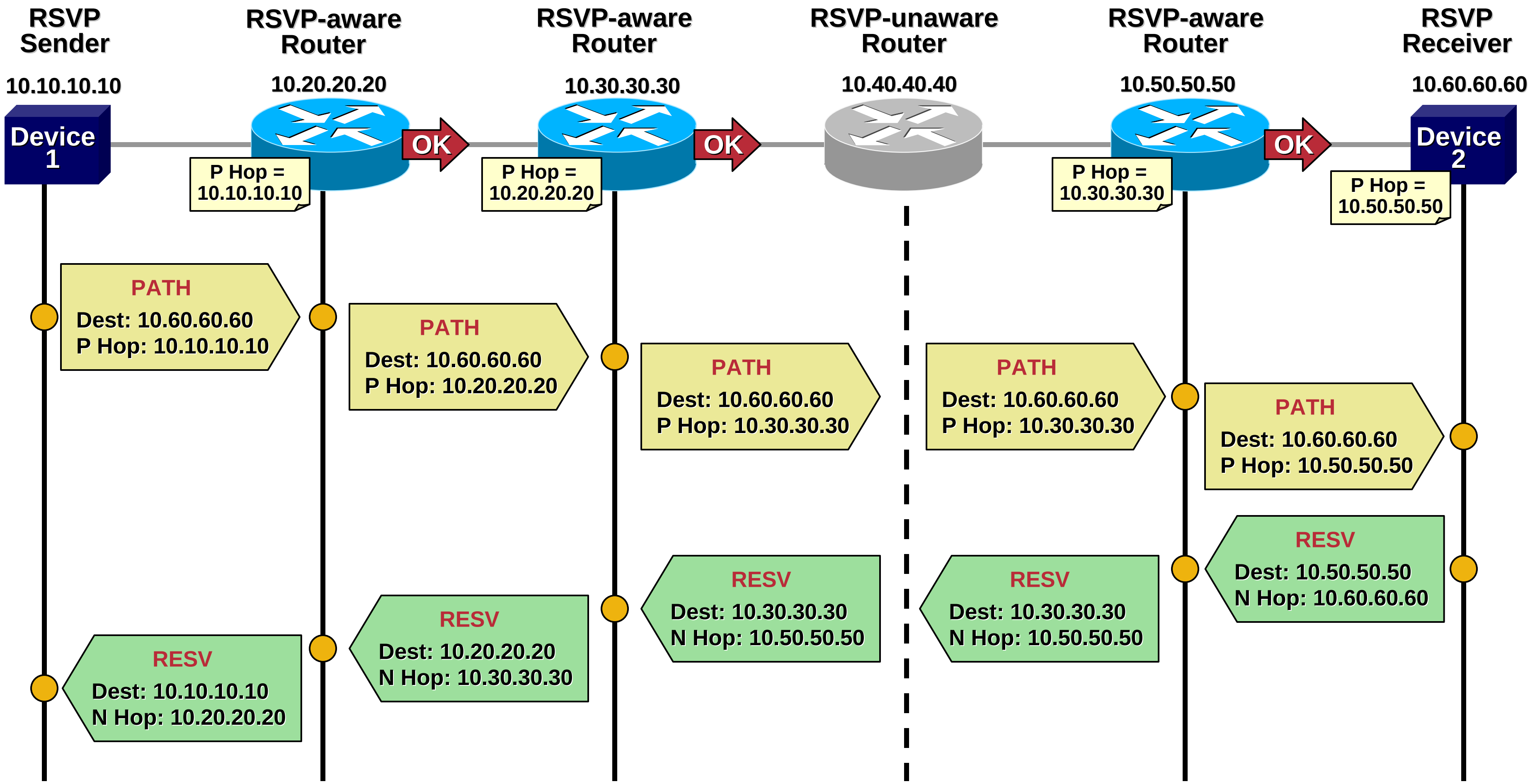
RSVP Concepts

RSVP is used to reserve bandwidth:

- Bandwidth is reserved hop-by-hop.
- If all RSVP aware entities in a path reserve bandwidth:
  - Traffic can flow.
- RSVP unaware entities pass on RSVP packets.
- Minimum number of RSVP aware devices: two

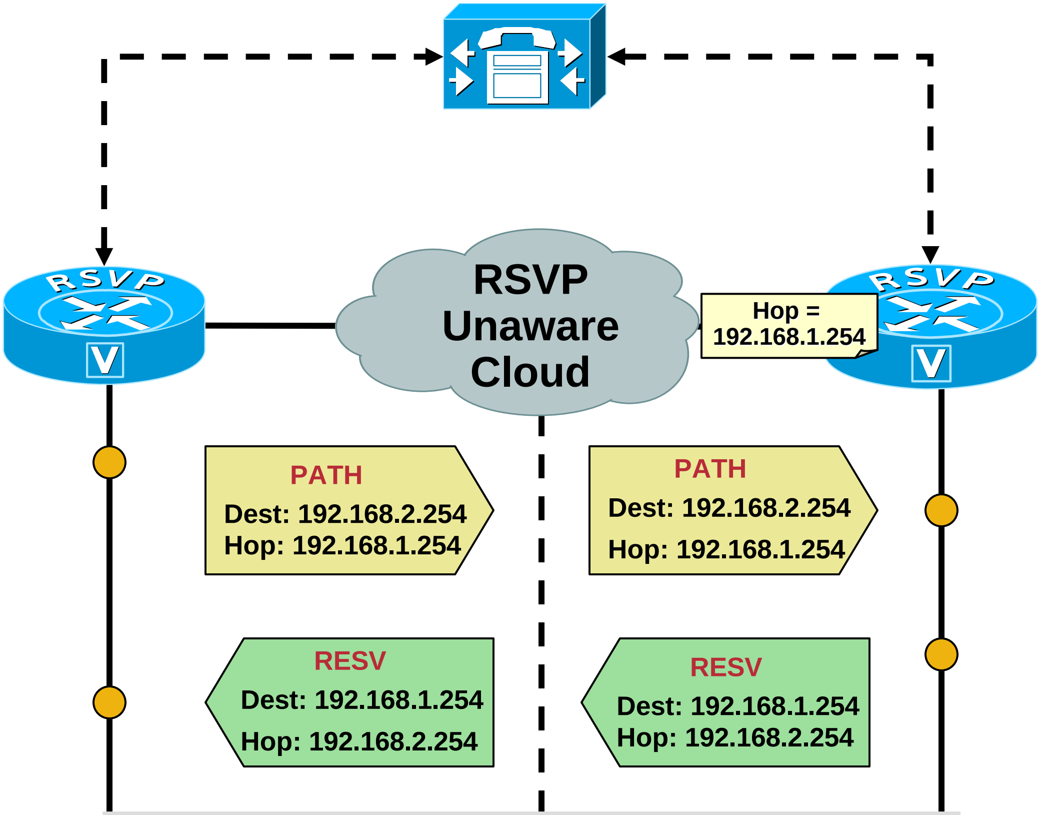
RSVP Concepts

Legend: ● = RSVP processing occurs || OK = Bandwidth reserved on interface



RSVP Sender
10.10.10.10
Device 1
RSVP-aware Router
10.20.20.20
P Hop = 10.10.10.10
OK
RSVP-aware Router
10.30.30.30
P Hop = 10.20.20.20
OK
RSVP-unaware Router
10.40.40.40
RSVP-aware Router
10.50.50.50
P Hop = 10.30.30.30
OK
RSVP Receiver
10.60.60.60
Device 2
P Hop = 10.50.50.50
PATH
Dest: 10.60.60.60
P Hop: 10.10.10.10
PATH
Dest: 10.60.60.60
P Hop: 10.20.20.20
PATH
Dest: 10.60.60.60
P Hop: 10.30.30.30
PATH
Dest: 10.60.60.60
P Hop: 10.30.30.30
PATH
Dest: 10.60.60.60
P Hop: 10.50.50.50
RESV
Dest: 10.50.50.50
N Hop: 10.60.60.60
RESV
Dest: 10.30.30.30
N Hop: 10.50.50.50
RESV
Dest: 10.30.30.30
N Hop: 10.50.50.50
RESV
Dest: 10.20.20.20
N Hop: 10.30.30.30
RESV
Dest: 10.10.10.10
N Hop: 10.20.20.20

RSVP Concepts



RSVP Sender
192.168.1.254
RSVP Unaware Cloud
RSVP Receiver
192.168.2.254
Hop = 192.168.1.254
RSVP
RSVP
V
V
PATH
Dest: 192.168.2.254
Hop: 192.168.1.254
PATH
Dest: 192.168.2.254
Hop: 192.168.1.254
RESV
Dest: 192.168.1.254
Hop: 192.168.2.254
RESV
Dest: 192.168.1.254
Hop: 192.168.2.254

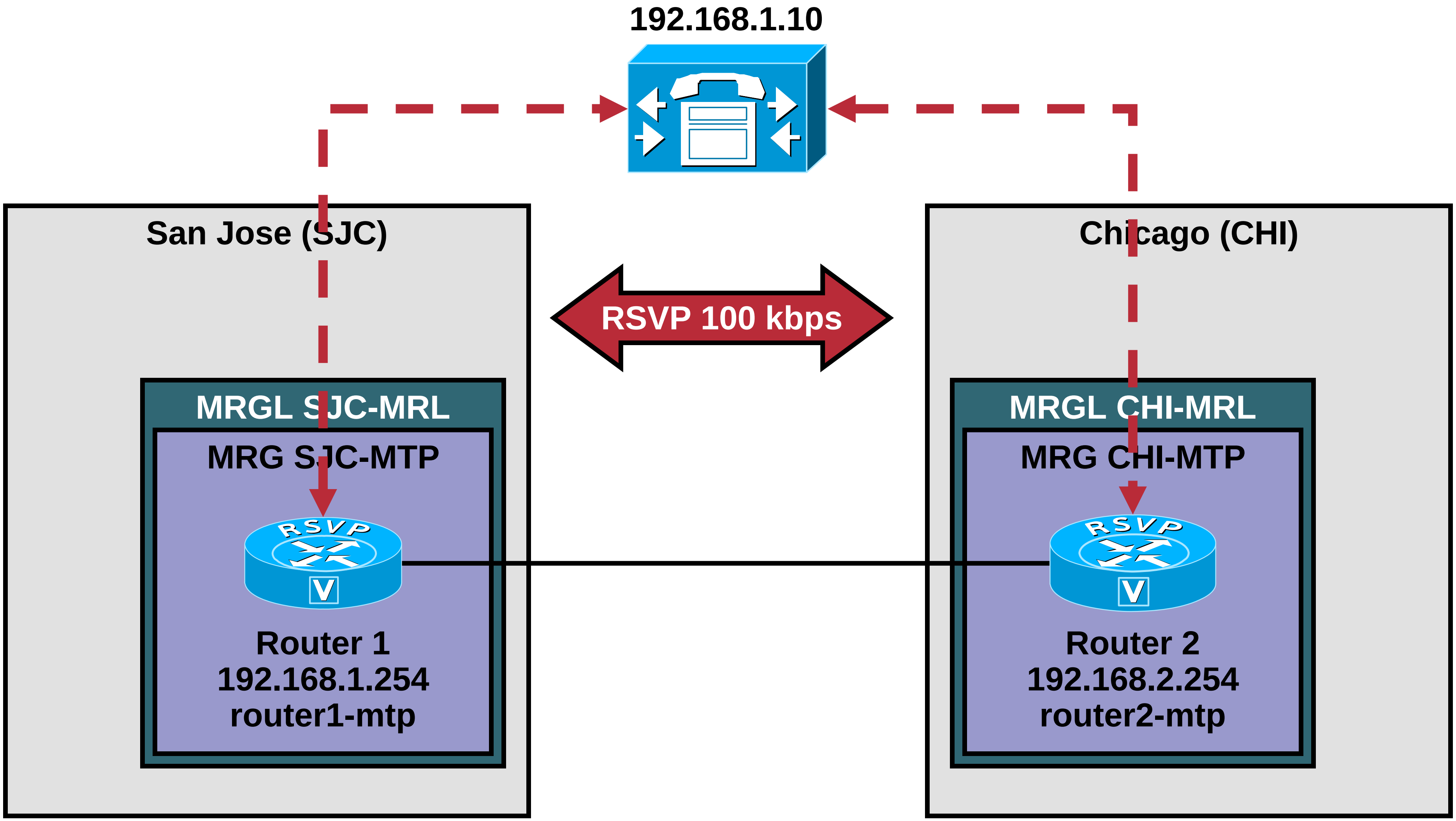
	Reservation during setup	Reservation during call
G.711	96 kbps	80 kbps
G.729	40 kbps	24 kbps

RSVP-Based CAC Configuration Steps on Cisco Unified CallManager

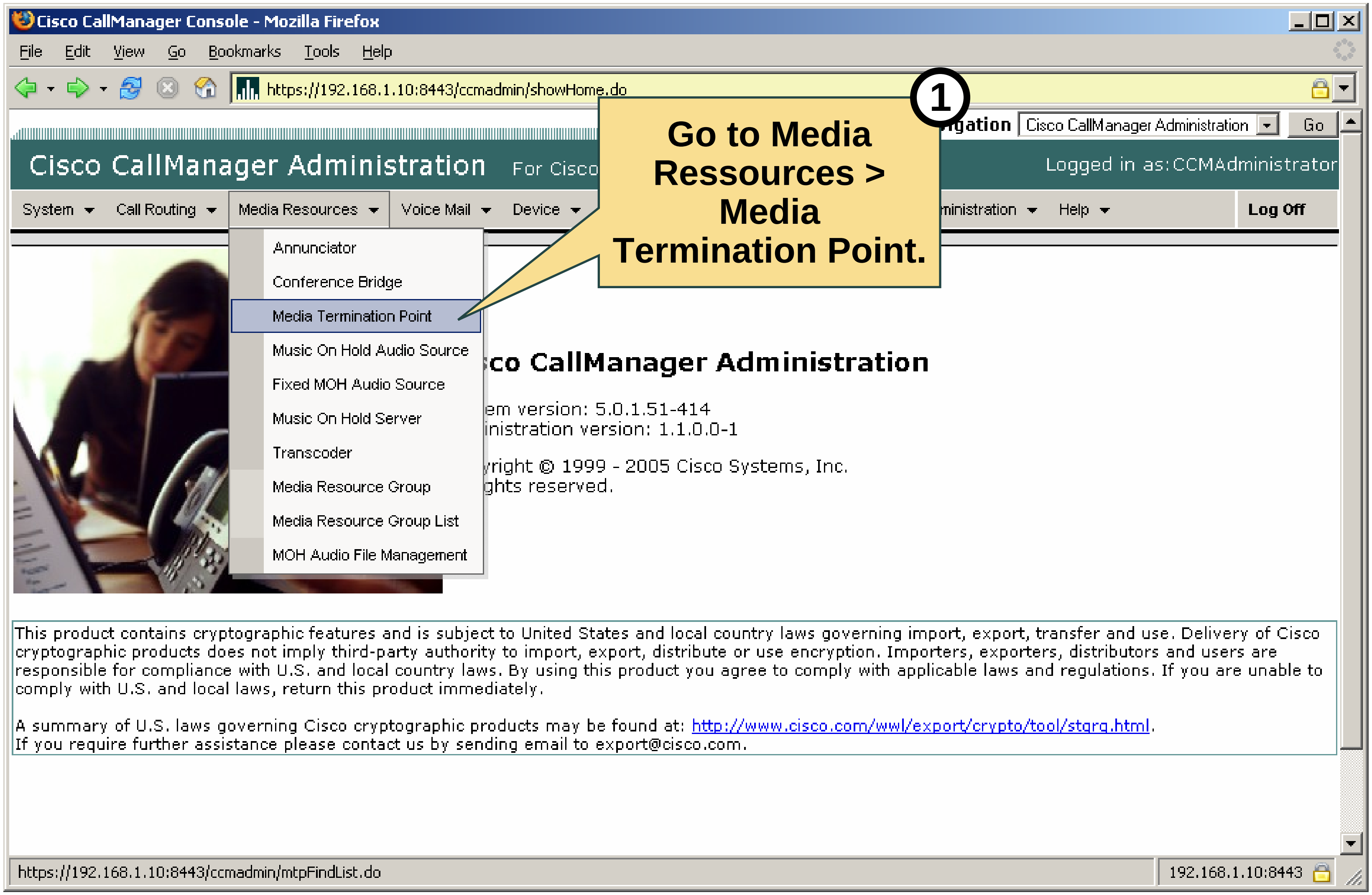
RSVP based CAC configuration steps on CallManager:

1. **Add IOS MTP.**
2. **Add a Media Resource Group including the MTP.**
3. **Add/Modify a Media Resource Group List.**
4. **Assign Media Resource Group List to device or device pool.**
5. **Enable RSVP for specific locations.**

RSVP-Based CAC Configuration Steps on Cisco Unified CallManager


192.168.1.10
San Jose (SJC)
Chicago (CHI)
RSVP 100 kbps
MRGL SJC-MRL
MRG SJC-MTP
RSVP
Router 1
192.168.1.254
router1-mtp
MRGL CHI-MRL
MRG CHI-MTP
RSVP
Router 2
192.168.2.254
router2-mtp

Media Termination Point Configuration


Cisco CallManager Console - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
https://192.168.1.10:8443/ccmadmin/showHome.do
igation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
ministration
Help
Log Off
Annunciator
Conference Bridge
Media Termination Point
Music On Hold Audio Source
Fixed MOH Audio Source
Music On Hold Server
Transcoder
Media Resource Group
Media Resource Group List
MOH Audio File Management
https://192.168.1.10:8443/ccmadmin/mtpFindList.do
192.168.1.10:8443

①

Go to Media Ressources > Media Termination Point.

co CallManager Administration

em version: 5.0.1.51-414
inistration version: 1.1.0.0-1

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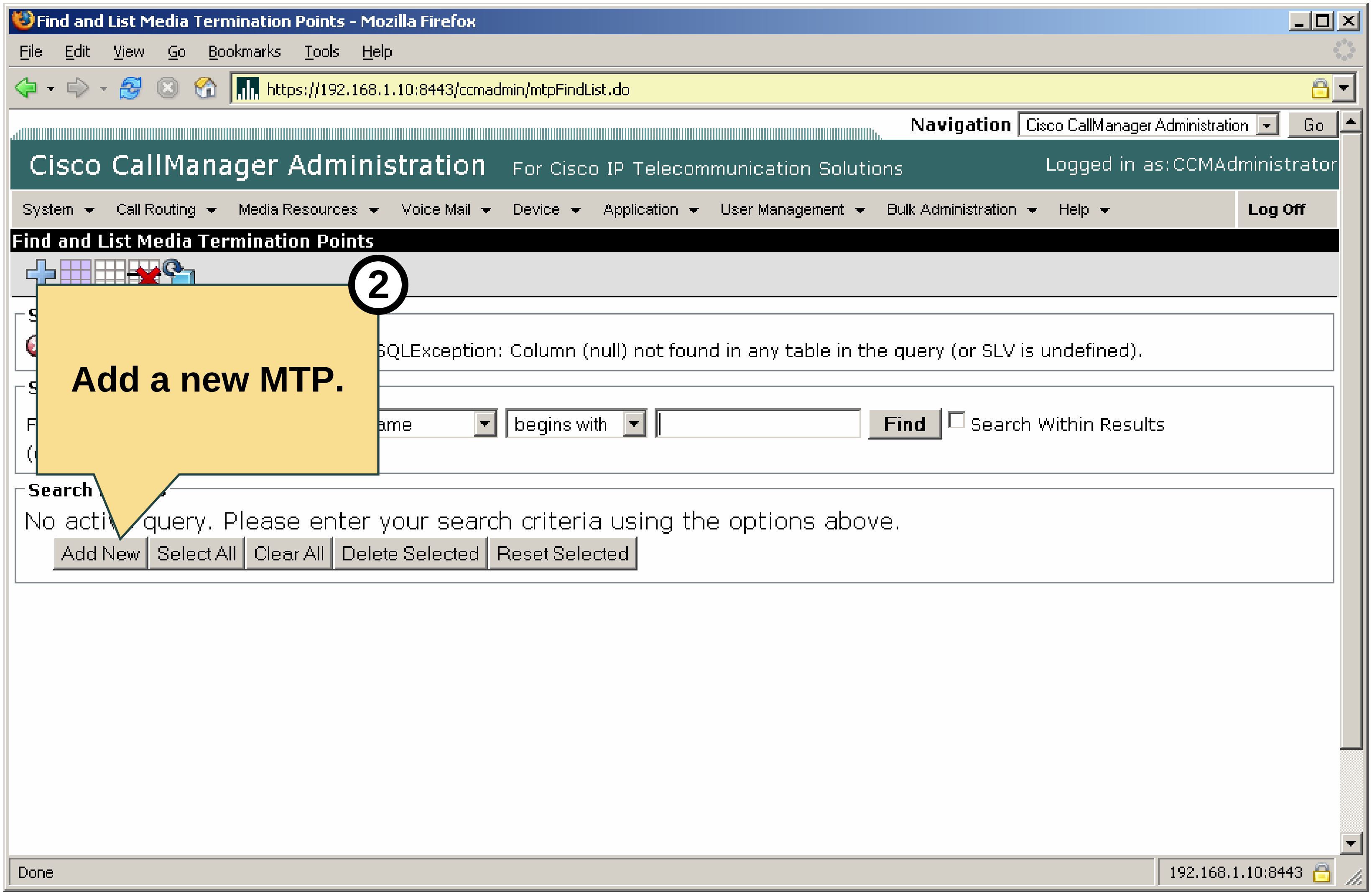
If you require further assistance please contact us by sending email to export@cisco.com.

Media Termination Point Configuration


Find and List Media Termination Points - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/mtpFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Find and List Media Termination Points

SQLException: Column (null) not found in any table in the query (or SLV is undefined).

ame
begins with
Find
☐ Search Within Results
Search

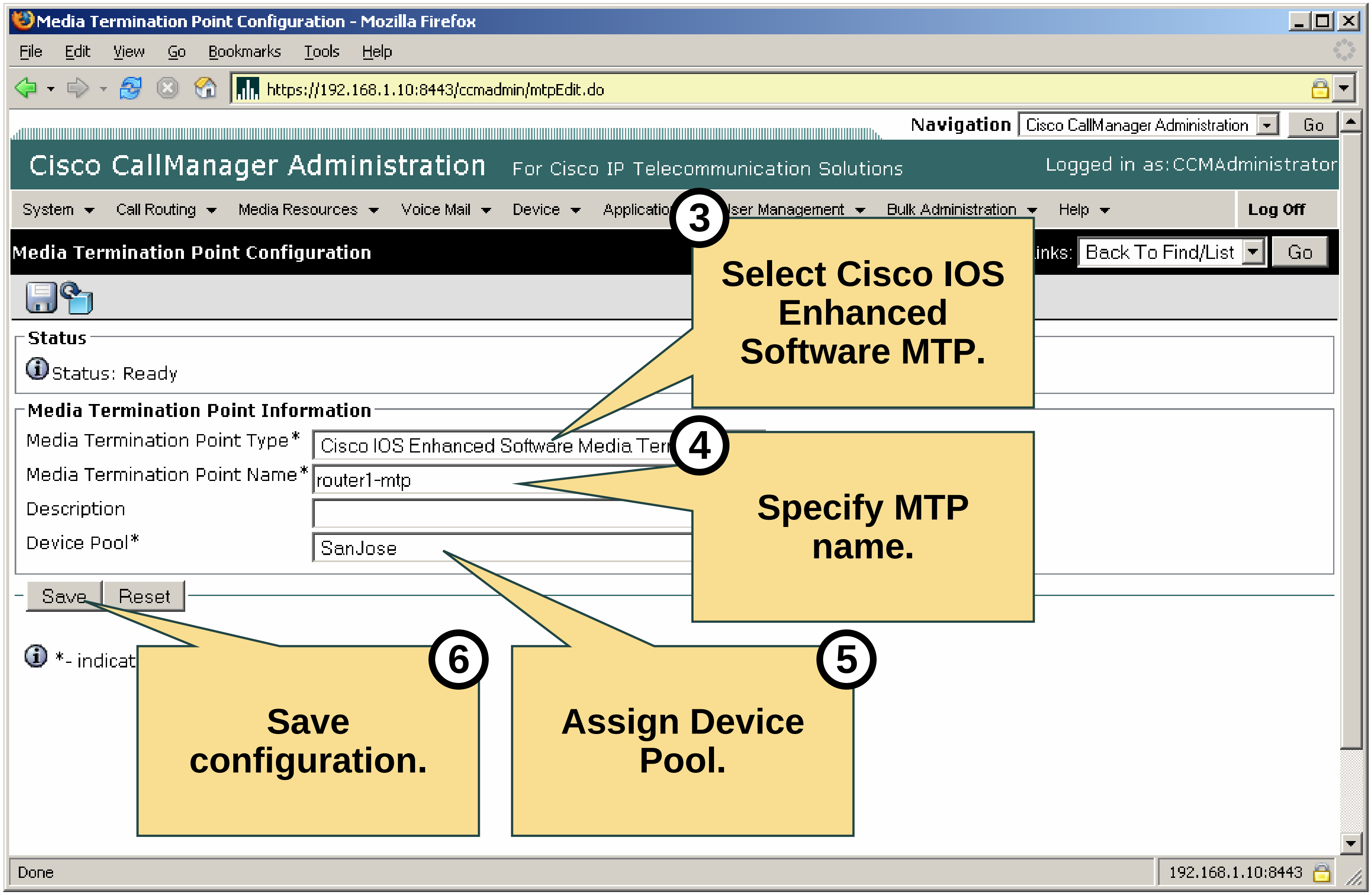
No acti query. Please enter your search criteria using the options above.

Add New
Select All
Clear All
Delete Selected
Reset Selected
Done
192.168.1.10:8443

②

Add a new MTP.

Media Termination Point Configuration



Media Termination Point Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/mtpEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Applicatio ser Management Bulk Administration Help Log Off
Media Termination Point Configuration
inks: Back To Find/List Go
Save Reset
Done
192.168.1.10:8443

Status

Status: Ready

Media Termination Point Information

Media Termination Point Type* Cisco IOS Enhanced Software Media Ter

Media Termination Point Name* router1-mtp

Description

Device Pool* SanJose

*- indicat

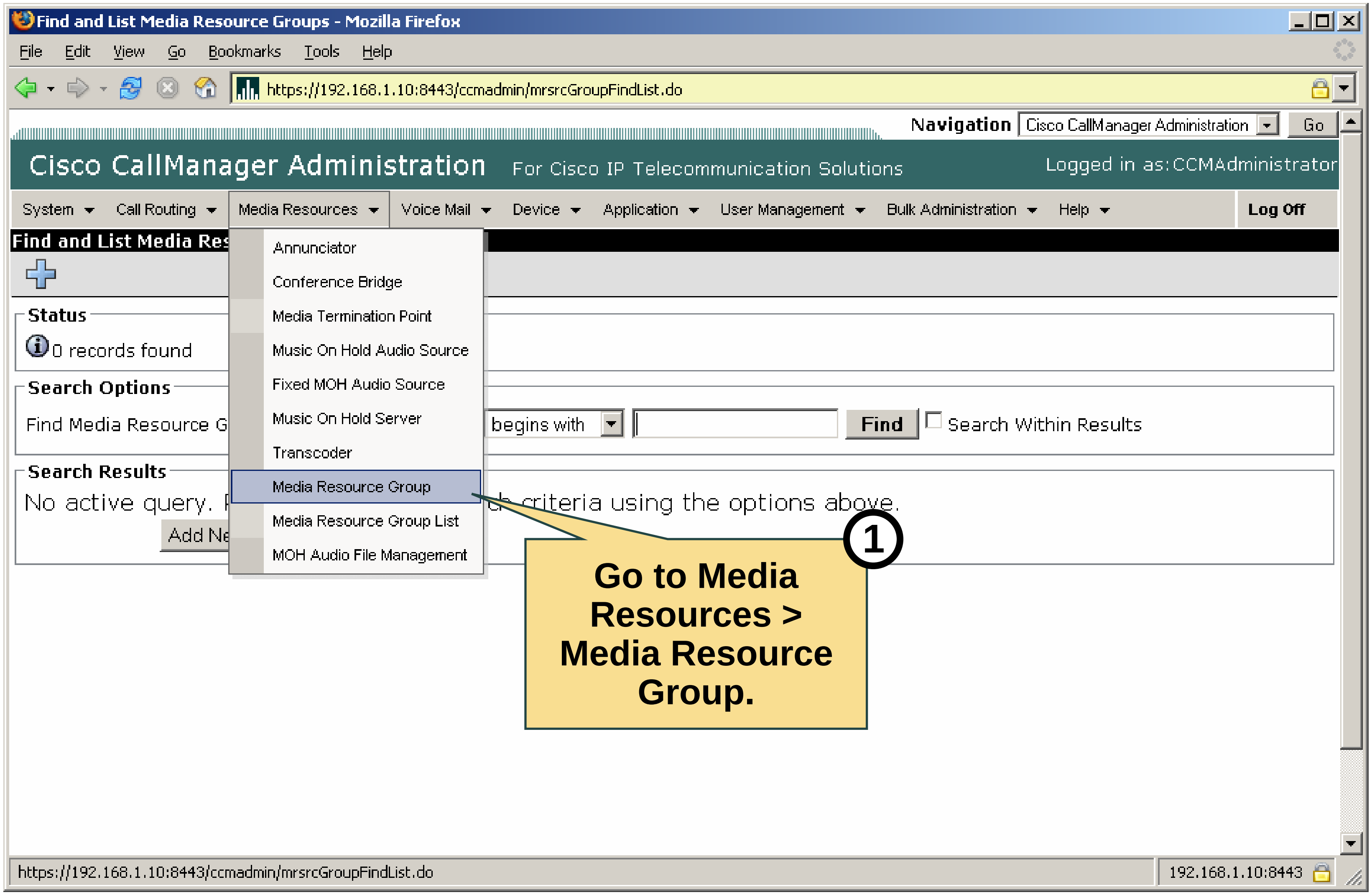
③ Select Cisco IOS Enhanced Software MTP.

④ Specify MTP name.

⑤ Assign Device Pool.

⑥ Save configuration.

Media Resource Group and List Configuration



Find and List Media Resource Groups - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/mrsrcGroupFindList.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Find and List Media Res
Annunciator
Conference Bridge
Media Termination Point
Music On Hold Audio Source
Fixed MOH Audio Source
Music On Hold Server
Transcoder
Media Resource Group
Media Resource Group List
MOH Audio File Management
Status
Search Options
begins with
Find
Search Within Results
Search Results
Add Ne
https://192.168.1.10:8443/ccmadmin/mrsrcGroupFindList.do
192.168.1.10:8443

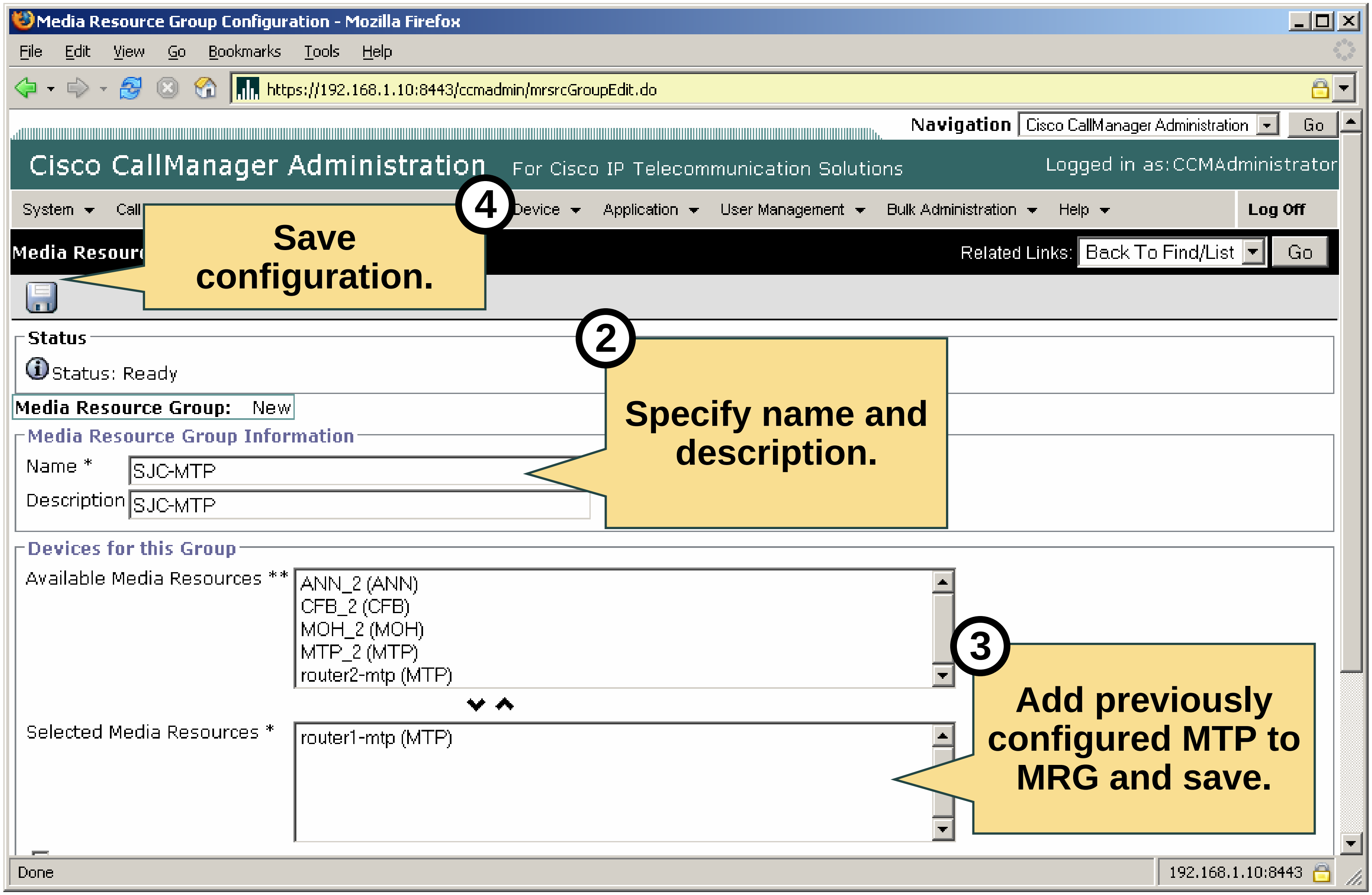
0 records found

Find Media Resource G

No active query. P ch criteria using the options above.

① Go to Media Resources > Media Resource Group.

