



User Guide for Cisco Digital Media Manager 5.5 and 5.6 Appliances

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Preface

Revised: March 2015

This chapter includes the following sections:

- [Purpose, page 7](#)
- [Audience, page 7](#)
- [Document Conventions, page 8](#)
- [Change History, page 8](#)
- [Related Documentation, page 8](#)
- [Obtaining Documentation and Submitting a Service Request, page 9](#)



Note

Although visible in the Cisco DMM user interface, Release 5.5 and 5.6 software does not support Cisco Digital Signs, Cisco Digital Media Players (DMPs), Cisco Cast, Cisco Digital Media Designer, or the Cisco Digital Media Player Device Manager.

Purpose

This guide describes how to set up, configure, and administer your Cisco Digital Media Manager (DMM) and Cisco Show and Share Release 5.5 and 5.6 appliances. It also tells you how to use the Appliance Administration Interface (AAI), a text user interface that helps you to administer a DMS appliance.

Audience

The intended audience for this guide is systems or network administrators who install, configure, or troubleshoot Cisco DMS appliance hardware.

Document Conventions

This guide uses these text formatting conventions:

Item	Convention
Commands and keywords	boldface font
Variables for which you supply values	<i>italic</i> font
Displayed session and system information	screen font
Information you enter	boldface screen font
Variables you enter	<i>italic screen</i> font
Menu items and button names	boldface font
Selecting a menu item in paragraphs	Option > Network Preferences
Selecting a menu item in tables	Option > Network Preferences



Note

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.



Caution

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.



Tip

Means *the following information will help you solve a problem*. The tips information might not be troubleshooting or even an action, but could be useful information, similar to a Timesaver.

Change History

Added support for Cisco Show and Share and Cisco DMM Release 5.6.

Related Documentation

For a list of all Cisco DMS Release 5.5 and 5.6 product documentation, see the *Guide to Documentation for Cisco Show and Share* at the following URL:

http://www.cisco.com/c/en/us/td/docs/video/digital_media_systems/5_x/5-5/showandshare/roadmap/snmap5-5.html

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation* at:

<http://www.cisco.com/c/en/us/td/docs/general/whatsnew/whatsnew.html>

Subscribe to *What's New in Cisco Product Documentation*, which lists all new and revised Cisco technical documentation, as an RSS feed and deliver content directly to your desktop using a reader application. The RSS feeds are a free service.





Welcome to DMS-Admin

Revised: March 2015

[Procedures, page 1-1](#)



Note

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Procedures

You can use the Appliance Administration Interface (AAI) command shell to set up, connect, and maintain the appliance.

For a list of the logical ports used by Cisco DMS, see the “Ports Used by Digital Media Suite” chapter in the *Cisco Show and Share Administrator Guide* on Cisco.com.

Follow these procedures to begin configuring your Cisco DMM:

- [Learn Your DMM Appliance Serial Number, page 1-1](#)
- [Start DMS-Admin, page 1-2](#)
- [Set a User Session Timeout for Components of Cisco DMS, page 1-4](#)

Learn Your DMM Appliance Serial Number



Note

You cannot obtain any Cisco DMS software feature licenses until you know your DMM appliance serial number.

Procedure

Step 1 Use SSH (or a keyboard connected your DMM appliance) to log in to the **admin** account in AAI.



Note

You alone know the password for this account.

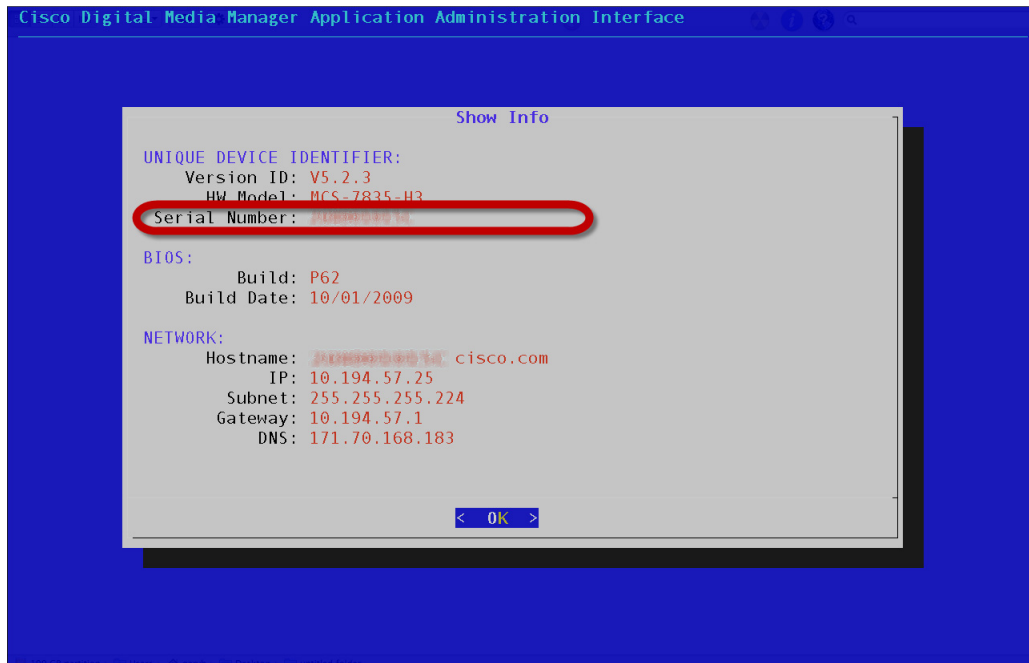
In the top-level menu for AAI, the SHOW_INFO option is highlighted by default.

```

SHOW_INFO          Show system information.
BACKUP_AND_RESTORE Back up and restore DMM configuration.
APPLIANCE_CONTROL  Configure advance options
NETWORK_SETTINGS   Configure network parameters.
DATE_TIME_SETTINGS Configure date and time
CERTIFICATE_MANAGEMENT Manage all certificates in the system
FAIL_OVER          Configure high availability parameters.
  
```

< OK > <LOG OUT>

Step 2 Press **Enter** to load the Show Info screen.



Step 3 Write down the appliance serial number that is displayed.

Start DMS-Admin

Procedure

Step 1 Point your browser at your DMM appliance.

- Use **HTTPS** and specify port **8443**

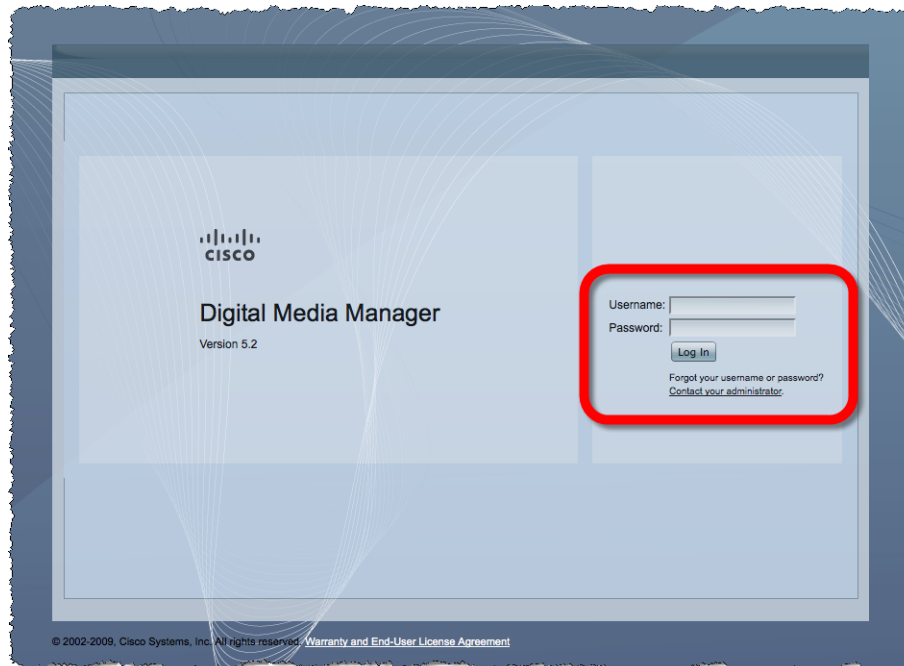
OR

Use **HTTP** and specify port **8080**—*which redirects immediately to the secured HTTPS connection.*

- Be sure to use the fully qualified appliance DNS name and not merely its IP address.

For example, `https://dmm.example.com:8443`.

Step 2 When the login page loads, sign in to your account.

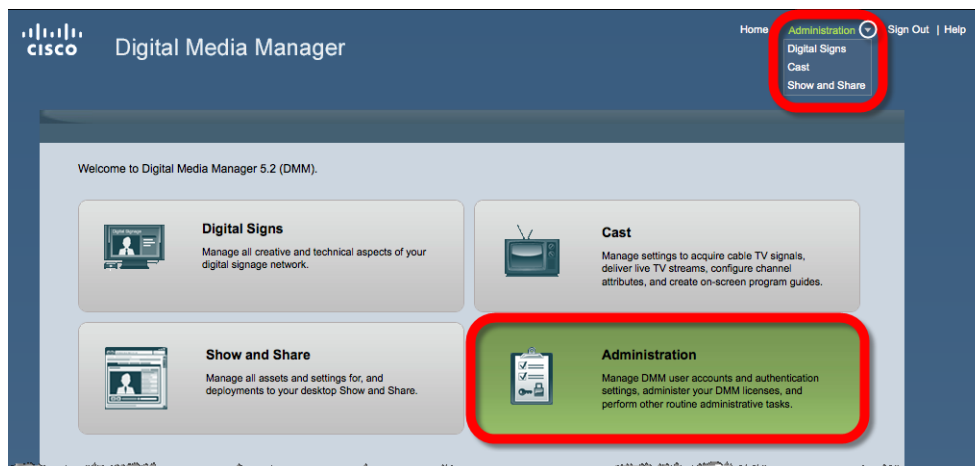


Note

The appearance of the login screen can differ from this illustration. The actual appearance depends on the Cisco DMS software release and the user authentication method (embedded, LDAP, or federation).

Step 3 Click **Log In**.

Step 4 Choose **Administration** from the global navigation or click **Administration** on the landing page.



Note

Although visible in the Cisco DMM user interface, Release 5.5 and 5.6 software does not support Cisco Digital Signs, Cisco Digital Media Players (DMPs), Cisco Cast, Cisco Digital Media Designer, or the Cisco Digital Media Player Device Manager.

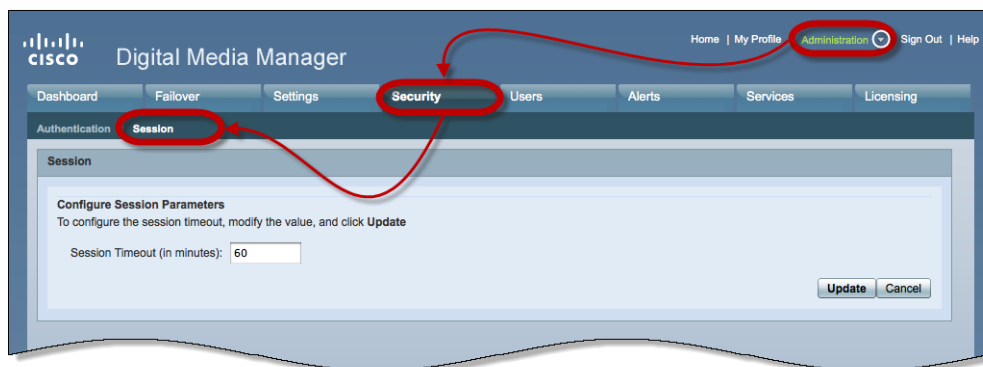
- Step 5** If your appliance is factory-new or recently reimaged and there are no licenses installed, the Install License Key window appears.
- If at least one license is installed, the DMS-Admin Dashboard appears where you can see an overview of the DMM appliance system.
-

Set a User Session Timeout for Components of Cisco DMS

You can set a session timeout value that will automatically log out inactive users after the session time has elapsed. The session timeout applies to all users without exception.

