



## AON Lab Guide

### Synopsis

In this Lab you will use a simulated Application-Oriented Networking (AON) environment to deploy an application level policy into the network flow. A simple scenario will be used to ensure you focus on the key concepts of AON.

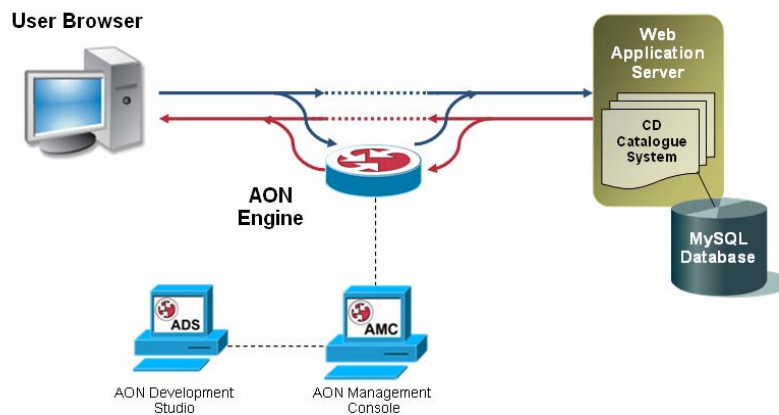
### Objectives

The objectives of this lab are:

- To introduce you to the AON Development Studio (ADS), the AON Management Console (AMC) and the AON development lifecycle
- For you to create and deploy an application level policy that affects communications between a client and a server application
- To make you familiar with the concepts of AON and the skills required for its successful application within your network

### Background Scenario

The following diagram illustrates the environment into which you will deploy an AON policy.





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A CD Catalogue service provides an online store of music titles. This is accessed via a web browser and you may view and add entries to this database. You will deploy an AON policy that affects the data submitted to this service as it traverses the network.

The following components (as shown in the diagram) are installed on your lab PC to create this environment:

- Web Browsers
  - Use to access the CD Catalogue System, and the AON management tools
- Application Server
  - Hosting the back-end CD Catalogue System, serving dynamic web pages
- Database Server
  - Containing the data to be displayed by the CD Catalogue System
- AON Engine
  - A desktop version of the AON software for policy execution. Normally running on dedicated network hardware, this engine will apply the policies you create to the traffic submitted to the CD Catalogue System
- AON Development Studio (ADS)
  - The environment used to create AON policies
- AON Management Console (AMC)
  - The environment used to manage and deploy AON policies

This guide will introduce the above tools and applications through a set of exercises simulating an online CD catalogue application and demonstrating how to establish policies distributed in the Network using Cisco AON technology.

Should you have any questions then please ask your lab administrator!



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## Lab Guide Application-oriented Networking

The following exercises show you how to use the Cisco AON tools using the example of a web-based CD catalogue application.

To perform the exercises you need to run the VMware environment installed on your lab PCs.

### **Exercise 1: View the CD Catalogue Web Site**

During the following steps you will start the demo environment and access the CD catalogue as well as enter a record to the CD Catalogue System.

Here are the step by step instructions...

1. Start the Virtual Machine by double-clicking the VMware Player icon.



VMware Player

2. Select the 'Windows XP Professional.vmx' virtual machine that shows up in the file dialog and start it.
3. In the VMWare environment ensure that the AON services are running.
  - a. Click on the Services icon in the Quickstart bar next to the Start



button.

- b. Check for the Services AMA210173, AMC210173, and AON210173

Service Name	Description	Type
AMA 210173	Cisco Syst...	Manual
AMC 210173	AON Mana...	Manual
AON 210173	Cisco Syst...	Manual

- c. If the Services are not running (as it is the case in the picture above) start them one after the other. The final one, AON210173, will take some time to start up, please wait until the service is up and running before you continue.