Media Resource Group and List Configuration


Media Resource Group Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/mrsrcGroupEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Device Application User Management Bulk Administration Help
Log Off
Media Resour
Related Links: Back To Find/List Go
Done
192.168.1.10:8443

Status

Status: Ready

Media Resource Group: New

Media Resource Group Information

Name * SJC-MTP

Description SJC-MTP

Devices for this Group

Available Media Resources **
ANN_2 (ANN)
CFB_2 (CFB)
MOH_2 (MOH)
MTP_2 (MTP)
router2-mtp (MTP)

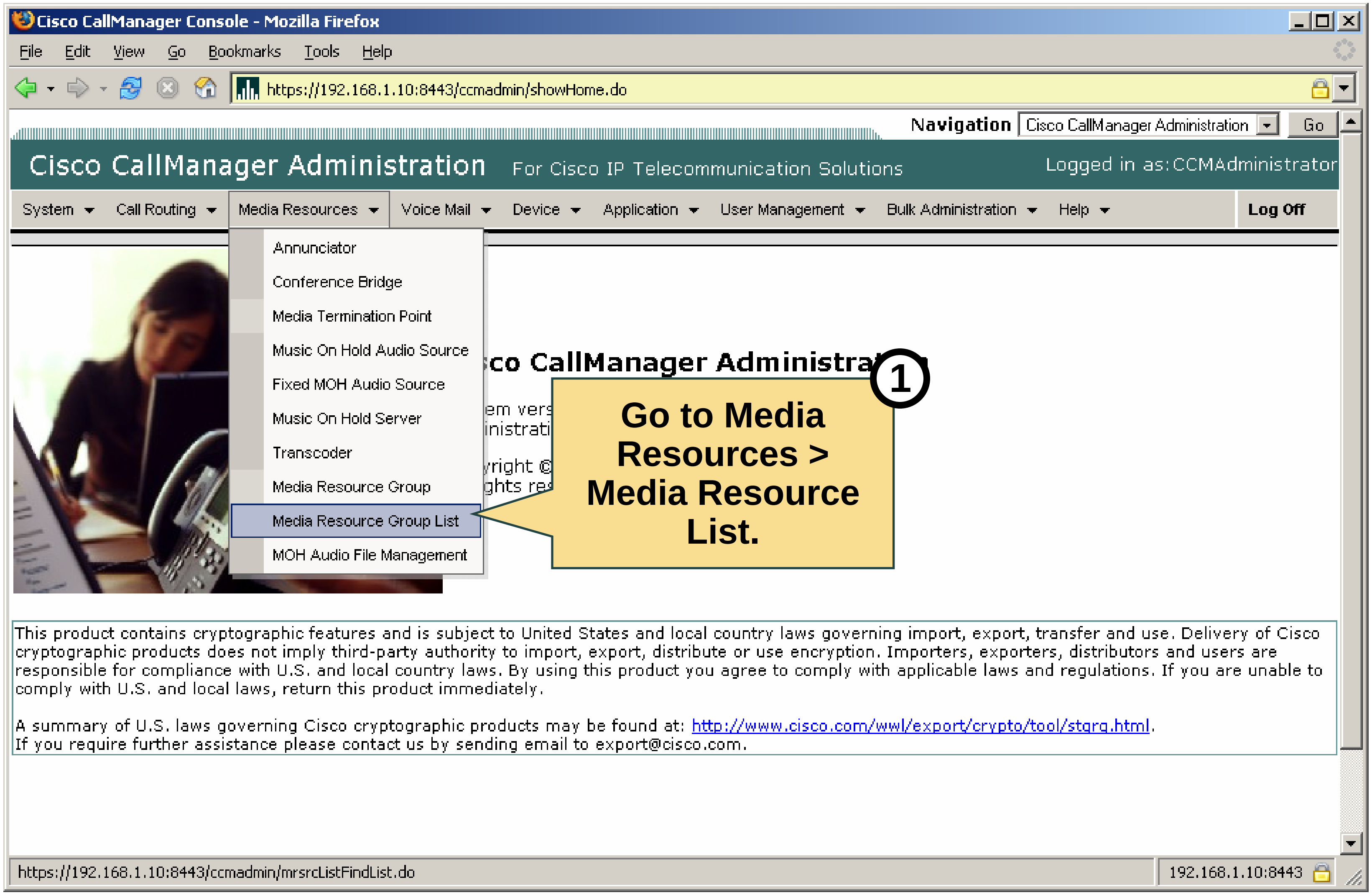
Selected Media Resources *
router1-mtp (MTP)

2 Specify name and description.

3 Add previously configured MTP to MRG and save.

4 Save configuration.

Media Resource Group and List Configuration



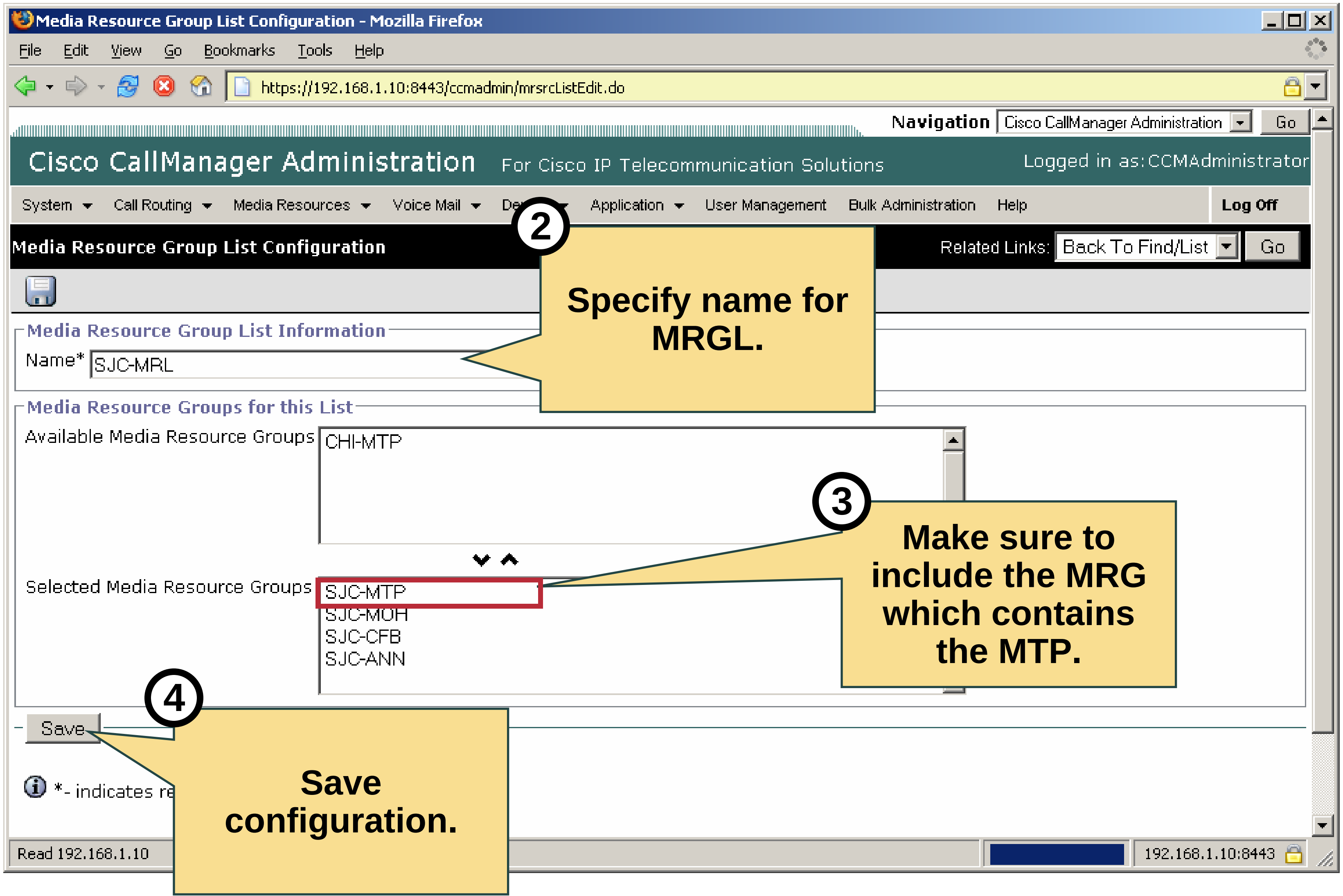
Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/showHome.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Annunciator
Conference Bridge
Media Termination Point
Music On Hold Audio Source
Fixed MOH Audio Source
Music On Hold Server
Transcoder
Media Resource Group
Media Resource Group List
MOH Audio File Management
https://192.168.1.10:8443/ccmadmin/mrsrcListFindList.do
192.168.1.10:8443

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at: http://www.cisco.com/wwl/export/crypto/tool/stqrg.html.
If you require further assistance please contact us by sending email to export@cisco.com.

① Go to Media Resources > Media Resource List.

Media Resource Group and List Configuration


Media Resource Group List Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/mrsrcListEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail De Application User Management Bulk Administration Help Log Off
Related Links: Back To Find/List Go
Read 192.168.1.10
192.168.1.10:8443

Media Resource Group List Configuration

Media Resource Group List Information

Name* SJC-MRL

Media Resource Groups for this List

Available Media Resource Groups: CHI-MTP

Selected Media Resource Groups:
SJC-MTP
SJC-MOH
SJC-CFB
SJC-ANN

Save

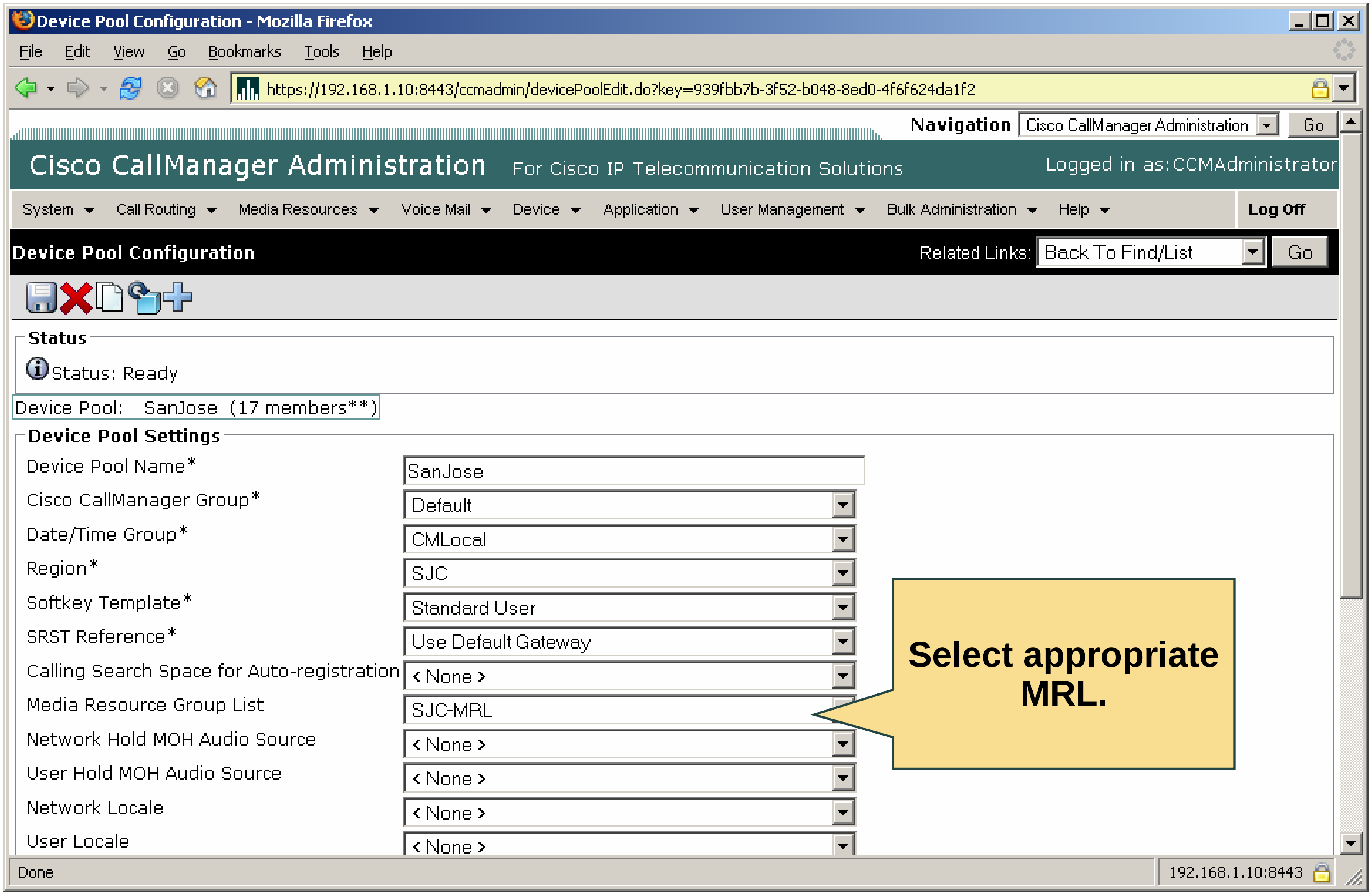
*- indicates re

② Specify name for MRGL.

③ Make sure to include the MRG which contains the MTP.

④ Save configuration.

Media Resource Group and List Configuration


Device Pool Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/devicePoolEdit.do?key=939fbb7b-3f52-b048-8ed0-4f6f624da1f2
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Device Pool Configuration
Related Links: Back To Find/List Go

Status

Status: Ready

Device Pool: SanJose (17 members**)

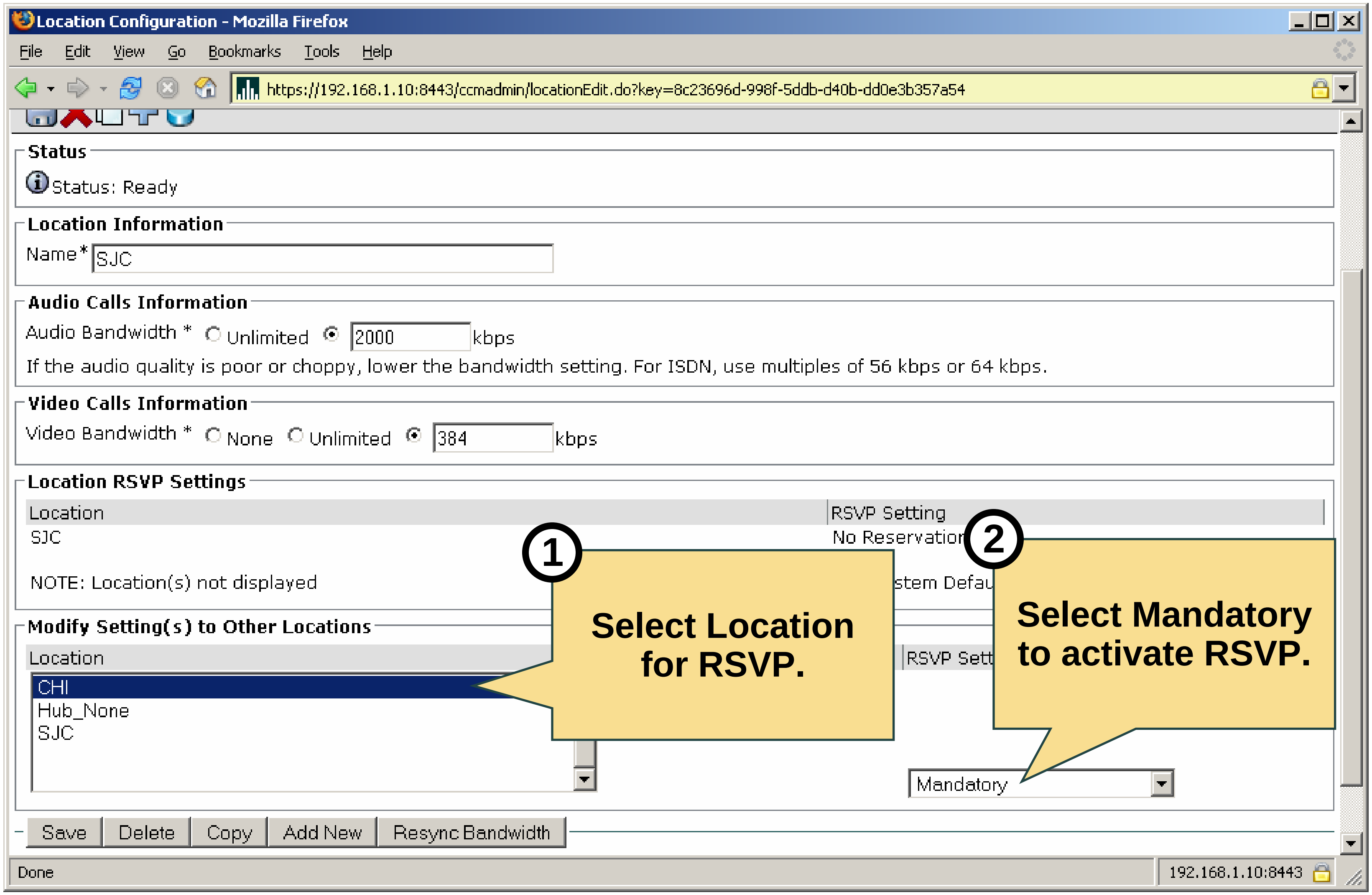
Device Pool Settings

Device Pool Name*	SanJose
Cisco CallManager Group*	Default
Date/Time Group*	CMLocal
Region*	SJC
Softkey Template*	Standard User
SRST Reference*	Use Default Gateway
Calling Search Space for Auto-registration	< None >
Media Resource Group List	SJC-MRL
Network Hold MOH Audio Source	< None >
User Hold MOH Audio Source	< None >
Network Locale	< None >
User Locale	< None >

Done
192.168.1.10:8443

Select appropriate MRL.

RSVP-Based CAC Configuration on Cisco Unified CallManager



Location Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/locationEdit.do?key=8c23696d-998f-5ddb-d40b-dd0e3b357a54

Status

Status: Ready

Location Information

Name* SJC

Audio Calls Information

Audio Bandwidth * ○ Unlimited ● 2000 kbps

If the audio quality is poor or choppy, lower the bandwidth setting. For ISDN, use multiples of 56 kbps or 64 kbps.

Video Calls Information

Video Bandwidth * ○ None ○ Unlimited ● 384 kbps

Location RSVP Settings

Location	RSVP Setting
SJC	No Reservation

NOTE: Location(s) not displayed ... stem Defau

Modify Setting(s) to Other Locations

Location	RSVP Sett
CHI Hub_None SJC	Mandatory

Save
Delete
Copy
Add New
Resync Bandwidth
Done
192.168.1.10:8443

① Select Location for RSVP.

② Select Mandatory to activate RSVP.

RSVP-Based CAC Configuration on Gateways

RSVP CAC IOS configuration steps:

1. Specify CallManager.
2. Create SCCP group and point to profile.
3. Configure DSP Farm profile for software MTP.
4. Allocate IP RSVP bandwidth to interface(s)

RSVP-Based CAC Configuration on Gateways

```
!
sccp local FastEthernet0/0
sccp ccm 192.168.1.10 identifier 1 version 5.0.1
sccp ip precedence 3
sccp
!
sccp ccm group 1
 bind interface FastEthernet0/0
 associate ccm 1 priority 1
 associate profile 1 register router1-mtp
!
dspfarm profile 1 mtp
 codec pass-through
 rsvp
 maximum sessions software 20
 associate application SCCP
!
!
interface FastEthernet0/1
 description Site1-WAN
 ip address 192.168.3.1 255.255.255.0
 duplex auto
 speed auto
 ip rsvp bandwidth 100
!
```

IP of CCM.

Same name as in CCM MTP

Pass-Through codec.

100 kbps available bw.

① SCCP and CallManager configuration

② SCCP CCM Group

③ MTP Profile with RSVP

④ Interface configuration with RSVP

Summary

- Configure Regions to control codec selection.
- Configure Locations to control bandwidth.
- RSVP is a hop by hop signaling protocol which reserves bandwidth on a path.
- Add an IOS MTP, MRGs and MRGLs to integrate RSVP agents in Cisco CallManager.
- Configure IOS gateway to register with Cisco CallManager as IOS MTPs.

Configuring CallManager for Multi Site Deployments

Configuring Survivable Remote Site Telephony (SRST)

Objectives

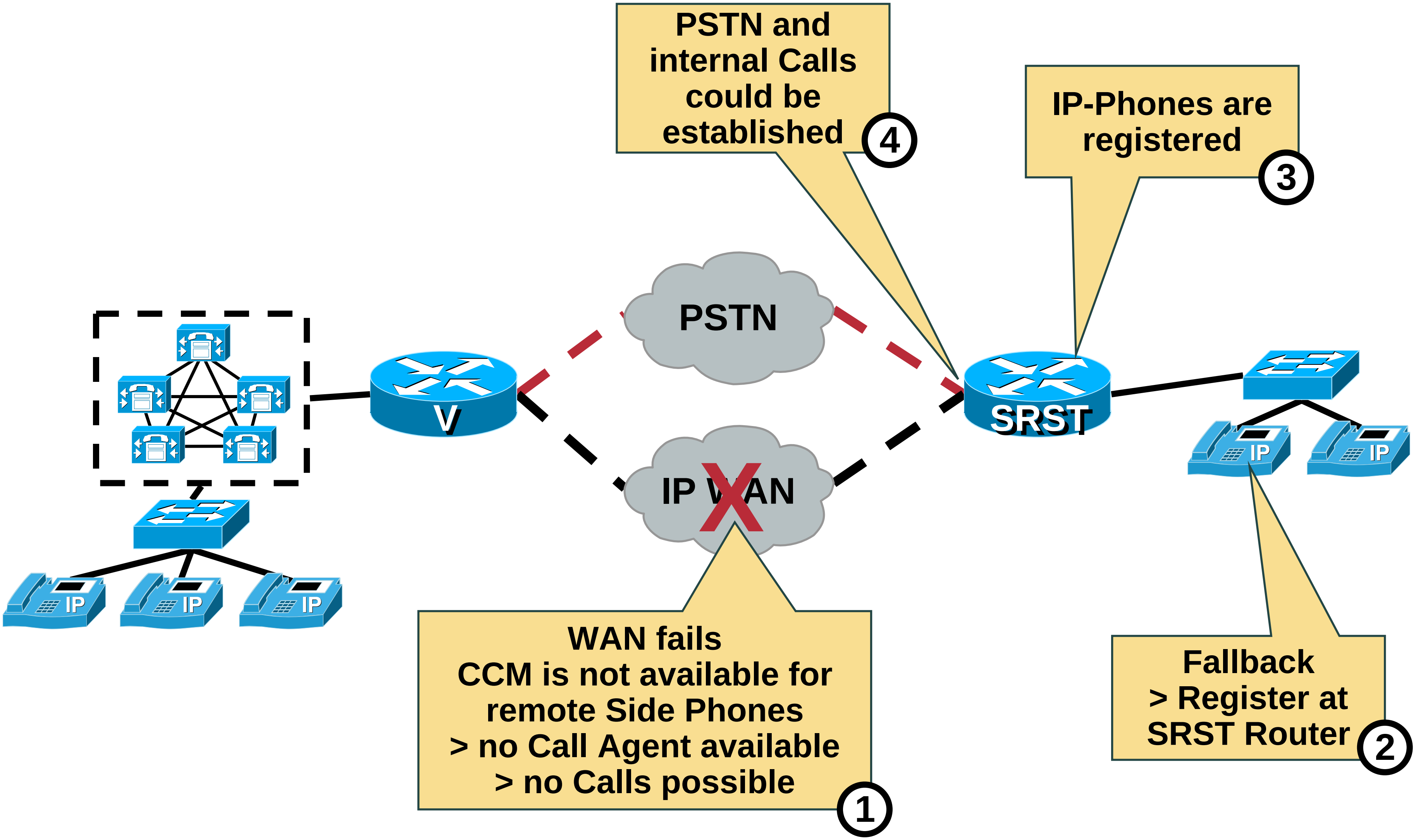
- Overview of SRST Gateways
- SRST Features and Capabilities
- SRST Phone Registration Process
- Configuring SRST for SCCP Support
- Configuring Additional SRST Features for SCCP
- Configuring SRST for SIP Support
- Configure Cisco Unified CallManager for SRST
- Verifying SRST Operation

Overview of SRST Gateways

SRST offers basic phone functionality (Placing and Receiving calls) for remote sites to guard against these possibilities:

- Centralized CallManager goes down
  - WAN failure
  - Server breakdown
- Different features set for SCCP and SIP SRST
  - SIP SRST is very basic

SRST Functionality


PSTN
IP WAN
V
SRST
IP
IP
IP
IP
IP

PSTN and internal Calls could be established ④

IP-Phones are registered ③

WAN fails
CCM is not available for remote Side Phones
> no Call Agent available
> no Calls possible ①

Fallback
> Register at SRST Router ②

SRST Benefits

- Business resiliency through redundant, localized call processing
- Intelligent and automatic failover configuration—no manual IT or telecom intervention required
- Cost-effective operations through a converged voice and data network
- Centralized IP Communication configuration and management
- Investment protection and ease of migration

SRST Gateway Capacity

SRST gateway capacity depends on:

- Deployed platform
  - CPU
  - Memory
- IOS Version

Visit the following link for more information:

http://www.cisco.com/univercd/cc/td/doc/product/voice/srst/index.htm

Supported Phones

Most Cisco IP phones are supported when using SRST:

- **Ensure that all deployed phones in a SRST site are actually supported.**

Visit the following link for more information:

http://www.cisco.com/univercd/cc/td/doc/product/voice/srst/index.htm

SRST Features

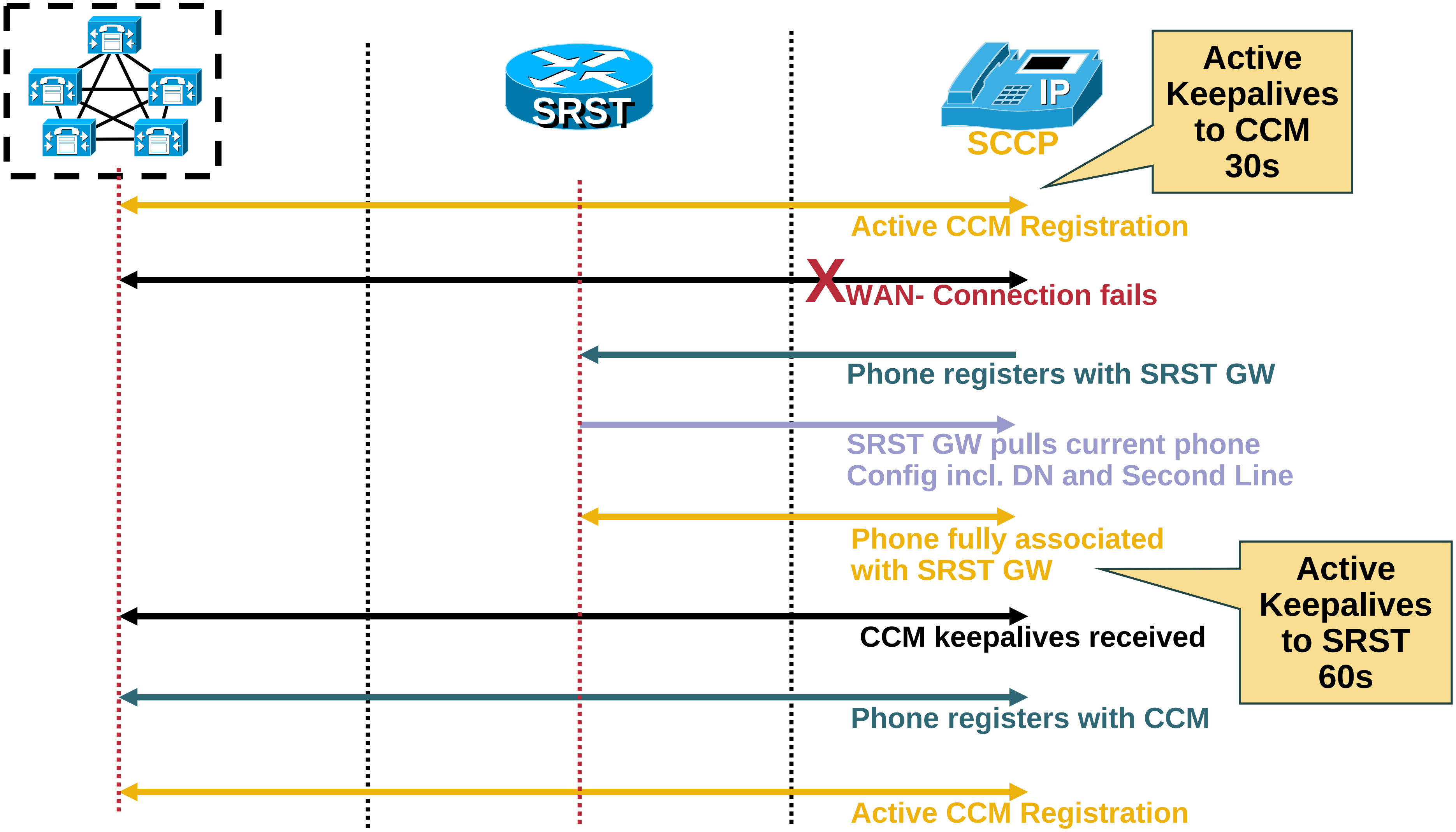
The following is a partial list of SRST features:

- Basic phone calls
- Multiple lines per IP phone
- Consultative call transfer, call hold, pickup and hunt groups
- Caller ID information and ANI support
- Additional language options
- Customized system message
- Multicast MoH from flash and Live-feed
- Secure SRST
- Video

Visit the following link for more information:

http://www.cisco.com/univercd/cc/td/doc/product/voice/srst/index.htm

SRST Phone Registration Process



Active Keepalives to CCM 30s

Active CCM Registration

WAN- Connection fails

Phone registers with SRST GW

SRST GW pulls current phone Config incl. DN and Second Line

Phone fully associated with SRST GW

Active Keepalives to SRST 60s

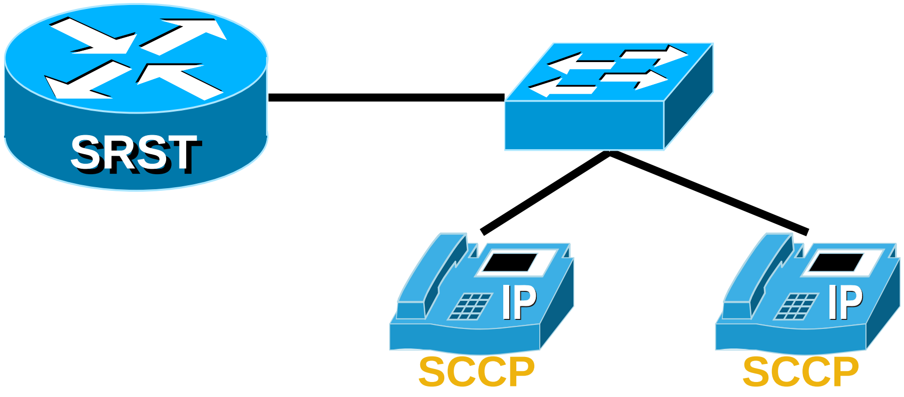
CCM keepalives received

Phone registers with CCM

Active CCM Registration

Configuring SRST for SCCP Support

1. Enter SRST Configuration mode
2. Define IP Address and Port SRST Service binds to
3. Define Maximum Number of DN to support
4. Define Maximum Number of IP-Phones to support



SRST Commands

```
router(config)#
```

```
call-manager-fallback
```

- **Enters call-manager-fallback configuration mode.**

```
router(config-cm-fallback)#
```

```
ip source-address ip-address [port port][any-match |
strict-match]
```

- **Enables the router to receive messages from the Cisco IP phones through the specified IP addresses and provides for strict IP address verification.**
  - **The default port number is 2000**

SRST Commands (cont.)

```
router(config-cm-fallback)#
```

```
max-dn max-directory-numbers [dual-line] [preference
preference-order]
```

- Sets the maximum number of directory numbers (DNs) or virtual voice ports that can be supported by the router and activates the dual-line mode

```
router(config-cm-fallback)#
```

```
max-ephones max-phones
```

- Configures the maximum number of Cisco IP phones that can be supported by the router.

Sample Router Configuration

Sample configuration:

```
Password:
Router2>ena
Password:
Router2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router2(config)#call-manager-fallback
Router2(config-cm-fallback)# ip source-address 192.168.2.254 port 2000
Router2(config-cm-fallback)# max-ephones 10
Router2(config-cm-fallback)# max-dn 10
Router2(config-cm-fallback)#
```

Configuring Additional SRST Features for SCCP

```
Router(config-cm-fallback)#
```

```
user-locale country-code
```

- **Selects a language by country for displays on the Cisco IP Phone 7940 and Cisco IP Phone 7960.**

```
Router(config-cm-fallback)#
```

```
max-conferences max-conference-numbers
```

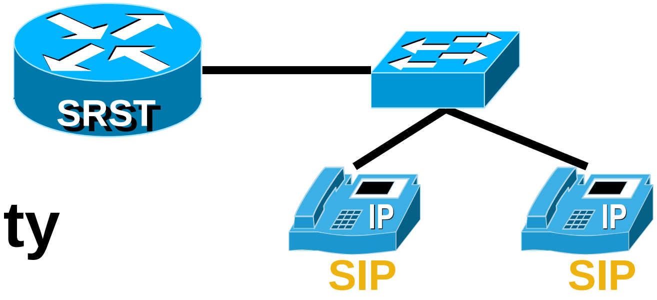
- **Sets the maximum number of simultaneous three-party conferences supported by the router.**

Sample Router Configuration

Sample configuration:

```
Password:
Router2>ena
Password:
Router2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router2(config)#call-manager-fallback
Router2(config-cm-fallback)# max-conferences 4
Router2(config-cm-fallback)# user-locale DE
```

Configuring SRST for SIP Support



1. Enter voice service configuration mode
2. Allow SIP to SIP calls
3. Enter SIP configuration mode
4. Enable SIP registrar functionality
5. Configure a voice register pool
6. Define Phones in register pool
7. Enter voice register global configuration mode
8. Define maximum number of register pools supported

Configuring SIP SRST commands

```
router(config)#
```

```
voice service voip
```

- Enters voice service configuration mode

```
router(config-voi-srv)#
```

```
allow-connections sip to sip
```

- Enables VoIP-to-VoIP call connections.

```
router(config-voi-srv)#
```

```
sip
```

- Enters SIP configuration mode.

Configuring SIP SRST commands (cont.)

```
router(conf-serv-sip)#
registrar server [expires [max sec] [min sec]]
```

- Enables SIP registrar functionality.

```
router(config)#
voice register pool tag
```

- Enters voice register pool configuration mode for SIP phones

```
router(config-register-pool)#
id {network address mask mask | ip address mask mask | mac
address}
```

- Explicitly identifies a locally available individual or set of SIP IP phones

Configuring SIP SRST commands (cont.)

```
router(config)#
```

```
voice register global
```

- Enters voice register global configuration mode to set global parameters for all supported Cisco SIP IP phones in a Cisco SIP SRST environment.

```
router(config-register-global)#
```

```
max-pool max-voice-register-pools
```

- Sets the maximum number of SIP voice register pools that are supported in a Cisco SIP SRST environment.

Sample Router Configuration

Sample configuration:

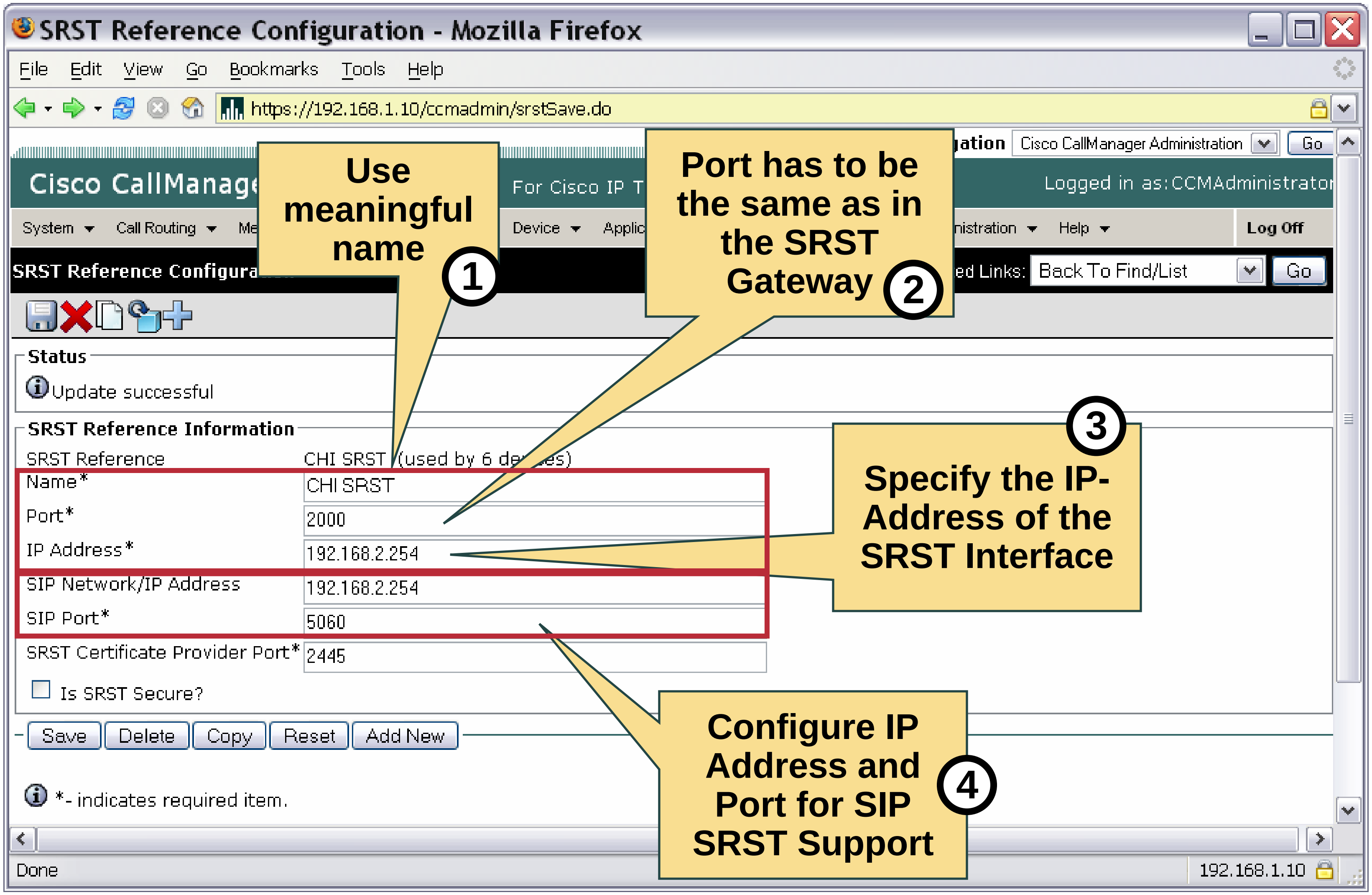
```
!
voice service voip
 allow-connections sip to sip
 sip
  registrar server
!
voice register global
 max-pool 10
!
voice register pool  1
 id network 192.168.0.0 mask 255.255.0.0
!
```

Configure Cisco Unified CallManager for SCCP SRST

IP-Phones have to be provided with a SRST Reference to use it as a fallback

1. **Add a SRST Reference**
2. **Assign the SRST Reference to IP-Phones through the Device- Pool**
3. **Reset Devices to pull the new configuration**

SRST Reference in Cisco Unified CallManager


SRST Reference Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/srstSave.do
Cisco CallManage
For Cisco IP T
Cisco CallManager Administration
Go
Logged in as:CCMAdministrator
System
Call Routing
Me
Device
Applic
nistration
Help
Log Off
SRST Reference Configura
ed Links:
Back To Find/List
Go
Save
Delete
Copy
Reset
Add New
Done
192.168.1.10

Status

Update successful

SRST Reference Information

SRST Reference CHI SRST (used by 6 de es)

Name* CHI SRST

Port* 2000

IP Address* 192.168.2.254

SIP Network/IP Address 192.168.2.254

SIP Port* 5060

SRST Certificate Provider Port* 2445

☐ Is SRST Secure?

*- indicates required item.