Procedure

- Step 1** Choose **Administration > Security > Session**.



- Step 2** Use the Session Timeout (in minutes) field to enter or edit a session timeout value.
- Step 3** Click **Update**.
-



DMS-Admin Dashboard

Revised: March 2015

[Procedures, page 2-1](#)



Note

Although visible in the Cisco DMM user interface, Release 5.5 and 5.6 software does not support Cisco Digital Signs, Cisco Digital Media Players (DMPs), Cisco Cast, Cisco Digital Media Designer, or the Cisco Digital Media Player Device Manager.

Procedures

[View the Dashboard, page 2-1](#)

View the Dashboard

Step 1 Click the **Dashboard** tab.

The Dashboard for DMS-Admin centralizes many features for system monitoring and log collection. When problems of any kind interfere with the data-collection processes, question marks display in the DMM Dashboard gauges in addition to the best available data. In this case, check that your systems and network are configured and working correctly.

Until you install at least one license key, the DMS-Admin Dashboard cannot retrieve data to populate the gauges.

These are the Dashboard gauges.

The screenshot shows the Cisco Digital Media Manager Dashboard. At the top, there is a navigation bar with tabs for Dashboard, Failover, Settings, Security, Users, Alerts, Services, and Licensing. The main content area is divided into several sections:

- Alerts:** Shows 0 Email Notifications, 0 SNMP Notifications, and 0 Syslog Notifications. A 'View Alerts' link is present.
- Status:** Contains three sub-sections:
 - Digital Media Players:** Shows 2 DMPs, with 2 Up and 0 Down.
 - Show and Share:** Shows 1 Show and Share Appliance, with 1 Up and 0 Down. Includes a 'Go to Show and Share' link.
 - Failover Cluster:** Shows DMM Cluster (Primary: Up/Active, Secondary: Up/Standby) and Show and Share Cluster (Primary: Up/Active, Secondary: Up/Standby). Includes a 'View Failover Status' link.
- Internal Operations:** Shows Scheduled to Publish (0) and Publishing Complete (4). Includes a 'Manage Show and Share' link.
- Users Logged In:** Shows 1 User Logged In (Past One Hour). Includes a 'View All Users' link.
- System Information:** Shows Digital Media Manager Version 5.2.3, Appliance Serial Number, and Disk Space usage for DMM and Show and Share.
- Licensed Features:** A table listing various modules and their license constraints.

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Step 2 Understand the Alerts gauge.

This gauge shows the total count of notification messages delivered in the past 1 hour.

The Alerts gauge shows the following data:

0	Email Notifications	0	SNMP Notifications	0	Syslog Notifications
---	---------------------	---	--------------------	---	----------------------

[View Alerts](#)

Step 3 Understand the System Information gauge.

The System Information gauge displays the following details:

- Digital Media Manager:** Version 5.2.3
- Appliance Serial Number:** [Redacted]
- Disk Space:**

	DMM	Show and Share
Used	1.07 GB	0.31 GB
Free	1876.28 GB	1877.04 GB

- Displays the installed release version of your DMM server software.
- Displays the serial number of your DMM appliance.
- Measures free space and used space for:
 - The content partition on your DMM appliance hard drive.
 - The content partition on your *Show and Share* appliance hard drive.

Step 4 Understand the Status gauge.

Refresh your browser to update the data displayed in the Status gauge.

If you have set up the hardware and activated the separately licensed software features for server failover, and Show and Share, this gauge summarizes the current state in three summaries.

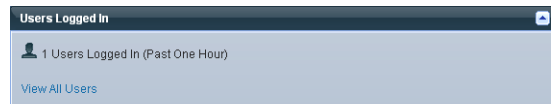
**Step 5** Understand the Licensed Features gauge.

This gauge lists software feature module licenses that are installed on your DMM appliance and describes constraints that your licenses impose.

Module	License Constraints
Digital Media Manager Base License	No constraints on license
SNMP Notifications Module	No constraints on license
Proof of Play Module	No constraints on license
Show and Share Live Event Module	No constraints on license
Digital Signs Module	No constraints on license
Show and Share Module	No constraints on license
Cast Module	No constraints on license
Digital Media Player Pack	Limit: 110 elements
Show and Share Content Author Pack	Limit: 105 elements
Clustering Module	No constraints on license

Step 6 Understand the Users Logged In gauge.

Counts the total number of users who logged in to your Cisco DMS appliances over the past 1 hour.





Licenses

Revised: March 2015

- [Procedures, page 3-1](#)
- [Reference, page 3-3](#)



Note

Although visible in the Cisco DMM user interface, Release 5.5 and 5.6 software does not support Cisco Digital Signs, Cisco Digital Media Players (DMPs), Cisco Cast, Cisco Digital Media Designer, or the Cisco Digital Media Player Device Manager.

Procedures

Features of Cisco DMS are licensed and activated separately. Until you obtain and install license keys, their corresponding features are hidden from all users—including you, the administrator.

See these sections to manage your Cisco DMS license keys:

- [Request License Keys, page 3-1](#)
- [Install License Keys, page 3-2](#)
- [View Installed Licenses, page 3-3](#)
- [Check the Dashboard Gauge for Licenses, page 3-3](#)

Request License Keys

Features of Cisco DMS are sold and licensed separately. After you purchase the right to use a feature, you must request and install a unique license key. Your key activates the feature on your server.

Procedure

- Step 1** Start DMS-Admin.
- Step 2** Choose **Licenses > Request Licenses**.

Step 3 Enter all requested values in the Request Licenses form.

DMM Appliance Serial Number:	2UX001015C
Version:	5.3.0
Company Name:	<input type="text" value="Amalgamated Examples, LLC"/>
Department:	<input type="text" value="Sprockets"/>
Contact:	<input type="text" value="Missy Laneous"/>
When entering the Cisco Sales Order Number for your DMS system, use numerals only. A valid sales order number contains exactly 8 numerals, e.g. 28876739	
Cisco Sales Order Number *:	<input type="text" value="28876739"/>
Issuer Remarks:	<input type="text"/>
Features to License:	<input checked="" type="checkbox"/> Show and Share <input checked="" type="checkbox"/> Digital Signage <input checked="" type="checkbox"/> Cast <input checked="" type="checkbox"/> Clustering <input checked="" type="checkbox"/> Show and Share Live Events
This email will be the recipient of the License file. Your email address will not be used for any other purpose other than communications regarding your licensing of DMS.	
Your Email *:	<input type="text" value="misc@example.com"/>
<input checked="" type="radio"/> Export, and save a local copy of the generated request (Later, email that file to dms-softwarekeys@cisco.com with the subject DMM License Request) <input type="radio"/> Send your request now, automatically. (Your DMM appliance must have a working internet connection and SMTP enabled.)	
Cisco will send your license keys to you via the email address you entered above, usually within 24 hours. When you receive your license keys, return to the Licenses tab and then click Install/Upgrade Licenses . From there, you can activate your newly licensed features.	

Step 4 Choose a method to send your license request as an email message to dms-softwarekeys@cisco.com.

- Export your request to a file that you can email later.
- Send your request immediately, assuming that your DMM server is configured to enable SMTP.

Step 5 After you receive a license key file from Cisco, save a local copy of the file.



Note Make sure that your local copy does not include any spaces in its filename. (CSCtj60727)

Install License Keys

Procedure

- Step 1** Start DMS-Admin.
- Step 2** Choose **Licenses > Install/Upgrade Licenses**.
- Step 3** Click **Browse** or **Choose File**, depending on your installed browser.
- Step 4** Find and click the license file where you saved it.
- Step 5** Click **Open**.
- Step 6** Click **Install License**.
- Step 7** Repeat these steps until all of your licenses are installed.
Features that you licensed are now activated.

View Installed Licenses

Before You Begin

Install license keys.

Procedure

- Step 1** Start DMS-Admin.
- Step 2** Choose **Licenses > View Licenses**.
-

Check the Dashboard Gauge for Licenses

Before You Begin

Install license keys.

Procedure

- Step 1** Start DMS-Admin.
- Step 2** Choose **Administration > Dashboard**.
- Step 3** Check the License Features gauge for the activated license features and any restrictions.
-

Reference

- [Base Licenses for Cisco DMS Appliances and Endpoints](#), page 3-4
- [Optional Module Licenses](#), page 3-5

Base Licenses for Cisco DMS Appliances and Endpoints

There is a base license included at no additional cost with the purchase of any Cisco DMS appliance or endpoint. These licenses are unit-specific and perpetual. There are no non-support fees and you are not obligated to purchase other licenses.

DMM appliance

With a DMM appliance base license, you can:

- Install feature licenses for components of Cisco DMS¹.
- Gain access to features after you license them.
- Create user accounts and user groups for components of Cisco DMS¹.
- Configure a user authentication framework for use throughout Cisco DMS¹.
- Configure event notifications and alarms for components of Cisco DMS¹.
- Check processes remotely.
- Monitor and restart servers remotely¹.

Show and Share appliance

With a *Show and Share* appliance base license (**and a DMM appliance**), you can set up a *Show and Share* site.

- Authors: **5**
- Viewers: *Unlimited*
- Category managers: *Unlimited*
- Featured video managers: *Unlimited*
- Video reviewers/publishers: *Unlimited*

DMP endpoint

With a DMP endpoint base license, you can set up the DMP itself² from its embedded device manager, DMPDM.

1. Including *Show and Share*, if you have and use it.
2. Managed in isolation, without involving DMM or any other DMPs.

Optional Module Licenses


Note

To obtain and activate any license for any component of Cisco DMS, you must have a DMM appliance.

Module or Pack		Part Number ¹	Description
Show and Share Author License Packs	10 authors	<ul style="list-style-type: none"> • DV-AUTHOR-FL-10 • <i>DV-AUTHOR-FL-10=</i> 	Author licenses are cumulative. For example, the base license for <i>Show and Share</i> includes 5 authors — so, if you purchase and install a 10-author pack, your <i>Show and Share</i> will support as many as 15 authors.
	50 authors	<ul style="list-style-type: none"> • DV-AUTHOR-FL-50 • <i>DV-AUTHOR-FL-50=</i> 	
	500 authors	<ul style="list-style-type: none"> • DV-AUTHOR-FL-500 • <i>DV-AUTHOR-FL-500=</i> 	
	1,000 authors	<ul style="list-style-type: none"> • DV-AUTHOR-FL-1000 • <i>DV-AUTHOR-FL-1000=</i> 	
	10,000 authors	<ul style="list-style-type: none"> • DV-AUTHOR-FL-10000 • <i>DV-AUTHOR-FL-10000=</i> 	
	25,000 authors	<ul style="list-style-type: none"> • DV-AUTHOR-FL-25000 • <i>DV-AUTHOR-FL-25000=</i> 	
Show and Share Features	Live Event Module	<ul style="list-style-type: none"> • DMM-LEM52-K9 • <i>DMM-LEM52-K9=</i> 	Activates <i>Show and Share</i> abilities to host and produce managed, live webcasts—including audience polling, moderated Q&A, audio, video, and synchronized slides.
DMS-Admin Features	SNMP Notifications	<ul style="list-style-type: none"> • DMM-SNMP52-K9 • <i>DMM-SNMP52-K9=</i> 	Activates support for SNMP interaction with network monitoring applications. Also activates support for event notifications and alerts.
DMM Features	Digital Signs Module	<ul style="list-style-type: none"> • DMM-SIGNSM52-K9 • <i>DMM-SIGNSM52-K9=</i> 	Activates DMM baseline features to centrally manage and operate a digital signage network with Cisco DMPs.
	Cast Module	<ul style="list-style-type: none"> • DMM-CAST52-K9 • <i>DMM-CAST52-K9=</i> 	Activates DMM abilities to deliver on-demand video and live broadcast TV channels over IP networks to DMPs and their attached presentation systems.
Centralized DMP Management	1 DMP	<ul style="list-style-type: none"> • DMP-FL-1 • <i>DMP-FL-1=</i> 	To centrally manage DMPs from DMM, you must combine a Digital Signs Module license with at least one DMP feature license.
	10 DMPs	<ul style="list-style-type: none"> • DMP-FL-10 • <i>DMP-FL-10=</i> 	DMP feature licenses are cumulative. If you are already licensed to manage 500 DMPs before you install an additional 50-unit license, your DMM installation will support managing as many as 550 DMPs.
	50 DMPs	<ul style="list-style-type: none"> • DMP-FL-50 • <i>DMP-FL-50=</i> 	
	500 DMPs	<ul style="list-style-type: none"> • DMP-FL-500 • <i>DMP-FL-500=</i> 	
	1,000 DMPs	<ul style="list-style-type: none"> • DMP-FL-1000 • <i>DMP-FL-1000=</i> 	

1. **During your initial order, use part numbers that omit the = character.** Only later, when you want to extend what you ordered initially, should you use part numbers that end with =.