4. Start Internet Explorer by double-clicking the icon "AON Demo Application"



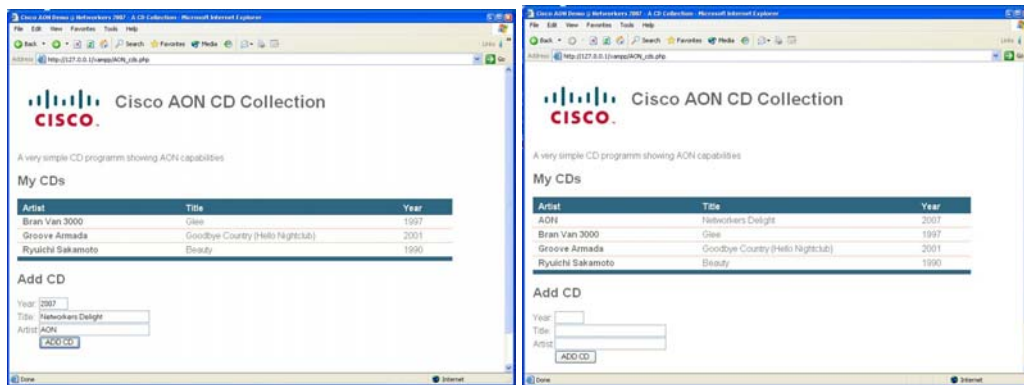


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5. Check that the default page starts up with the URL [http://127.0.0.1/xampp/AON\\_cds.php](http://127.0.0.1/xampp/AON_cds.php)  
This is the CD Catalogue site used throughout this exercise. It allows you to add records to a database for subsequent viewing.
6. Add a record to the CD Catalogue System using the form at the bottom of the page.



This system sends the data from the HTML page to the back end service using URL parameters. Later in this exercise we will change the data being posted using an AON policy, but first let's look at an existing deployed system.

## ***Exercise 2: View the Deployed AON System***

Take some time to familiarise yourself with the currently deployed AON policies. AON is already configured to intercept the web traffic and apply an *empty* policy to the requests. It is this policy that you will redeploy later to modify the HTTP messages.

1. Load the AON Design Studio by clicking the desktop shortcut



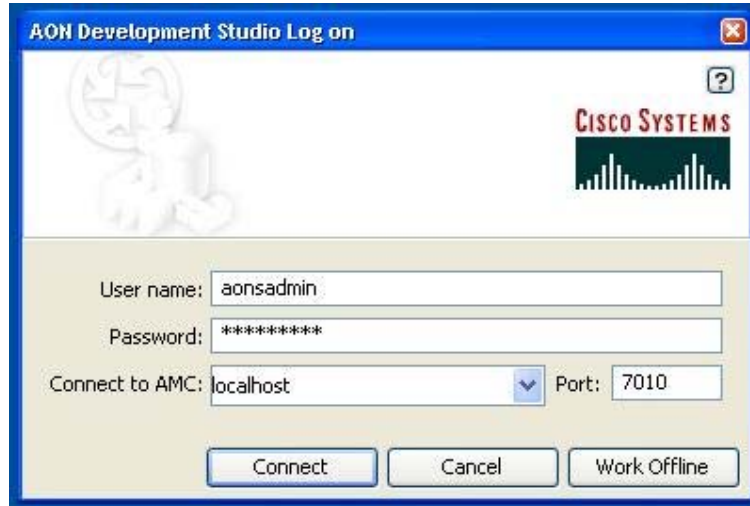


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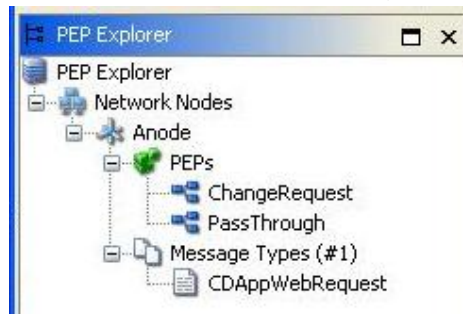
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2. Login using User name *aonsadmin* and Password *aonsadmin* to AMC *localhost* on Port *7010*



3. Expand the explorer tree on the left of the studio and select the Message Type 'CDAppWebRequest'. Right-click 'properties':