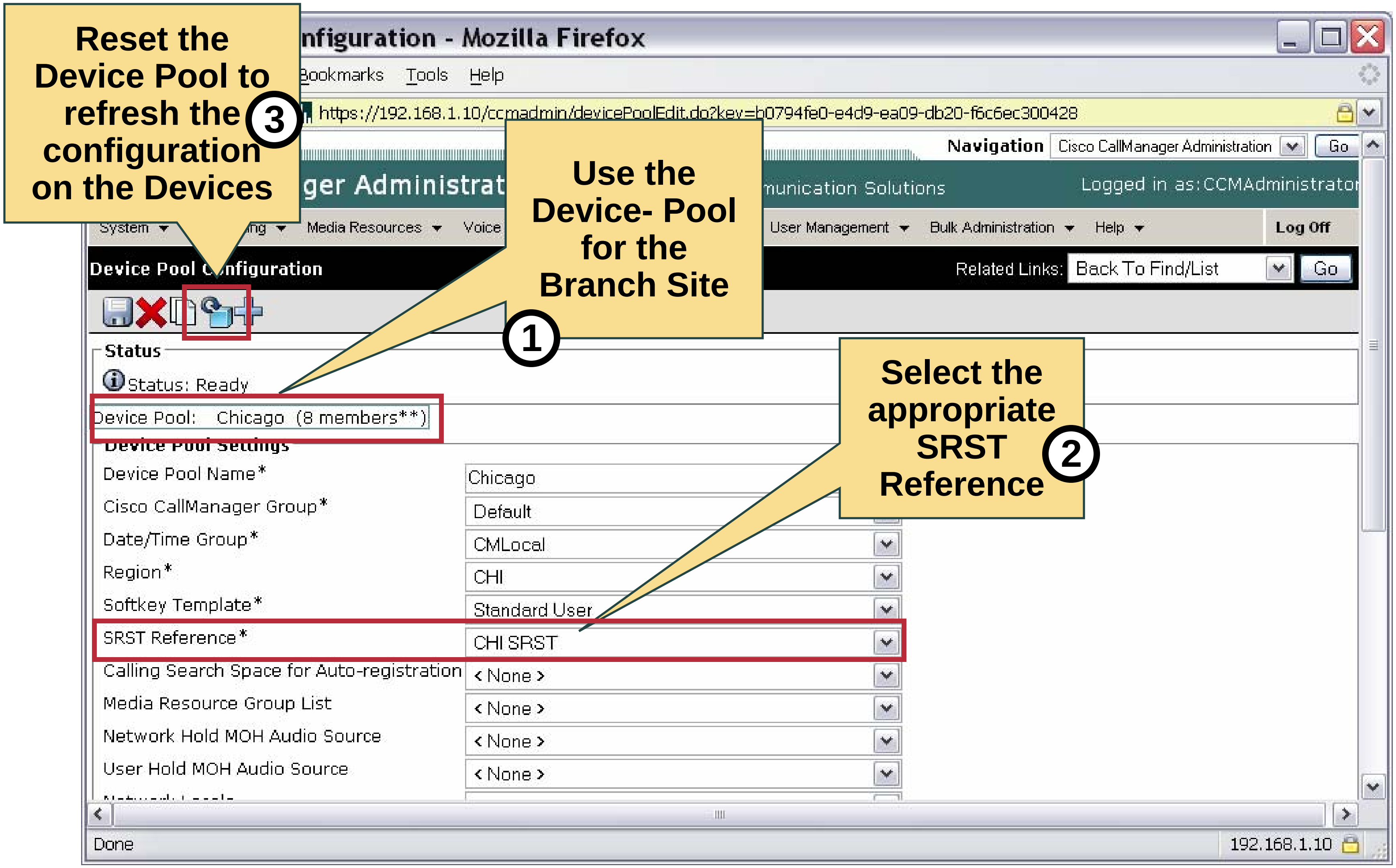
① Use meaningful name

② Port has to be the same as in the SRST Gateway

③ Specify the IP-Address of the SRST Interface

④ Configure IP Address and Port for SIP SRST Support

SRST Reference Association in Device Pools



nfiguration - Mozilla Firefox
Bookmarks Tools Help
https://192.168.1.10/ccmadmin/devicePoolEdit.do?key=b0794fe0-e4d9-ea09-db20-f6c6ec300428
Navigation Cisco CallManager Administration Go
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munication Solutions
Logged in as:CCMAdministrator
System
ing
Media Resources
Voice
User Management
Bulk Administration
Help
Log Off
Device Pool Configuration
Related Links: Back To Find/List Go
Done
192.168.1.10

Status

Status: Ready

Device Pool: Chicago (8 members**)

Device Pool Settings

Device Pool Name*	Chicago
Cisco CallManager Group*	Default
Date/Time Group*	CMLocal
Region*	CHI
Softkey Template*	Standard User
SRST Reference*	CHI SRST
Calling Search Space for Auto-registration	< None >
Media Resource Group List	< None >
Network Hold MOH Audio Source	< None >
User Hold MOH Audio Source	< None >

① Use the Device- Pool for the Branch Site

② Select the appropriate SRST Reference

③ Reset the Device Pool to refresh the configuration on the Devices

Verifying SRST Operation

```
router#
show running-config
```

- command to verify the configuration

```
router#
show call-manager-fallback all
```

- command to verify that the Cisco SRST feature is enabled.

```
router#
show ephone
```

- command to display the Cisco IP phones that have registered to the Cisco SRST router

Verifying SRST Operation (cont.)

```
router#
debug ephone register
```

- command to display the Cisco IP phones that have registered to the Cisco SRST router

Verifying on IP- Phones

- Use network Settings display on the Cisco IP phones to verify that the SRST Device on the phones matches the IP address of the Cisco SRST router
- Cisco IP phones display a message informing you that they are operating in Cisco Unified CallManager fallback mode

Verifying SRST Operation (cont.)

Sample configuration:

```
Router2#show running-config
Building configuration...
!
!
call-manager-fallback
 max-conferences 4 gain -6
 user-locale DE
 ip source-address 192.168.2.254 port 2000
 max-ephones 10
 max-dn 10
!
!
```

Summary

- SRST is a way in Cisco IP Communication Environments to ensure operation of the remote branch site phones even if the Cisco Unified CallManager is not available
- Basic Telephony Features could be assured
- In Fallback mode the Gateway pulls the current Configuration of the IP Phones
- For Basic Operation only a IP Address and port where service binds to have to be defined.
- Additionally the maximum of SRST Phones and DN‘s have to be configured cause per default they are zero.

Summary (cont.)

- SRST Features are mainly derived from the CCME Feature set.
- For operating as a SIP SRST device the registrar service on the router has to be enabled.
- In Cisco Unified CallManager a SRST Reference is added and then provided to the IP phones through the Device Pool.
- IP Access Lists can help verify SRST operation, but in Lab Environment just shutting down the CallManager Service may be the easier way.

CISCO SYSTEMS

Cisco Unified CallManager 5.0 Features and Applications

Introducing Cisco Unified CallManager 5.0 Applications

Objectives

- Application Overview
- Cisco Unified CallManager 5.0 Out-of-the-Box Applications
- IP Manager Assistant Overview
- Extension Mobility Overview
- Attendant Console Overview
- Presence Overview
- Cisco Applications
- 3rd Party Applications

Application Overview

Cisco Unified CallManager is a full featured, application rich Unified Communication System:

- Comes with applications that cover the need of today's communications
- Seamlessly integrated with Cisco Unified CallManager
- Integrated in system testing and development
- There is no additional licensing needed
- All applications that are built in could be used at no additional cost

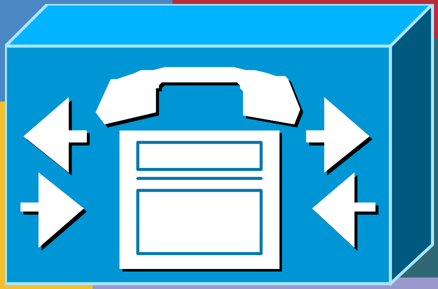
Cisco Unified CallManager 5.0 Out-of-the-Box Applications

IPMA

Manager Assistant Application
to enhance productivity and
cover needs of executive stuff

Extension Mobility

IP Phone Service
to cover mobility needs



Web Dialer

Click to Dial Application
for end-users

Attendant Console

PC Application
to cover the needs of the
receptionist or switchboard

3rd Party Applications

API
interfaces
to support 3rd Party
Application Developments

IP Manager Assistant Overview

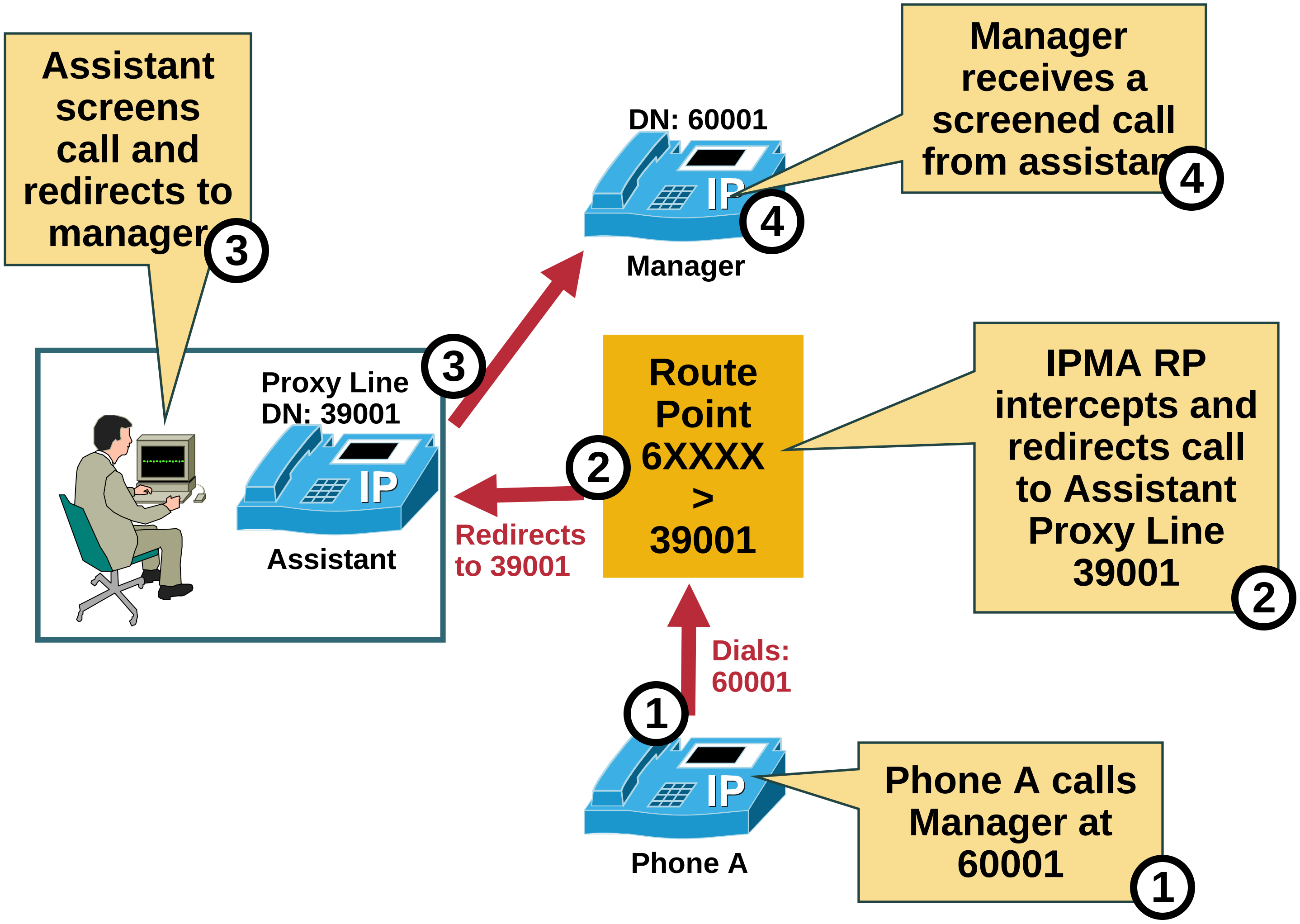
Enables managers and assistants to work together more effectively

- Enhanced phone capabilities for the manager and assistant.
- Available desktop interfaces that are primarily used by the assistant.

Cisco IPMA supports two modes of operation:

- proxy line mode
- shared line mode

IPMA Overview: Proxy Line Mode



Assistant screens call and redirects to manager ③

DN: 60001

Manager ④

Manager receives a screened call from assistant ④

Proxy Line
DN: 39001 ③

Assistant

Redirects to 39001 ②

Route Point
6XXXX
>
39001

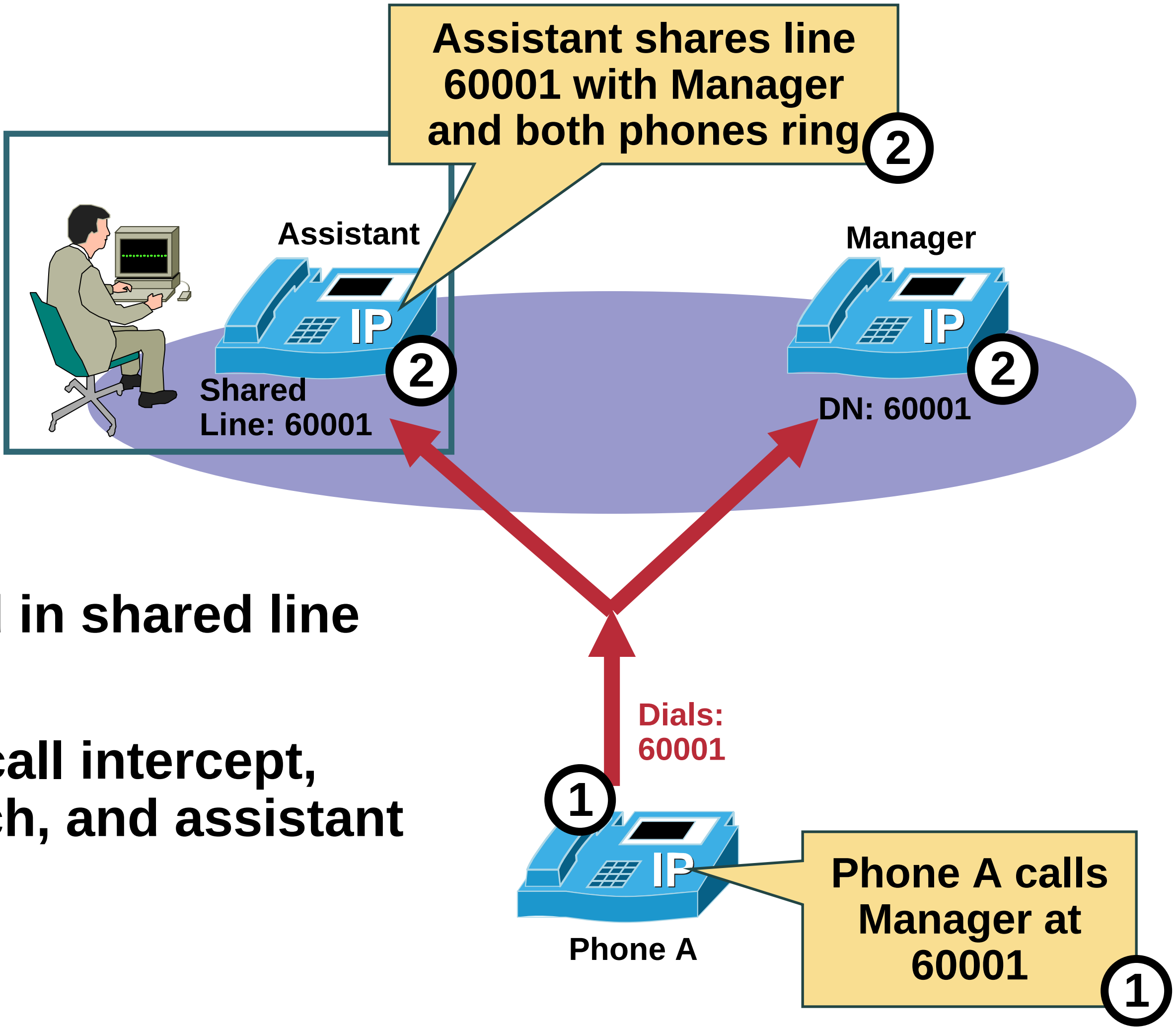
IPMA RP intercepts and redirects call to Assistant Proxy Line 39001 ②

Dials: 60001

① Phone A

Phone A calls Manager at 60001 ①

IPMA Overview: Shared Line Mode



Assistant shares line 60001 with Manager and both phones ring ②

Assistant
Shared Line: 60001
②
Manager
DN: 60001
②
Dials: 60001
①
Phone A

Phone A calls Manager at 60001 ①

Not supported in shared line mode:

Call filtering, call intercept, assistant watch, and assistant selection

IPMA Overview

Features for Managers Phones:

- Use these Softkeys
  - ImmDiv - Immediately diverts the Call
  - DivAll - Diverts all Calls
  - DND - Mute ring tone immediately

Proxy line mode features

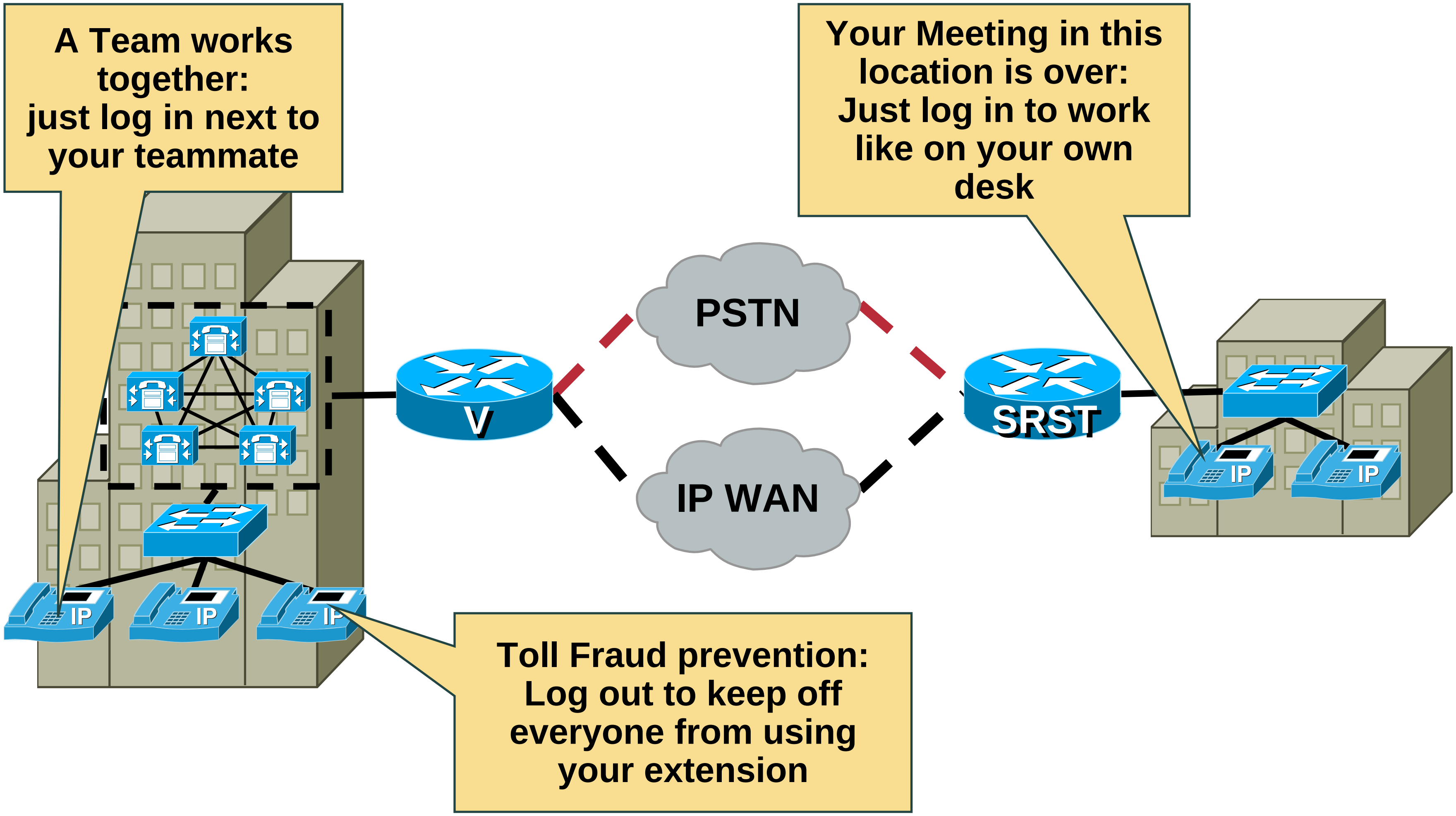
- Call routing services are unique to proxy line mode
  - Call filtering, call intercept, assistant watch, and assistant selection
  - SetWtch - Monitor Assistant Line

Extension Mobility Overview

Extension Mobility is an IP phone Service

- It is available through the service button
- Use your userID and PIN for authentication
- Users can get their usual extension speed-dials and services by logging in to an IP phone
- Users can prevent toll-fraud by logging out their phones
- You are able to work and to be available everywhere in your companies IP network under your own DN

Extension Mobility Usage Examples



PSTN
IP WAN
V
SRST
IP
IP
IP
IP
IP

A Team works together:
just log in next to your teammate

Your Meeting in this location is over:
Just log in to work like on your own desk

Toll Fraud prevention:
Log out to keep off everyone from using your extension

Extension Mobility Overview

SCCP versus SIP Phone Support

- Support for EM on SCCP phones 7970/71, 7960/7961, 7940/41, 7920, 7912/11/05
- Support for EM on SIP phones is limited to enhanced phones 7970/71, 7961/41, 7911

New Features with CCM 5.0

- Ability to clear the call logs (missed, received, dialed) during manual EM login and Logout
- Can be configured using a cluster wide service parameter

Extension Mobility Overview

Restrictions/ Caveats:

- EM is supported only within a single cluster, there is no support for multiple/distributed call processing deployments.
- EM users should not move between locations or sites within a cluster when using AAR or the VoPSTN deployment model.
- EM functionality still remains dependent on the Publisher (if it is down users can not login or logout of a phone).

These restrictions have not changed
They exist with CM 4.x too

Attendant Console Overview

Tool for enterprise attendants and receptionists to answer and greet callers, then efficiently dispatch calls

- **PC based Application**
- **Calls can be forwarded or transferred by either an application GUI or an attendants phone**
- **PC application is capable of monitoring line states**
- **Hunt Groups can distribute calls to groups of attendants**
- **Distribution to Hunt Group Members is either circular or broadcast**
- **Queuing can be enabled at pilot points**

Attendant Console Overview
Client GUI Summary

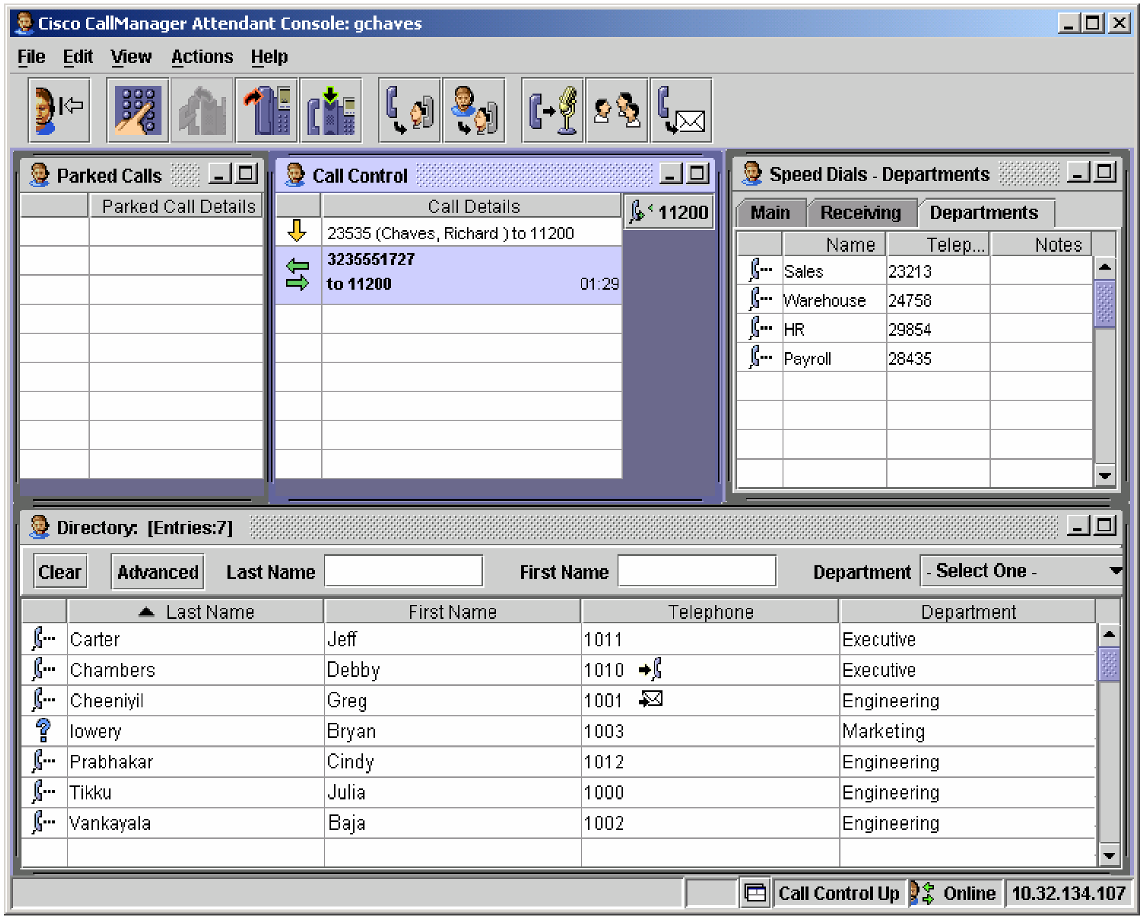
Drag-and-drop hold, transfer

Line states

- Idle line ☎
- Inbound call 🔔
- Hold ↓
- Active ⇆
- Unknown ?

Directory Pane

- Search by any field in the directory
- Sortable columns
- Call Forward status icons ✉ →☎



Cisco CallManager Attendant Console: gchaves

Parked Calls

	Parked Call Details

Call Control

	Call Details
↓	23535 (Chaves, Richard) to 11200
⇆	3235551727 to 11200 01:29

11200

Speed Dials - Departments

	Name	Telep...	Notes
☎	Sales	23213	
☎	Warehouse	24758	
☎	HR	29854	
☎	Payroll	28435	

Directory: [Entries:7]

Last Name

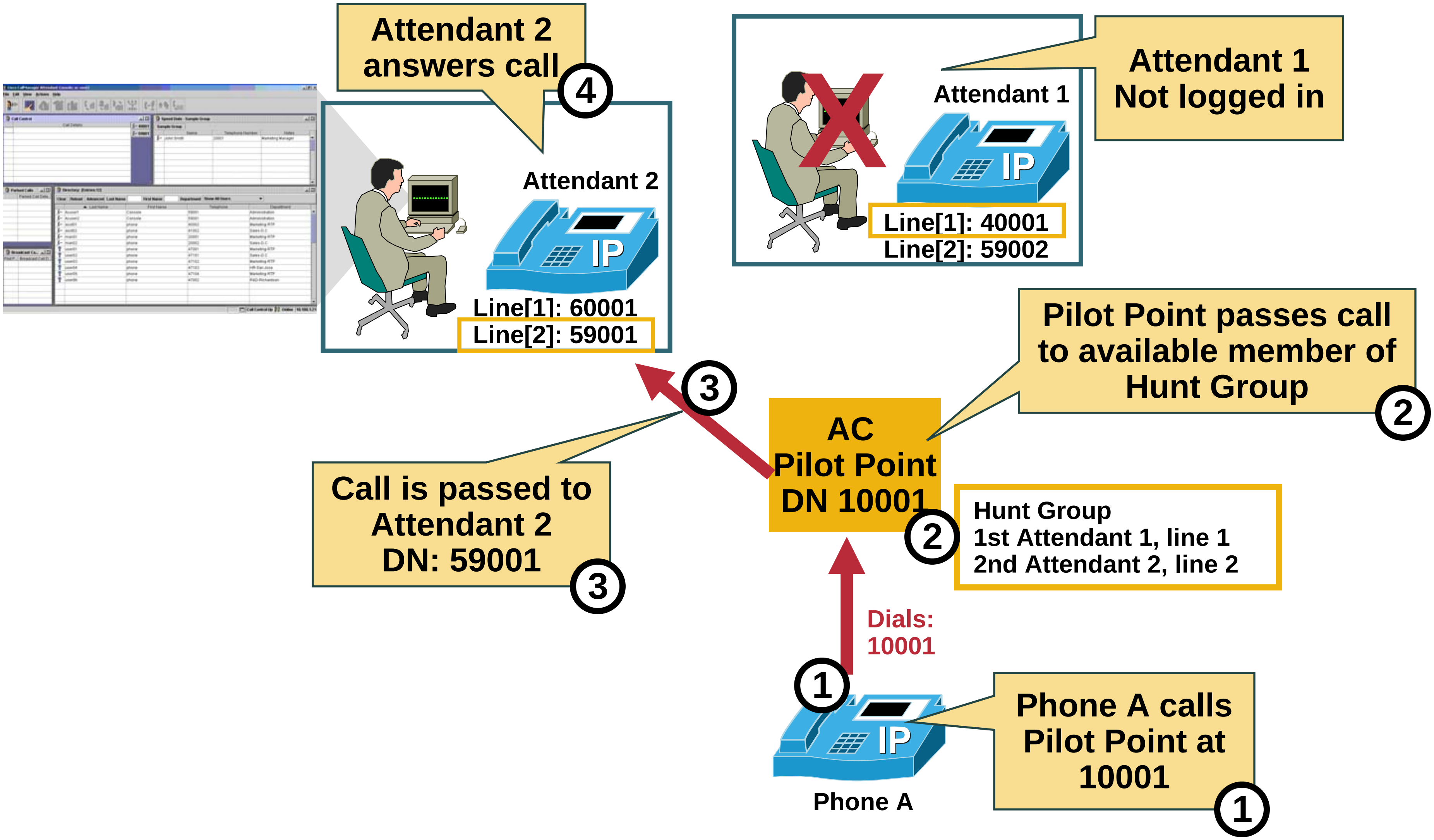
First Name

Department - Select One -

	Last Name	First Name	Telephone	Department
☎	Carter	Jeff	1011	Executive
☎	Chambers	Debby	1010 →☎	Executive
☎	Cheeniyil	Greg	1001 ✉	Engineering
?	lowery	Bryan	1003	Marketing
☎	Prabhakar	Cindy	1012	Engineering
☎	Tikku	Julia	1000	Engineering
☎	Vankayala	Baja	1002	Engineering

Call Control Up Online 10.32.134.107

Attendant Console Overview: Hunt Groups



Phone A calls Pilot Point at 10001 ①

Pilot Point passes call to available member of Hunt Group ②

Call is passed to Attendant 2 DN: 59001 ③

Attendant 2 answers call ④

Attendant 1 Not logged in

Attendant 1
Line[1]: 40001
Line[2]: 59002
Attendant 2
Line[1]: 60001
Line[2]: 59001
AC Pilot Point DN 10001
Hunt Group
1st Attendant 1, line 1
2nd Attendant 2, line 2
Dials: 10001
Phone A
IP

Attendant Console Overview

Restrictions:

- AC is only supported for these SCCP phones (7970/71, 7960/7961, 7940/41, 7912/11/05)
- AC is not supported on SIP phones (existing or enhanced)
- Hunt group members or AC Pilot Points cannot share lines
- Hunt Group members cannot use overlapping extensions

Presence Overview - Introduction

- Presence – Status of a device that is used for communication Examples:
  - Phone on-hook,
  - Busy
  - Unknown
- Cisco Unified CallManager 5.0 supports BLF – Busy Lamp Field:
  - Visible indication of on-hook and busy state.
  - A phone icon or a light that turns on/off

Busy Lamp Field (BLF) Feature

- BLF is configured in the phone button template
- Works like SpeedDial button
- BLF states are indicated by icons and/or LEDs

State	Icon	LED
Idle	☎	**Off**
Busy	📞	**Steady Red**
Unknown	▦	**Off**

BLF Feature Phone Support for Call Manager 5.0

Cisco IP Phones	BLF Status for Call Lists Support	BLF Status for Speed Dial Support
7902, 7905, 7910, 7920, 7935, 7936, 7989, ATA, VG 248	**No**	**No**
7914, 7940, 7960 SCCP	**No**	**Yes**
7970 SIP and SCCP	**Yes**	**Yes**
Enhanced Cisco IP Phones – 7941, 7961, 7971 SIP and SCCP (not released yet)	**Yes**	**Yes**
IP Communicator	**No**	**No**

Additional Cisco Applications

Other Cisco Unified CallManager end user communication enhancing applications:

- **Web Dialer:**
  Click to Dial application accessible through a browser
- **Personal Directory Applications:**
  - **Personal Address Book (PAB)**
  - **Personal Fast Dials (FastDials)**
  - **Administered through the user webpage by the user to service the need for personal directories.**

3rd Party Applications

3rd Party Application Development is driven by API's available from Cisco

- Protocols supported with CCM:
  - SOAP/ AXL/ XML /TAPI /JTAPI
- Developer Guides are available
- Traces could be used for troubleshooting

Summary

- Cisco Unified CallManager is a full featured application rich Unified Communication System that comes with all application available at no additional cost.
- There are many applications already built in plus standard interfaces to support 3rd party applications
- IP Manager Assistant Application could be run in proxy and in shared line mode
- Extension Mobility enables users to have their extension travel with them.
- Attendant Console enables switchboard stuff to quickly forward and transfer calls.
- Presence is the upcoming next step in today's communication and Cisco Unified CallManager takes it.
- API‘s with the support of standard protocols allow 3rd party application development

Cisco Unified CallManager 5.0 Features and Applications

Configuring Extension Mobility

Objectives

- Extension Mobility Configuration Steps
- Extension Mobility Service Configuration
- Extension Mobility Configuration on IP Phone
- Create Profiles
- Configure User for Extension Mobility

Extension Mobility Configuration Steps

Overview of Configuration Steps

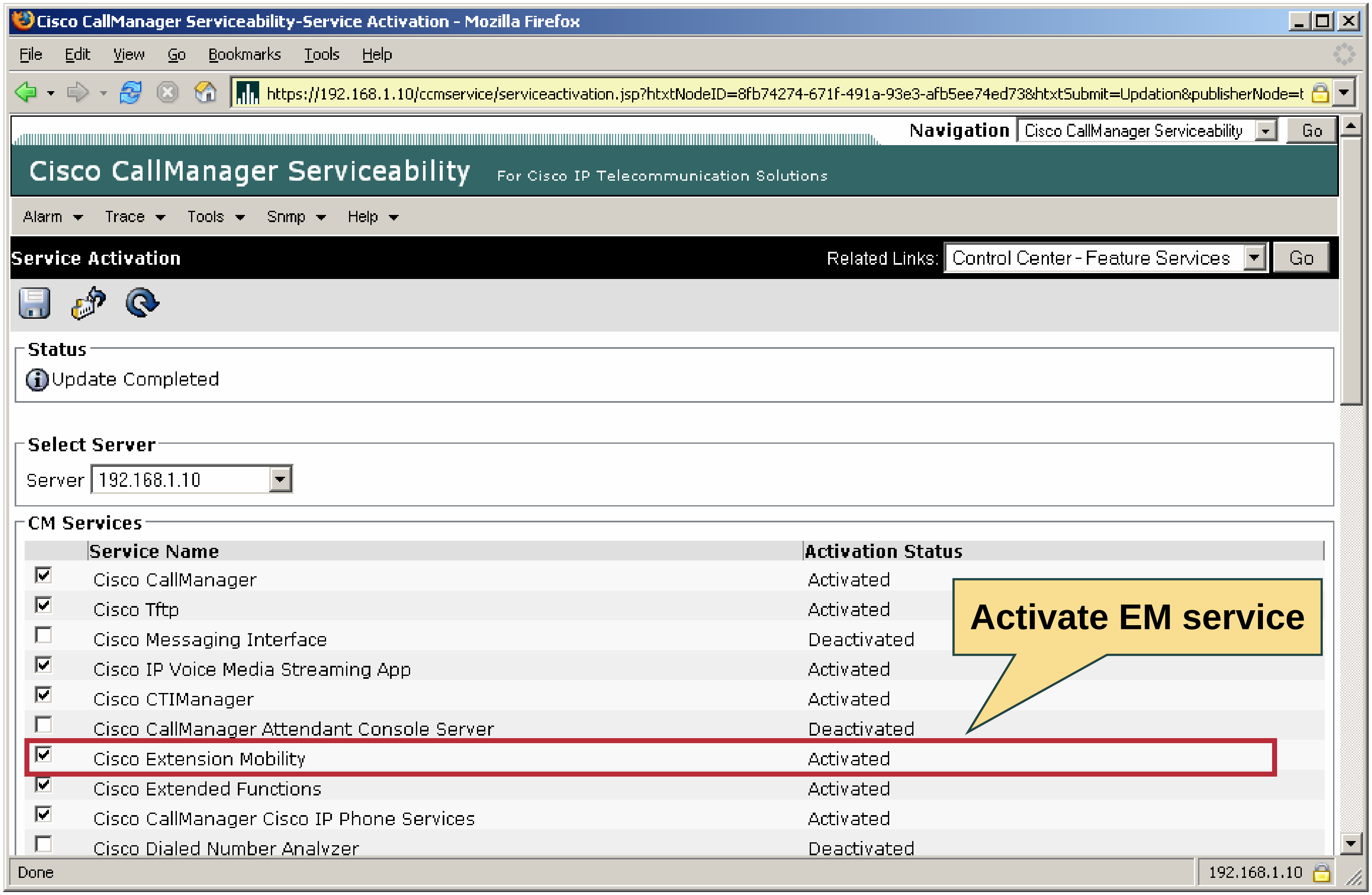
1. Service Activation
2. Create EM IP phone service
3. Create user device profile
4. Associate device profile to user
5. Enable EM and configure default device profile on the target device
6. Subscribe to EM IP phone service on the target device and the user device profile

Extension Mobility Service Configuration

To enable extension mobility on Cisco Unified CallManager 5.0 the following tasks need to be performed:

- **Enable extension mobility service.**
- **Configure extension mobility service parameters.**
- **Add extension mobility device service.**

Extension Mobility Service Configuration: Enable Service


Cisco CallManager Serviceability-Service Activation - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
https://192.168.1.10/ccmservice/serviceactivation.jsp?htxtNodeID=8fb74274-671f-491a-93e3-afb5ee74ed73&htxtSubmit=Updation&publisherNode=t
Navigation
Cisco CallManager Serviceability
Go
Cisco CallManager Serviceability
For Cisco IP Telecommunication Solutions
Alarm
Trace
Tools
Snmp
Help
Service Activation
Related Links:
Control Center - Feature Services
Go
Done
192.168.1.10