Server Operations

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- [Procedures, page 4-1](#)
- [Reference, page 4-3](#)



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Procedures

- [Check Processes Remotely, page 4-1](#)
- [Restart Appliances Remotely, page 4-2](#)

Check Processes Remotely

Procedure

- Step 1** Start DMS-Admin.
- Step 2** Choose **Administration > Services**.

Step 3 Do one of the following.

- *Would you like to check server processes on your DMM appliance?*

View the processes for DMM

Click **DMM Server** in the far-left column.

A list tells you which processes are running or stopped.

Application	Name	Status	Hardware
DMM System	Active MQ	running	DMM Server
DMM System	Apache	running	DMM Server
Cast Module	Cast Admin Web Application	running	DMM Server
Cast Module	Cast EPG Collector Web Application	running	DMM Server
Cast Module	Cast Flash Web Application	running	DMM Server
Cast Module	Cast Remote Control Web Application	running	DMM Server
DMS Admin	DMS Admin Web Application	running	DMM Server
Digital Signs Module	DSM Web Application	running	DMM Server
DMM System	Event Management System	running	DMM Server
DMS-CD	IFMS Web Application	running	DMM Server
DMM System	OpenAM Web Application	running	DMM Server
DMM System	Postgresql	running	DMM Server
DMM System	Scheduled backup services	stopped	DMM Server
DMM System	Tomcat	running	DMM Server

- *Would you like to check server processes on a Show and Share appliance?*

View the processes for Show and Share

Click **Show and Share Server** in the far-left column.

A list tells you which processes are running or stopped.

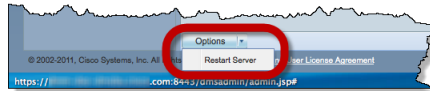
Application	Name	Status	Hardware
Show and Share	Active MQ	running	Show and Share Server
Show and Share	Postgresql	running	Show and Share Server
Show and Share	Scheduled backup services	stopped	Show and Share Server
Show and Share	Streaming Server	running	Show and Share Server
Show and Share	Tomcat	running	Show and Share Server

Restart Appliances Remotely

Procedure

- Step 1** Start DMS-Admin.
- Step 2** Choose **Administration > Services**.
- Step 3** Click a server name in the far-left column.



Step 4 Choose **Options > Restart Server**.

Reference

[Server Processes, page 4-3](#)

Server Processes

Each of these server processes runs on at least one type of Cisco DMS appliance.

- ActiveMQ
- Apache
- Cast Web Application
- Cast Admin Web Application
- Cast EPG Collector Web Application
- Cast Flash Web Application
- Cast Remote Control Web Application
- DMS-Admin Web Application
- DSM Web Application
- Event Management System
- IFMS Web Application
- OpenAM Web Application
- Postgresql
- Scheduled Backup Services
- Streaming Server
- Tomcat



Analyze Cisco DMS System Logs

Revised: March 2015

[Procedures, page 5-1](#)



Note

Although visible in the Cisco DMM user interface, Release 5.5 and 5.6 software does not support Cisco Digital Signs, Cisco Digital Media Players (DMPs), Cisco Cast, Cisco Digital Media Designer, or the Cisco Digital Media Player Device Manager.

Procedures

- [Enable Syslog Analysis, page 5-1](#)
- [Disable Syslog Analysis, page 5-2](#)

Enable Syslog Analysis

Procedure

- Step 1** Start DMS-Admin.
 - Step 2** Choose **Settings > External Servers > Syslog**.
 - Step 3** Click **Enabled**.
 - Step 4** Enter the routable IP address or DNS-resolvable hostname of your syslog server.
 - Step 5** Enter the logical port number where your syslog server accepts incoming logfiles.
The standard port number, **514**, is prepopulated for your convenience.
 - Step 6** Click **Save**.
-

Disable Syslog Analysis

Procedure

- Step 1** Start DMS-Admin.
 - Step 2** Choose **Settings > External Servers > Syslog**.
 - Step 3** Click **Disabled**.
 - Step 4** Click **Save**.
-



Allow or Disallow Video Transcoding

Revised: March 2015

[Procedures, page 6-1](#)



Note

Although visible in the Cisco DMM user interface, Release 5.5 and 5.6 software does not support Cisco Digital Signs, Cisco Digital Media Players (DMPs), Cisco Cast, Cisco Digital Media Designer, or the Cisco Digital Media Player Device Manager.

Procedures

- [Enable Show and Share Use of MXE Features, page 6-1](#)
- [Disable Show and Share Use of MXE Features, page 6-2](#)

Enable Show and Share Use of MXE Features

Procedure

- Step 1** Start DMS-Admin.
- Step 2** Choose **Settings > External Servers > MXE**.



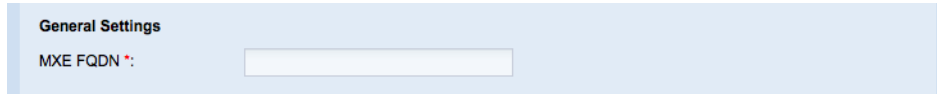
Step 3 Click **Enabled**.



Media Experience Engine

Use of MXE *: Enabled Disabled

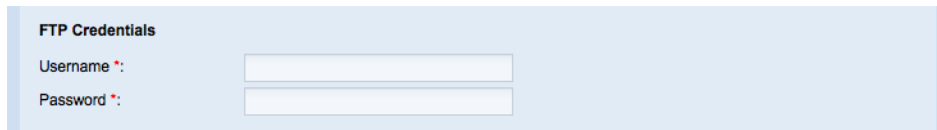
Step 4 Enter the fully qualified (DNS-resolvable) domain name of your MXE appliance.



General Settings

MXE FQDN *:

Step 5 Enter the ftp login credentials for your MXE appliance.



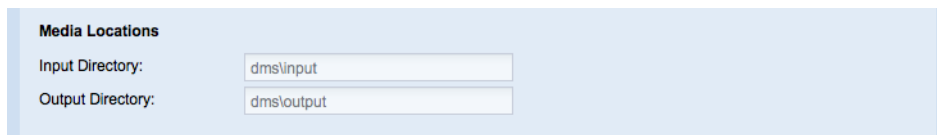
FTP Credentials

Username *:

Password *:

Step 6 Enter the MXE-relative directory paths where MXE should:

- Find incoming video files from Show and Share (“input”).
- Save its transcoded versions of these files (“output”).



Media Locations

Input Directory:

Output Directory:

The factory-default directory locations are prepopulated for your convenience.

Step 7 Click **Save**.

Disable Show and Share Use of MXE Features

Procedure

Step 1 Start DMS-Admin.

Step 2 Choose **Settings > External Servers > MXE**.



Step 3 Click **Disabled**.



Step 4 Click **Save**.



Cisco Hinter for RTSP

Revised: March 2015

- [Concepts, page 7-1](#)
- [Procedures, page 7-3](#)
- [Reference, page 7-5](#)



Note

Although visible in the Cisco DMM user interface, Release 5.5 and 5.6 software does not support Cisco Digital Signs, Cisco Digital Media Players (DMPs), Cisco Cast, Cisco Digital Media Designer, or the Cisco Digital Media Player Device Manager.

Concepts

- [Overview, page 7-1](#)
- [Workflow, page 7-2](#)
- [Restrictions, page 7-2](#)

Overview

A streaming media framework called *RTP over RTSP* makes it possible for DMPs to play streaming video on demand through RTSP connections. This framework prevents data loss inside streams and maintains proper synchronization of audio to video, even in high-definition.

You must maintain two data files for each VoD that you will stream in this way.

- An MPEG2-TS source file, which uses the filename extension **MPG**. Its program stream might be encoded as MPEG-1, MPEG-2, or MPEG-4 Part 10 (H.264).
- A “hinted” **MOV** file, which is derived from your MPG source file and imposes order upon it.

You must use our *Cisco Hinter* utility to output each hinted MOV file.

Cisco Hinter prepares MPEG2-TS files for interleaved RTP transmission through open source software called *Darwin Streaming Server (DSS)*. Hinter adds delivery information to a media track, which tells DSS how to pack and stream (*multiplex*, or *mux*) data from the audio channel and the video channel. This method improves audiovisual synchronization because these channels traverse the network together. Your DSS can then deliver such hinted video to your DMPs upon demand, after you stage the MPG-MOV pair to its media serving directory.

Cisco Hiner versions for Windows and Linux users are downloadable from your DMM appliance.

**Note**

We do not develop, maintain, sell, or support Darwin Streaming Server. Nor do we warrant its suitability for any purpose.

Workflow

1. Download and set up Cisco Hiner.
2. Download Darwin Streaming Server (DSS).

**Note**

The official repository for DSS is <http://dss.macforge.org>. Alternatively, you can use <http://developer.apple.com/opensource/server/streaming/index.html>.

3. Install and configure DSS on **equipment other than any Cisco DMS server appliance**.
4. Process each of your MPG files with Cisco Hiner to output a small, hinted MOV file.
5. Stage your MPG and MOV files together in the DSS serving directory.
6. Request streams from **rtsp://<DSS_IP_address>:<optional_port_number>/<filename>.mov**.

In DMPDM

- a. Enter your stream's address in the URL field at Display Actions > Media URL.
- b. Click **Start**.

In Digital Signs

- a. Click the URL (recommended) radio button on the Simple property sheet in the Add Asset dialog box.
- b. Enter your stream's address in the URL field.
- c. Choose **RTSP** from the File Type list.
- d. Click **Save**.

Restrictions

RTSP Variants

- There are many variants of RTSP and **we support only one of them**. You must use *RTP over RTSP*, which is also called *RTP over TCP* or *Interleaved TCP*. In this variant, RTP, RTCP, and RTSP data stream together over one logical port—typically, port 554.
- Our RTSP does not support live streaming (multicast or unicast) in this release.
- Our RTSP does not support “trick mode.” This means that you cannot pause video during playback, fast-forward through it, or fast-rewind through it. You can merely start or stop playback.

Darwin Streaming Server

- DSS cannot read any file whose file size is greater than 2.1 GB. You must split such large files into smaller ones before you derive hinted MOV output from them. (CSCtb27324)
- Although DSS is an open source streaming media platform and available for multiple operating systems, **we have tested DSS on Linux exclusively.**

Cisco Hiner

- *Cisco Hiner* software is available for Windows and Linux, exclusively.
- We do not support any other hiner.
- We do not support playback of hinted files that you output from any other hiner.