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Message Type Definition

Name: CDAppWebRequest

- Current AMC - (locally created)

Message Classifier: AllTraffic

URI: /\*

Parameter Rules | Header Rules | Content Rules

Add  Trim trailing and leading spaces in the values specified in each line

Policies

PEP: PassThrough

Encoding: [dropdown]

Delivery: [dropdown]

QoS: [dropdown]

Help OK Cancel

A screen like the one above will be shown. The two items of note are:

- The Message Classifier "AllTraffic" and the URI filter pattern '/\*'
- The PEP 'PassThrough'

The current configuration is such that all the web traffic (i.e. URI: /\*) will be proxied via the policy named 'PassThrough'.

4. Now close the open dialogs and let's look at the policy 'PassThrough'.



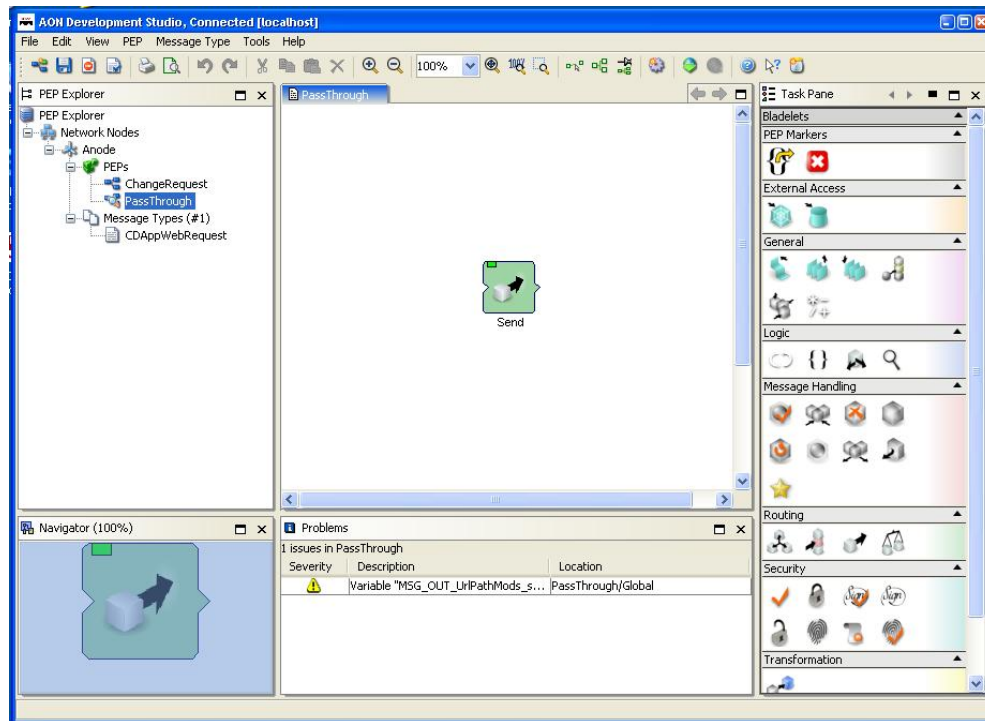
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5. Double-Click on the policy 'PassThrough' in the explorer tree of the ADS

The work area will load the policy:

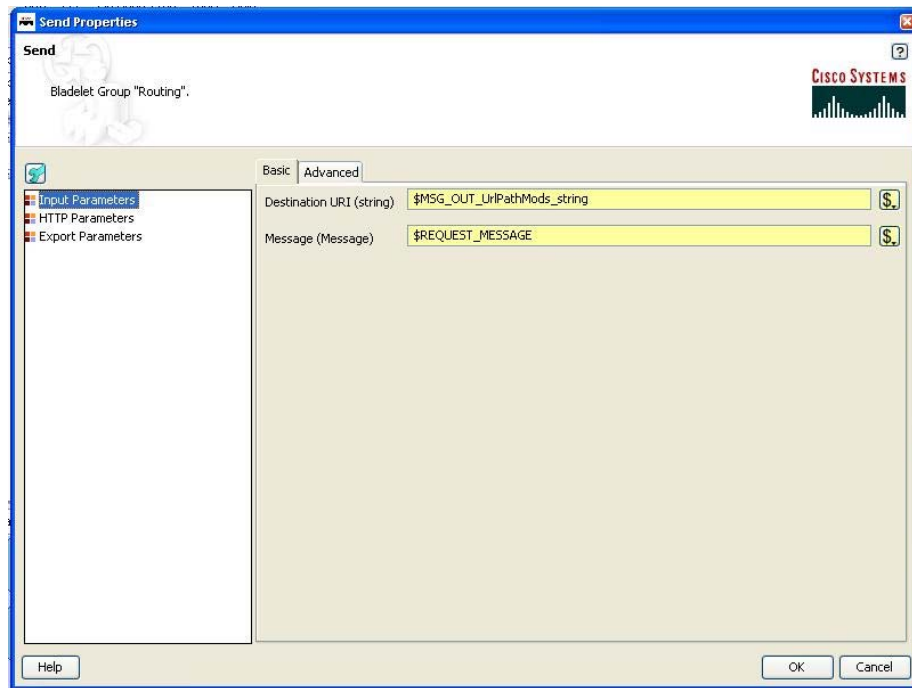


Note that this policy contains a single 'Bladelet'. This Bladelet simply sends the request to the destination unaltered. You can check that no changes are made by the Bladelet by double-clicking its icon and seeing no parameters are set in its properties.



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The system passes data to the back end PHP page using URL parameters. We are now going to alter the policies required to change those parameters as they are sent across the network.





## **Exercise 3: Change to the AON policy that changes the URL parameters**

Now we are going to change to the policy 'ChangeRequest' so the text that will go into the database is changed 'on the fly' while being transferred from the web entry page to the application server. This is an illustration of the power of policies applied transparently in the network to the information flow between applications.

Please follow the steps...

1. Open the Message Type 'CDAppWebRequest' again.
2. Change the URI parameter to '/xampp/AON\_cds.php'
3. Change the PEP parameter in the Policies section to 'ChangeRequest'

The screenshot shows the 'Message Type Definition' dialog box. The 'Name' field is 'CDAppWebRequest'. The 'Message Classifier' is 'AllTraffic'. The 'URI' field is '/xampp/AON\_cds.php'. The 'Policies' section has 'PEP' set to 'ChangeRequest'. The 'Add' button is visible, and the 'Trim trailing and leading spaces in the values specified in each line' checkbox is checked. The 'Help', 'OK', and 'Cancel' buttons are at the bottom.