Status

Update Completed

Select Server

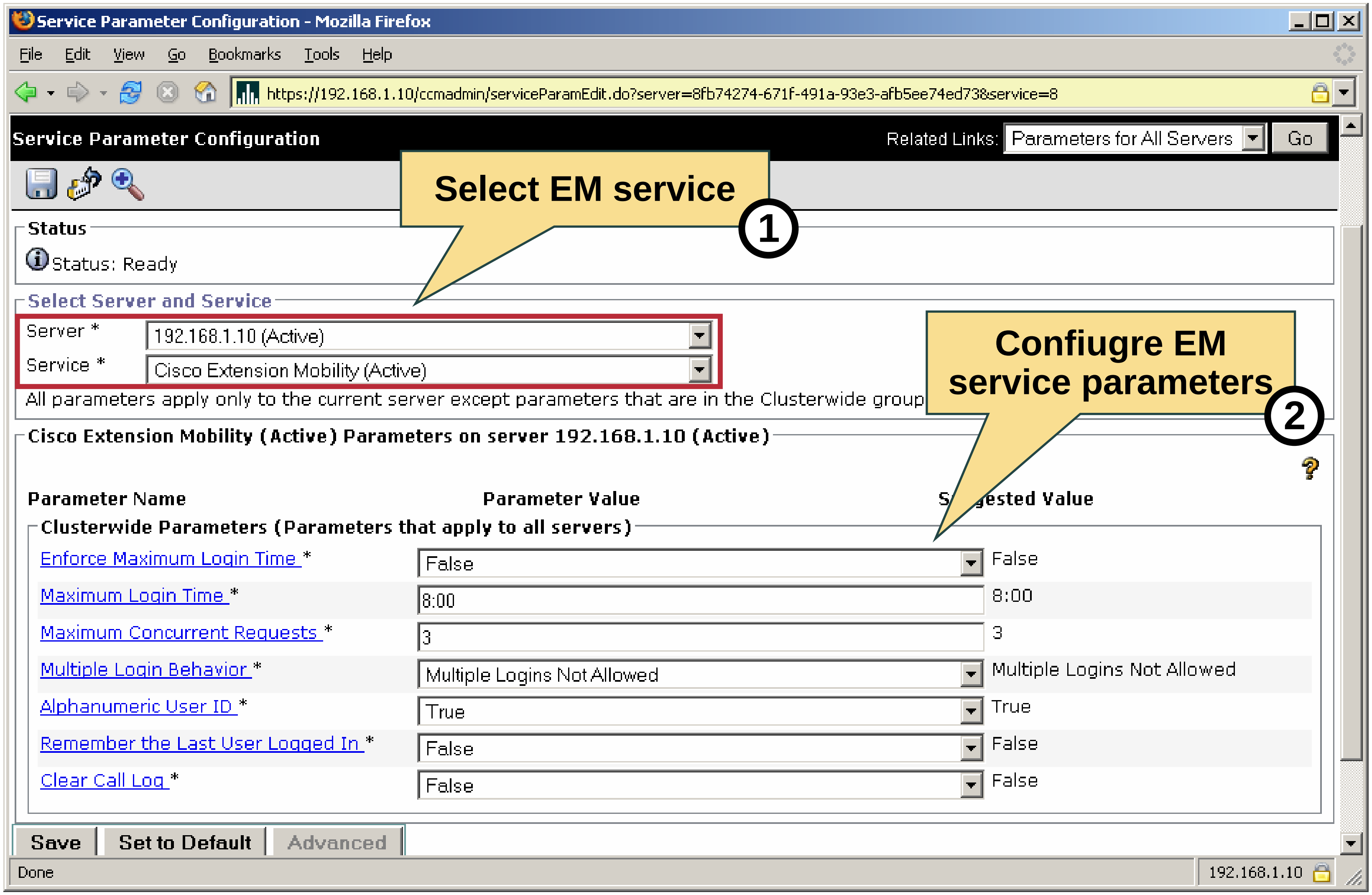
Server 192.168.1.10

CM Services

	Service Name	Activation Status
☑	Cisco CallManager	Activated
☑	Cisco Tftp	Activated
☐	Cisco Messaging Interface	Deactivated
☑	Cisco IP Voice Media Streaming App	Activated
☑	Cisco CTIManager	Activated
☐	Cisco CallManager Attendant Console Server	Deactivated
☑	Cisco Extension Mobility	Activated
☑	Cisco Extended Functions	Activated
☑	Cisco CallManager Cisco IP Phone Services	Activated
☐	Cisco Dialed Number Analyzer	Deactivated

Activate EM service

Extension Mobility Service Configuration: Service Parameters



Service Parameter Configuration - Mozilla Firefox

https://192.168.1.10/ccmadmin/serviceParamEdit.do?server=8fb74274-671f-491a-93e3-afb5ee74ed73&service=8

Service Parameter Configuration

Related Links: Parameters for All Servers | Go

Status

Status: Ready

Select Server and Service

Server * 192.168.1.10 (Active)

Service * Cisco Extension Mobility (Active)

All parameters apply only to the current server except parameters that are in the Clusterwide group

Cisco Extension Mobility (Active) Parameters on server 192.168.1.10 (Active)

Clusterwide Parameters (Parameters that apply to all servers)

Parameter Name	Parameter Value	Suggested Value
Enforce Maximum Login Time *	False	False
Maximum Login Time *	8:00	8:00
Maximum Concurrent Requests *	3	3
Multiple Login Behavior *	Multiple Logins Not Allowed	Multiple Logins Not Allowed
Alphanumeric User ID *	True	True
Remember the Last User Logged In *	False	False
Clear Call Log *	False	False

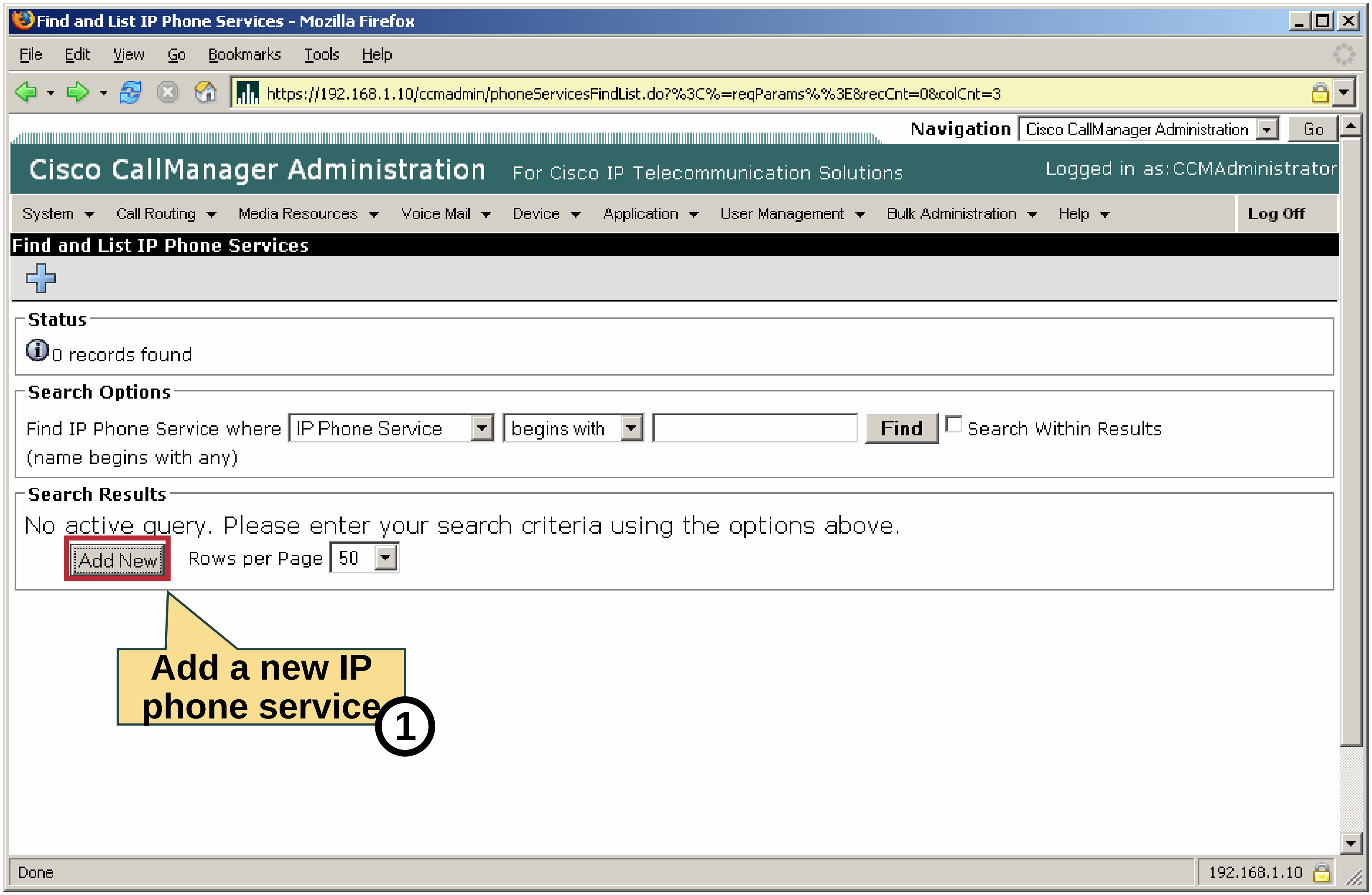
Select EM service ①

Confiugre EM service parameters ②

Extension Mobility Service Configuration: Service Parameters

Field	Settings	Description
Enforce max. logon time	False, True	Enable/disable auto logout after defined time.
Max. logon time	Up to 168:00 hours	Define max. logon time.
Max. concurrent requests	Allowed, Not allowed, Auto Logout	Define if users can/cannot log on to multiple phones, or are logged of from already logged in phone.
Alphanumeric user ID	False, True	Define if alphanumeric user IDs are allowed.
Remember latest logged in	False, True	Define if phones remember last user legged in on EM service logon.
Clear call log	False, True	Define if missed, placed, and received call directories are stored if logging on/off.

Extension Mobility Service Configuration: IP Phone Service


Find and List IP Phone Services - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneServicesFindList.do?%3C%=reqParams%%3E&recCnt=0&colCnt=3
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Find and List IP Phone Services

Status

0 records found

Search Options

Find IP Phone Service where IP Phone Service begins with Find ☐ Search Within Results
(name begins with any)

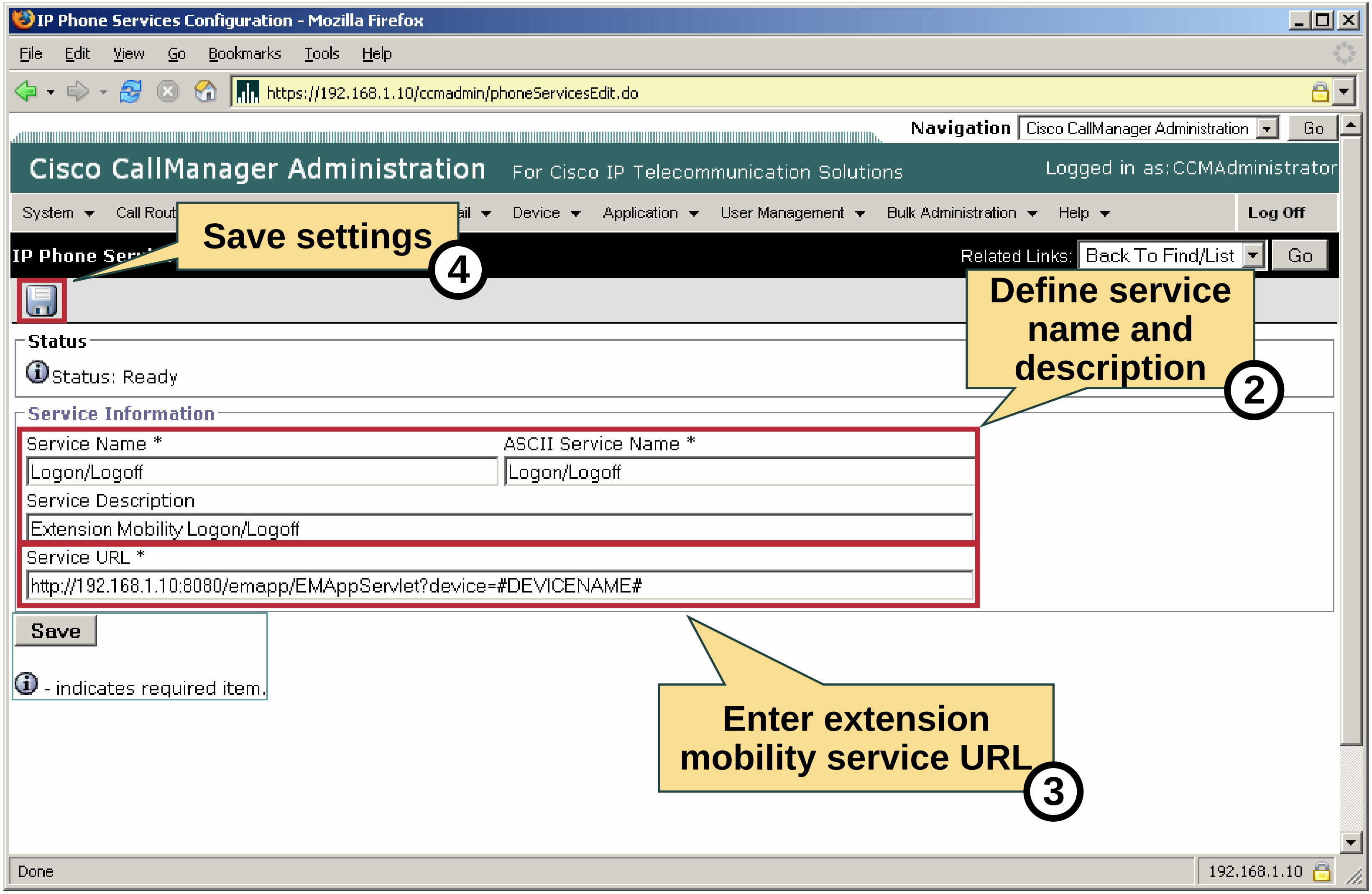
Search Results

No active query. Please enter your search criteria using the options above.

Add New
Rows per Page 50
Done
192.168.1.10

Add a new IP phone service ①

Extension Mobility Service Configuration: IP Phone Service



IP Phone Services Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneServicesEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Rout... Device Application User Management Bulk Administration Help
Log Off
IP Phone Serv...
Related Links: Back To Find/List Go
Save
Done
192.168.1.10

Status

Status: Ready

Service Information

Service Name *	ASCII Service Name *
Logon/Logoff	Logon/Logoff

Service Description: Extension Mobility Logon/Logoff

Service URL *: http://192.168.1.10:8080/emapp/EMAppServlet?device=#DEVICENAME#

* - indicates required item.

② Define service name and description

③ Enter extension mobility service URL

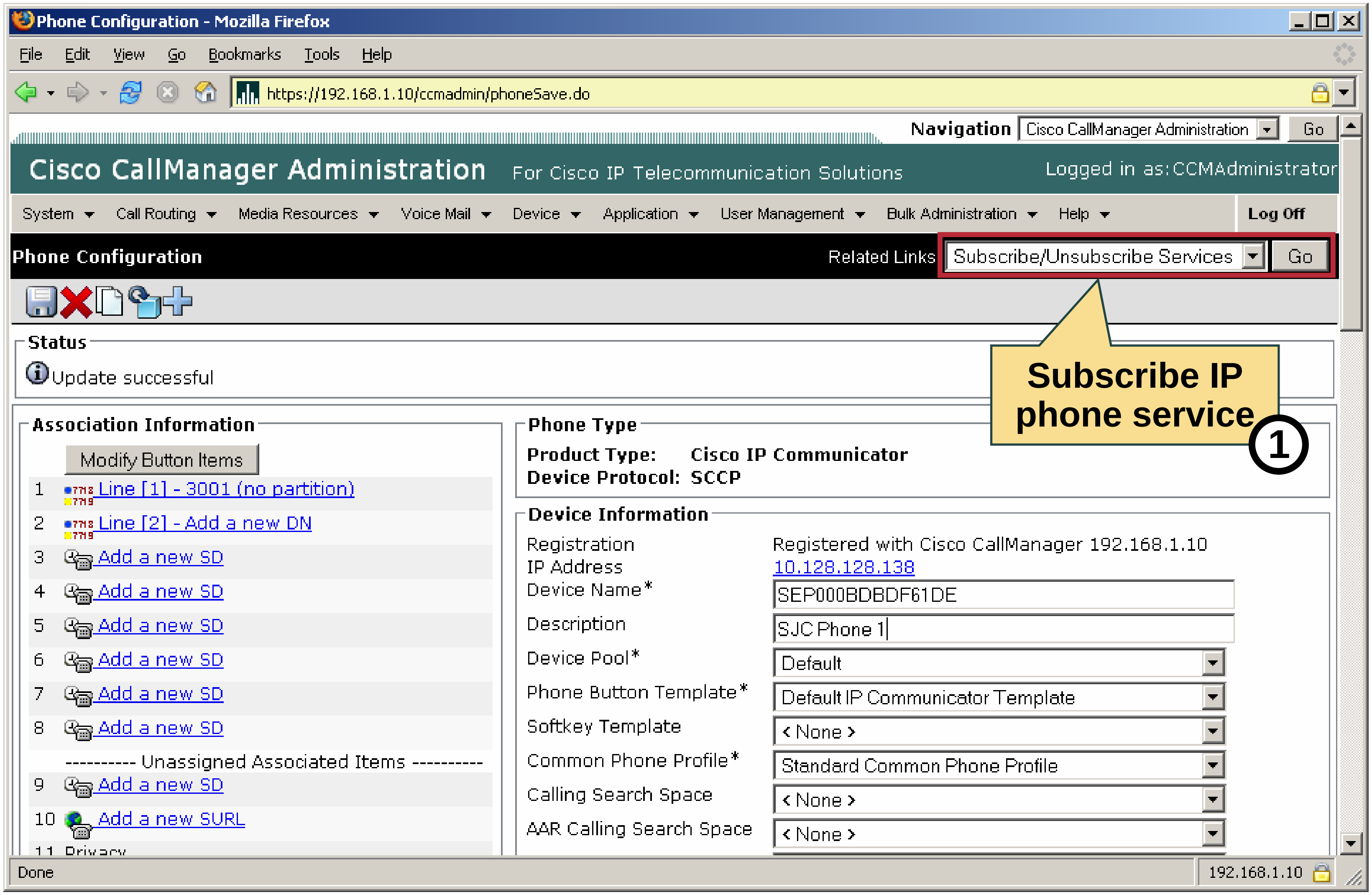
④ Save settings

Extension Mobility Configuration on IP Phone

To enable extension mobility on Cisco IP phones the following tasks need to be performed:

- **Subscribe extension mobility phone service.**
- **Enable extension mobility on the device.**

Extension Mobility Configuration on IP Phone


Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneSave.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Phone Configuration
Related Links Subscribe/Unsubscribe Services Go
Modify Button Items
Done
192.168.1.10

Status

Update successful

Association Information

1 Line [1] - 3001 (no partition)
2 Line [2] - Add a new DN
3 Add a new SD
4 Add a new SD
5 Add a new SD
6 Add a new SD
7 Add a new SD
8 Add a new SD
---------- Unassigned Associated Items ----------
9 Add a new SD
10 Add a new SURL
11 Privacy

Phone Type

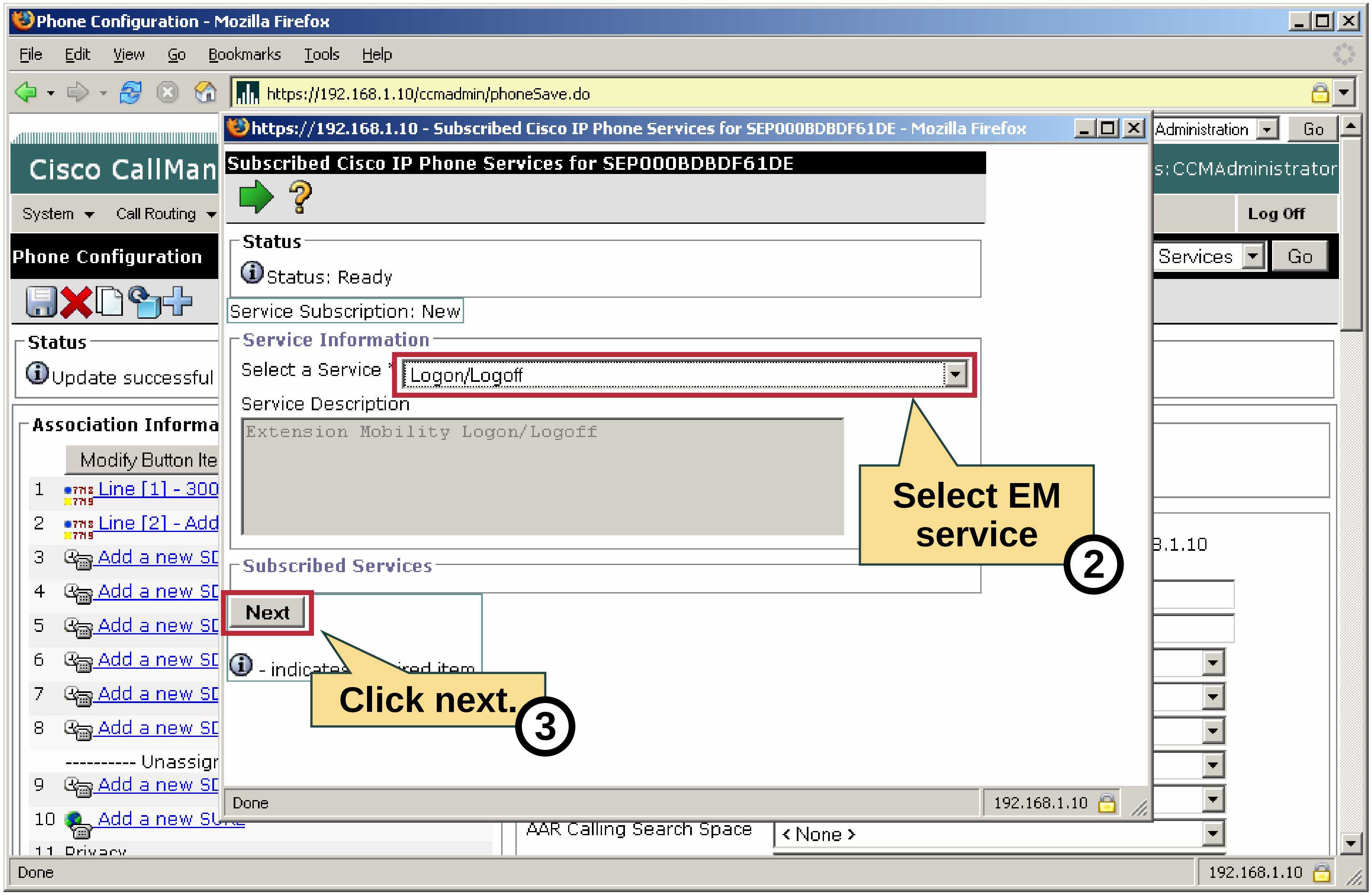
Product Type: Cisco IP Communicator
Device Protocol: SCCP

Device Information

Registration	Registered with Cisco CallManager 192.168.1.10
IP Address	10.128.128.138
Device Name*	SEP000BDBDF61DE
Description	SJC Phone 1
Device Pool*	Default
Phone Button Template*	Default IP Communicator Template
Softkey Template	< None >
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	< None >
AAR Calling Search Space	< None >

Subscribe IP phone service ①

Extension Mobility Configuration on IP Phone



Subscribed Cisco IP Phone Services for SEP000BDBDF61DE

Status: Ready

Service Subscription: New

Service Information

Select a Service *: Logon/Logoff

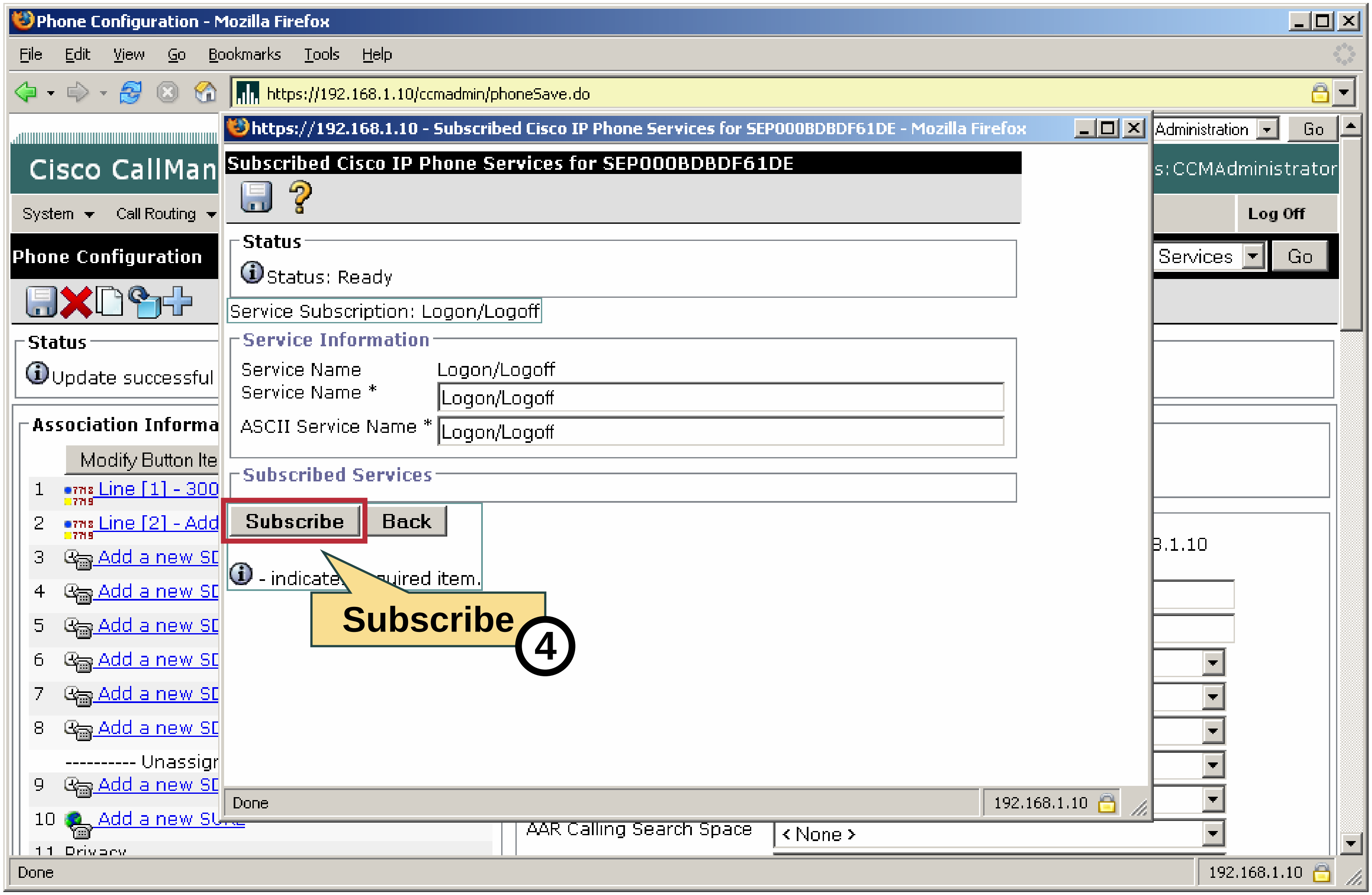
Service Description: Extension Mobility Logon/Logoff

Select EM service ②

Click next. ③

Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneSave.do
https://192.168.1.10 - Subscribed Cisco IP Phone Services for SEP000BDBDF61DE - Mozilla Firefox
Cisco CallMan
System
Call Routing
Phone Configuration
Status
Update successful
Association Informa
Modify Button Ite
Line [1] - 300
Line [2] - Add
Add a new SD
---------- Unassign
Privacy
Subscribed Services
Next
- indicates required item
Done
192.168.1.10
Administration
Go
s:CCMAdministrator
Log Off
Services
AAR Calling Search Space
< None >

Extension Mobility Configuration on IP Phone



Phone Configuration - Mozilla Firefox

https://192.168.1.10/ccmadmin/phoneSave.do

https://192.168.1.10 - Subscribed Cisco IP Phone Services for SEP000BDBDF61DE - Mozilla Firefox

Subscribed Cisco IP Phone Services for SEP000BDBDF61DE

Status

Status: Ready

Service Subscription: Logon/Logoff

Service Information

Service Name Logon/Logoff

Service Name * Logon/Logoff

ASCII Service Name * Logon/Logoff

Subscribed Services

- indicate uired item.

Phone Configuration

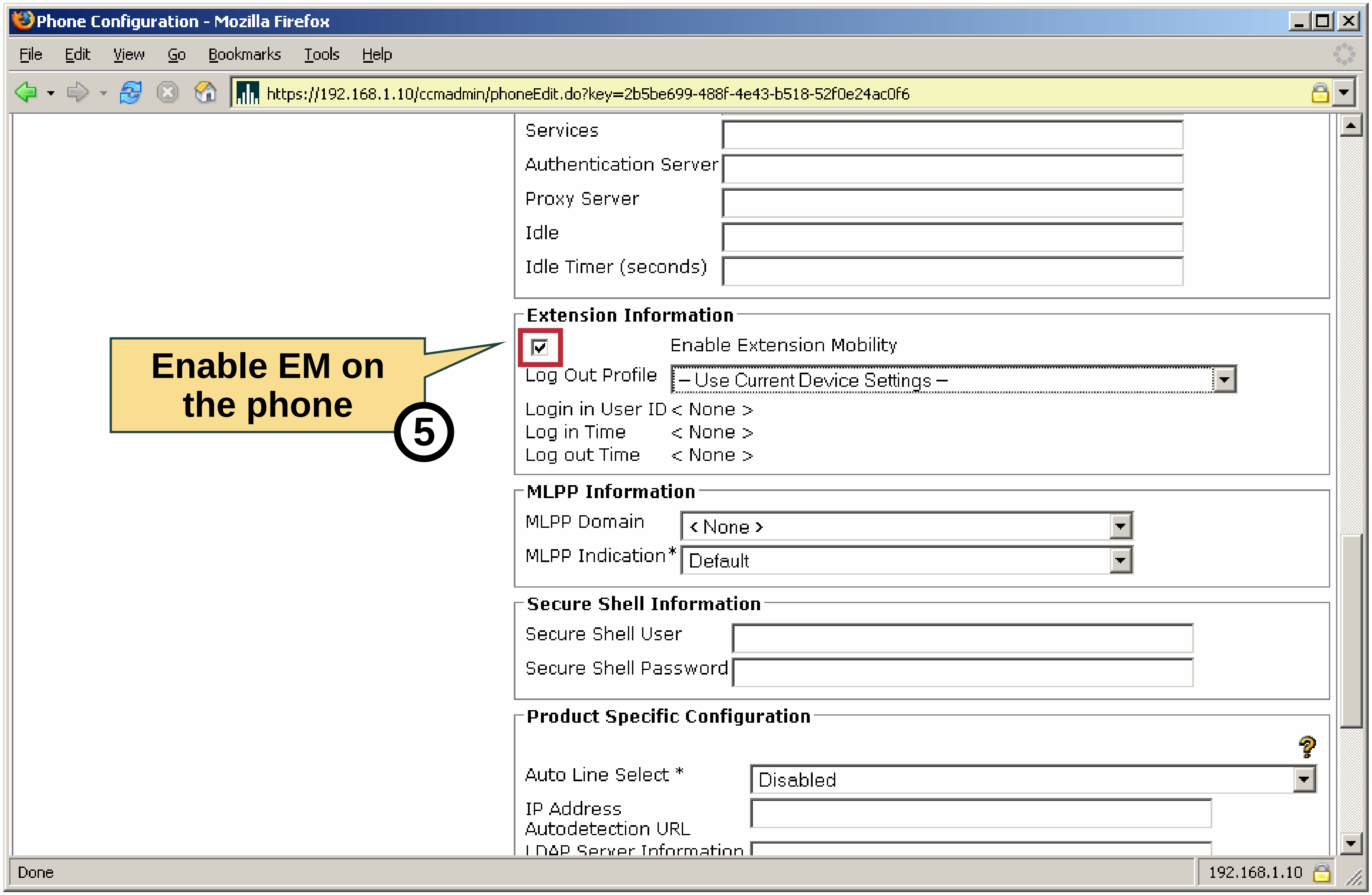
Status

Update successful

AAR Calling Search Space < None >

File
Edit
View
Go
Bookmarks
Tools
Help
Cisco CallMan
System
Call Routing
Administration
Go
s:CCMAdministrator
Log Off
Services
Go
Association Informa
Modify Button Ite
1 Line [1] - 300
2 Line [2] - Add
3 Add a new SD
4 Add a new SD
5 Add a new SD
6 Add a new SD
7 Add a new SD
8 Add a new SD
---------- Unassign
9 Add a new SD
10 Add a new SURL
11 Privacy
3.1.10
Subscribe
Back
Done
192.168.1.10
Subscribe
4

Extension Mobility Configuration on IP Phone


Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneEdit.do?key=2b5be699-488f-4e43-b518-52f0e24ac0f6
Done
192.168.1.10

Services

Authentication Server

Proxy Server

Idle

Idle Timer (seconds)

Extension Information

☑ Enable Extension Mobility

Log Out Profile: – Use Current Device Settings –

Login in User ID < None >

Log in Time < None >

Log out Time < None >

MLPP Information

MLPP Domain: < None >

MLPP Indication*: Default

Secure Shell Information

Secure Shell User

Secure Shell Password

Product Specific Configuration

Auto Line Select *: Disabled

IP Address Autodetection URL

LDAP Server Information

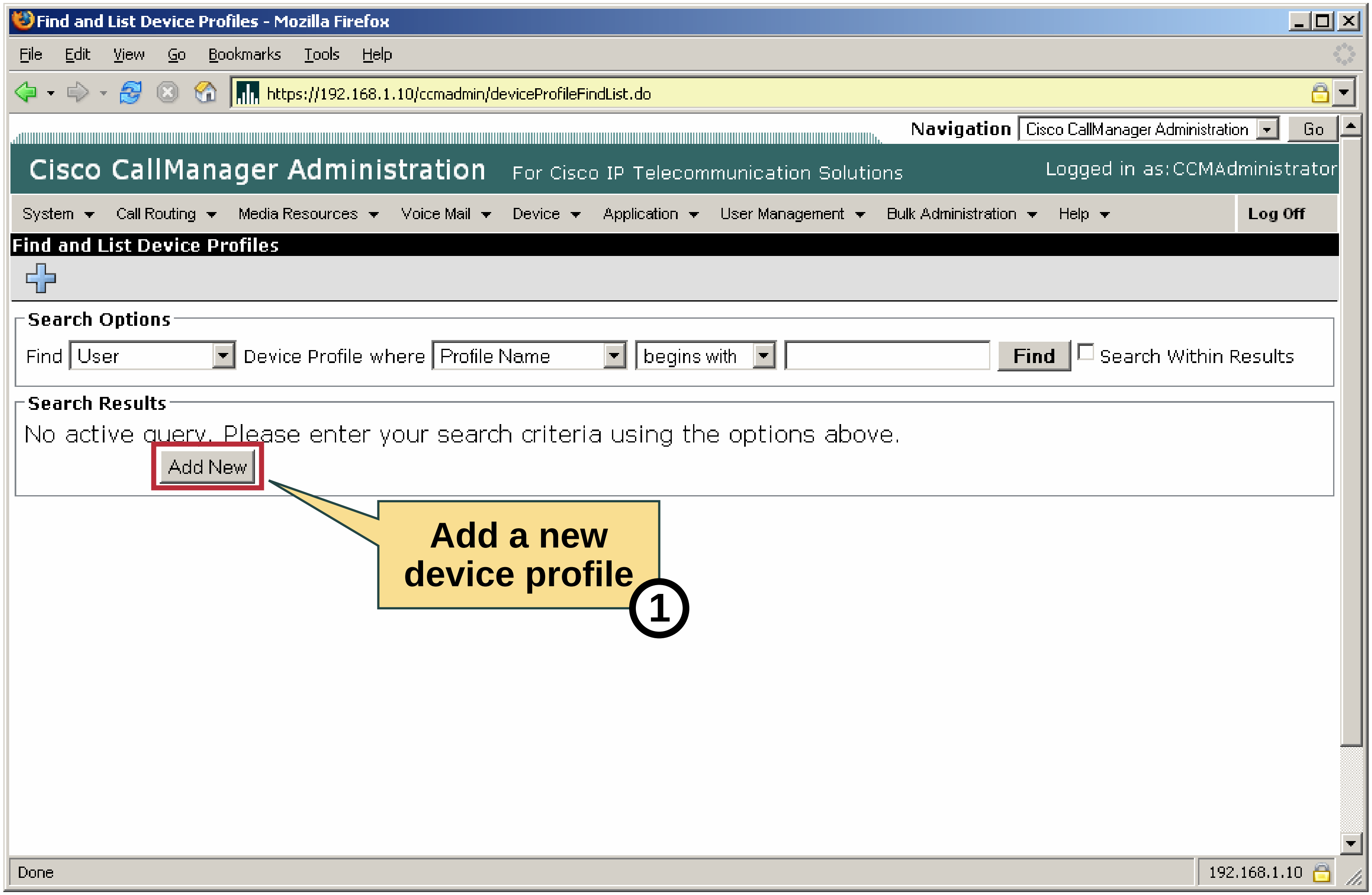
Enable EM on the phone ⑤

Create Profiles

Creating device profiles used by extension mobility is similar to adding new phones:

- **Add a new profile.**
- **Select device type.**
- **Configure device.**
- **Configure line.**
- **Add extension mobility service.**

Create Profiles


Find and List Device Profiles - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/deviceProfileFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Find and List Device Profiles

Search Options

Find User Device Profile where Profile Name begins with Find ☐ Search Within Results

Search Results

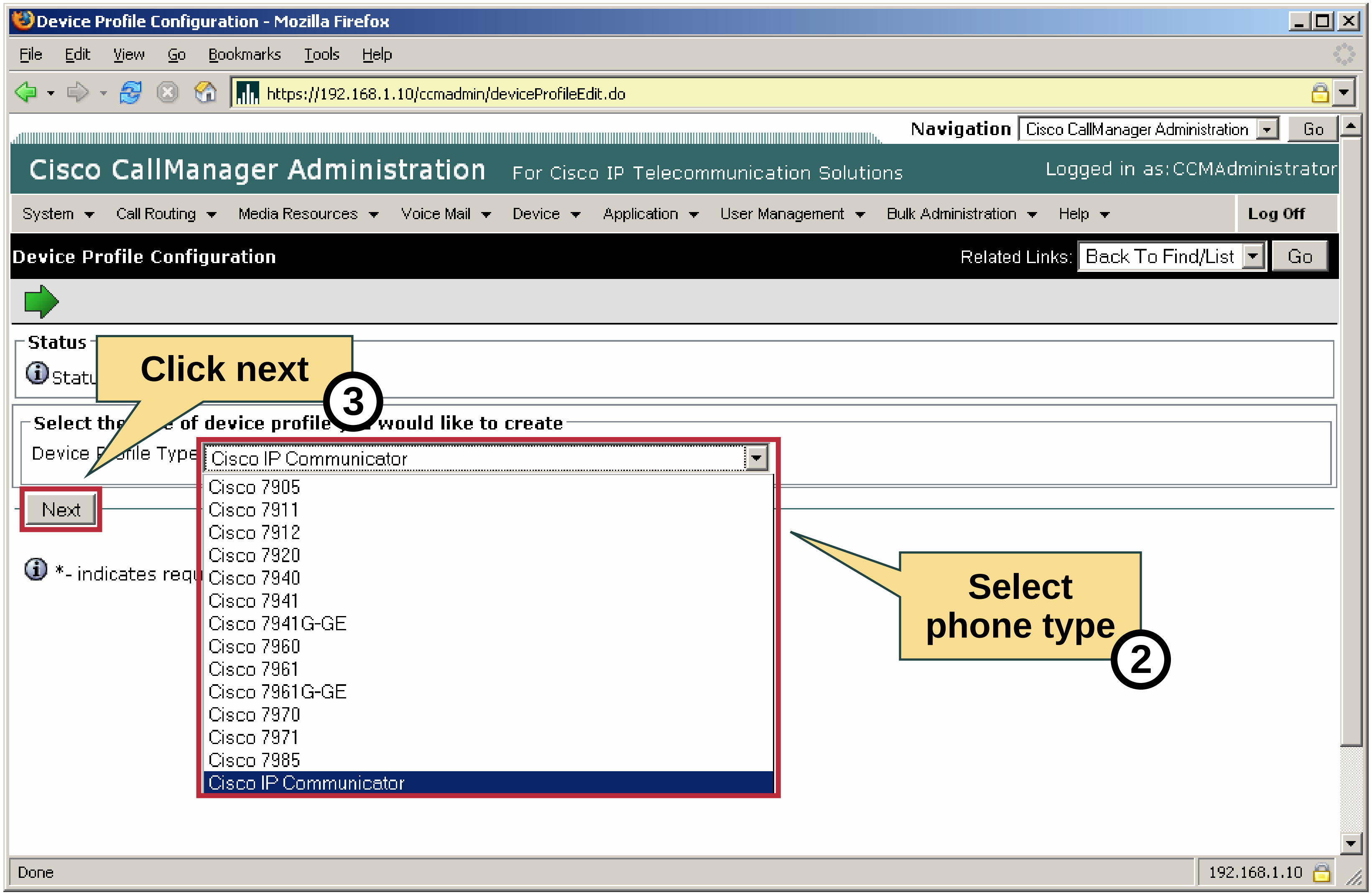
No active query. Please enter your search criteria using the options above.