Protocols

- We do not support *User Datagram Protocol* (UDP).
- We do not support *Session Announcement Protocol* (SAP).
- We do not support *Session Description Protocol* (SDP) or its announcements.

Procedures

- [Download Cisco Hiner, page 7-3](#)
- [Windows, page 7-4](#)
- [Linux, page 7-5](#)

Download Cisco Hiner

Procedure

Step 1 Start DMS-Admin.

Step 2 Choose **Settings > Hiner**.



Step 3 Click to download either the Windows or the Linux version.

- **Cisco-Hinter-Windows.zip**
- **Cisco-Hinter-Linux.tar.gz**

Step 4 Decompress the archive.

Windows

- [Install Cisco Hiner on Windows, page 7-4](#)
- [Run Cisco Hiner on Windows, page 7-4](#)

Install Cisco Hiner on Windows

Procedure

- Step 1** Open a command prompt where you decompressed the archive.
- Step 2** Type the command **cd CiscoHiner**, and then press **Enter**.
- Step 3** Type the command **install.bat**, and then press **Enter**.
-

Run Cisco Hiner on Windows

Procedure

- Step 1** Open a command prompt where you decompressed the archive.
- Step 2** Type the command **runHiner.bat**, and then press **Enter**.
- Step 3** Enter the MPEG2-TS filename in the Source MPEG field.

OR

Click **Browse** or **Choose File** (depending on which browser you use) to find your MPEG2-TS file.

We populate the Output Name field automatically. It is identical to the name in the Source MPEG field, except that the filename extension is MOV and not MPG.

- Step 4** Click **Generate**, and then wait for the “Hinting finished successfully” message.
- Step 5** Find your hinted MOV output file in the **..\hinted-files** subdirectory.
- Step 6** Move or copy both the MPG file and its MOV derivative to the DSS root directory.
-

Linux

- [Install Cisco Hiner on Linux, page 7-5](#)
- [Run Cisco Hiner on Linux, page 7-5](#)

Install Cisco Hiner on Linux

Procedure

- Step 1** Open a command prompt where you decompressed the archive.
- Step 2** Type the command **run Install.sh**, and then press **Enter**.
-

Run Cisco Hiner on Linux

Procedure

- Step 1** Open a command prompt where you decompressed the archive.
- Step 2** Type the command **run runHiner.sh**, and then press **Enter**.
- Step 3** Enter the MPEG2-TS filename in the Source MPEG field.

OR

Click **Browse** or **Choose File** (depending on your browser) to find your MPEG2-TS file.

We populate the Output Name field automatically. It is identical to the name in the Source MPEG field except that the filename extension is MOV and not MPG.

- Step 4** Click **Generate**, and then wait for the “Hinting finished successfully” message.
- Step 5** Find your hinted MOV output file in the **..\hinted-files** subdirectory.
- Step 6** Move or copy both the MPG file and its MOV derivative to the DSS root directory.
-

Reference

[Troubleshoot RTP Over RTSP, page 7-5](#)

Troubleshoot RTP Over RTSP

These general troubleshooting ideas might help you to diagnose and resolve problems with this feature.

- Verify that both the MPG source file and its hinted MOV derivative are present together in the media root directory on your DSS.

- Use a utility like openRTSP to test both the MPG source file and its hinted MOV derivative. The correct Linux command line syntax in this case is
openRTSP -V -v -t rtsp://DSS_server_IP_address/filename.mov
- Use **HexEdit**, **WinHex**, or a similar utility to open your hinted MOV file and verify that it contains:
 - An explicit reference to the full and literal filename of your MPG source.
 - The signature for MOV output from Cisco Hinter:
Hinted MPEG1 Muxed Track
 - The signature for interleaved RTP:
m=OTHER 0 RTP/AVP 96
- Check the system logs on your DSS.

**Note**

- **openRTSP**—<http://www.live555.com/openRTSP/>
- **HexEdit**—<http://hexedit.sourceforge.net/>
- **WinHex**—<http://www.winhex.com/winhex/>



Authentication and Federated Identity

Revised: March 2015

- [Concepts, page 8-1](#)
- [Procedures, page 8-22](#)
- [Reference, page 8-50](#)



Note

Although visible in the Cisco DMM user interface, Release 5.5 and 5.6 software does not support Cisco Digital Signs, Cisco Digital Media Players (DMPs), Cisco Cast, Cisco Digital Media Designer, or the Cisco Digital Media Player Device Manager.

Concepts

- [Overview, page 8-1](#)
- [Glossary, page 8-2](#)
- [Understand the Requirement to Authenticate Users, page 8-9](#)
- [Decide Which Authentication Method to Use, page 8-10](#)
- [LDAP and Active Directory Concepts, page 8-11](#)
- [Federated Identity and Single Sign-on \(SSO\) Concepts, page 8-17](#)
- [Migration Between Authentication Methods, page 8-20](#)

Overview

User authentication features of DMS-Admin help you to:

- Authenticate **all** user sessions. (*We prevent you from disabling mandatory authentication, even though we allowed this in Cisco DMS 5.1.x and prior releases.*)
- Choose and configure an authentication method.
- Import user account settings from an [Active Directory](#) server.

- Synchronize user groups from an [Active Directory](#) server. Microsoft Active Directory is the only LDAP implementation that we support in this release.
- Use [federation](#) services with a [SAML 2.0-compliant IdP](#) to support [SP](#)-initiated “single sign-on” login authentication in your network (following an initial synchronization to a Microsoft Active Directory Server that populates the DMM user database).



Note

We support your use of one—and only one—IdP server with Cisco DMS 5.3.

Glossary



Timesaver

Go to terms that start with... [[A](#) | [C](#) | [D](#) | [F](#) | [I](#) | [L](#) | [O](#) | [P](#) | [R](#) | [S](#) | [U](#) | [X](#)].

A

Active Directory

Microsoft implementation of [LDAP](#). A central authentication server and user store. Active Directory is the only LDAP implementation that we support in this release.

Active Directory forest

A domain-straddling combination of [Active Directory trees](#) within an organization that operates multiple Internet domains. Thus, the forest at “Amalgamated Examples, LLC” might straddle all trees across [example.com](#), [example.net](#), and [example.org](#).

Or, to use Cisco as a real-world case-study, one forest could straddle [cisco.com](#) and [webex.com](#), among others.

Note Cisco DMS Release 5.3.x does not support Active Directory forests.

Cisco Show and Share Release 5.3.12 and later does support Active Directory forests. See this white paper on Cisco.com:

http://www.cisco.com/en/US/prod/collateral/video/ps9901/ps6682/white_paper_c11-727483.html

Active Directory tree

A subdomain-straddling combination of [IdPs](#) throughout one Internet domain. These IdPs operate collectively on behalf of the Internet domain’s constituent subdomains. Thus, the “tree” at [example.com](#) might encompass all of the [IdPs](#) to authenticate user sessions within subdomains such as these:

- [legal.example.com](#)
- [sales.example.com](#)
- [support.example.com](#)

Active Directory Federation Services

Active Directory Federation Services (AD FS) 2.0 is supported in Cisco Show and Share Release 5.3.12 and later.

AD FS 2.0 is a software component that you can install on Windows Server operating systems to provide users with single sign-on access to systems and applications located across organizational boundaries.

administrator DN The [DN](#) to authenticate your [Active Directory](#) server's administrator.

Note This release is more strict than most prior releases in its enforcement of proper [LDAP](#) syntax. Now, when you specify the administrator [DN](#), **you must use proper syntax, which conforms exactly to [LDIF](#) grammar.**

- Proper syntax: `CN=admin1,OU=Administrators,DC=example,DC=com`
- Poor syntax: `EXAMPLE\admin1`

OTHERWISE

When you use poor syntax here for the first time while your DMM appliance runs DMS 5.3, we show you, the administrator, this error message: “Invalid username or password.”

But if you used and validated poor syntax here before *upgrading* to Cisco DMS 5.3, we do not repeat the validation process. Therefore—*even though we do not show an error message to anyone*—**LDAP users simply cannot log in.**

Note **An LDAP expression must never include a space immediately to either side of a “=” sign.** Similarly, it must never include a space immediately to either side of an “objectClass” attribute. Otherwise, validation fails.

authentication The process to verify if a [directory service entity](#) has correctly claimed its own identity.

C [↑ Return to Top](#)

CA *certification authority.* Authority that issues and manages security credentials and public keys, which any [directory service entity](#) relies upon to encrypt and decrypt messages exchanged with any other [directory service entity](#). As part of a public key infrastructure (PKI), a CA checks with a registration authority (RA) to verify information that certificate requestors provide. After the RA verifies requestor information, the CA can then issue a certificate.

CN *common name.* An attribute-value pair that names one [directory service entity](#) but indicates nothing about its context or position in a hierarchy. For example, you might see `cn=administrator`. But `cn=administrator` is so commonplace in theory that it might possibly recur many times in an [Active Directory forest](#), while referring to more than just one [directory service entity](#). An absence of context means that you cannot know which device, site, realm, user group, or other entity type requires the implied “administration” or understand why such “administration” should occur.

Therefore, use of a standalone CN is limited in the [LDIF](#) grammar. Absent any context, a standalone CN is only ever useful as an [RDN](#).

Note **An LDAP expression must never include a space immediately to either side of a “=” sign.** Similarly, it must never include a space immediately to either side of an “objectClass” attribute. Otherwise, validation fails.

CoT *circle of trust.* The various [SP](#) that all authenticate against one [IdP](#) in common.

D

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DC

domain component. An attribute to designate one constituent part of a *fully-qualified domain name* (FQDN). Suppose for example that you manage a server whose FQDN is **americas.example.com**. In this case, you would link together three DC attribute-value pairs: **DC=Americas, DC=example, dc=com**.

Note An LDAP expression must never include a space immediately to either side of a “=” sign. Similarly, it must never include a space immediately to either side of an “objectClass” attribute. Otherwise, validation fails.

digital certificate

Uniquely encrypted digital representation of one [directory service entity](#), whether physical or logical. This trustworthy representation certifies that the entity is not an imposter when it sends or receives data through a secured channel. The [CA](#) normally issues the certificate upon request by the entity or its representative. The requestor is then held accountable as the “certificate holder.” To establish and retain credibility, a certificate must conform to requirements set forth in International Organization for Standardization (ISO) standard X.509. Most commonly, a digital certificate includes the following.

- One [DN](#) to authenticate the [directory service entity](#).
- One [DN](#) to authenticate the [CA](#).
- A serial number to identify the digital certificate itself.
- An expiration date, after which any entity that receives the certificate should reject it.
- A copy of the certificate holder’s public key.
- The [CA](#)’s digital signature, so recipients can verify that the certificate is not forged.

directory service entity

Any single, named unit at any level within a nested hierarchy of named units, relative to a network. An entity's essence depends upon its context. This context, in turn, depends upon interactions between at least two service providers—one apiece for the naming service and the directory service—in your network. Theoretically, an entity might represent any tangible thing or logical construct.

- By “tangible thing,” we mean something that a person could touch, which occupies real space in the physical world. For example, this entity type might represent one distinct human being, device, or building.
- By “logical construct,” we mean a useful abstraction whose existence is assumed or agreed upon but is not literally physical. For example, this entity type might represent one distinct language, subnet, protocol, time zone, or ACL.

An entity's purpose is broad and flexible within the hierarchical context that defines it.

DN

distinguished name. A sequence of attributes that help a **CA** to distinguish a particular **directory service entity** uniquely for authentication. Distinct identity in this case arises from a text string of comma-delimited attribute-value pairs. Each attribute-value pair conveys one informational detail about the entity or its context. The comma-delimited string *is* the actual DN. It consists of the entity's own **CN**, followed by at least one **OU**, and then concludes with at least one **DC**. For example:

```
CN=username,OU=California,OU=west,OU=sales,DC=Americas,DC=example,DC=com
```

Note An LDAP expression must never include a space immediately to either side of a “=” sign. Similarly, it must never include a space immediately to either side of an “objectClass” attribute. Otherwise, validation fails.