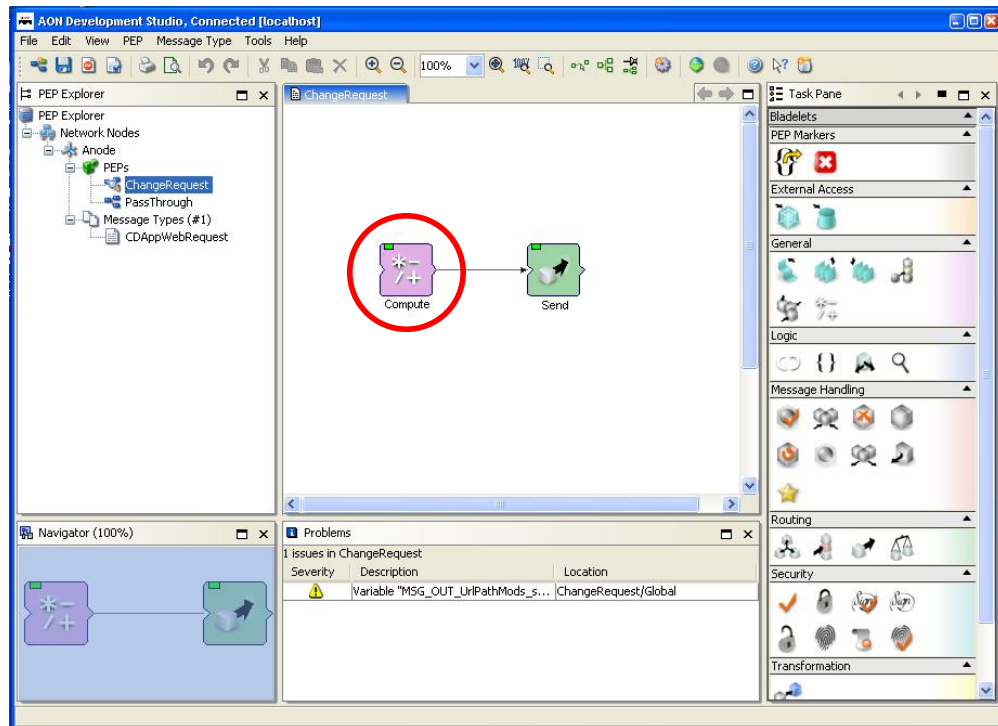


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- Press 'OK' to close the Message Type Definition dialog.
- Now let's have a look at the policy we just defined to be triggered as soon as the web request comes in. Double-click on the 'ChangeRequest' PEP to open it in the tree explorer.



- Note the additional 'Compute' Bladelet when compared to the 'PassThrough' PEP that was triggered before. Double-click on this Bladelet to examine its properties.

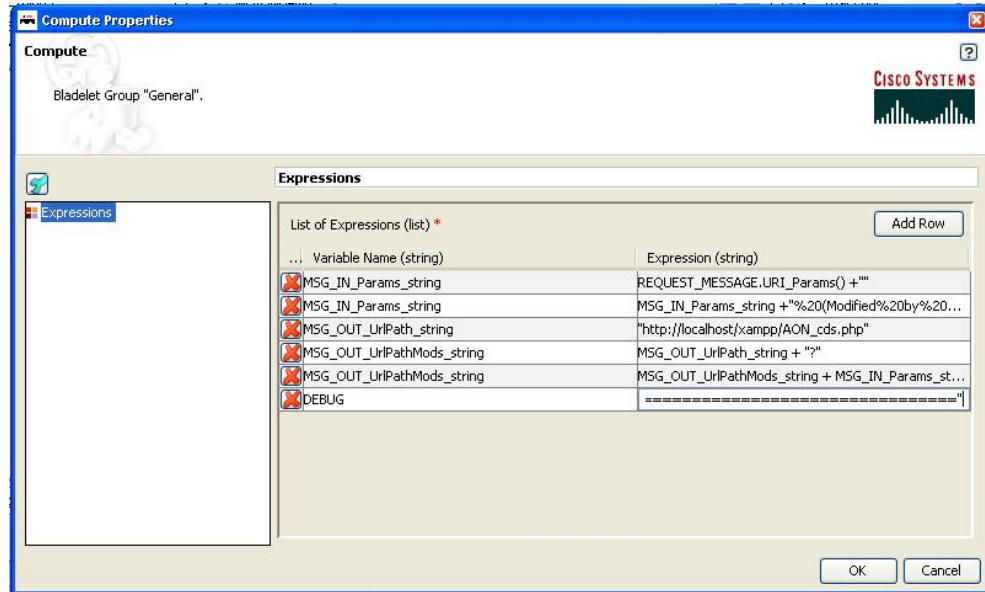


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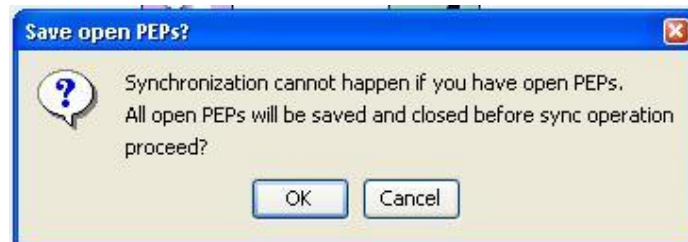
- Note the Bladelet parameters that will alter the original HTTP request parameters. Namely, the 'MSG\_IN\_Params\_string' will be altered by adding the string '(Modified by AON)' to the existing data.