Add New

Add a new device profile ①

Done
192.168.1.10

Create Profiles


Device Profile Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/deviceProfileEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Device Profile Configuration
Related Links: Back To Find/List Go
Status
Statu
Select the type of device profile you would like to create
Device Profile Type
Next
*- indicates requ
Done
192.168.1.10

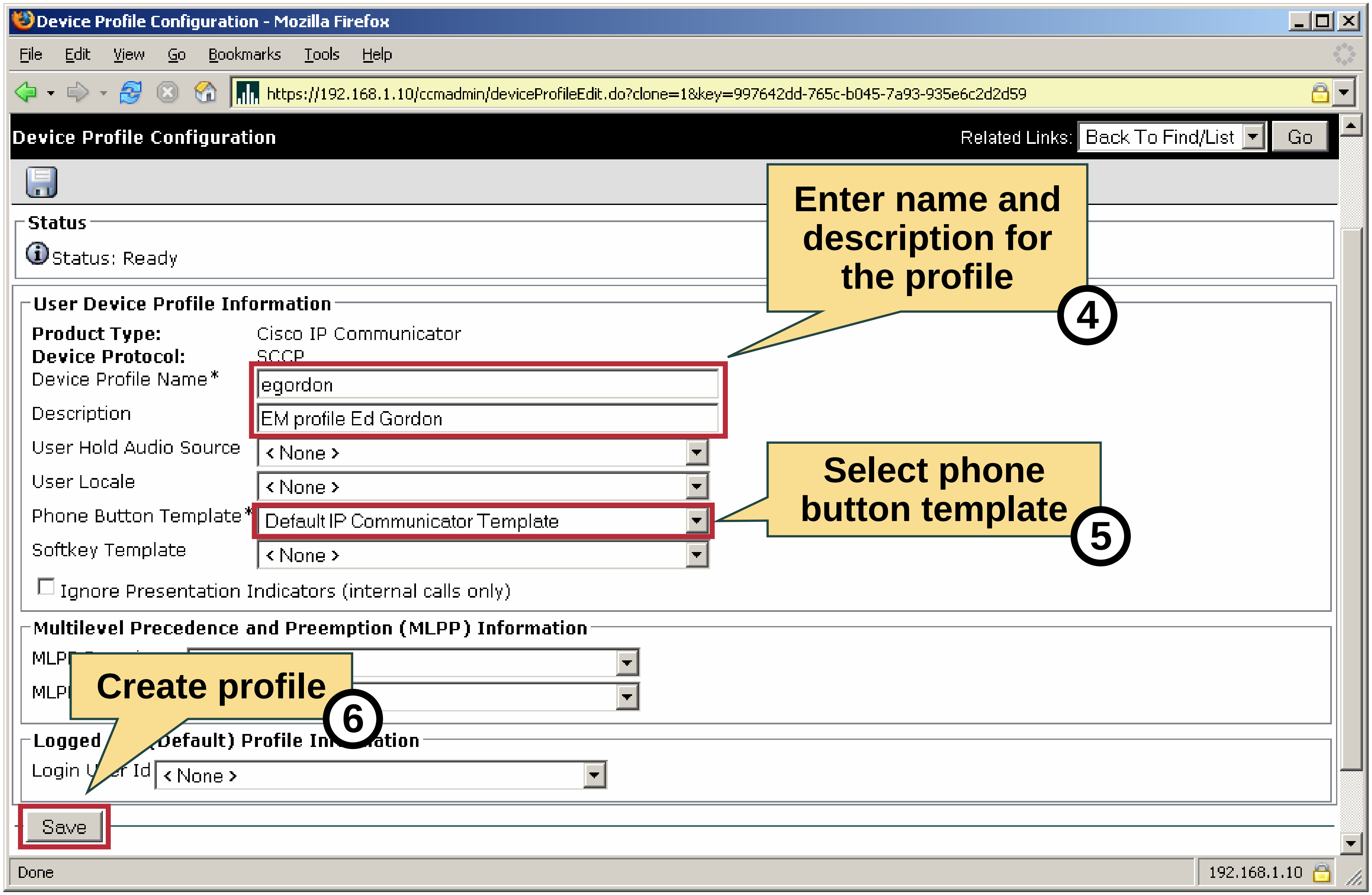
Device Profile Type: Cisco IP Communicator

Cisco 7905
Cisco 7911
Cisco 7912
Cisco 7920
Cisco 7940
Cisco 7941
Cisco 7941G-GE
Cisco 7960
Cisco 7961
Cisco 7961G-GE
Cisco 7970
Cisco 7971
Cisco 7985
Cisco IP Communicator

Click next ③

Select phone type ②

Create Profiles



Device Profile Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/deviceProfileEdit.do?clone=1&key=997642dd-765c-b045-7a93-935e6c2d2d59
Device Profile Configuration
Related Links: Back To Find/List
Go

Status

Status: Ready

User Device Profile Information

Product Type: Cisco IP Communicator
Device Protocol: SCCP
Device Profile Name* egordon
Description EM profile Ed Gordon
User Hold Audio Source < None >
User Locale < None >
Phone Button Template* Default IP Communicator Template
Softkey Template < None >
☐ Ignore Presentation Indicators (internal calls only)

Multilevel Precedence and Preemption (MLPP) Information

Logged (Default) Profile Information

Login User Id < None >

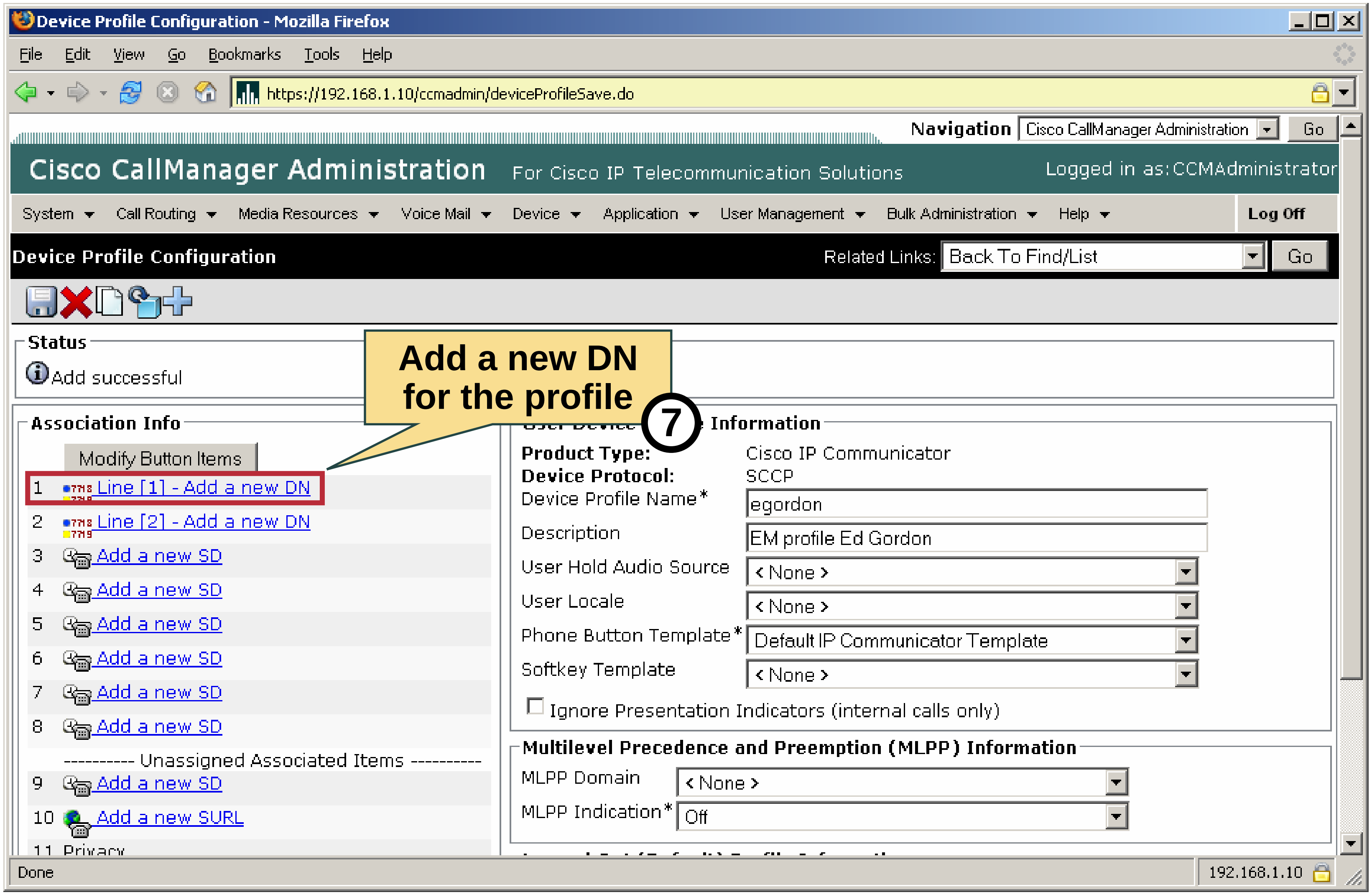
Save
Done
192.168.1.10

Enter name and description for the profile ④

Select phone button template ⑤

Create profile ⑥

Create Profiles


Device Profile Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/deviceProfileSave.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Device Profile Configuration
Related Links: Back To Find/List Go
Modify Button Items
Done
192.168.1.10

Add a new DN for the profile

⑦

Status

Add successful

Association Info

1 Line [1] - Add a new DN
2 Line [2] - Add a new DN
3 Add a new SD
4 Add a new SD
5 Add a new SD
6 Add a new SD
7 Add a new SD
8 Add a new SD
---------- Unassigned Associated Items ----------
9 Add a new SD
10 Add a new SURL
11 Privacy

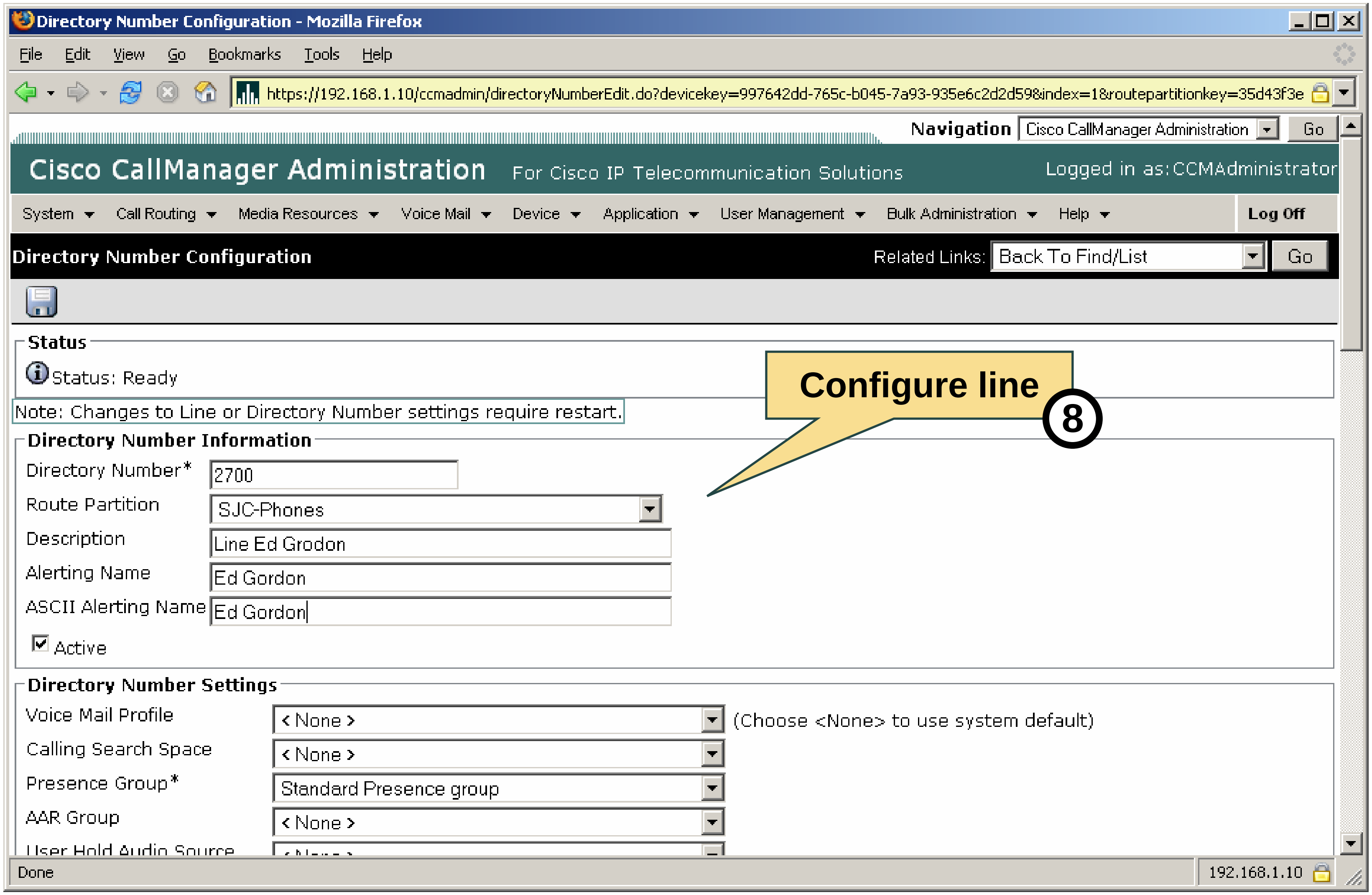
User Device Information

Product Type: Cisco IP Communicator
Device Protocol: SCCP
Device Profile Name* egordon
Description EM profile Ed Gordon
User Hold Audio Source < None >
User Locale < None >
Phone Button Template* Default IP Communicator Template
Softkey Template < None >
☐ Ignore Presentation Indicators (internal calls only)

Multilevel Precedence and Preemption (MLPP) Information

MLPP Domain < None >
MLPP Indication* Off

Create Profiles



Directory Number Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/directoryNumberEdit.do?devicekey=997642dd-765c-b045-7a93-935e6c2d2d59&index=1&routepartitionkey=35d43f3e
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Directory Number Configuration
Related Links: Back To Find/List Go
Done
192.168.1.10

Status

Status: Ready

Note: Changes to Line or Directory Number settings require restart.

Directory Number Information

Directory Number*	2700
Route Partition	SJC-Phones
Description	Line Ed Grodon
Alerting Name	Ed Gordon
ASCII Alerting Name	Ed Gordon

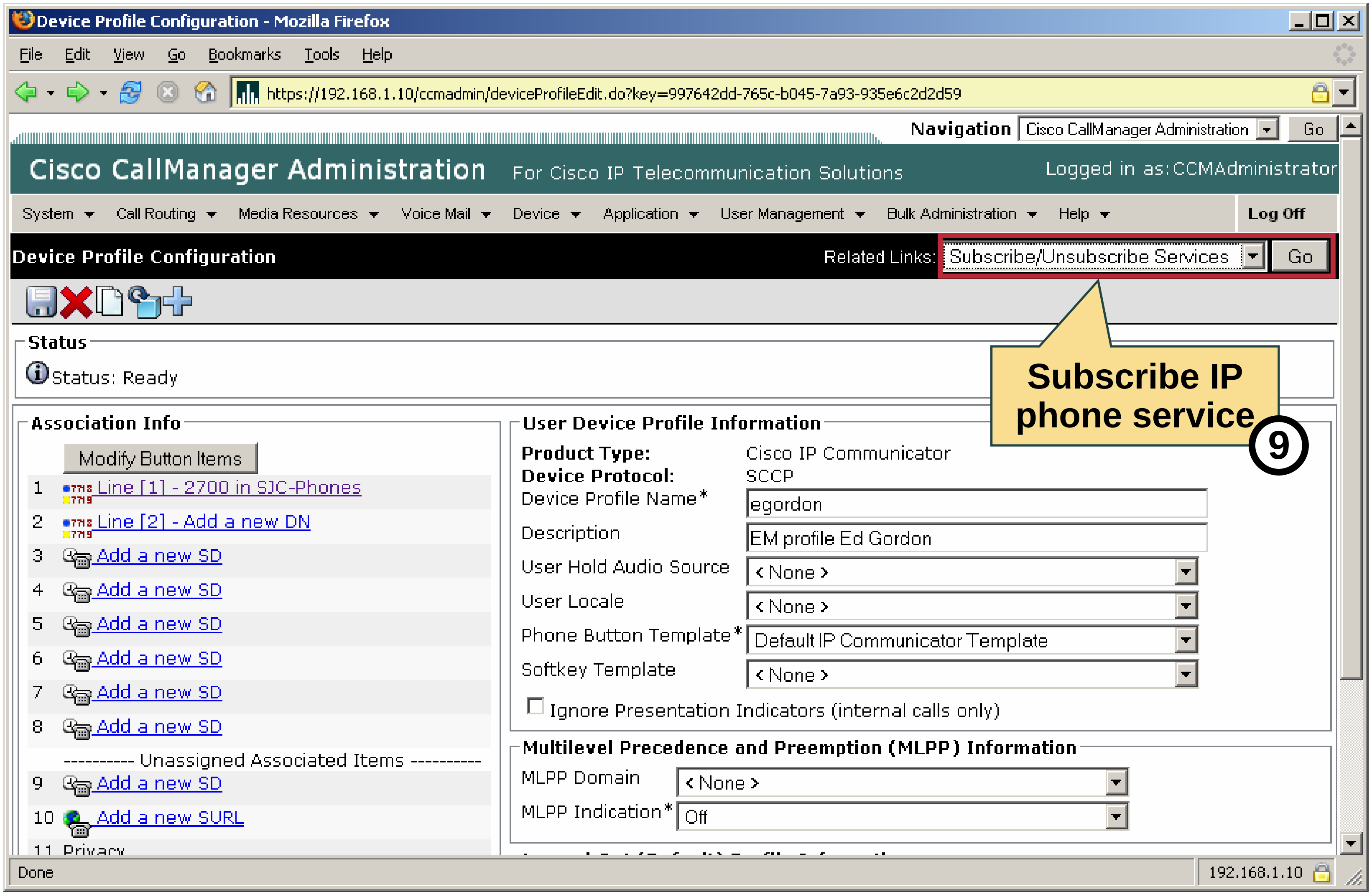
☑ Active

Directory Number Settings

Voice Mail Profile	< None > (Choose <None> to use system default)
Calling Search Space	< None >
Presence Group*	Standard Presence group
AAR Group	< None >
User Hold Audio Source	< None >

Configure line ⑧

Create Profiles



Device Profile Configuration - Mozilla Firefox

https://192.168.1.10/ccmadmin/deviceProfileEdit.do?key=997642dd-765c-b045-7a93-935e6c2d2d59

Cisco CallManager Administration For Cisco IP Telecommunication Solutions

Logged in as: CCMAdministrator

Device Profile Configuration Related Links: Subscribe/Unsubscribe Services

Status

Status: Ready

Association Info

1 Line [1] - 2700 in SJC-Phones
2 Line [2] - Add a new DN
3 Add a new SD
4 Add a new SD
5 Add a new SD
6 Add a new SD
7 Add a new SD
8 Add a new SD
---------- Unassigned Associated Items ----------
9 Add a new SD
10 Add a new SURL
11 Privacy

User Device Profile Information

Product Type:	Cisco IP Communicator
Device Protocol:	SCCP
Device Profile Name*	egordon
Description	EM profile Ed Gordon
User Hold Audio Source	< None >
User Locale	< None >
Phone Button Template*	Default IP Communicator Template
Softkey Template	< None >

☐ Ignore Presentation Indicators (internal calls only)

Multilevel Precedence and Preemption (MLPP) Information

MLPP Domain	< None >
MLPP Indication*	Off

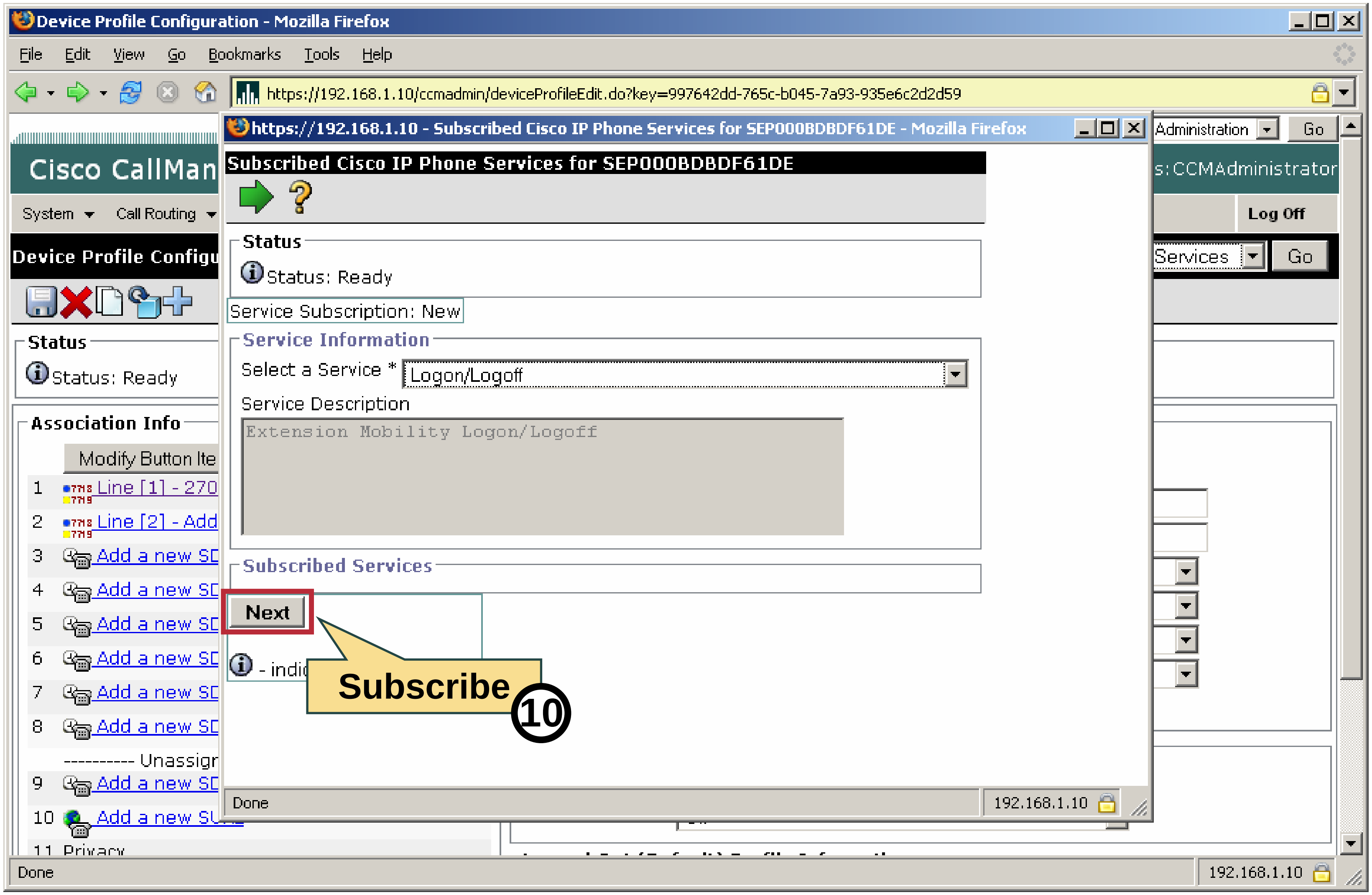
Done

File
Edit
View
Go
Bookmarks
Tools
Help
Navigation
Cisco CallManager Administration
Go
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Go
Modify Button Items
192.168.1.10

Subscribe IP phone service

⑨

Create Profiles



Device Profile Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/deviceProfileEdit.do?key=997642dd-765c-b045-7a93-935e6c2d2d59
https://192.168.1.10 - Subscribed Cisco IP Phone Services for SEP000BDBDF61DE - Mozilla Firefox
Cisco CallMan
System
Call Routing
Administration
Go
s:CCMAdministrator
Log Off
Services
Device Profile Configu

Subscribed Cisco IP Phone Services for SEP000BDBDF61DE

Status

Status: Ready

Service Subscription: New

Service Information

Select a Service * Logon/Logoff

Service Description

```
Extension Mobility Logon/Logoff
```

Subscribed Services

Next
- indic
Done
192.168.1.10

Status

Status: Ready

Association Info

Modify Button Ite
1 Line [1] - 270
2 Line [2] - Add
3 Add a new SD
4 Add a new SD
5 Add a new SD
6 Add a new SD
7 Add a new SD
8 Add a new SD
---------- Unassign
9 Add a new SD
10 Add a new SU
11 Privacy
Done
192.168.1.10

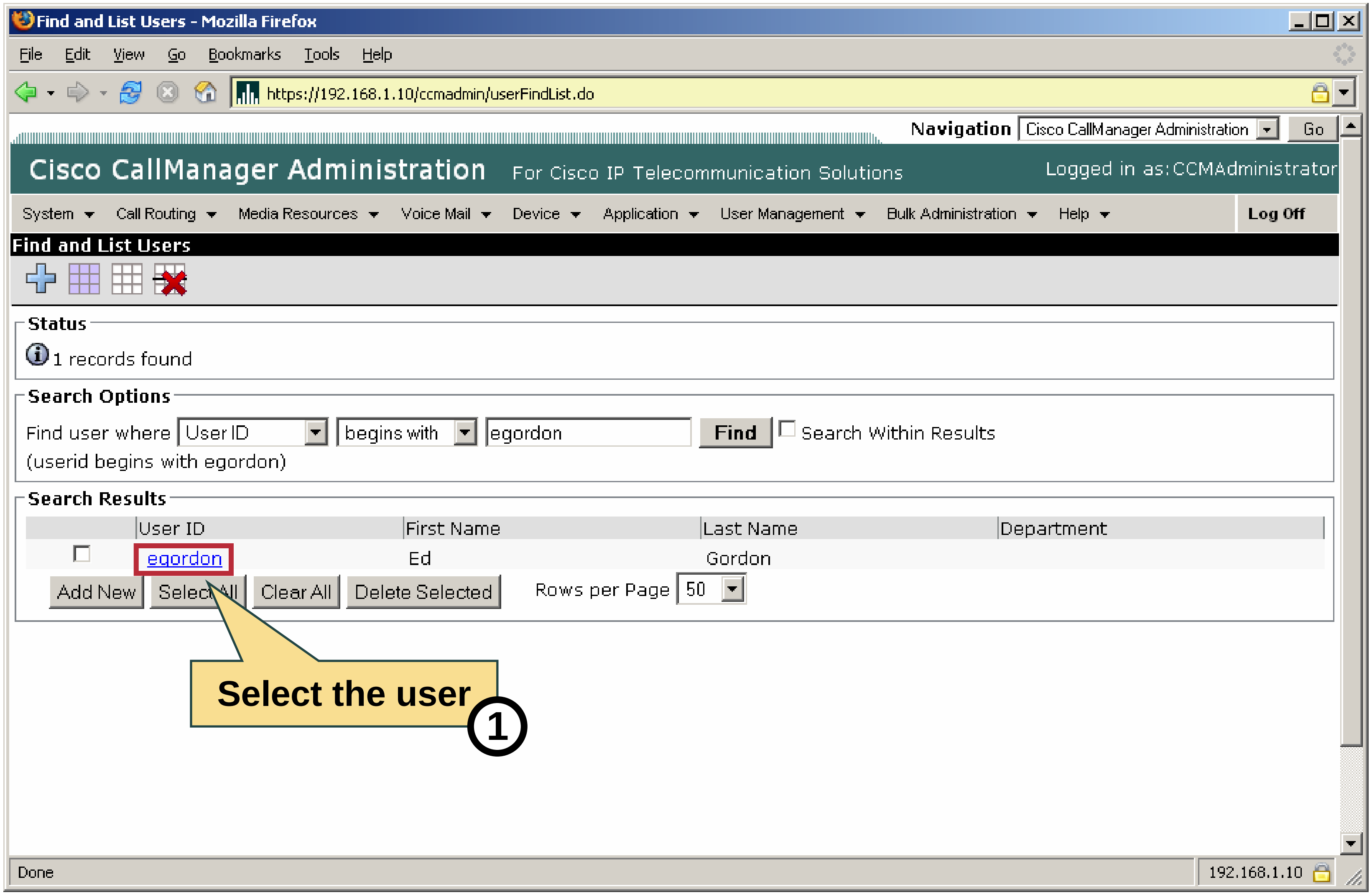
Subscribe ⑩

User Configuration

To allow users to log on with the configured device profile, the following step need to be performed:

- **Add the device profile to the user.**

User Configuration


Find and List Users - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/userFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Find and List Users
Add New Select All Clear All Delete Selected
Done
192.168.1.10

Status

1 records found

Search Options

Find user where User ID begins with egordon **Find** ☐ Search Within Results

(userid begins with egordon)

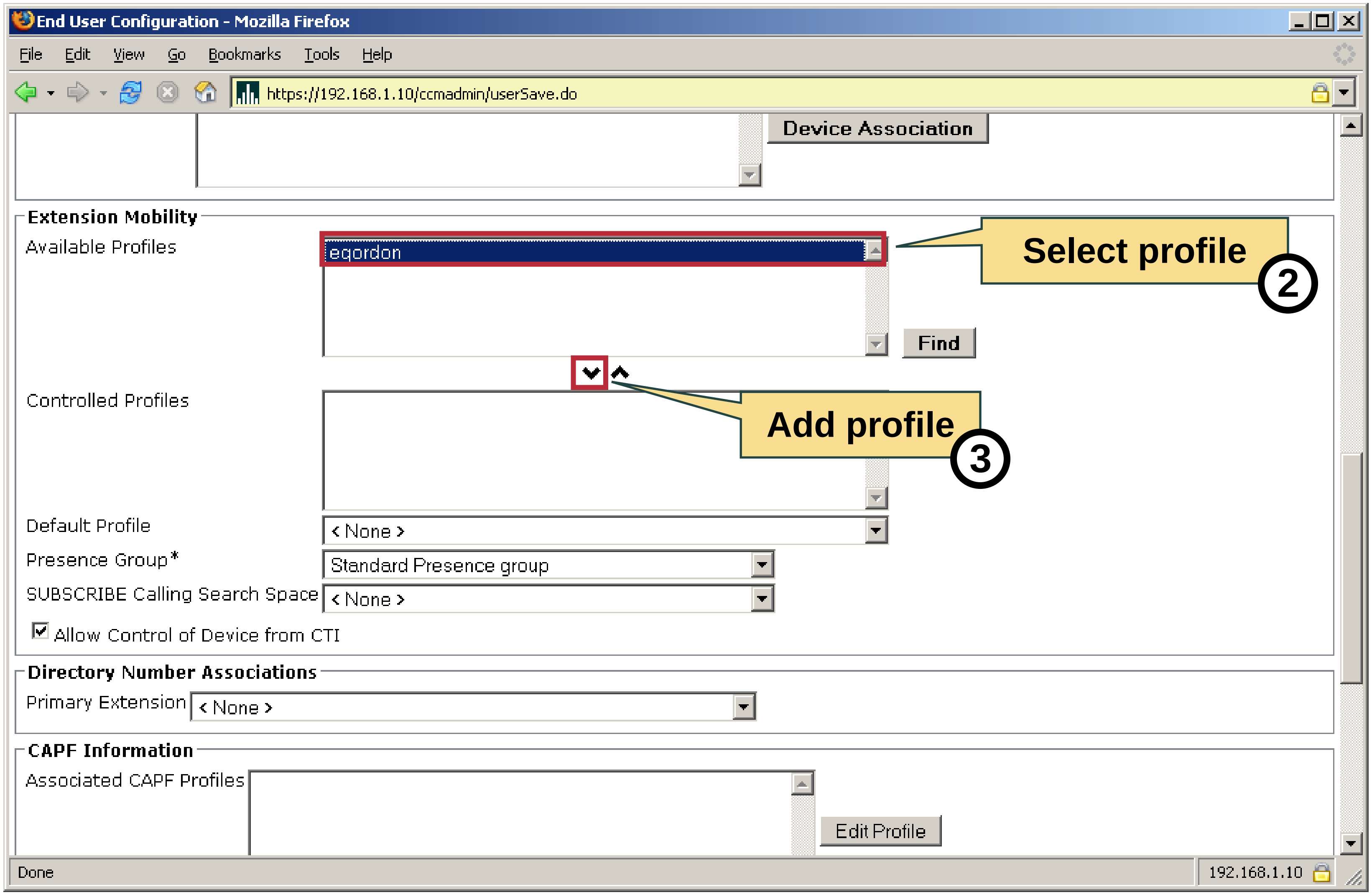
Search Results

	User ID	First Name	Last Name	Department
☐	egordon	Ed	Gordon	

Rows per Page 50

Select the user ①

User Configuration



End User Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/userSave.do
Device Association
Find
Edit Profile
Done
192.168.1.10

Extension Mobility

Available Profiles: egordon

Controlled Profiles

Default Profile: < None >

Presence Group*: Standard Presence group

SUBSCRIBE Calling Search Space: < None >

☑ Allow Control of Device from CTI

Directory Number Associations

Primary Extension: < None >

CAPF Information

Associated CAPF Profiles

Select profile ②

Add profile ③

Summary

- The extension mobility service needs to be enabled on Cisco Unified CallManager 5.0 and configured with custom specific values.
- Extension mobility needs to be enabled on every phone that should support that feature.
- Each user that should use extension mobility in a Cisco Unified CallManager 5.0 environment needs his own device profile.
- The device profile needs to be added to the controlled extension mobility profiles of the user.