Thus, each DN represents more than merely one isolated element. A DN also associates the element to its specific context within the **Active Directory** user base that your **IdP** depends upon.

Tip Any DN might change over the lifespan of its corresponding entity. For example, when you move entries in a tree, you might introduce new **OU** attributes or deprecate old ones that are elements of a DN. However, you can assign to any entity a reliable and unambiguous identity that persists beyond such changes to its context. To accomplish this, merely include a *universally unique identifier* (UUID) among the entity's set of operational attributes.

F

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federation

The whole collection of authentication servers that synchronize their user bases to one **IdP** in common and thereby make **SSO** possible within a network. This mutualized pooling of user bases bestows each valid user with a “federated identity” that spans an array of your **SPs**.

I

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IdP

identity provider. One [SAML 2.0](#)-compliant server (synchronized to at least one [Active Directory](#) user base), that authenticates user session requests upon demand for [SPs](#) in one network subdomain. Furthermore, an IdP normalizes data from a variety of directory servers (user stores).

Users send their login credentials to an IdP over HTTPS, so the IdP can authenticate them to whichever [SPs](#) they are authorized to use. As an example, consider how an organization could use three IdPs.

- An IdP in **legal.example.com** might authenticate user sessions for one [SP](#), by comparing user session requests to the user base records from one [Active Directory](#) server.
- An IdP in **sales.example.com** might authenticate user sessions for 15 [SPs](#), by comparing user session requests to the user base records from three [Active Directory](#) servers.
- An IdP in **support.example.com** might authenticate user sessions for four [SPs](#), by comparing user session requests to the user base records from two [Active Directory](#) servers.

**Caution**

Only a well known CA can issue the digital certificate for your IdP. Otherwise, you cannot use SSL, HTTPS, or LDAPS in Federation mode and, thus, all user credentials are passed in the clear.

Tip

We have tested Cisco DMS federation features successfully against [OpenAM](#), [PingFederate](#), and [Shibboleth](#). We recommend that you use an IdP that we have tested with Cisco DMS. We explicitly DO NOT support Novell E-Directory or Kerberos-based custom directories.

If your IdP fails, you can switch your authentication mode to LDAP or Embedded.

L

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LDAP

Lightweight Directory Access Protocol. A highly complex data model and communications protocol for user authentication. LDAP provides management and browser applications with access to directories whose data models and access protocols conform to X.500 series (ISO/IEC 9594) standards.

Note **Microsoft Active Directory is the only LDAP implementation that we support in this release.**

LDAPS

Secure LDAP. The same as ordinary LDAP, but protected under an added layer of SSL encryption.

Note **Before you try to configure SSL encryption and before you let anyone log in with SSL, you MUST:**

- Activate SSL on your [Active Directory](#) server and then export a copy of the server's digital certificate.
- Import into DMM the SSL certificate that you exported from [Active Directory](#).
- Restart Web Services (Tomcat) in AAI.

**Caution**

Is your DMM appliance one half of a failover pair?

If so, you will trigger immediate failover when you submit the command in AAI to restart Web Services. This occurs by design, so there is no workaround.

LDIF

LDAP Data Interchange Format. A strict grammar that [SPs](#) and [IdPs](#) use to classify and designate named elements and levels in [Active Directory](#).

O

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OpenAM

[SAML 2.0](#)-compliant identity and access management server platform written in Java. OpenAM is open source software available under the Common Development and Distribution (CDDL) license. OpenAM is derived from and replaces OpenSSO Enterprise, which also used CDDL licensing. See <http://www.forgerock.com/openam.html>.

OU

organizational unit. An [LDIF](#) classification type for a logical container within a hierarchical system. In [LDIF](#) grammar, the main function of an OU value is to distinguish among superficially identical [CNs](#) that might otherwise be conflated. For example:

- CN=John Doe, **OU=sales**, DN=example, DN=com
- CN=John Doe, **OU=marketing**, DN=example, DN=com

Note An LDAP expression must never include a space immediately to either side of a “=” sign. Similarly, it must never include a space immediately to either side of an “objectClass” attribute. Otherwise, validation fails.

P

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PingFederate

[SAML 2.0](#)-compliant identity and access management server platform written in Java. PingFederate is proprietary, commercial software. See <http://www.pingidentity.com>.

R

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RDN

relative distinguished name. The [CN](#) for a [directory service entity](#), as used exclusively (and still without any explicit context) by the one [IdP](#) that has synchronized this entity against an [Active Directory](#) user base. When an [IdP](#) encounters any RDN attribute in an [LDIF](#) reference, the [IdP](#) expects implicitly that its [SAML 2.0](#)-synchronized federation is the only possible context for the [CN](#). It expects this because an [IdP](#) cannot authenticate—and logically should never encounter—a [directory service entity](#) whose RDN is meaningful to any other federation.

S

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SAML

Security Assertion Markup Language. XML-based open standard that security domains use to exchange authentication and authorization data, including assertions and security tokens. **We support SAML 2.0.**

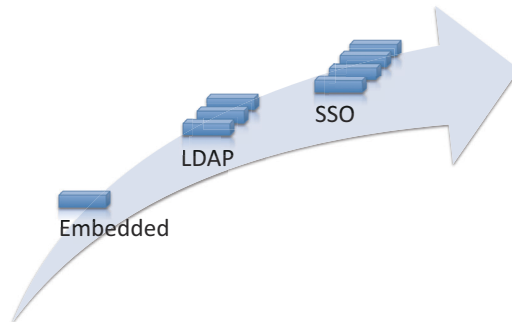
Shibboleth

A [SAML 2.0](#)-compliant architecture for federated identity-based authentication and authorization.

- SP** *service provider*. Server that requests and receives information from an **IdP**. For example, **SPs** in Cisco DMS include your DMM server and your *Show and Share* server.
- SSO** *single sign on*. (And sometimes “*single sign off*.”) The main user-facing benefit of **federation** mode is that **SPs** begin—and end, in some implementations—user sessions on behalf of their entire **federation**. SSO is a convenience for users, who can log in only once per day as their work takes them between multiple servers that are related but independent. Furthermore, SSO is a convenience to IT staff, who spend less time on user support, password fatigue, compliance audits, and so on.
- We DO NOT support single sign **off** in Cisco DMS 5.3.
 - We support only **SP-initiated SSO** in Cisco DMS 5.3.
- U** [↑ Return to Top](#)
- user base** The location of the user subtree in the **LDAP** directory tree. For example, **DC=ad, DC=com**.
- Note** **An LDAP expression must never include a space immediately to either side of a “=” sign.** Similarly, it must never include a space immediately to either side of an “objectClass” attribute. Otherwise, validation fails.
- user base DN** The **DN** for an **Active Directory** user base.
- Note** **An LDAP expression must never include a space immediately to either side of a “=” sign.** Similarly, it must never include a space immediately to either side of an “objectClass” attribute. Otherwise, validation fails.
- user filter** A user filter limits the scope of an agreement to import filtered records from an **Active Directory** user base.
- Note** **An LDAP expression must never include a space immediately to either side of a “=” sign.** Similarly, it must never include a space immediately to either side of an “objectClass” attribute. Nor can a group name include any spaces. Otherwise, validation fails.
- X** [↑ Return to Top](#)
- X-509** A standard for public key infrastructure. X.509 specifies, among other things, standard formats for public key certificates and a certification path validation algorithm.

Understand the Requirement to Authenticate Users

Although Cisco DMS always authenticates users, we support three authentication methods.



- *Embedded authentication* is completely native to Cisco DMS. It does not depend on any external servers.
- *LDAP authentication* causes Cisco DMS products to rely on one—and only one—Microsoft [Active Directory](#) server and a Microsoft Internet Information Server (IIS). Thus, setup and operation with this method are more complex than with embedded authentication.
- *Federation mode—also known as single sign-on (SSO)* causes Cisco DMS products to rely on a [SAML 2.0-compliant IdP](#) in combination with a Microsoft [Active Directory](#) server and IIS. Thus, setup and operation with this method are more complex than with [LDAP](#) authentication.



Note

You must choose one of these methods. The method that you use determines which login screen your users will see.



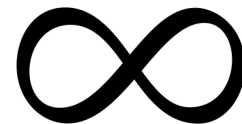
Tip

- **After a user session times out, we prompt the affected user to log in twice.**
- **Migration from one mode to another takes as long as 1 minute to finish (CSCtn22370).**
- **An unresponsive Active Directory server can hang a login prompt for 20 minutes without any error message.**

EMBEDDED MODE

LDAP MODE

FEDERATION (SSO) MODE ¹



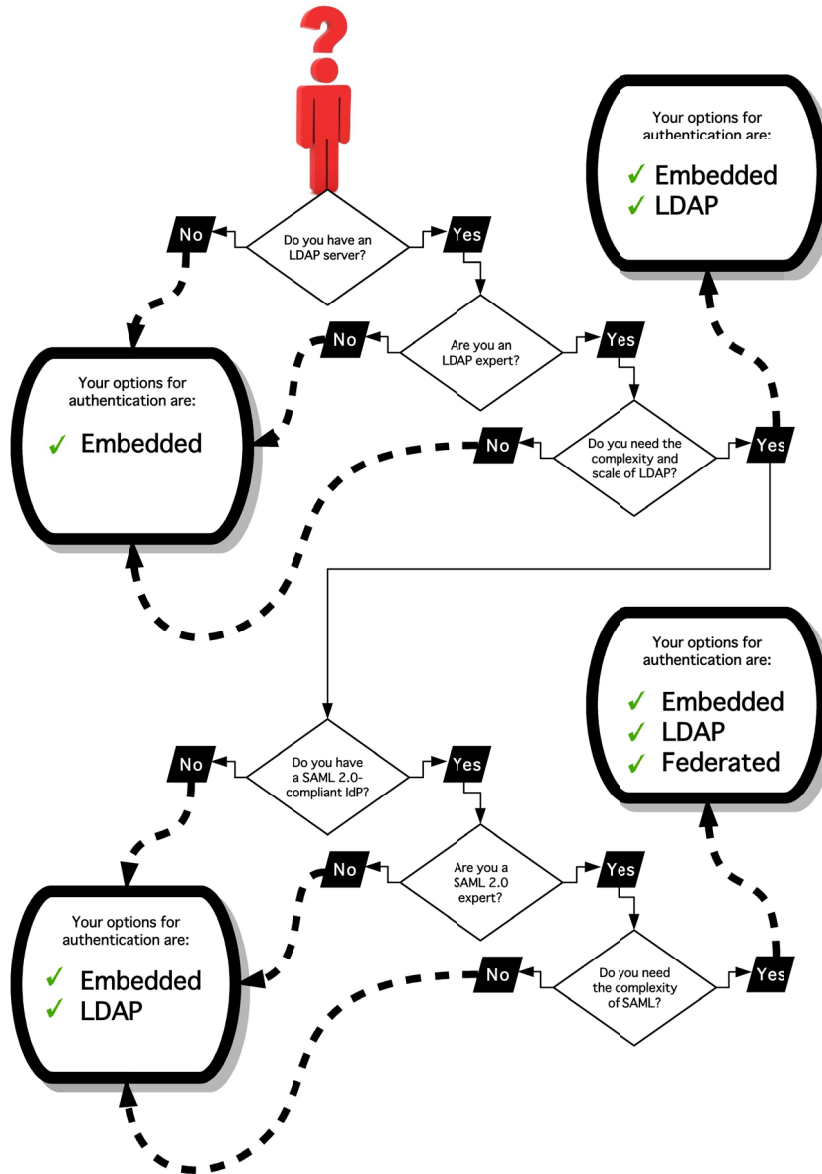
IdP-specific login screen

1. When any of your [federation](#) servers uses a self-signed certificate, we show your users **two SSL warnings** during login.