- Ok, now close the open dialogs to synchronize the ADS with the AMC Repository.
- Synchronize the AON Development Studio with the AON Management Console Repository by clicking the 'Synchronize' icon in the toolbar.



- The following dialog box should pop up if you have not closed the PEP (if there is no open PEP move on to the next step).



Press 'OK' to continue.

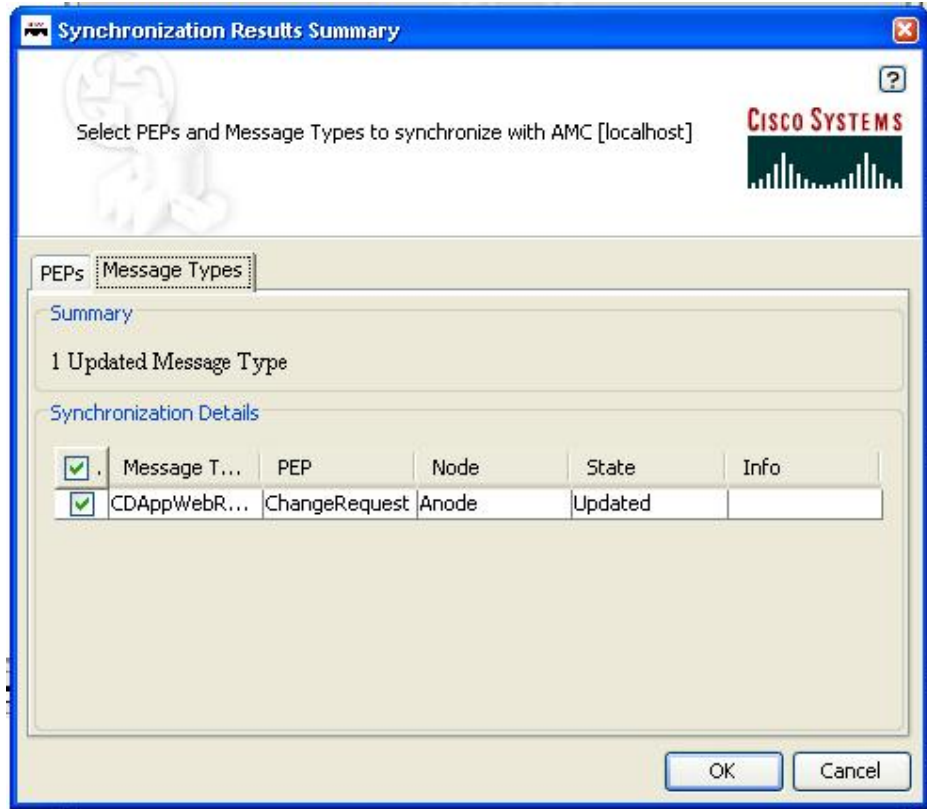


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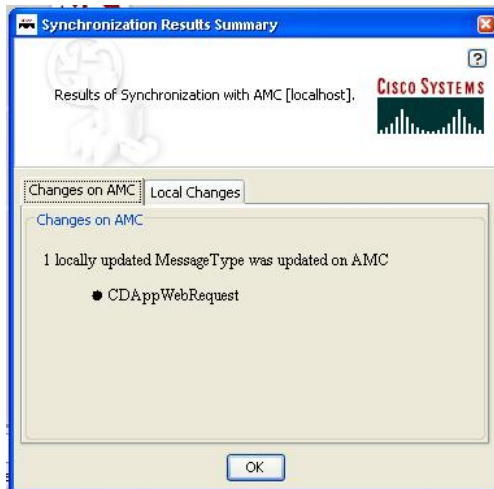
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11. Now the Synchronization Dialog will ask you which PEPs and/or Message Types to synchronize. As we did not change any PEPs, please move over to the 'Message Types' tab and select the 'CDAppWebRequest' Message Type. Press 'OK'



This will result in a Summary window. Press 'OK' to finish that step.