Cisco Unified CallManager 5.0 Features and Applications

Presence and Busy Lamp Field

Objectives

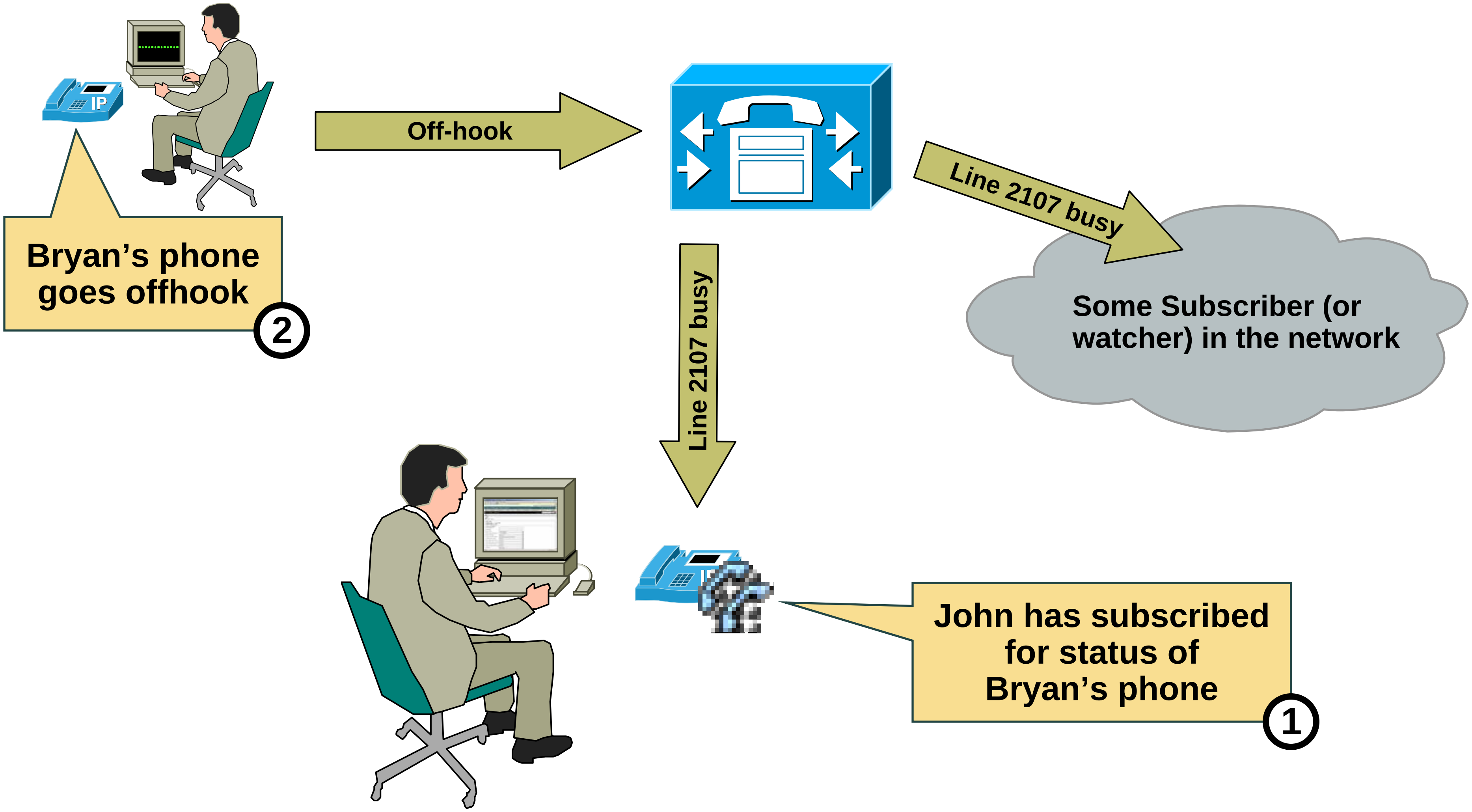
- Speed Dial BLF and Call List BLF
- Configure BLF
- Configure Phones for BLF
- Configure Presence Authorization

Speed Dial BLF and Call List BLF

Cisco Unified CallManager 5.0 presence implementation follows these guidelines:

- **Conformant to the SIP standards for SIMPLE - SIP for Instant Messaging and Presence Leveraging Extensions (IETF RFC 3265, 3856, 3863).**
- **Skinny side uses SCCP extensions for similar concepts of subscription and notification.**
- **Allows subscriptions to CM line status and notify when the status changes.**
- **Allows subscriptions for line status between SIP and SCCP phones on Call Manager.**
- **Allows subscriptions from a CM endpoint to an external SIP endpoint (or vice versa) using SIP trunk.**

Speed Dial BLF and Call List BLF



Off-hook

Line 2107 busy

Line 2107 busy

Some Subscriber (or watcher) in the network

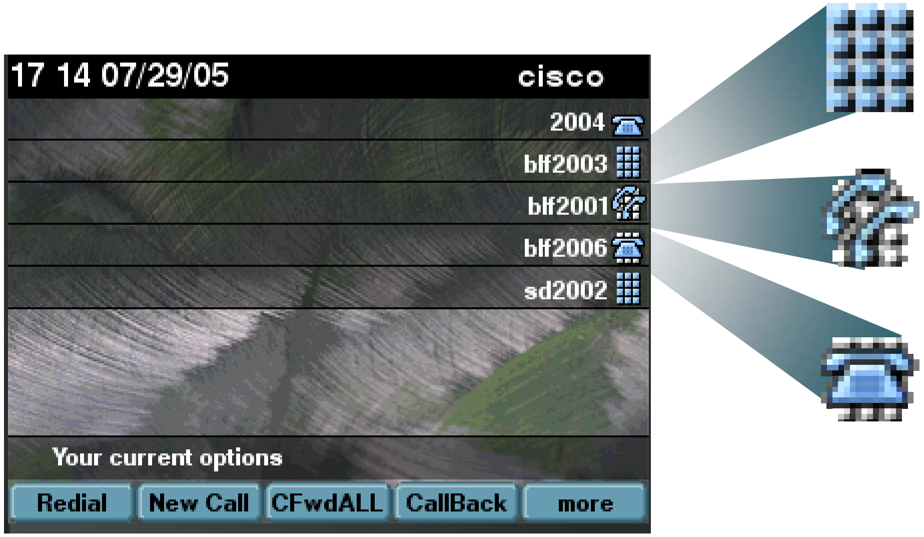
Bryan’s phone goes offhook ②

John has subscribed for status of Bryan’s phone ①

Speed Dial BLF and Call List BLF

Speed dial BLF:

- Permanently displaying the status of the speed dial DN or URL.
- Is supported on Cisco IP phones 7940 and greater.



17 14 07/29/05 cisco

2004

blf2003

blf2001

blf2006

sd2002

Your current options

Redial
New Call
CFwdALL
CallBack
more

Line status unknown

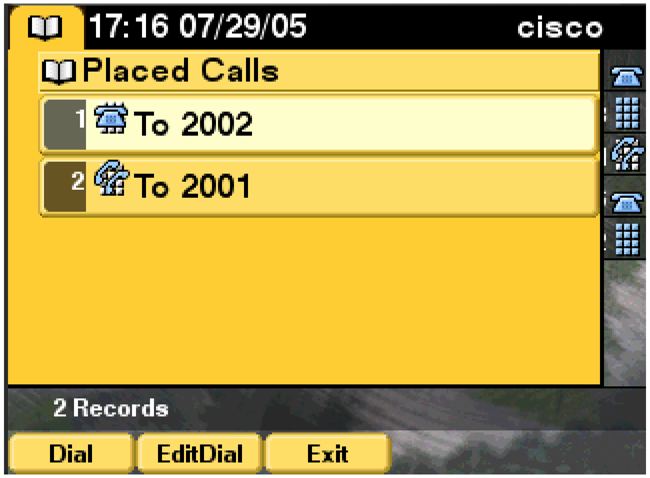
Line Busy

Line Idle

Speed Dial BLF and Call List BLF

Call list BLF:

- Displaying the status of the DN or URL on missed, received, placed calls and directory.
- Is supported on Enhanced Cisco IP phones and 7970.



17:16 07/29/05

Placed Calls

1 To 2002

2 To 2001

2 Records

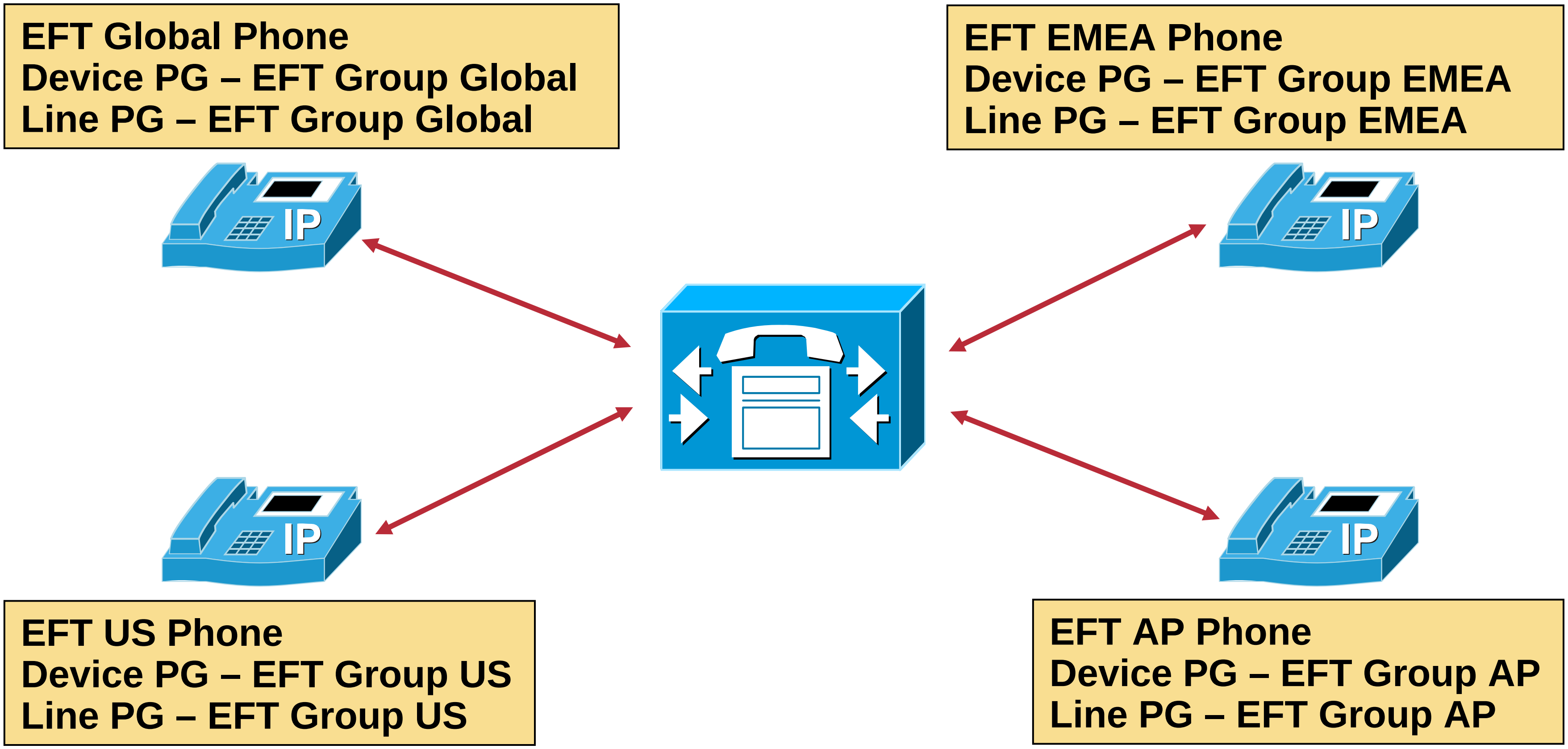
Speed Dial BLF and Call List BLF

Group based authorization

- Group based mechanism to control which subscribers (watchers) can see which subscribes (notifiers).
- Defined by the Administrator.
- Each phone, trunk, and external watcher is a member of one particular group.
- Default Inter-Presence Group Permission is Deny (False)

Speed Dial BLF and Call List BLF

Presence Group (PG) authorization example:



EFT Global Phone
Device PG – EFT Group Global
Line PG – EFT Group Global

EFT EMEA Phone
Device PG – EFT Group EMEA
Line PG – EFT Group EMEA

EFT US Phone
Device PG – EFT Group US
Line PG – EFT Group US

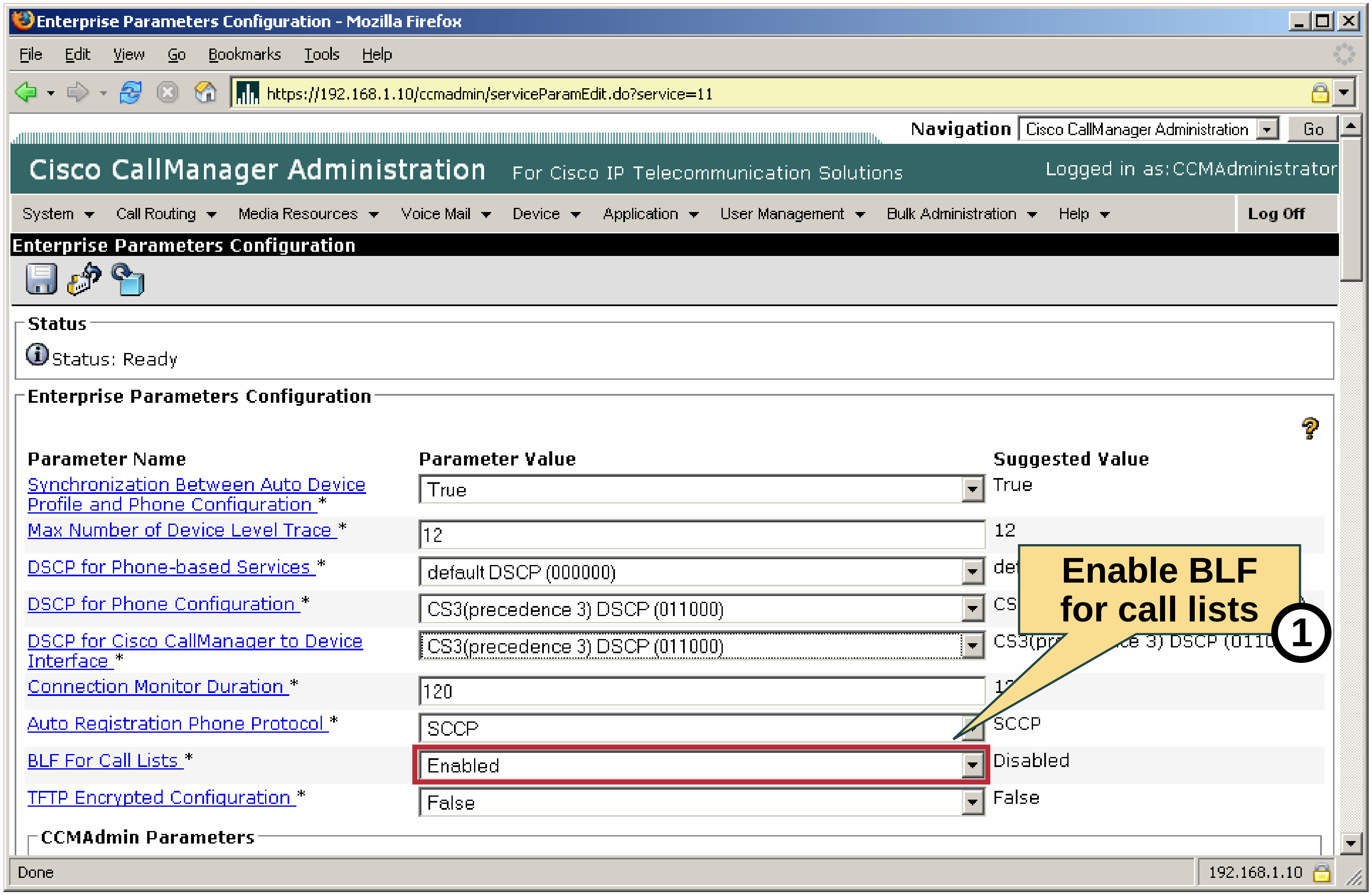
EFT AP Phone
Device PG – EFT Group AP
Line PG – EFT Group AP

Configure BLF

To fully enable BLF on Cisco Unified CallManager 5.0 the following tasks need to be performed:

- Enable the BLF for Call Lists enterprise parameter.
- Allow subscriptions for presence cluster wide by using the Cisco Unified CallManager service parameters.

Configure BLF


Enterprise Parameters Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/serviceParamEdit.do?service=11
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Enterprise Parameters Configuration

Status

Status: Ready

Enterprise Parameters Configuration

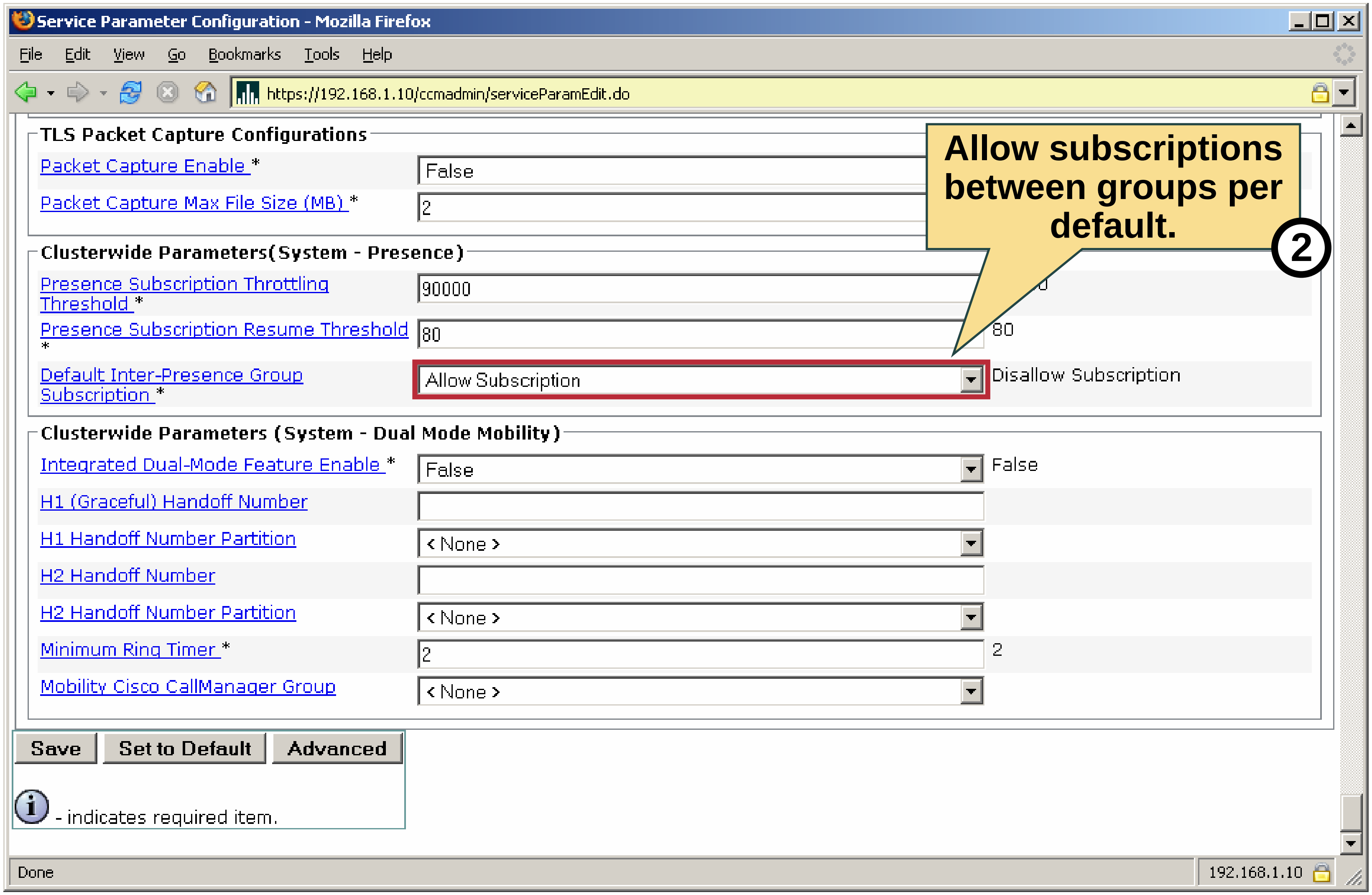
Parameter Name	Parameter Value	Suggested Value
Synchronization Between Auto Device Profile and Phone Configuration *	True	True
Max Number of Device Level Trace *	12	12
DSCP for Phone-based Services *	default DSCP (000000)	de
DSCP for Phone Configuration *	CS3(precedence 3) DSCP (011000)	CS
DSCP for Cisco CallManager to Device Interface *	CS3(precedence 3) DSCP (011000)	CS3(pr e 3) DSCP (0110
Connection Monitor Duration *	120	12
Auto Registration Phone Protocol *	SCCP	SCCP
BLF For Call Lists *	Enabled	Disabled
TFTP Encrypted Configuration *	False	False

CCMAdmin Parameters

Done
192.168.1.10

Enable BLF for call lists ①

Configure BLF



Service Parameter Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/serviceParamEdit.do

Allow subscriptions between groups per default.

②

TLS Packet Capture Configurations

Packet Capture Enable *	False
Packet Capture Max File Size (MB) *	2

Clusterwide Parameters(System - Presence)

Presence Subscription Throttling Threshold *	90000	
Presence Subscription Resume Threshold *	80	80
Default Inter-Presence Group Subscription *	Allow Subscription	Disallow Subscription

Clusterwide Parameters (System - Dual Mode Mobility)

Integrated Dual-Mode Feature Enable *	False	False
H1 (Graceful) Handoff Number		
H1 Handoff Number Partition	< None >	
H2 Handoff Number		
H2 Handoff Number Partition	< None >	
Minimum Ring Timer *	2	2
Mobility Cisco CallManager Group	< None >	

Save
Set to Default
Advanced

* - indicates required item.

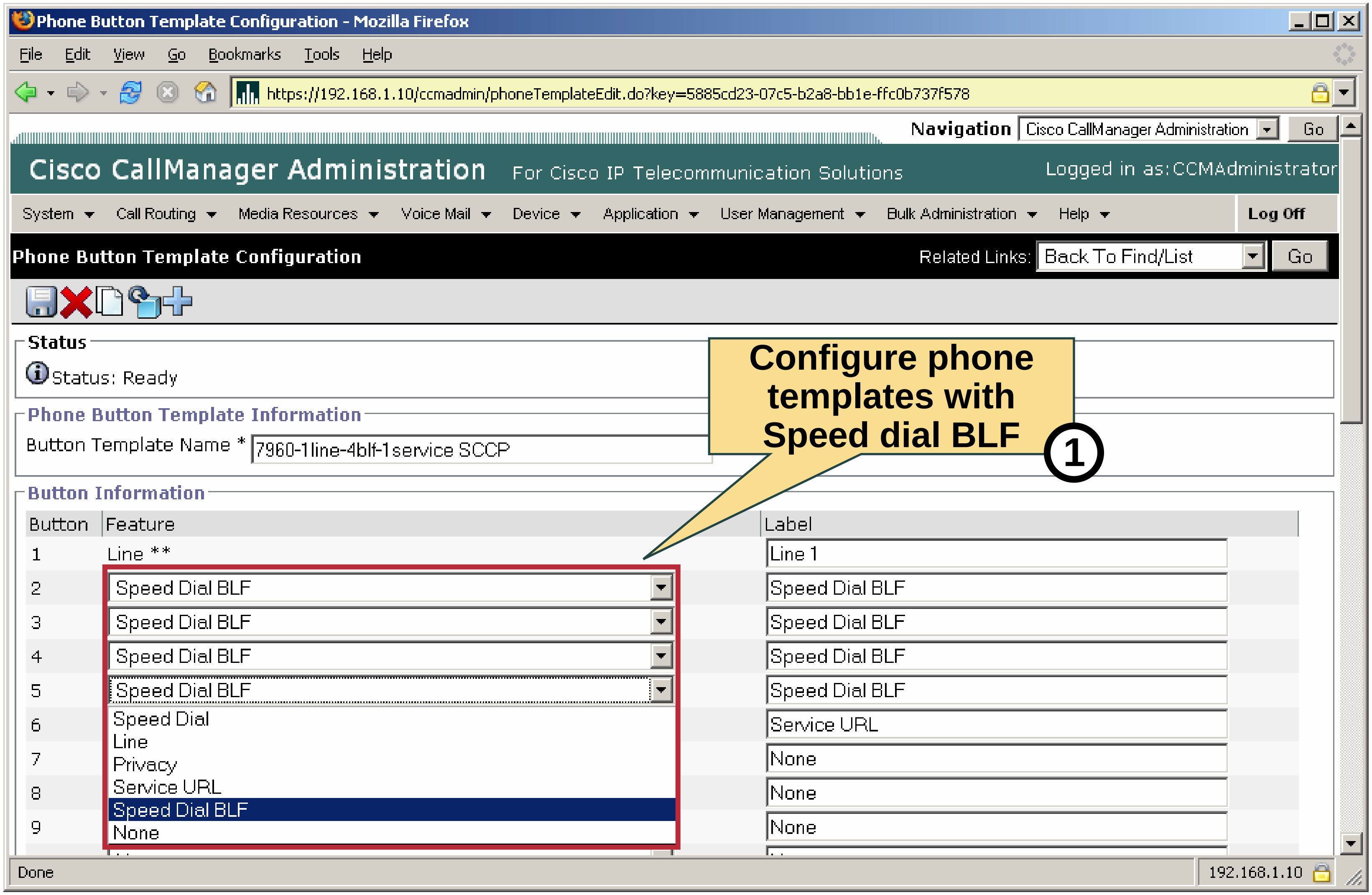
Done
192.168.1.10

Configure Phones for BLF

To allow phones to use BLF the following tasks need to be performed:

- Configure phone button templates using speed dial BLF.
- Assign templates to phones.
- Add BLF speed dials to phones.
- Configure subscription CSS on the phones.

Configure Phones for BLF


Phone Button Template Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneTemplateEdit.do?key=5885cd23-07c5-b2a8-bb1e-ffc0b737f578
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Phone Button Template Configuration
Related Links: Back To Find/List Go
Speed Dial
Line
Privacy
Service URL
Speed Dial BLF
None
Done
192.168.1.10

Status

Status: Ready

Phone Button Template Information

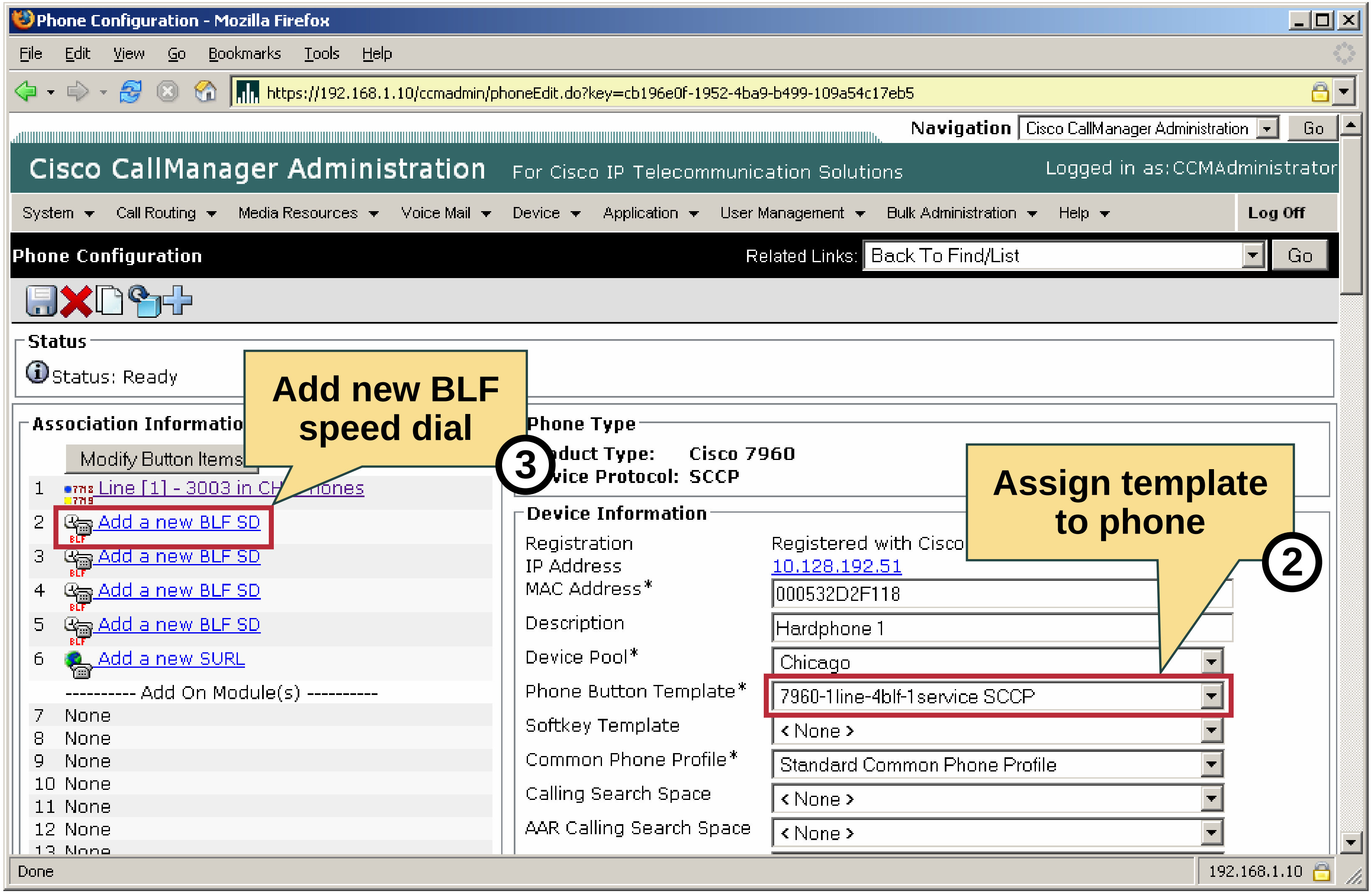
Button Template Name * 7960-1line-4blf-1service SCCP

Button Information

Button	Feature	Label
1	Line **	Line 1
2	Speed Dial BLF	Speed Dial BLF
3	Speed Dial BLF	Speed Dial BLF
4	Speed Dial BLF	Speed Dial BLF
5	Speed Dial BLF	Speed Dial BLF
6		Service URL
7		None
8		None
9		None

Configure phone templates with Speed dial BLF ①

Configure Phones for BLF


Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Related Links: Back To Find/List Go
Modify Button Items
Done
192.168.1.10

https://192.168.1.10/ccmadmin/phoneEdit.do?key=cb196e0f-1952-4ba9-b499-109a54c17eb5

Phone Configuration

Status

Status: Ready

Association Information

1 Line [1] - 3003 in CH…hones
2 Add a new BLF SD
3 Add a new BLF SD
4 Add a new BLF SD
5 Add a new BLF SD
6 Add a new SURL
---------- Add On Module(s) ----------
7 None
8 None
9 None
10 None
11 None
12 None
13 None

Phone Type

…duct Type: Cisco 7960
…vice Protocol: SCCP

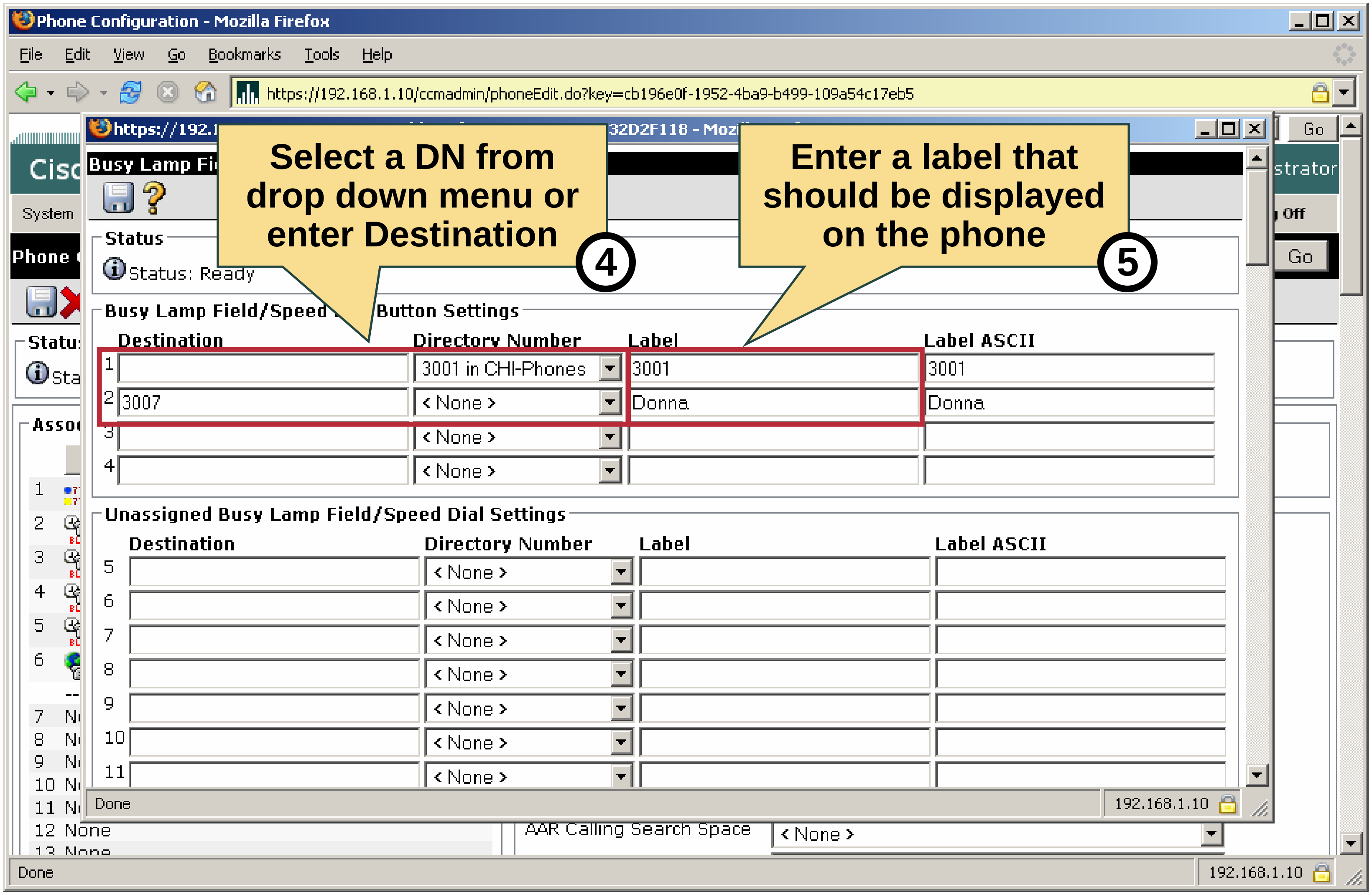
Device Information

Registration	Registered with Cisco…
IP Address	10.128.192.51
MAC Address*	000532D2F118
Description	Hardphone 1
Device Pool*	Chicago
Phone Button Template*	7960-1line-4blf-1service SCCP
Softkey Template	< None >
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	< None >
AAR Calling Search Space	< None >

Add new BLF speed dial ③

Assign template to phone ②

Configure Phones for BLF



Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneEdit.do?key=cb196e0f-1952-4ba9-b499-109a54c17eb5
https://192.1 32D2F118 - Mozi
Busy Lamp Fi
Status
Status: Ready
Done
192.168.1.10

Select a DN from drop down menu or enter Destination ④

Enter a label that should be displayed on the phone ⑤

Busy Lamp Field/Speed Button Settings

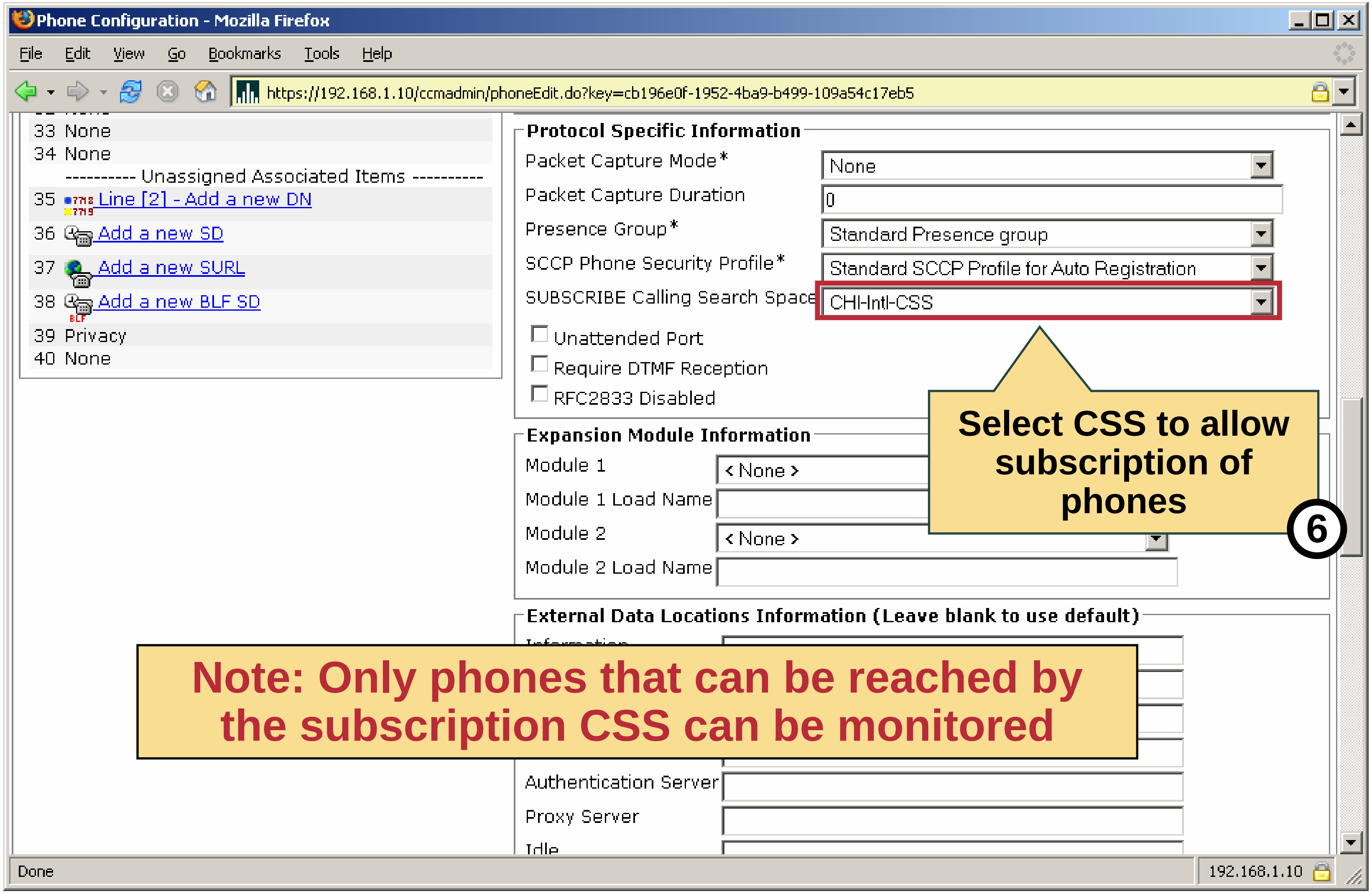
	Destination	Directory Number	Label	Label ASCII
1		3001 in CHI-Phones	3001	3001
2	3007	< None >	Donna	Donna
3		< None >		
4		< None >		

Unassigned Busy Lamp Field/Speed Dial Settings

	Destination	Directory Number	Label	Label ASCII
5		< None >		
6		< None >		
7		< None >		
8		< None >		
9		< None >		
10		< None >		
11		< None >		

AAR Calling Search Space < None >

Configure Phones for BLF



https://192.168.1.10/ccmadmin/phoneEdit.do?key=cb196e0f-1952-4ba9-b499-109a54c17eb5