Related Topics

- [LDAP and Active Directory Concepts, page 8-11](#)
- [Federated Identity and Single Sign-on \(SSO\) Concepts, page 8-17](#)

Decide Which Authentication Method to Use



LDAP and Active Directory Concepts



Note

Microsoft Active Directory is the only LDAP implementation that we support in this release.

- [LDAP is Highly Complex](#), page 8-11
- [Plan Ahead](#), page 8-11
- [Restrictions](#), page 8-11
- [Synchronization Concepts](#), page 8-12
- [LDAP Concepts](#), page 8-15
- [Password Concepts](#), page 8-16
- [Understand Authentication Property Sheets for LDAP](#), page 8-17

LDAP is Highly Complex



Caution

LDAP-related features of Cisco DMS are meant for use by qualified and experienced administrators of Microsoft Active Directory. Unless you are an [Active Directory](#) and [LDAP](#) expert, we recommend that you use embedded authentication.

Plan Ahead

- Install and configure [Active Directory](#) and Internet Information Services (IIS) before you try to configure [LDAP](#) authentication mode or [federation](#) mode in DMS-Admin.



Tip

We support IIS 6 on Windows Server 2003.

- Pair your DMM appliance and your Show and Share appliance in AAI before you configure Cisco DMS to use LDAP authentication. Otherwise, video tutorials for Show and Share are not loaded onto your Show and Share appliance.
- Make sure that you have generated or imported certificates as necessary and activated SSL on the [Active Directory](#) server before you try to configure SSL encryption.

Restrictions

Cisco DMS Release	Support for Active Directory Trees	Support for Active Directory Forests
5.3.x	Yes	No
5.3.12 and later	Yes	Yes

Synchronization Concepts

- [Synchronization \(Replication\) Overview](#), page 8-12
- [Synchronization Types](#), page 8-12
- [Understand Manual Synchronization](#), page 8-13
- [Understand Automatic Synchronization](#), page 8-13
- [Guidelines for Synchronization](#), page 8-13

Synchronization (Replication) Overview


Note

Microsoft Active Directory is the only LDAP implementation that we support in this release.

When you choose [LDAP](#) authentication or [SSO](#) authentication, user account data originates from your [Active Directory](#) server. However, Cisco DMS *does not* synchronize (replicate) this data automatically, in real time. Instead, we cache it. Therefore, you must resynchronize user account data when you think it is appropriate to do so. You can:

- Resynchronize manually.
- Schedule synchronizations to recur in the future at set intervals.


Note

Features of *Digital Signs* and *Show and Share Administration* help you to manage user access privileges and permissions for Cisco DMS.

DMS-Admin synchronizes all user accounts in the [Active Directory](#) “user base” that your filter specifies, **except users whose accounts are disabled** on your [Active Directory](#) server.

Synchronization Types


Note

Microsoft Active Directory is the only LDAP implementation that we support in this release.

We support four types of [Active Directory](#) synchronization in [LDAP](#) mode or [federation](#) mode.

Initial	Update	Overwrite	Delete
Runs a one-time synchronization for a new filter that you never synchronized previously.	Runs an incremental, fast update to find and make up for any differences between user accounts that match your Active Directory filter and your local copy of those user accounts.	Overwrites your local copy of user accounts that correspond to your Active Directory filter with new copies of those user accounts. In addition, deletes your local copy of each user account that has been deleted from Active Directory since the last time that you ran a synchronization.	Deletes your local copy of user accounts that correspond to a defined Active Directory filter and deletes the entry for that filter from DMS-Admin.

Understand Synchronization of a DMM Group to an LDAP Filter



Note

Microsoft Active Directory is the only LDAP implementation that we support in this release.

Is the Active Directory Filter Associated to a DMM User Group?	We Sync All Matching LDAP User Accounts to the	
	'All Users' Group in DMM	Associated User Group in DMM
Yes	Yes	Yes
No	Yes	N.A.

- In most cases, you can associate one [LDAP](#) filter apiece to one DMM user group. Likewise, in most cases, you can associate one DMM user group apiece to one [LDAP](#) filter. **The Digital Signs user group is an exception to both of these principles.** It is built-in to Cisco DMS.
- After you associate a DMM user group to an [LDAP](#) filter, you cannot use features on the Users tab to delete the DMM user group until after you delete the [LDAP](#) filter. However, even when you delete an [LDAP](#) filter, there is no requirement to delete its associated DMM user group. **Furthermore, there is no way for you to delete the Digital Signs user group.** It is built-in to Cisco DMS.

Understand Manual Synchronization



Note

Microsoft Active Directory is the only LDAP implementation that we support in this release.

Manual synchronization mode requires you to choose Administration > Settings > Authentication > Synchronize Users > LDAP Bookmarks during all future synchronizations. Afterward, you must click Update.

Manual synchronization mode deletes your schedule for automatic synchronizations.

Understand Automatic Synchronization



Note

Microsoft Active Directory is the only LDAP implementation that we support in this release.

Automatic synchronization mode automates and schedules incremental updates to user accounts that match [Active Directory](#) filters that you defined in DMS-Admin. When you use automatic synchronization mode, new fields and elements become available to you. These help you to configure the settings for automatic synchronization.

See the “[Understand Synchronization of a DMM Group to an LDAP Filter](#)” section on page 8-13.


Guidelines for Synchronization



Note

Microsoft Active Directory is the only LDAP implementation that we support in this release.

We recommend that you synchronize your [LDAP](#) bookmarks periodically. Synchronization ensures that user and group membership associations are current and correct.

Sync Type	Best Practices
Initial	The <i>Initial</i> option is CPU-intensive for your DMM appliance and might lower performance temporarily. We recommend that you use it during <i>off-peak</i> hours only.
Update	<p>We recommend that you use the <i>Update</i> option whenever:</p> <ul style="list-style-type: none"> • A new user account in Active Directory should have login access to DMM or Show and Share. • User attributes¹ change in Active Directory for a user account in DMM or Show and Share. • A user account is disabled in Active Directory and should be deleted from DMM and Show and Share.
Overwrite	<p>Note The <i>Overwrite</i> option is CPU-intensive for your DMM appliance and might lower its performance temporarily. We recommend that you use this option during off-peak hours only.</p> <ul style="list-style-type: none"> • After a user account is deleted from Active Directory, this option deletes the corresponding user account from DMM and Show and Share. • After a user account is associated to a new first name, last name, or username, this option overwrites the outdated user account attributes.
Delete	<p> Caution The <i>Delete</i> option is destructive by design. We advise that you use it sparingly and with great caution. Among other effects, your deletion of an LDAP bookmark can affect user access to videos in Show and Share.</p> <hr/> <p>Note Typically, the deletion process takes about 1 minute to finish. However, when there are more than 50,000 users in the Active Directory database, this process might run in the background and take about 30 minutes to finish. In this case, the user interface in DMS-Admin can show that a bookmark was deleted even though the actual process has not finished. If you observe this behavior, simply allow 30 minutes for the operation to finish.</p>

1. Attributes that you entered on the Manage Attributes property sheet in DMS-Admin.

LDAP Concepts

- [Understand LDAP Attributes, page 8-15](#)
- [Guidelines for LDAP Filters, page 8-15](#)

Understand LDAP Attributes



Note

Microsoft Active Directory is the only LDAP implementation that we support in this release.

Ordinarily, DMS-Admin *will not* import any user account record from your [Active Directory](#) server when the value in it is blank for any of these attributes:

- **Login User Name**—This required value always must be unique.
- **First Name**—This required value might be identical for multiple users.
- **Last Name**—This required value might also be identical for multiple users.

However, you can import and synchronize all of the [Active Directory](#) user account records that match your filters. You can do this even when some of the user account records are incomplete because one or more of their attributes have blank values.

To prevent these undefined attributes from blocking the import of the user accounts they are meant to describe, you can enter generic values for most attributes in the Values to Use by Default column. DMS-Admin takes the generic values that you enter, and then inserts them automatically where they are needed.



Tip

Nonetheless, you cannot enter a default value for the Login User Name attribute. Usernames are unique.

Guidelines for LDAP Filters

[Use “DC” values to define the user base at the domain level, page 8-15](#)

[Use “OU” values if you want to impose rough limits on a filter, page 8-15](#)

[Use “memberOf” values to pinpoint a filter more precisely, page 8-16](#)

[Use “objectClass” values to match all user records, page 8-16](#)



Note

Microsoft Active Directory is the only LDAP implementation that is supported in this release.

Use “DC” values to define the user base at the domain level

- For example, this filter is acceptable.

```
DC=example,DC=com
```

Use “OU” values if you want to impose rough limits on a filter

- You can use filters that define the user base at a lower level, as this one does.

```
OU=SanJose,DC=example,DC=com
```

LDAP returns matched records **from all levels** within the user base that your filter defines.

Would a filter for “OU=SanJose, DC=example, DC=com” ever include any users from...?

<code>OU=RTP, DC=example, DC=com</code>	No ¹
<code>OU=Milpitas, OU=SanJose, DC=example, DC=com</code>	Yes ²
<code>OU=Sunnyvale, OU=SanJose, DC=example, DC=com</code>	Yes ²

1. Research Triangle Park, NC, does not have any physical connection to San José, CA.
2. Milpitas, CA and Sunnyvale, CA, are suburbs of San José, CA, which affects them directly and in multiple ways.

Use “memberOf” values to pinpoint a filter more precisely

- But what if you did not want to include any members of Milpitas or Sunnyvale? If your [Active Directory](#) server considered these cities (organizational units) to be subsets of San José, how could you exclude their members? To do so, you would use the

`memberOf`

attribute. It stops [LDAP](#) from matching records at any lower level than the one you name explicitly. In this scenario for example, you would use

`memberOf=OU=SanJose, DC=example, DC=com`

to match only the direct members of the “SanJose” [OU](#).

Use “objectClass” values to match all user records

- You can define a comprehensive filter that matches all user records.

`objectClass=user`

Password Concepts

- [Understand the Effects of a Changed Password in Active Directory, page 8-16](#)
- [Understand the Effects of a Blank Password in Active Directory, page 8-16](#)

Understand the Effects of a Changed Password in Active Directory



Note

Microsoft Active Directory is the only LDAP implementation that we support in this release.

After you change a user password on your [Active Directory](#) server, there is no requirement to resynchronize the affected user account in DMS-Admin.

Understand the Effects of a Blank Password in Active Directory



Note

Microsoft Active Directory is the only LDAP implementation that we support in this release.

- Even though it is possible in [Active Directory](#) to use a blank value for a password, Cisco DMS does not allow it.
- When you choose [LDAP](#) authentication, any user whose [Active Directory](#) password is blank is prevented from logging in to any component of Cisco DMS.
- Access is enabled or restored after the password is populated on the [Active Directory](#) server.





Understand Authentication Property Sheets for LDAP



Note

Microsoft Active Directory is the only LDAP implementation that we support in this release.

The Authentication page contains four tabbed property sheets.