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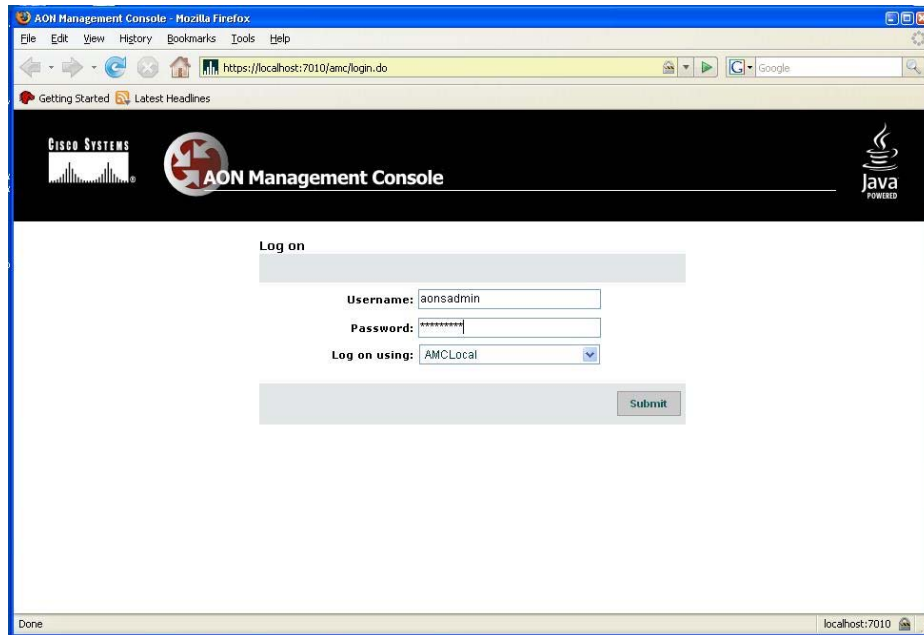
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12. Now start the AON Management Console by double-clicking the following icon on the desktop:



13. Login to the AMC using Username 'aonsadmin' and Password 'aonsadmin'.





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14. Change to the Deploy tab which will have an open deployment request waiting for you to 'stage'.

AON Management Console - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://localhost:7010/amc/defaultSelection.do?selectedTab=Deploy&selectedSubmenu=8sele