33 None
34 None
---------- Unassigned Associated Items ----------
35 Line [2] - Add a new DN
36 Add a new SD
37 Add a new SURL
38 Add a new BLF SD
39 Privacy
40 None

Protocol Specific Information

Packet Capture Mode*	None
Packet Capture Duration	0
Presence Group*	Standard Presence group
SCCP Phone Security Profile*	Standard SCCP Profile for Auto Registration
SUBSCRIBE Calling Search Space	CHI-Intl-CSS

☐ Unattended Port
☐ Require DTMF Reception
☐ RFC2833 Disabled

Expansion Module Information

Module 1	< None >
Module 1 Load Name	
Module 2	< None >
Module 2 Load Name	

External Data Locations Information (Leave blank to use default)

Information
Authentication Server
Proxy Server
Idle

Done
192.168.1.10

6 Select CSS to allow subscription of phones

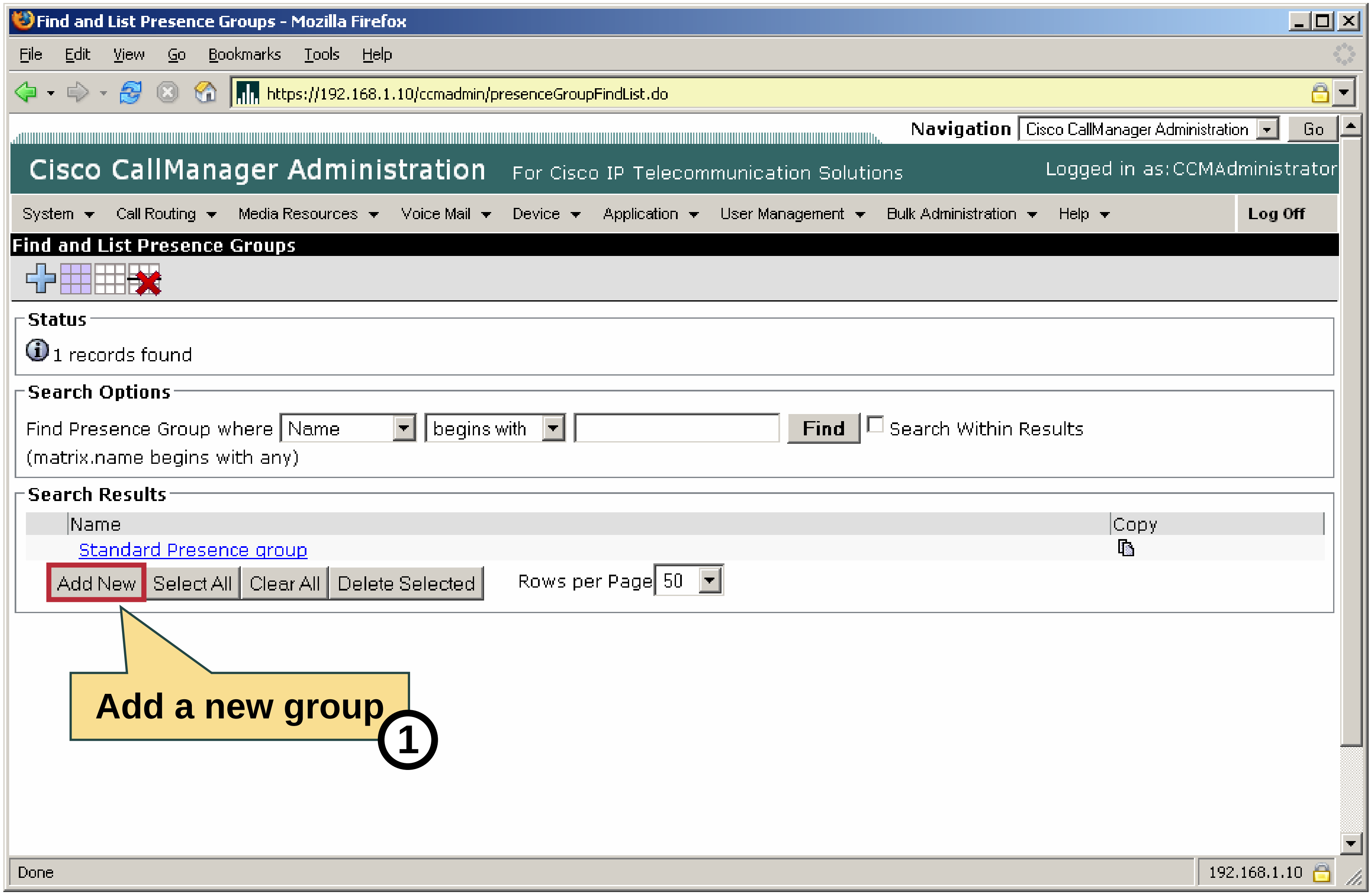
Note: Only phones that can be reached by the subscription CSS can be monitored

Configure Presence Authorization

To restrict the use of BLF the following tasks need to be performed:

- **Configure presence group.**
- **Define relationship to other presence groups.**
- **Add phones to the presence group.**

Configure Presence Authorization


Find and List Presence Groups - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
Navigation
Cisco CallManager Administration
Go
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Add New
Select All
Clear All
Delete Selected
Find
Done
192.168.1.10

https://192.168.1.10/ccmadmin/presenceGroupFindList.do

Cisco CallManager Administration For Cisco IP Telecommunication Solutions

Logged in as: CCMAdministrator

Find and List Presence Groups

Status

1 records found

Search Options

Find Presence Group where Name begins with

☐ Search Within Results

(matrix.name begins with any)

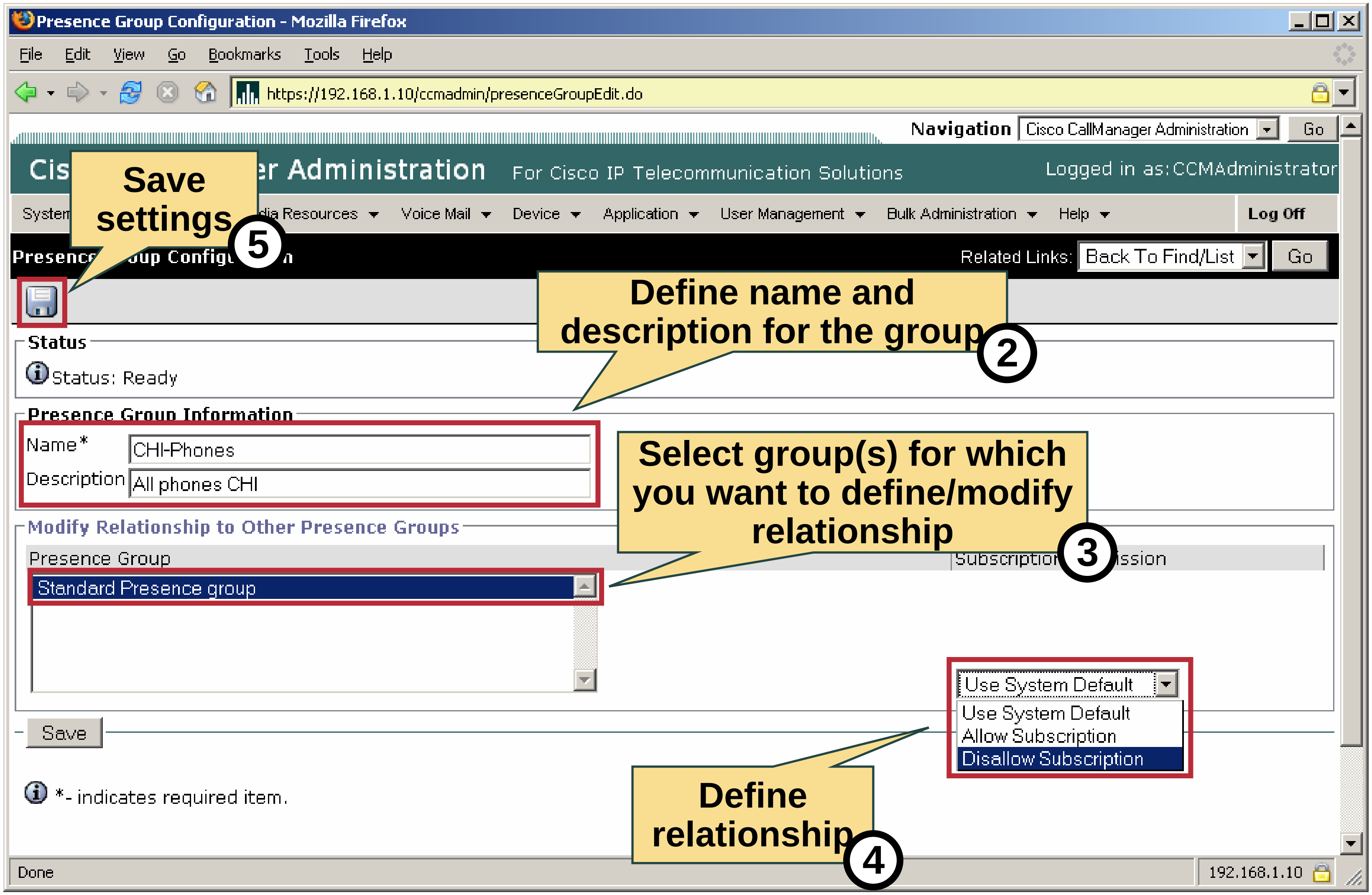
Search Results

Name	Copy
Standard Presence group	

Rows per Page 50

Add a new group ①

Configure Presence Authorization



Presence Group Configuration - Mozilla Firefox

https://192.168.1.10/ccmadmin/presenceGroupEdit.do

Status: Ready

Presence Group Information

Name*: CHI-Phones

Description: All phones CHI

Modify Relationship to Other Presence Groups

Presence Group: Standard Presence group

Subscription Permission: Use System Default

File Edit View Go Bookmarks Tools Help
Navigation
Cisco CallManager Administration
Go
Cisco Unified CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Presence Group Configuration
Related Links: Back To Find/List
Go
Use System Default
Allow Subscription
Disallow Subscription
Save
*- indicates required item.
Done
192.168.1.10

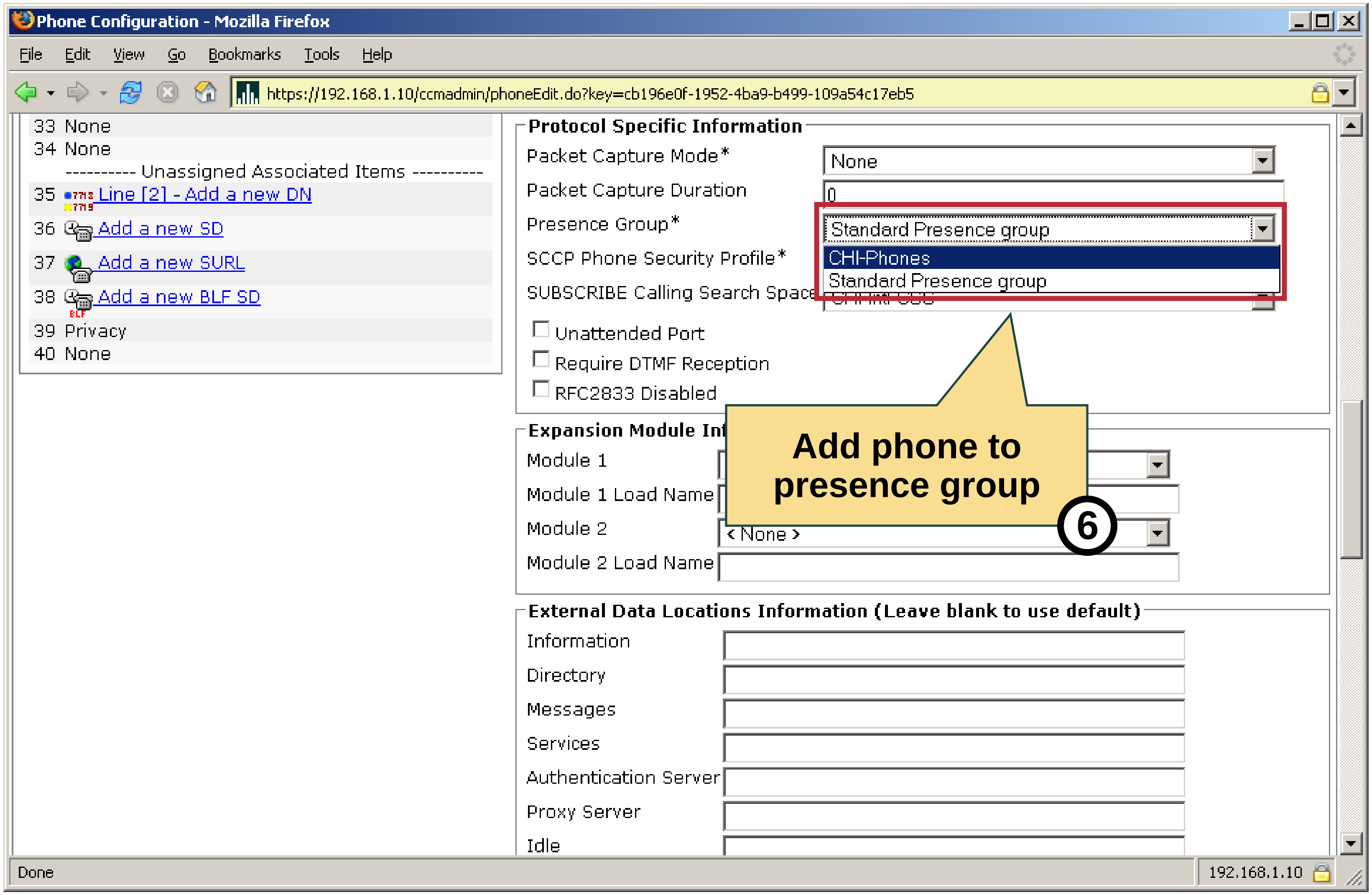
Save settings ⑤

Define name and description for the group ②

Select group(s) for which you want to define/modify relationship ③

Define relationship ④

Configure Presence Authorization



Phone Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10/ccmadmin/phoneEdit.do?key=cb196e0f-1952-4ba9-b499-109a54c17eb5

33 None
34 None
---------- Unassigned Associated Items ----------
35 Line [2] - Add a new DN
36 Add a new SD
37 Add a new SURL
38 Add a new BLF SD
39 Privacy
40 None

Protocol Specific Information

Packet Capture Mode* None
Packet Capture Duration 0
Presence Group* Standard Presence group
CHI-Phones
Standard Presence group
SCCP Phone Security Profile*
SUBSCRIBE Calling Search Space

☐ Unattended Port
☐ Require DTMF Reception
☐ RFC2833 Disabled

Expansion Module Inf

Module 1
Module 1 Load Name
Module 2 < None >
Module 2 Load Name

External Data Locations Information (Leave blank to use default)

Information
Directory
Messages
Services
Authentication Server
Proxy Server
Idle

Done
192.168.1.10

Add phone to presence group

⑥

Summary

- Speed dial BLF and call list BLF allow to monitor the status of other DNs within the network.
- To use BLF special system values need to be defined.
- To use BLF phones need to be configured using a BLF enabled phone button template and a subscription CSS.
- To restrict BLF throughout the cluster presence authorization needs to be configured.

Cisco Unified CallManager 5.0 Features and Applications

Configuring Telephony Features

Objectives

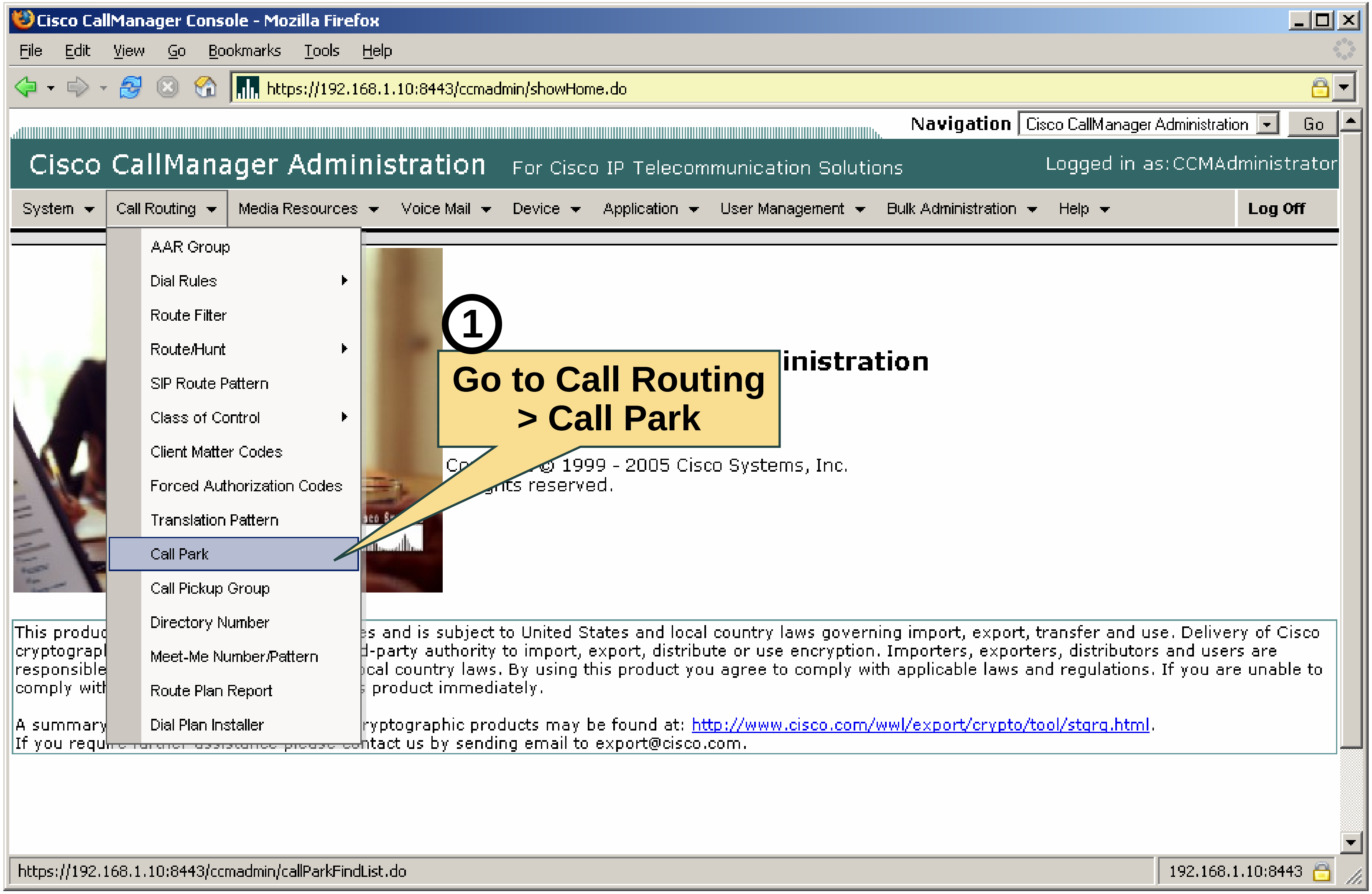
- Configuring Call Park
- Configuring Call Pickup
- Configuring Conferencing

Configuring Call Park

Call Park configuration steps:

1. Go to Call Routing > Call Park.
2. Add new Call Park range.
3. Specify a Call Park DN range.

Configuring Call Park


Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/showHome.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
AAR Group
Dial Rules
Route Filter
Route/Hunt
SIP Route Pattern
Class of Control
Client Matter Codes
Forced Authorization Codes
Translation Pattern
Call Park
Call Pickup Group
Directory Number
Meet-Me Number/Pattern
Route Plan Report
Dial Plan Installer
https://192.168.1.10:8443/ccmadmin/callParkFindList.do
192.168.1.10:8443

inistration

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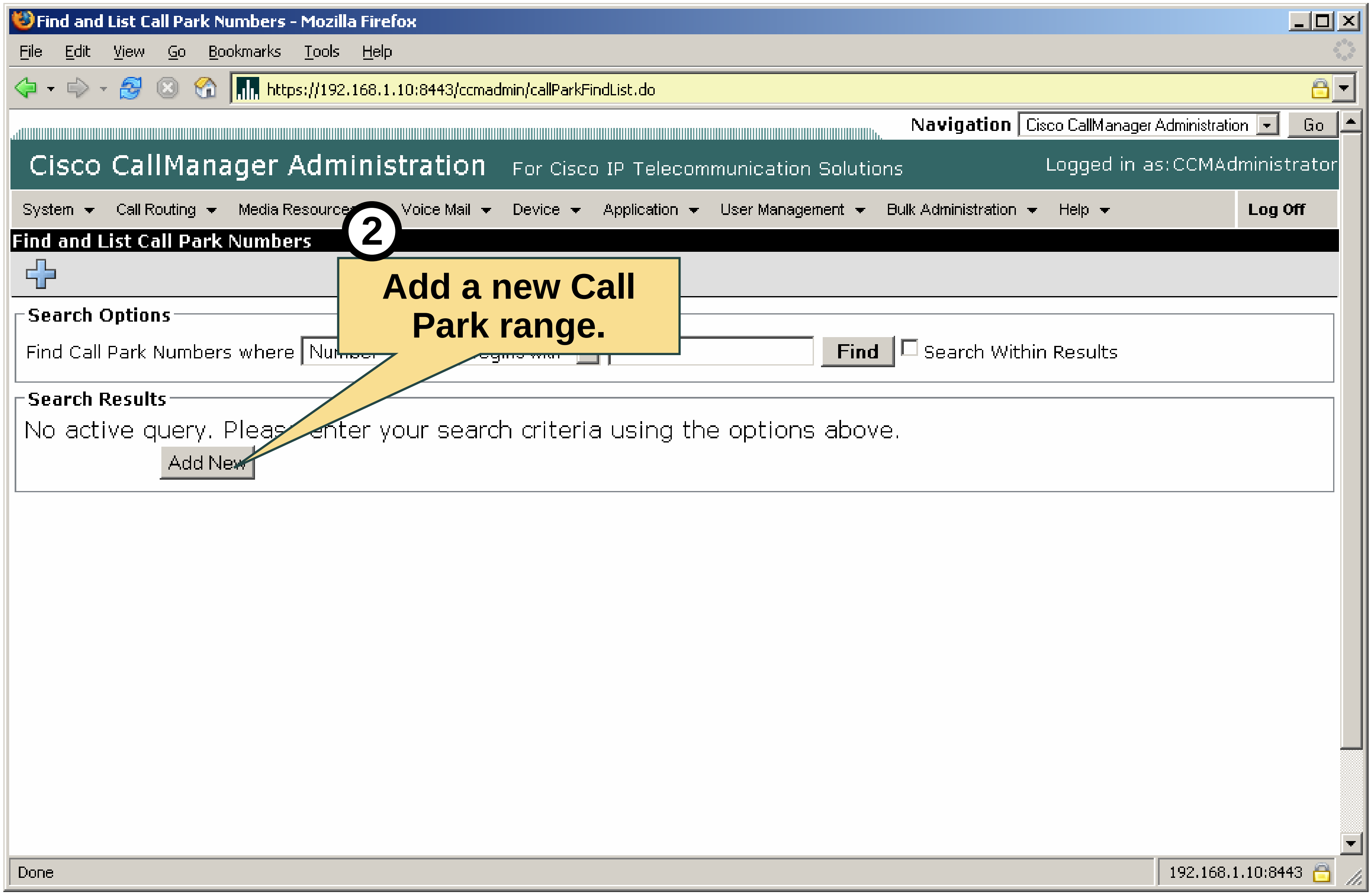
A summary... ...ryptographic products may be found at: http://www.cisco.com/wwl/export/crypto/tool/stqrg.html.
If you requ... ...ntact us by sending email to export@cisco.com.

①

Go to Call Routing > Call Park

Configuring Call Park


Find and List Call Park Numbers - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/callParkFindList.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resource
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
Find and List Call Park Numbers
Search Options
Search Results
Find
☐ Search Within Results
Add New
Done
192.168.1.10:8443

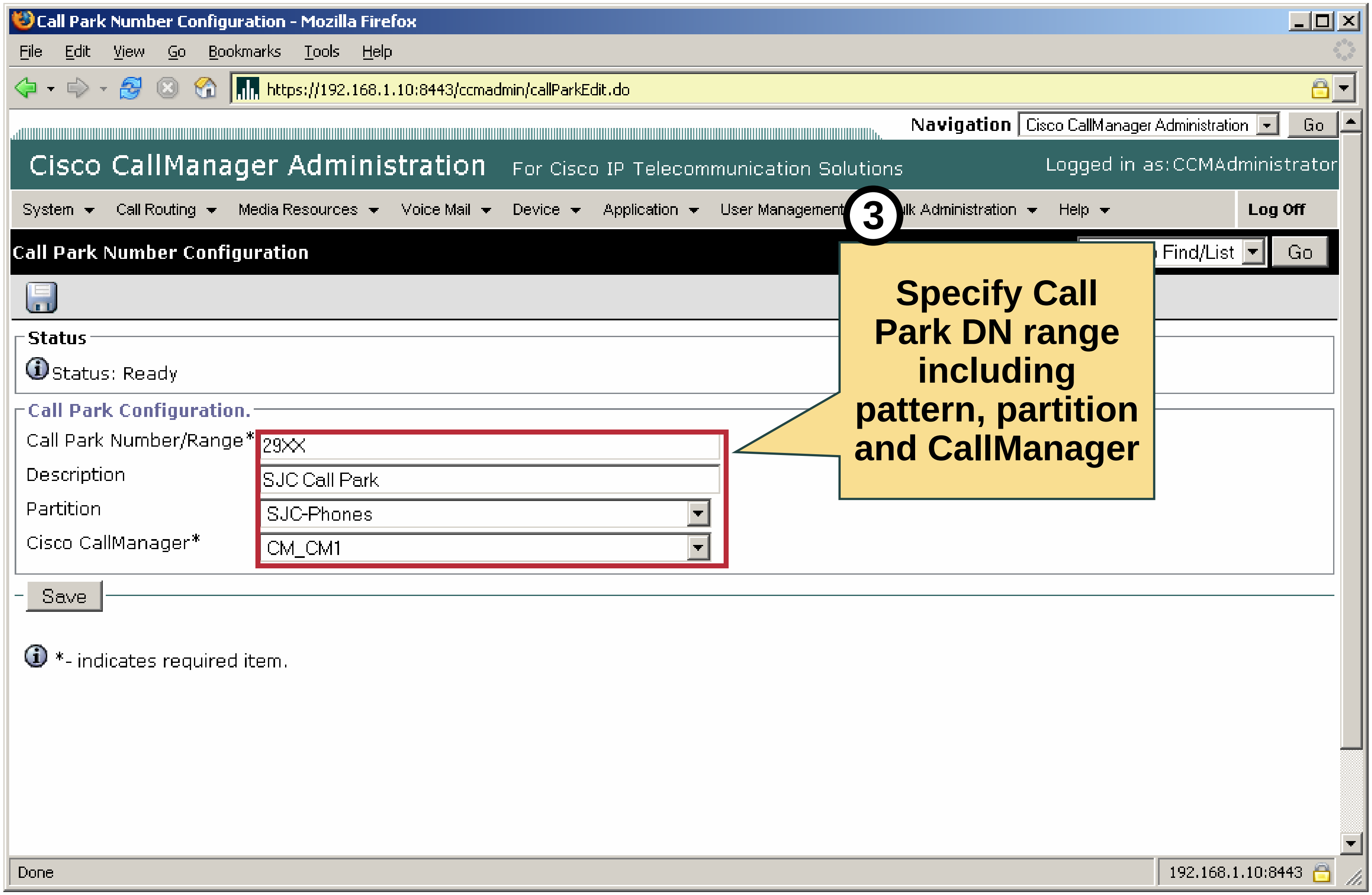
Find Call Park Numbers where Nu

No active query. Pleas enter your search criteria using the options above.

②

Add a new Call Park range.

Configuring Call Park



Call Park Number Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/callParkEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Call Park Number Configuration
Find/List Go
Status
Status: Ready
Call Park Configuration.
Save
Done
192.168.1.10:8443

Call Park Number/Range*	29XX
Description	SJC Call Park
Partition	SJC-Phones
Cisco CallManager*	CM_CM1

*- indicates required item.

3

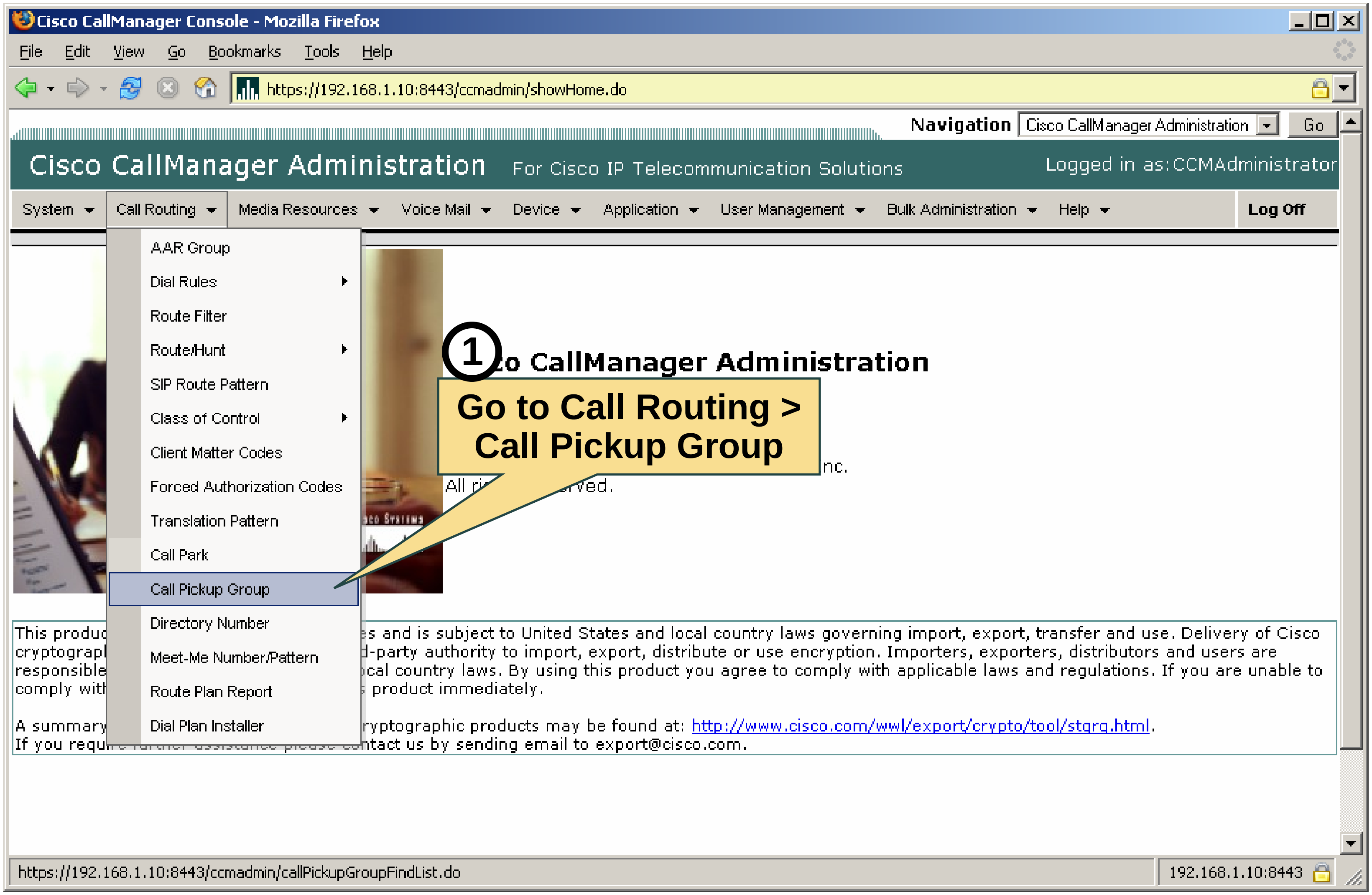
Specify Call Park DN range including pattern, partition and CallManager

Configuring Call Pickup

Call Pickup configuration steps:

1. Go to Call Routing > Call Pickup.
2. Add a new Call Pickup group.
3. Configure a Call Pickup group.
4. Assign Call Pickup group to multiple lines.

Configuring Call Pickup


Cisco CallManager Console - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
https://192.168.1.10:8443/ccmadmin/showHome.do
Navigation
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP Telecommunication Solutions
Logged in as:CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
Application
User Management
Bulk Administration
Help
Log Off
AAR Group
Dial Rules
Route Filter
Route/Hunt
SIP Route Pattern
Class of Control
Client Matter Codes
Forced Authorization Codes
Translation Pattern
Call Park
Call Pickup Group
Directory Number
Meet-Me Number/Pattern
Route Plan Report
Dial Plan Installer
co CallManager Administration
nc.
All ri rved.
https://192.168.1.10:8443/ccmadmin/callPickupGroupFindList.do
192.168.1.10:8443

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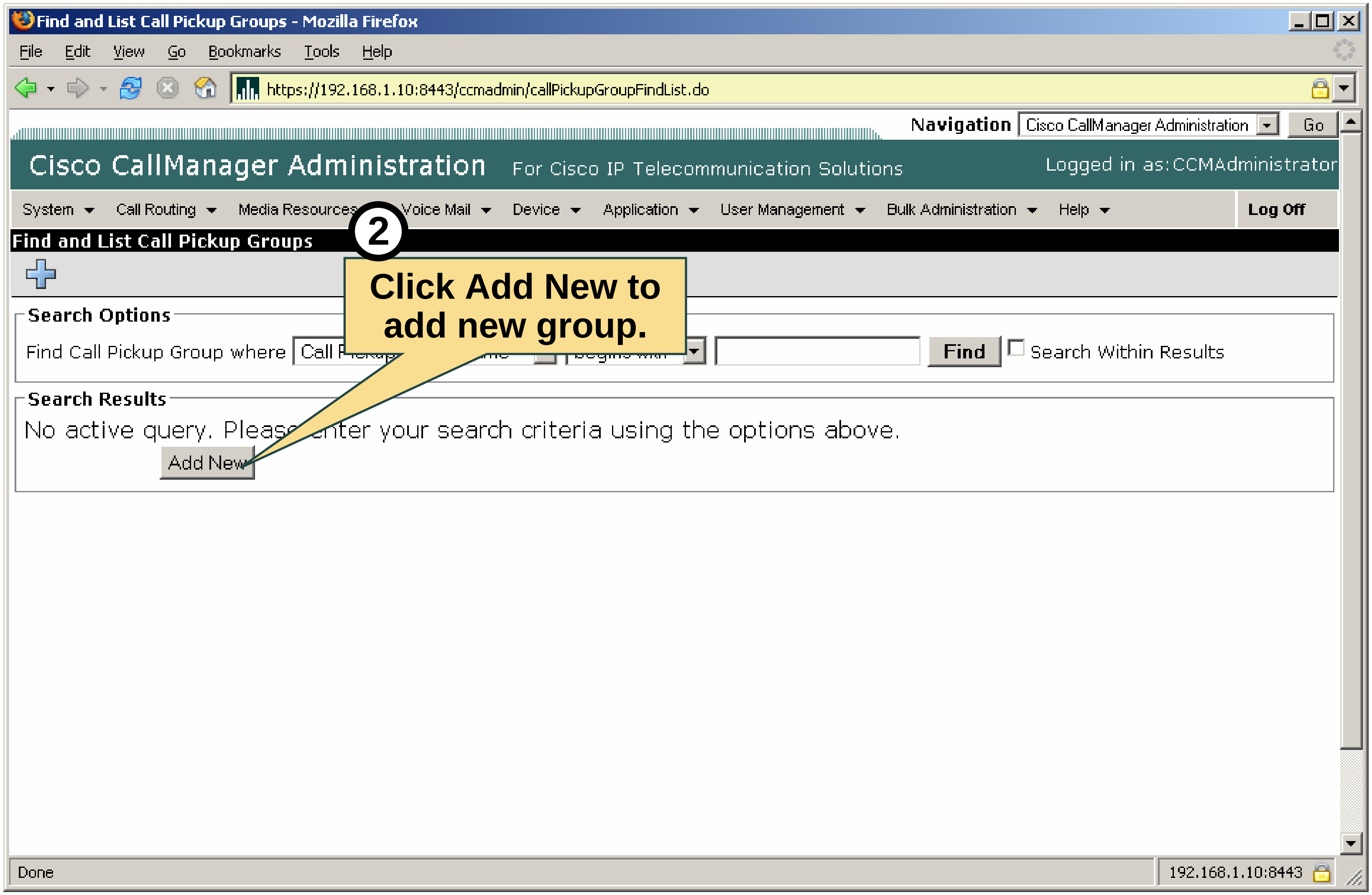
A summary ryptographic products may be found at: http://www.cisco.com/wwl/export/crypto/tool/stqrg.html.
If you requ ntact us by sending email to export@cisco.com.