Select Mode¹		<i>Embedded, LDAP or SSO</i> Select Mode is by default the only active tab. Your choices on the Select Mode property sheet determine whether you have access to the other three property sheets.
Define Filter		<i>LDAP or SSO</i> Your choices on the Define Filter property sheet help you to configure and add a new agreement.
Synchronize Users		<i>LDAP or SSO</i> Your choices on the Synchronize Users property sheet help you to submit a new agreement.
Manage Attributes		<i>LDAP or SSO</i>

1. In most production environments, you can expect to use the Select Mode property sheet only one time.

Federated Identity and Single Sign-on (SSO) Concepts

- [IdP Requirements, page 8-17](#)
- [Configuration Workflow to Activate Federation \(SSO\) Mode, page 8-18](#)
- [Authentication Scenarios for User Sessions in Federation \(SSO\) Mode, page 8-18](#)

IdP Requirements

To use [federation \(SSO\)](#) mode in Cisco DMS, you must have access to an [IdP](#) that meets our requirements. Your [IdP](#) must meet **ALL OF THESE CRITERIA IN COMBINATION**:

- Support [SAML 2.0](#).
- Support these two [SAML](#) profiles:
 - Web Browser [SSO](#) Profile
 - Enhanced Client or Proxy (ECP) Profile
- Generate assertions in which the [SAML](#) “UID” attribute is mapped to the local portion of an authenticated user’s username.
- Generate SAML responses that are no larger than 16K bytes. (CSCua10799)
- Use a digital certificate from a well-known [CA](#) (but only if you will use HTTPS).
- Include a “<SingleSignOnService>” entry with SOAP binding in its IdP metadata. For example:

```
<SingleSignOnService Location=http://idp.example.com/idp/SSO.sm12"
Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP"/>
```

In practice, these requirements limit your IdP to ones that we certify and NO OTHER. We certify OpenAM, PingFederate, and Shibboleth. (CSCua29696)

Configuration Workflow to Activate Federation (SSO) Mode

1. Configure and set up an [Active Directory](#) server.
2. Configure and set up a [SAML 2.0-compliant IdP](#).



Note When you use a “**fresh install**” of Cisco DMS 5.3 (as opposed to an upgrade), your DMM appliance is configured to use **embedded authentication mode** by default. But when you **upgrade** a DMM server that was already configured for an earlier Cisco DMS release, it might use **either embedded mode or LDAP mode**.

3. Obtain a [digital certificate](#) from a trusted CA and install it on your [IdP](#).
4. Use DMS-Admin to configure Cisco DMS for [federation](#) mode.
5. Export [SAML 2.0-compliant metadata](#) from your DMM server and import it into your [IdP](#).
6. Export [SAML 2.0-compliant metadata](#) from your [IdP](#) and import it into your DMM server.
7. Configure [Active Directory](#) exactly as you would in [LDAP](#) mode.
8. Click **Update** to save your work, and then advance to the Synchronize Users property sheet.
9. Synchronize DMM with your [Active Directory](#) server to populate the DMM user database.



Note You **MUST** configure at least one [LDAP](#) bookmark.

10. Synchronize users exactly as you would in [LDAP](#) mode.



Note Whenever you change any setting or value on your [IdP](#) or any of your [SPs](#), you must reestablish their pairing to restore mutual trust among them.

11. Click **Update** to save your work.

Authentication Scenarios for User Sessions in Federation (SSO) Mode

- [SSO Scenario 1—Trusted + Valid + Authorized](#)
- [SSO Scenario 2—Trusted + Valid + NOT Authorized](#)
- [SSO Scenario 3—Nothing Known](#)

SSO Scenario 1—Trusted + Valid + Authorized

1. A web browser requests access to a protected resource on an **SP**.
Your **federation** will not approve or deny this request until it knows more.
 2. The **SP** asks its **IdP** if the browser is currently authenticated to any valid user account in the **CoT**.
 3. The **IdP** verifies that:
 - The browser is already connected to an **SP** elsewhere in the **CoT**, having authenticated successfully to a valid user account and having received a SAML “token” or “passport” that authorizes at least some access.
 - **The user account has sufficient permissions to access the protected resource.**
 4. The **IdP** acts on the **SP**’s behalf and redirects the browser immediately to the protected resource.
-

SSO Scenario 2—Trusted + Valid + NOT Authorized

1. A web browser requests access to a protected resource on an **SP**.
Your **federation** will not approve or deny this request until it knows more.
 2. The **SP** asks its **IdP** if the browser is currently authenticated to any valid user account in the **CoT**.
 3. The **IdP** verifies that:
 - The browser is already connected to an **SP** elsewhere in the **CoT**, having authenticated successfully to a valid user account and having received a SAML “token” or “passport” that authorizes at least some access.
 - **The user account DOES NOT have sufficient permissions.**
 4. The **IdP** redirects the browser to the **SP**, where an **HTTP 403 Forbidden** message states that the user is not authorized to access the protected resource.
-

SSO Scenario 3—Nothing Known

1. A web browser requests access to a protected resource on an **SP**.
Your **federation** will not approve or deny this request until it knows more.
2. The **SP** asks its **IdP** if the browser is currently authenticated to any valid user account in the **CoT**.
3. The **IdP** reports that:
 - The browser is not yet connected to any **SP** in the **CoT**.
 - The browser is not yet authenticated to any valid user account.
 - **We cannot tell if the browser's human operator is a valid and authorized user, a valid but confused user, or an intruder.**
4. The **SP** redirects the browser automatically to an HTTPS login prompt on the **IdP**, where one of the following occurs:
 - **The browser's human operator successfully logs in to a valid user account.** The **IdP** attaches a SAML “token” or “passport” to the browser session, authorizing at least some access. And:
 - The user account has permission to access the protected resource. So, the **IdP** acts on the **SP**'s behalf and redirects the browser immediately to the protected resource.

OR

- The user account DOES NOT have permission to access the protected resource. So, the **IdP** redirects the browser to the **SP**, where an **HTTP 403 Forbidden** message states that the user is not authorized to access the protected resource.
- **The browser's human operator fails to log in.** So, lacking any proof that this person is authorized, we block access to every protected resource until the human operator can log in successfully.

Migration Between Authentication Methods

- [Understand Migration \(from Either LDAP or SSO\) to Embedded, page 8-20](#)
- [Understand Migration \(from Embedded\) to Either LDAP or SSO, page 8-21](#)

Understand Migration (from Either LDAP or SSO) to Embedded

When you migrate from **LDAP** (via **Active Directory**) or **federation** mode to embedded authentication mode, you must explicitly choose whether to keep local copies of the:

- User accounts that were associated to **LDAP** filters.
- Groups and policies that were associated to **LDAP** filters.



Note

- **Unless you choose explicitly to keep the local copy of a user, a group, or a policy, we discard the local copy.**
- **Migration from one mode to another takes as long as 1 minute to finish (CSCtn22370).**

The result varies according to the combination of your choices.

When You Keep Local Copies of			The Result
Users	Groups	Policies	
Yes	Yes	Yes	<ul style="list-style-type: none"> We preserve all local information. We overwrite all LDAP-derived user account passwords with <i>CiscoDMMvp99999</i>.¹
Yes	No	No	<ul style="list-style-type: none"> We preserve all local user accounts. However, we overwrite all LDAP-derived user account passwords with <i>CiscoDMMvp99999</i>.¹ We discard all LDAP-derived groups. We discard all LDAP-derived policies.
No	Yes	Yes	<ul style="list-style-type: none"> We discard all LDAP-derived user accounts. We preserve all LDAP-derived groups. However, they are empty. We preserve all LDAP-derived policies. Although they no longer apply to anyone, you can reuse them and apply them to any remaining user accounts and any future user accounts as you see fit.
No	No	No	<ul style="list-style-type: none"> We discard all LDAP-derived users, groups, and policies.

1. This security feature protects your network and user data. If anyone gains unauthorized access to the exported file and tries to use it, [Active Directory](#) rejects the invalid passwords.

Understand Migration (from Embedded) to Either LDAP or SSO



Note

- **Before you migrate from embedded authentication mode to federation mode, you must install a digital certificate from a trusted CA on your IdP server.** Otherwise, you cannot migrate to federation mode at all.
- After you migrate from embedded authentication mode to either LDAP (Active Directory) mode or federation mode, the locked property sheets become unlocked. **You must use them.**
- **Migration from one mode to another takes as long as 1 minute to finish (CSCtn22370).**

Procedures

- [Export the Root CA X.509 Certificate from Your Active Directory Server](#), page 8-22
- [Configure DMM to Trust the Active Directory Root CA](#), page 8-22
- [Choose an Authentication Method](#), page 8-23
- [Configure LDAP \(Active Directory\) Settings](#), page 8-23
- [Configure Federation Services for SSO](#), page 8-29
- [Configure Active Directory Federation Services for Cisco Show and Share Release 5.3.12 and Later](#), page 8-41

Export the Root CA X.509 Certificate from Your Active Directory Server

Procedure

-
- Step 1** Open a web browser on your [Active Directory](#) server and connect to <http://localhost/certsrv>.
- Step 2** Click **Download a CA certificate**.
- Step 3** Choose the current CA certificate.
- Step 4** Choose **DER encoded**.

The X.509 certificate that you export must be DER-encoded, and it can be binary or printable (Base64). However, when you use Base64, the certificate file must include these lines:

```
-----BEGIN CERTIFICATE-----
-----END CERTIFICATE-----
```

- Step 5** Click **Download CA certificate**.
- Step 6** Save this certificate in a file.

For example, you might call the certificate **ADcertificate.cer**.

Configure DMM to Trust the Active Directory Root CA

Procedure

-
- Step 1** Choose **Administration > Security > Authentication > Select Mode**.
- Step 2** Enter the details for your [Active Directory](#) server.



Tip **Be sure to use the logical port where your [Active Directory](#) server listens for SSL connections.** The port number, by default, is **636**.

- Step 3** Upload the root CA certificate file that you saved locally.
- Click **Upload**, and then click **Add**.

- b. Browse to the file on a local volume.
 - c. Click the filename and press **Enter**.
 - d. Click **OK** to save your work and dismiss the dialog box.
- Step 4** As prompted, use DMS-Admin to restart Web Services (Tomcat).
The installed certificate cannot take effect until after you restart Tomcat.
-

Choose an Authentication Method

Procedure

- Step 1** Choose **Administration > Security > Authentication**.
- Step 2** Use elements on the Select Mode property sheet to choose an authentication mode.
- Step 3** Click **Update**.



Note Migration from one mode to another takes as long as 1 minute to finish (CSCtn22370).

The authentication settings that you changed are now in effect.

What to Do Next

- **OPTIONAL**—*Did you choose LDAP (Active Directory) or SSO?*
Proceed to the [“Define LDAP \(Active Directory\) Filters”](#) section on page 8-23

Related Topics

- [Elements to Choose and Enable an Authentication Mode](#), page 8-50

Configure LDAP (Active Directory) Settings

- [Define LDAP \(Active Directory\) Filters](#), page 8-23
- [Define LDAP \(Active Directory\) Bookmarks](#), page 8-24
- [Define the LDAP \(Active Directory\) Synchronization Schedule](#), page 8-26
- [Manage LDAP \(Active Directory\) Attributes](#), page 8-26
- [Configure Automatic LDAP \(Active Directory\) Synchronization](#), page 8-27
- [Derive LDAP \(Active Directory\) Group Membership Dynamically from a Query](#), page 8-28

Define LDAP (Active Directory) Filters

Before You Begin

Choose [LDAP](#) or [federation](#) as your authentication method.

Procedure

-
- Step 1** Choose **Administration > Security > Authentication**.
- Step 2** Click **Define Filter**.
- Step 3** Do the following.
- a. Use elements on the Define Filter property sheet to define, validate, and add one [LDAP](#) filter.
 - b. Click **Update**.
 - c. Repeat this step for each filter to be added.

The authentication settings that you changed are now in effect.

Related Topics

[Elements to Define, Validate, and Add LDAP Filters, page 8-53](#)

Define LDAP (Active Directory) Bookmarks**Before You Begin**

- Choose [LDAP](#) or [SSO](#) as your authentication method.
- Define [LDAP](#) filters.

Procedure

-
- Step 1** Choose **Administration > Security > Synchronize Users > LDAP Bookmarks**,



Tip **Is the Synchronize Users tab disabled (dimmed), so that you cannot click it?** If so, refresh your browser.