Getting Started Latest Headlines

Cisco SYSTEMS AON Management Console Logout | Help | About

Network Properties **Deploy** Monitor Keystores Admin

Deployment Requests

Manage Staging  
Manage Deployment  
Summary

Deploy > Deployment Requests > Manage Staging

Manage Staging

No Global Deployment Requests Available

Open Node Deployment Requests

#	Name	State	Deployment Error
1	Anode: Dec 20, 2006 16:03:49	Open	

Rows/Page 10 Go Page 1 / 1 Go

Details Stage Unstage Delete

Done localhost:7010

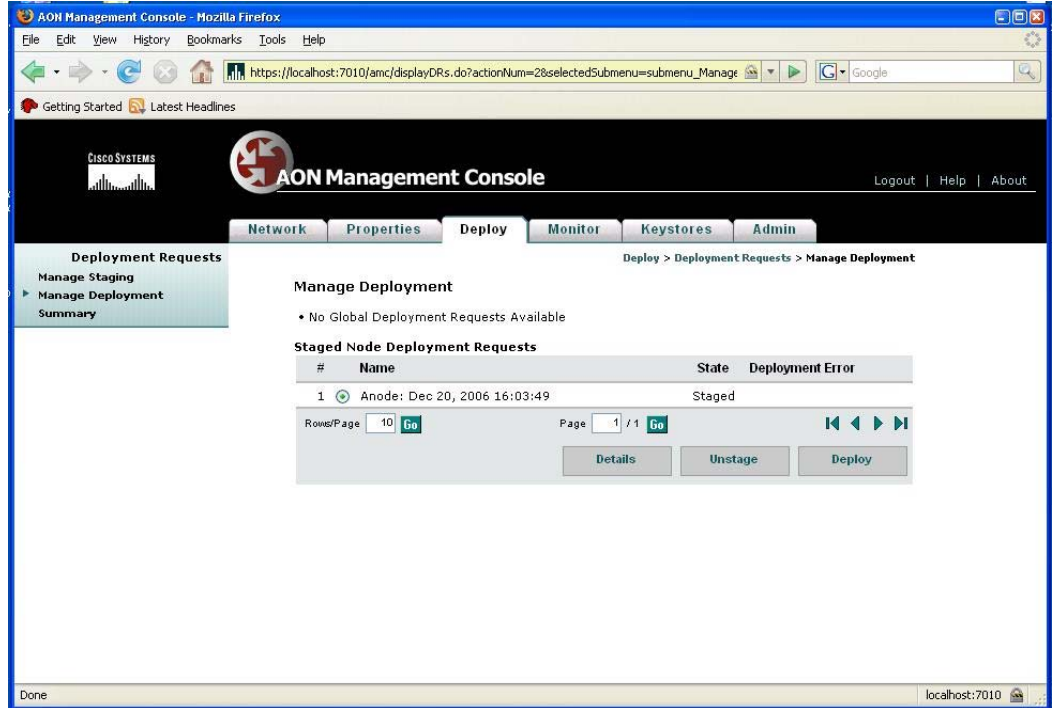


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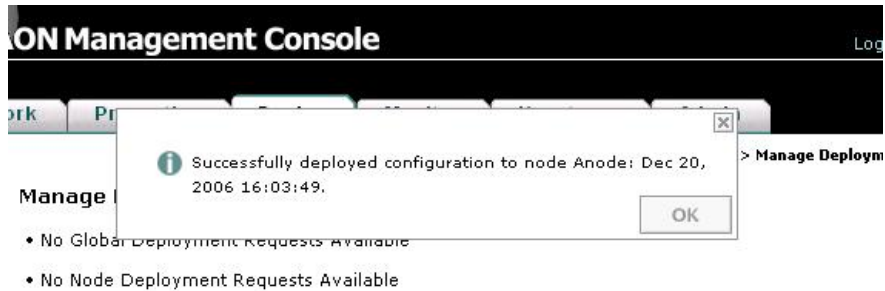
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15. Now press the 'Stage' button and change to section 'Manage Deployment' which will result in the following screen.



16. Deploy the Request to the AON node to finally activate the changes you made to the policy. You will receive the following message.



17. Go back to the AON Demo Application or start the browser again using the AON Demo Application icon.





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18. You should see the list of records including the record you created at the beginning.

The screenshot shows a Microsoft Internet Explorer browser window displaying a web application titled "Cisco AON CD Collection". The address bar shows the URL "http://127.0.0.1/xampp/AON\_cds.php". The page content includes the Cisco logo, a description "A very simple CD programm showing AON capabilities", and a section titled "My CDs" containing a table of CD records. Below the table is an "Add CD" form with input fields for Year, Title, and Artist, and an "ADD CD" button.

Artist	Title	Year
AON	Networkers Delight	2007
Bran Van 3000	Glee	1997
Groove Armada	Goodbye Country (Hello Nightclub)	2001
Ryuichi Sakamoto	Beauty	1990

**Add CD**

Year:   
Title:   
Artist:





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19. Now add another CD record and watch the result. It should now reflect the changes you have just deployed for the 'AONDemo' PEP.

Cisco AON CD Collection

A very simple CD programm showing AON capabilities

### My CDs

Artist	Title	Year
AON	Networkers Delight	2007
AON (Modified by AON)	Networkers Delight	2007
Bran Van 3000	Glee	1997
Groove Armada	Goodbye Country (Hello Nightclub)	2001
Ryuichi Sakamoto	Beauty	1990

### Add CD

Year:

Title:

Artist:

**Congratulations! Your network has successfully applied your policy!**