① Go to Call Routing > Call Pickup Group

Configuring Call Pickup

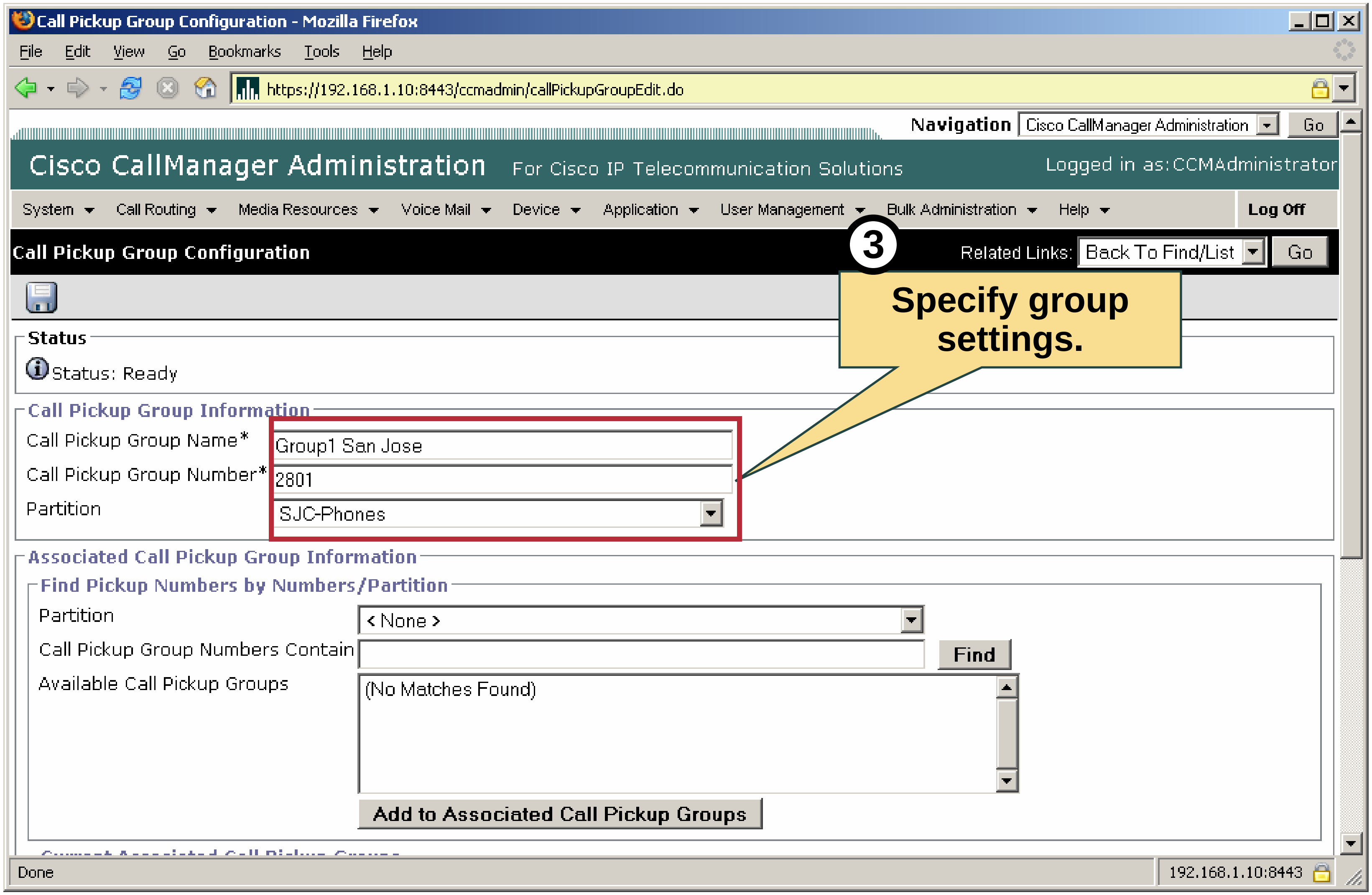


Find and List Call Pickup Groups - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/callPickupGroupFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help
Log Off
Find and List Call Pickup Groups
Search Options
Find Call Pickup Group where
Find
Search Within Results
Search Results
Add New
Done
192.168.1.10:8443

No active query. Please enter your search criteria using the options above.

② Click Add New to add new group.

Configuring Call Pickup


Call Pickup Group Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/callPickupGroupEdit.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Call Pickup Group Configuration
Related Links: Back To Find/List Go
Status
Status: Ready
Call Pickup Group Information
Associated Call Pickup Group Information
Find Pickup Numbers by Numbers/Partition
Find
Add to Associated Call Pickup Groups
Done
192.168.1.10:8443

Call Pickup Group Name* Group1 San Jose

Call Pickup Group Number* 2801

Partition SJC-Phones

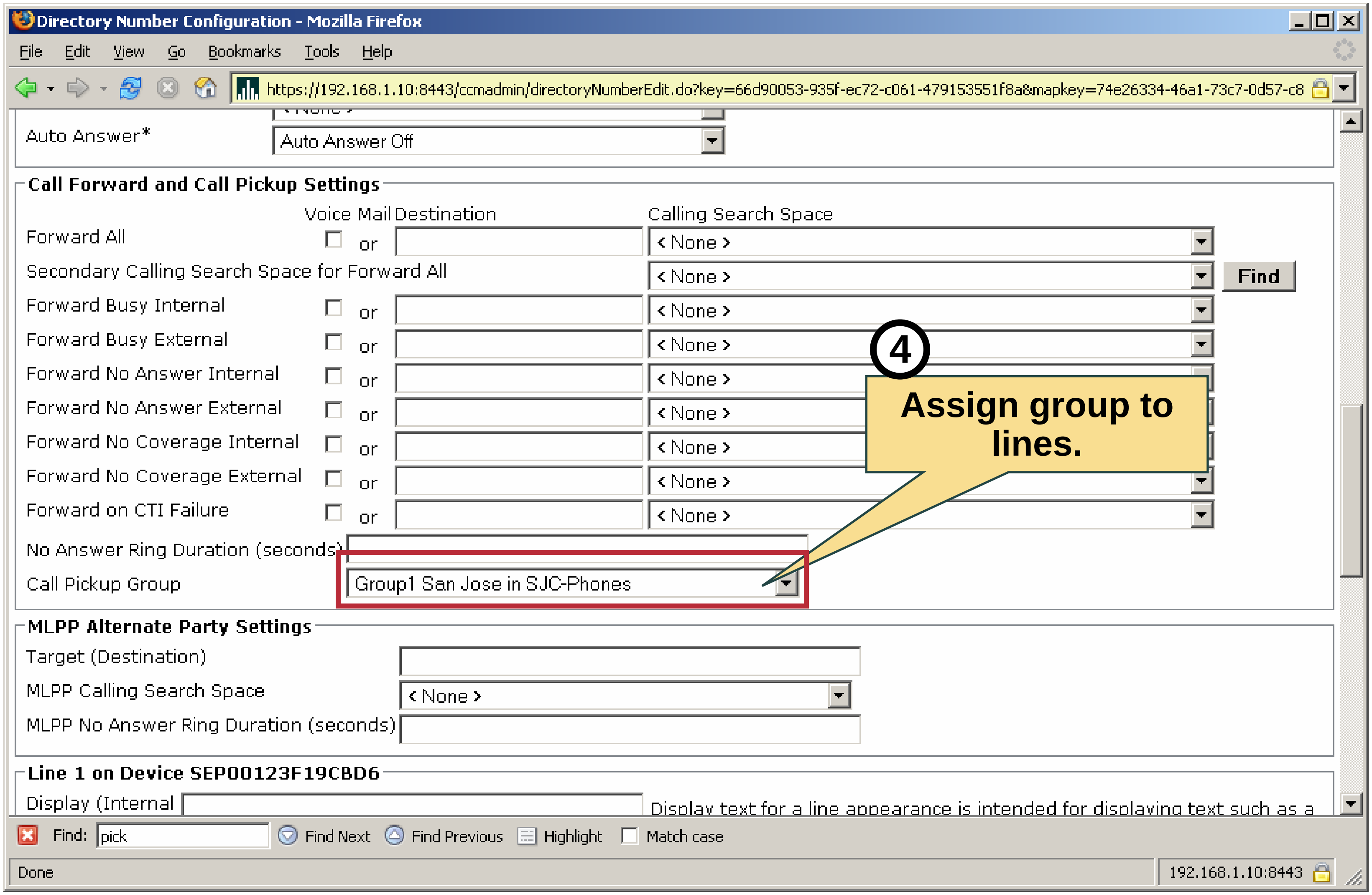
Partition < None >

Call Pickup Group Numbers Contain

Available Call Pickup Groups (No Matches Found)

3 Specify group settings.

Configuring Call Pickup



Directory Number Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/directoryNumberEdit.do?key=66d90053-935f-ec72-c061-479153551f8a&mapkey=74e26334-46a1-73c7-0d57-c8
Find
Find: pick
Find Next
Find Previous
Highlight
☐ Match case
Done
192.168.1.10:8443

Auto Answer* Auto Answer Off

Call Forward and Call Pickup Settings

	Voice Mail		Destination	Calling Search Space
Forward All	☐	or		< None >
Secondary Calling Search Space for Forward All				< None >
Forward Busy Internal	☐	or		< None >
Forward Busy External	☐	or		< None >
Forward No Answer Internal	☐	or		< None >
Forward No Answer External	☐	or		< None >
Forward No Coverage Internal	☐	or		< None >
Forward No Coverage External	☐	or		< None >
Forward on CTI Failure	☐	or		< None >

No Answer Ring Duration (seconds)

Call Pickup Group: Group1 San Jose in SJC-Phones

MLPP Alternate Party Settings

Target (Destination)

MLPP Calling Search Space: < None >

MLPP No Answer Ring Duration (seconds)

Line 1 on Device SEP00123F19CBD6

Display (Internal

Display text for a line appearance is intended for displaying text such as a

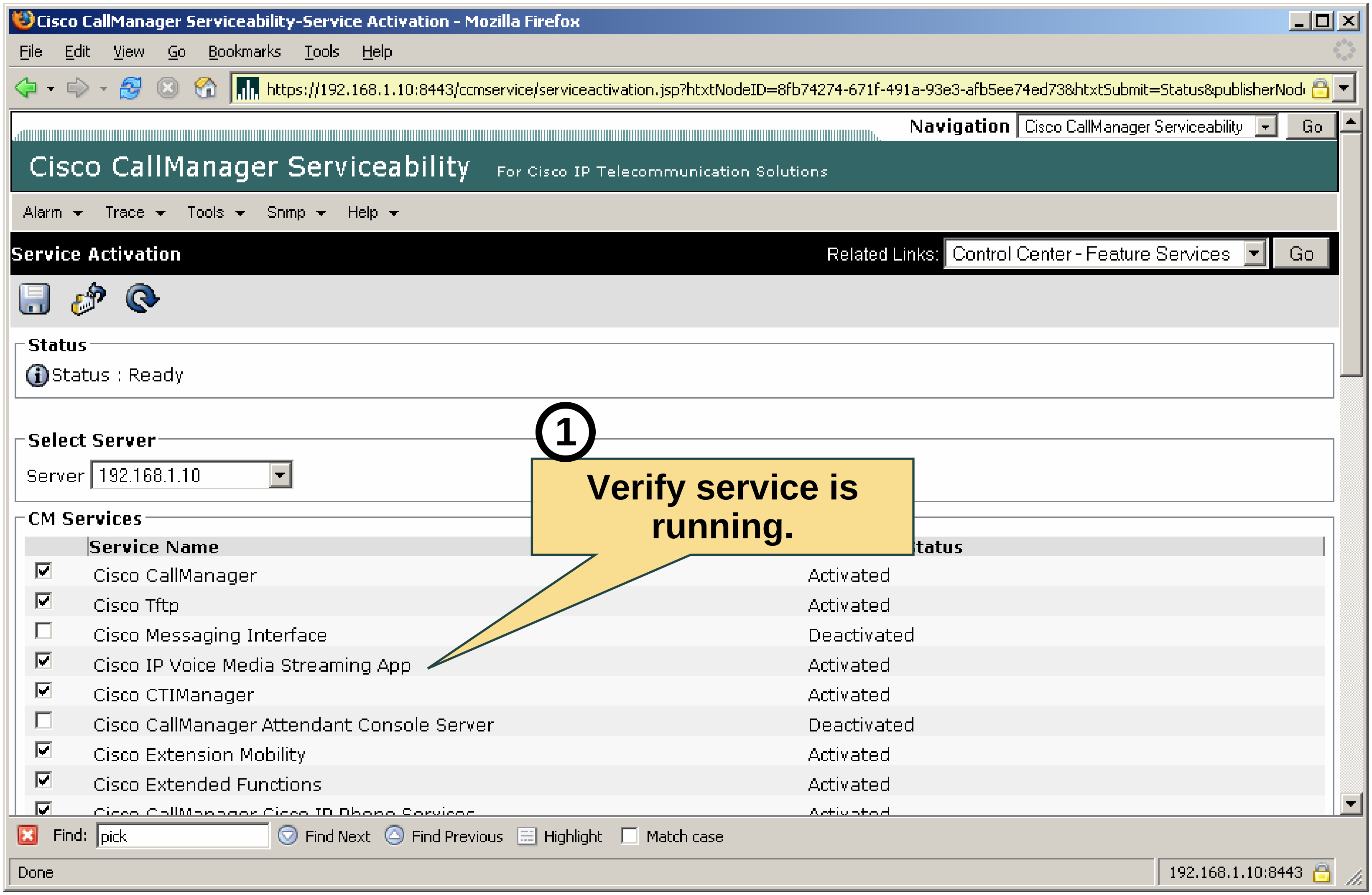
④ Assign group to lines.

Configuring Conferencing

Conferencing configuration steps:

1. Ensure that the IP Voice Media Stream App service is running.
2. Go to Media Resources > Conference Bridge.
3. Ensure that a software Conference Bridge is registered.
4. Configure Conference Bridge settings.
5. Tweak IP Media Streaming App service parameters. (optional).
6. Tweak CallManager service parameters (optional).

Configuring Conferencing


Cisco CallManager Serviceability-Service Activation - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Serviceability Go
Cisco CallManager Serviceability For Cisco IP Telecommunication Solutions
Alarm Trace Tools Snmp Help
Related Links: Control Center - Feature Services Go
Find: pick Find Next Find Previous Highlight Match case
Done
192.168.1.10:8443

https://192.168.1.10:8443/ccmservice/serviceactivation.jsp?htxtNodeID=8fb74274-671f-491a-93e3-afb5ee74ed73&htxtSubmit=Status&publisherNod

Service Activation

Status

Status : Ready

Select Server

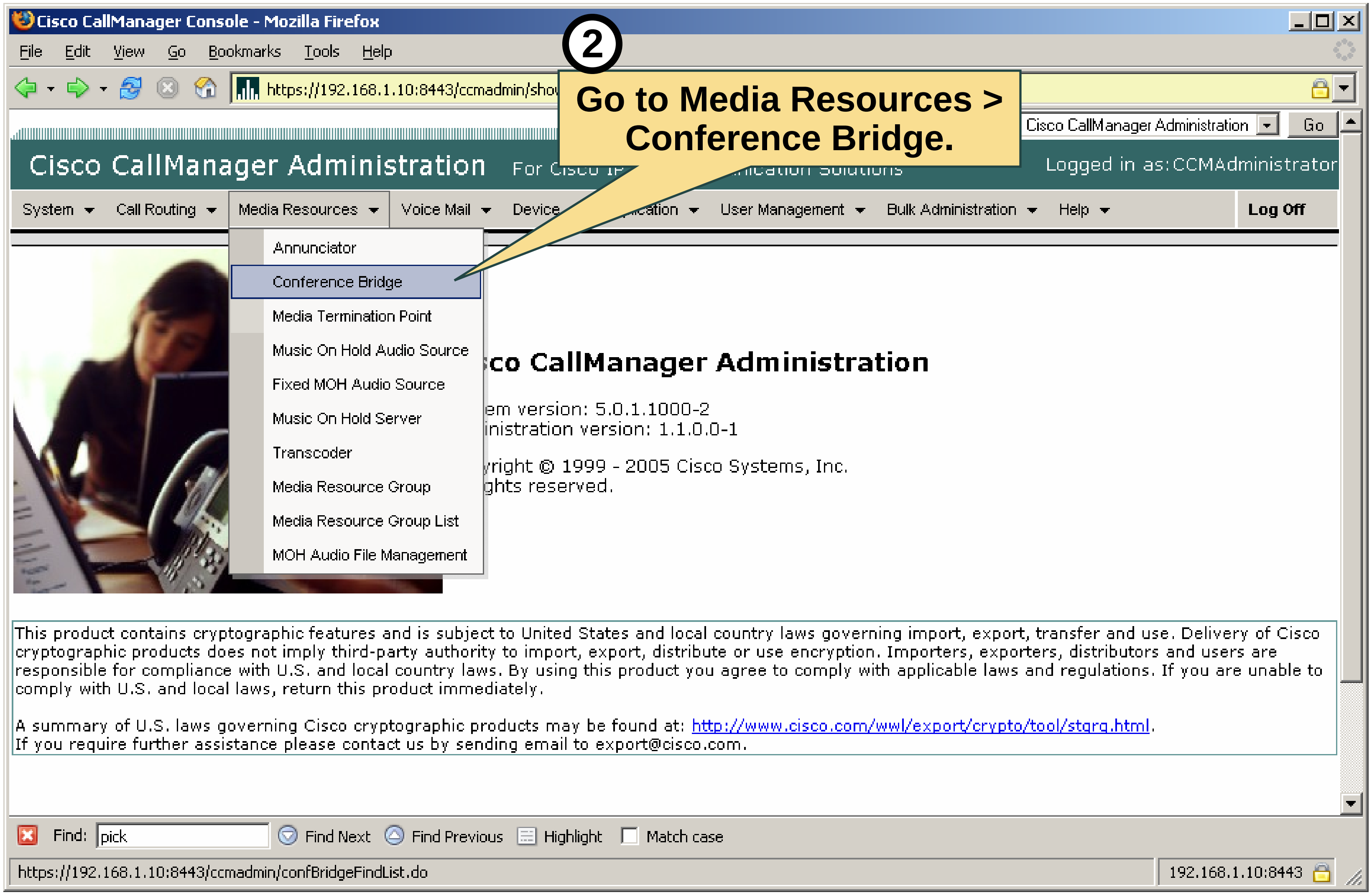
Server 192.168.1.10

CM Services

	Service Name	Status
☑	Cisco CallManager	Activated
☑	Cisco Tftp	Activated
☐	Cisco Messaging Interface	Deactivated
☑	Cisco IP Voice Media Streaming App	Activated
☑	Cisco CTIManager	Activated
☐	Cisco CallManager Attendant Console Server	Deactivated
☑	Cisco Extension Mobility	Activated
☑	Cisco Extended Functions	Activated
☑	Cisco CallManager Cisco IP Phone Services	Activated

① Verify service is running.

Configuring Conferencing



2

Go to Media Resources > Conference Bridge.

Cisco CallManager Console - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/show
Cisco CallManager Administration
Go
Cisco CallManager Administration
For Cisco IP ... ication Solutions
Logged in as: CCMAdministrator
System
Call Routing
Media Resources
Voice Mail
Device
...ication
User Management
Bulk Administration
Help
Log Off
Annunciator
Conference Bridge
Media Termination Point
Music On Hold Audio Source
Fixed MOH Audio Source
Music On Hold Server
Transcoder
Media Resource Group
Media Resource Group List
MOH Audio File Management
Find: pick
Find Next
Find Previous
Highlight
☐ Match case
https://192.168.1.10:8443/ccmadmin/confBridgeFindList.do
192.168.1.10:8443

...co CallManager Administration

...em version: 5.0.1.1000-2
...inistration version: 1.1.0.0-1

...yright © 1999 - 2005 Cisco Systems, Inc.
...ghts reserved.

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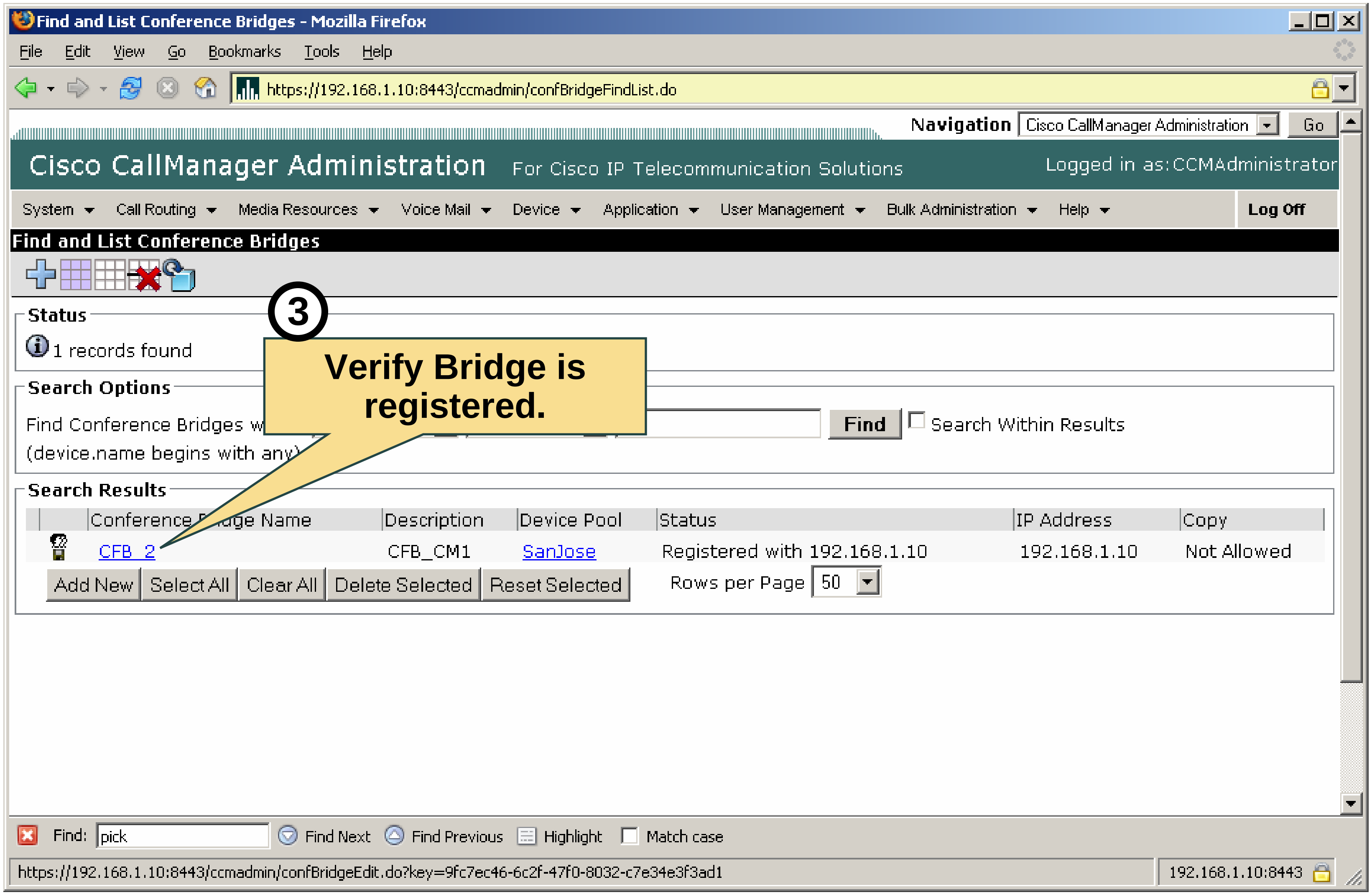
A summary of U.S. laws governing Cisco cryptographic products may be found at: http://www.cisco.com/wwl/export/crypto/tool/stqrg.html.
If you require further assistance please contact us by sending email to export@cisco.com.

Configuring Conferencing


Find and List Conference Bridges - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/confBridgeFindList.do
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Find and List Conference Bridges

Status

1 records found

Search Options

Find Conference Bridges w
(device.name begins with any)

Find ☐ Search Within Results

Search Results

	Conference Bridge Name	Description	Device Pool	Status	IP Address	Copy
	CFB_2	CFB_CM1	SanJose	Registered with 192.168.1.10	192.168.1.10	Not Allowed

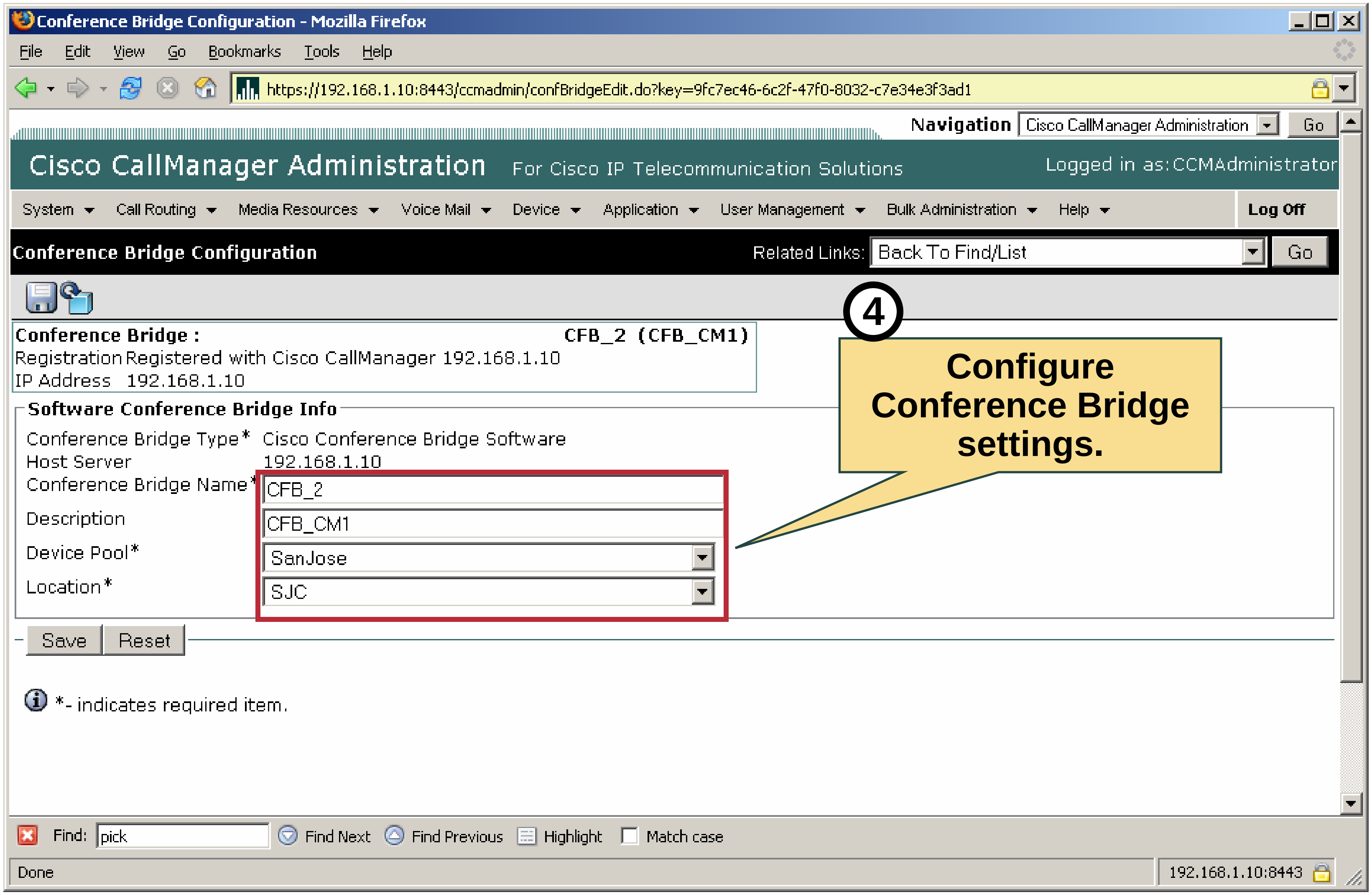
Add New | Select All | Clear All | Delete Selected | Reset Selected

Rows per Page 50

Find: pick Find Next Find Previous Highlight ☐ Match case
https://192.168.1.10:8443/ccmadmin/confBridgeEdit.do?key=9fc7ec46-6c2f-47f0-8032-c7e34e3f3ad1
192.168.1.10:8443

③ **Verify Bridge is registered.**

Configuring Conferencing



Conference Bridge Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
Navigation Cisco CallManager Administration Go
Cisco CallManager Administration For Cisco IP Telecommunication Solutions
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off
Related Links: Back To Find/List Go
Save Reset
Find: pick Find Next Find Previous Highlight Match case
Done
192.168.1.10:8443

https://192.168.1.10:8443/ccmadmin/confBridgeEdit.do?key=9fc7ec46-6c2f-47f0-8032-c7e34e3f3ad1

Logged in as: CCMAdministrator

Conference Bridge Configuration

Conference Bridge : **CFB_2 (CFB_CM1)**
Registration Registered with Cisco CallManager 192.168.1.10
IP Address 192.168.1.10

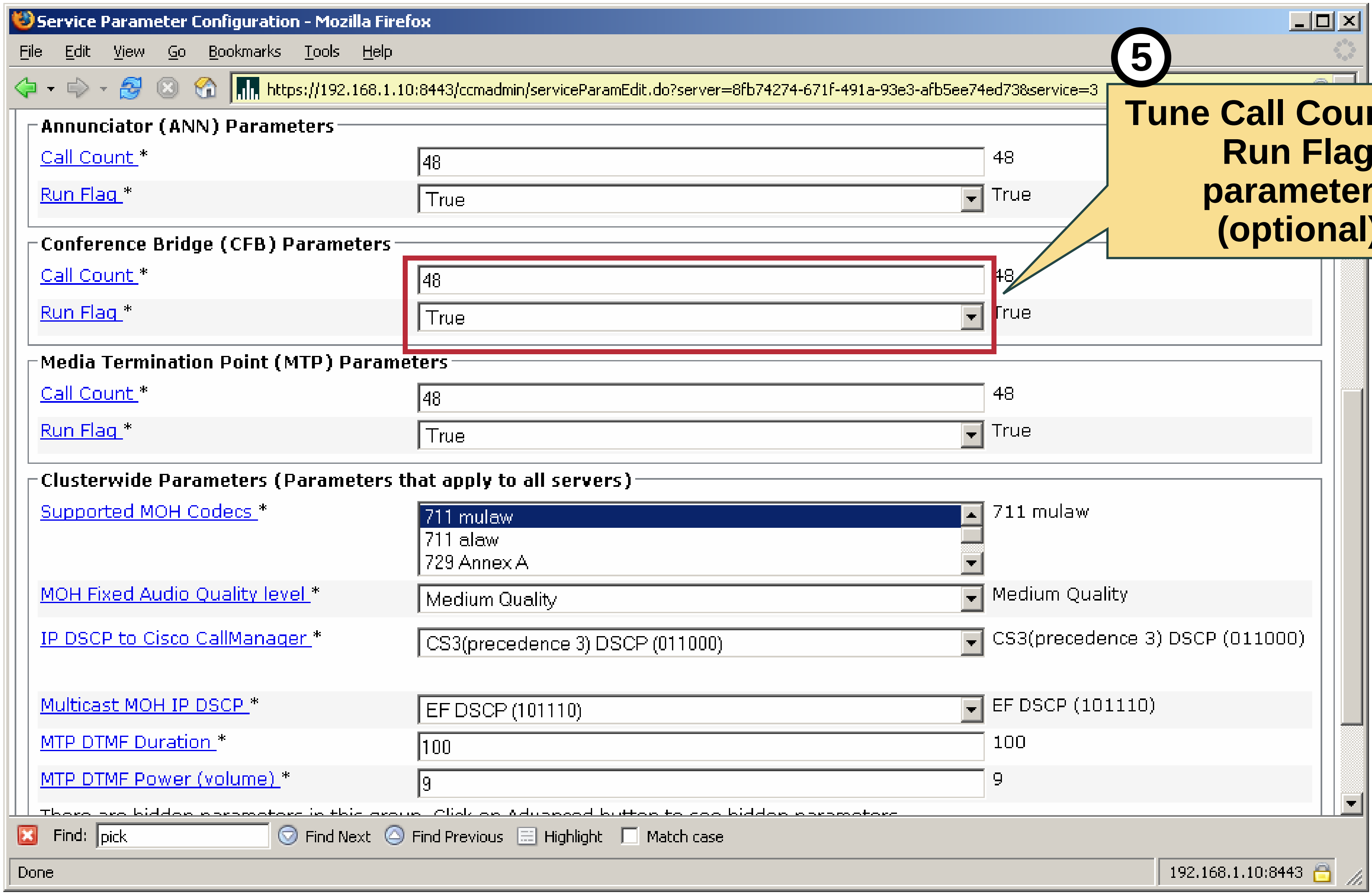
Software Conference Bridge Info

Conference Bridge Type*	Cisco Conference Bridge Software
Host Server	192.168.1.10
Conference Bridge Name*	CFB_2
Description	CFB_CM1
Device Pool*	SanJose
Location*	SJC

*- indicates required item.

④ **Configure Conference Bridge settings.**

Configuring Conferencing


Service Parameter Configuration - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
https://192.168.1.10:8443/ccmadmin/serviceParamEdit.do?server=8fb74274-671f-491a-93e3-afb5ee74ed73&service=3

Annunciator (ANN) Parameters

Call Count *	48	48
Run Flag *	True	True

Conference Bridge (CFB) Parameters

Call Count *	48	48
Run Flag *	True	True

Media Termination Point (MTP) Parameters

Call Count *	48	48
Run Flag *	True	True

Clusterwide Parameters (Parameters that apply to all servers)

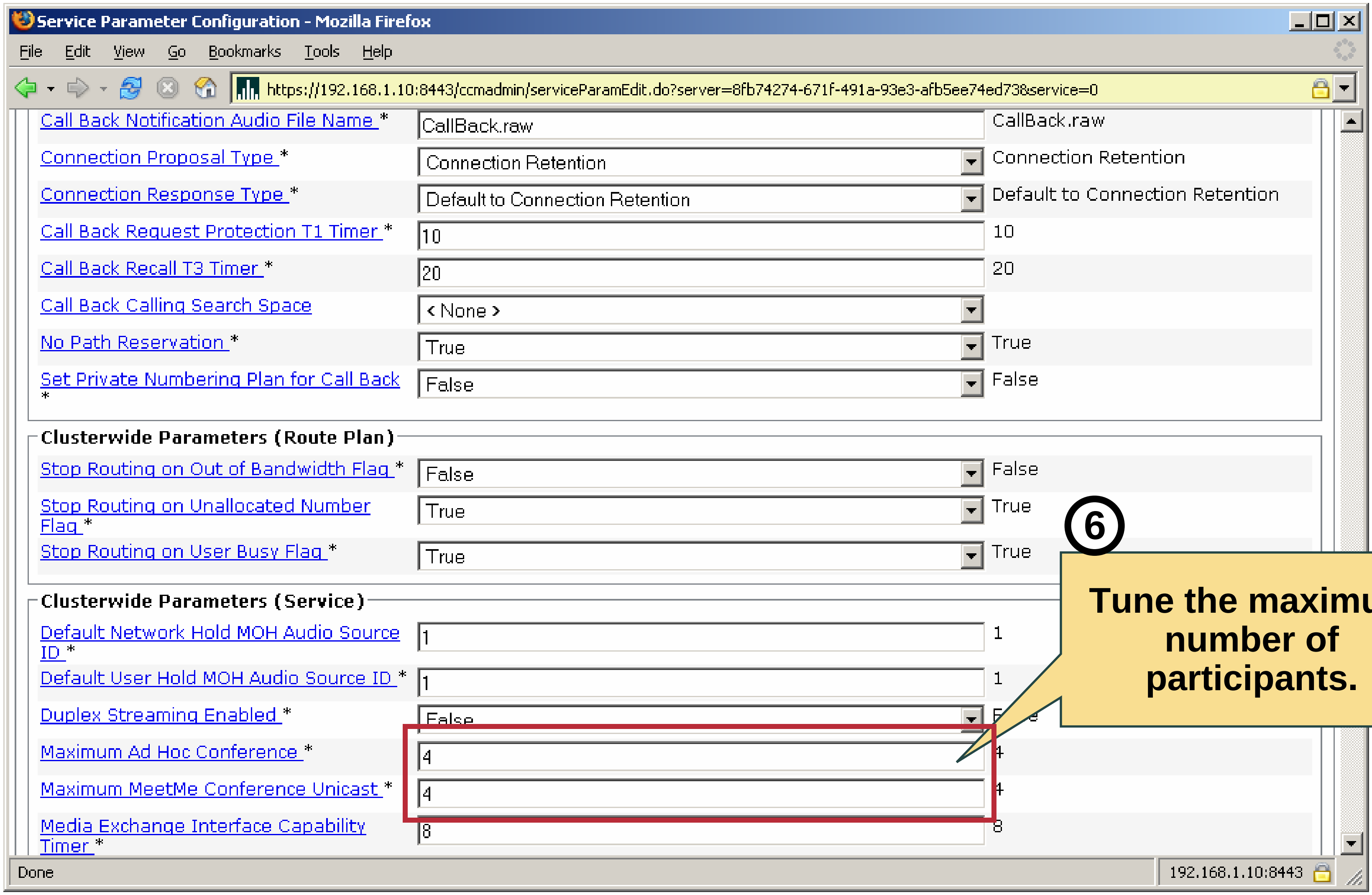
Supported MOH Codecs *	711 mulaw 711 alaw 729 Annex A	711 mulaw
MOH Fixed Audio Quality level *	Medium Quality	Medium Quality
IP DSCP to Cisco CallManager *	CS3(precedence 3) DSCP (011000)	CS3(precedence 3) DSCP (011000)
Multicast MOH IP DSCP *	EF DSCP (101110)	EF DSCP (101110)
MTP DTMF Duration *	100	100
MTP DTMF Power (volume) *	9	9

There are hidden parameters in this group. Click on Advanced button to see hidden parameters.

Find: pick
Find Next
Find Previous
Highlight
☐ Match case
Done
192.168.1.10:8443

⑤ Tune Call Count and Run Flag parameters (optional)

Configuring Conferencing


Service Parameter Configuration - Mozilla Firefox
File
Edit
View
Go
Bookmarks
Tools
Help
https://192.168.1.10:8443/ccmadmin/serviceParamEdit.do?server=8fb74274-671f-491a-93e3-afb5ee74ed73&service=0
Done
192.168.1.10:8443

Call Back Notification Audio File Name *	CallBack.raw	CallBack.raw
Connection Proposal Type *	Connection Retention	Connection Retention
Connection Response Type *	Default to Connection Retention	Default to Connection Retention
Call Back Request Protection T1 Timer *	10	10
Call Back Recall T3 Timer *	20	20
Call Back Calling Search Space	< None >	
No Path Reservation *	True	True
Set Private Numbering Plan for Call Back *	False	False

Clusterwide Parameters (Route Plan)

Stop Routing on Out of Bandwidth Flag *	False	False
Stop Routing on Unallocated Number Flag *	True	True
Stop Routing on User Busy Flag *	True	True

Clusterwide Parameters (Service)

Default Network Hold MOH Audio Source ID *	1	1
Default User Hold MOH Audio Source ID *	1	1
Duplex Streaming Enabled *	False	F[illegible]e
Maximum Ad Hoc Conference *	4	4
Maximum MeetMe Conference Unicast *	4	4
Media Exchange Interface Capability Timer *	8	8

⑥

Tune the maximum number of participants.

Summary

- Add Call Park patterns to a partitions.
- Configure call pick up groups and assign them to phones.
- AdHoc conferencing is done via the conference bridge.

CISCO SYSTEMS