- Step 2** Do any or all of the following.
- *Would you like to import user accounts to Cisco DMS because they correspond to an [Active Directory](#) filter that you will define?* If so:
 - Choose the synchronization type for these user accounts.
 - Specify which default access privileges you will assign to them.
 - *Should Cisco DMS synchronize user accounts that correspond to a defined [Active Directory](#) filter?* If so, use the synchronization type that you chose.

- *Would you like to sever your ties to a User Base or [Active Directory](#) server?* If so:
 - Delete from Cisco DMS all user accounts that correspond to a defined [Active Directory](#) filter.
 - Delete the entry for that filter from DMS-Admin.
- *Would you like to create a new group in DMM?*

AND

Populate it automatically with user accounts that correspond to an [Active Directory](#) filter that you defined previously?

If so, delete the entry for that filter from DMS-Admin, and then recreate it while associating it to the new group.

Step 3 Validate the filter.

Step 4 Validate the DMM group name.

- Group names in DMM can include alphanumeric characters (0–9; a–z; A–Z), hyphens (-), underscores (_), and periods (.).
- Spaces are forbidden.
- Other forbidden characters include:

```
~`!@#%$%^&*()+={}| \:; " ' ' <>?/
```

Step 5 Click **Update**.



Note Please wait. Your request might take as long as 1 minute to process (CSCtn22370).

The authentication settings that you changed are now in effect.

What to Do Next

- **OPTIONAL**—*Would you like to associate a set of imported users with a new group?*
Proceed to the “[Derive LDAP \(Active Directory\) Group Membership Dynamically from a Query](#)” section on page 8-28.
- **OPTIONAL**—*Would you like to configure the schedule for synchronization?*
Proceed to the “[Define the LDAP \(Active Directory\) Synchronization Schedule](#)” section on page 8-26.

Related Topics

- [Define LDAP \(Active Directory\) Filters](#), page 8-23
- [Derive LDAP \(Active Directory\) Group Membership Dynamically from a Query](#), page 8-28
- [Elements to Use LDAP Bookmarks for Synchronization](#), page 8-54

Define the LDAP (Active Directory) Synchronization Schedule

Before You Begin

- Choose [LDAP](#) or [SSO](#) as your authentication method.
- Define [LDAP](#) filters.
- Define [LDAP](#) bookmarks.

Procedure

Step 1 Choose **Administration > Security > Synchronize Users > Scheduling**,

Step 2 Choose between manual synchronization and automatic synchronization.



Note You will not see any of the elements that the “[Elements for Bookmarks](#)” table describes until after you define at least one filter on the [Define Filter property sheet](#).

Step 3 Click **Update**.

The authentication settings that you changed are now in effect.

What to Do Next

- **OPTIONAL**—*Would you like to associate attribute names in DMS-Admin and Active Directory?* If so, proceed to the “[Manage LDAP \(Active Directory\) Attributes](#)” section on page 8-26.
- **OPTIONAL**—*Should Cisco DMS expect that your Active Directory server uses factory-preset attribute names?* If so, proceed to the “[Manage LDAP \(Active Directory\) Attributes](#)” section on page 8-26.
- **OPTIONAL**—*Should Cisco DMS expect that your Active Directory server uses custom attribute names?* If so, proceed to the “[Manage LDAP \(Active Directory\) Attributes](#)” section on page 8-26.

Related Topics

- [Define LDAP \(Active Directory\) Bookmarks](#), page 8-24
- [Elements to Schedule Synchronization](#), page 8-55

Manage LDAP (Active Directory) Attributes

Before You Begin

- Choose [LDAP](#) or [SSO](#) as your authentication method.
- Define [LDAP](#) filters.

- Define [LDAP](#) bookmarks.
- Configure the [LDAP](#) synchronization schedule.

Procedure

Step 1 Click **Administration > Security > Authentication > Manage Attributes**.



Tip **Is the Manage Attributes tab disabled (dimmed), so that you cannot click it?** If so, refresh your browser.

Step 2 Use elements on the Manage Attributes property sheet to:

- Set the associations between DMS-Admin attribute names and their corresponding [Active Directory](#) attribute names.
- Use the predefined and typical names for [Active Directory](#) attributes (shown in grey text) or edit those attribute names so they match the names that your [Active Directory](#) server uses.
- Enter the values to use by default in DMS-Admin when a user account attribute is not defined on your [Active Directory](#) server.

You must enter a value for each mandatory attribute. You cannot enter a value to use by default for user names, because each user name is unique.

Step 3 Click **Update**.


The authentication settings that you changed are now in effect.

Related Topics

- [Define the LDAP \(Active Directory\) Synchronization Schedule, page 8-26](#)
- [Elements to Manage Attributes, page 8-56](#)

Configure Automatic LDAP (Active Directory) Synchronization

Procedure

Step 1 Click the calendar icon () to choose the start date for synchronization.

Step 2 Choose the hour and minute when synchronization should begin, and then choose either **AM** or **PM** as the period.

Step 3 From the Repeat Interval list, choose the interval of recurrence:

Interval	Description
Never	Synchronization occurs once and does not recur.
Every Day	Synchronization recurs once every 24 hours. You must set the hour and minute when it should start.
Every Week	Synchronization recurs once every 7 days. You must set the hour and minute when it should start.

Interval	Description
Every Month	Synchronization recurs once each month. You must set the hour and minute when it should start.
Custom	<p>Synchronization recurs at an interval of your choosing. You must set the hour and minute when it should start.</p> <p>Choose Days, Weeks, or Months as the interval type.</p> <ul style="list-style-type: none"> Choose a day of the month from 1 to 30 when the interval type is Days. Choose a day of the week when the interval type is Weeks. Choose an interval of recurrence from 1 to 6 when the interval type is Months.

Step 4 (Optional)

- Did you click the *Automatic Synchronization* radio button?
- And should a one-time synchronization start immediately, in addition to the start date and time that you specified?

If so, check the **Synchronize users immediately** check box.

Step 5 Click **Update**.

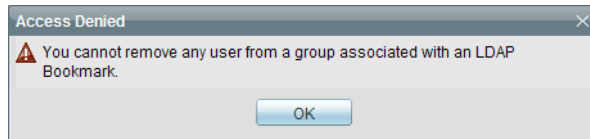
The authentication settings that you changed are now in effect.

Derive LDAP (Active Directory) Group Membership Dynamically from a Query

You can populate a user group with the returned output from a User Base DN query. However, a group of this kind differs in important ways from a group that you populate manually.

**Note**

- **Membership of such groups is dynamic**—based on shared characteristics among the group of **Active Directory** users who match your query.
- We update and clean these groups automatically during synchronization. **Their membership will change after synchronization runs**, when the corresponding records in **Active Directory** show that a user's membership should start or stop.
- An imported **Active Directory** group is always **read-only** in DMS-Admin. By protecting it, we ensure that it is always correct, relative to the original and subject to any delay between synchronizations. For this reason, you cannot edit their memberships rolls manually.
- When you try to delete a user from a group of this type, DMS-Admin shows an error message.

**Before You Begin**

Choose **LDAP** as your authentication method.

Procedure

- Step 1** Choose **Administration > Security > Authentication**.
- Step 2** Click **Define Filter**,
- Step 3** Use elements on the Define Filter property sheet to define, validate, and add one [LDAP](#) filter.
- Step 4** *Would you like to add users to a group that exists already?* If so, choose that group name from the User Group (in DMM) list.

OR

Would you like to create and populate an entirely new group? If so, choose **Create a New User Group** from the User Group (in DMM) list. Then, use the Group Name field to enter a name for the new group.

- Step 5** *Would you like to check your filter's syntax?* If so, click **Validate**.
- Step 6** Click **Update**.
-

Configure Federation Services for SSO

- [IdP Configuration Examples](#), page 8-29
- [Export SP Metadata from DMM](#), page 8-39
- [Import IdP Metadata into DMM](#), page 8-39
- [Bypass External Authentication During Superuser Login, as Needed](#), page 8-40

IdP Configuration Examples

This section includes configuration examples from IdP implementations that have passed internal Cisco tests for interoperability with Cisco DMS.



Note

- **We provide these rough examples as a courtesy only.** We do not endorse any IdP by name, including any whose setup we mention by name in these examples. Likewise, we do not influence the development of any IdP. We do not know when or how its configuration workflows, daily operation, or overall quality might change in the future. For these reasons, we cannot know beforehand when or how the natural course of its ongoing development might invalidate one or more of the examples in this section. Therefore: Obtain all necessary IdP documentation from your IdP vendor, not Cisco.
 - **You are free to choose, configure, and use an IdP at your own discretion—and your own risk.** We do not develop, maintain, or support any IdP. Nor do we warrant that your choice of IdP is free of defects, non-infringing, or fit for any purpose.
-

- [Example: Configure OpenAM to Interoperate with Cisco DMS](#), page 8-30
- [Example: Configure Shibboleth to Interoperate with Cisco DMS](#), page 8-32
- [Example: Configure PingFederate to Interoperate with Cisco DMS](#), page 8-35

Example: Configure OpenAM to Interoperate with Cisco DMS**Before You Begin**

Obtain a digital identity certificate from a well-known CA, install it on your IdP host system, and then enable SSL.

Procedure

<p>Step 1 Configure OpenAM to use a datastore from Active Directory, unless it already does so.</p>	<p>Note In Federation mode, we use a <i>synchronization</i> process to learn which usernames are valid in your organization. Later and separately, we use an <i>authentication</i> process to verify user-login credentials. And even though we expect most IdPs will source both of these services from a Microsoft Active Directory server, your organization might use some other other LDAP system to authenticate user sessions. When this is the case, you must install and configure an Active Directory server for synchronization use by Cisco DMS. Otherwise, we cannot learn which usernames are valid. In turn, ordinary users cannot log in to Cisco DMS. To prevent this outcome, you must replicate and synchronize a datastore between your new Active Directory server and your existing LDAP server. Afterward, Cisco DMS can synchronize with the Active Directory datastore.</p> <p>a. In OpenAM Web, choose Access Control > Top Level Realm > Data Stores.</p> <p>b. Enter values to define the attributes of your Active Directory DataStore.</p> <p>You might enter values for some of the attributes (like these ones, for example)...</p> <pre>LDAP Server: <IP_ADDRESS>:389 LDAP Bind DN: CN=Administrator,CN=Users,DC=win2003esx,DC=example,DC=com LDAP Bind Password: ***** LDAP Organization DN: OU=SystemTest,DC=win2003esx,DC=example,DC=com LDAP Users Search Attribute: sAMAccountName LDAP Users Search Filter: (objectclass=user) Authentication Naming Attribute: sAMAccountName</pre> <p>... while leaving other attribute values undefined.</p> <pre>Attribute Name Mapping: <Empty> LDAP Groups Search Attribute: <Empty> LDAP Groups Search Filter: <Empty> LDAP Groups container Naming Attribute: <Empty> LDAP Groups Container Value: <Empty> Attribute Name of Unqie Member: <Empty> LDAP People Container Naming Attribute: <Empty> LDAP People Container Value: <Empty> Persistent Search Base DN: <Empty> Persistent Search Filter: <Empty></pre> <p>Note These are merely examples.</p> <p>c. Click Federation, and then click your IdP server instance—for example, dmsIdp.</p> <p>d. Click Assertion Processing.</p> <p>e. Change the IDP Attribute Map value from UID=uid to UID=sAMAccountName.</p>
--	--

<p>Step 2 Install <i>Enhanced Client or Proxy</i> (ECP), a SAML profile plugin, if you will make API system calls to OpenAM¹.</p>	<ol style="list-style-type: none"> a. Log in to your Cisco.com user account. b. Go to http://cisco.com/cisco/software/release.html?mdfid=280171249&softwareid=282100271&release=5.3&rellifecycle=&reind=AVAILABLE&reltype=all, navigate to the download page for our implementation of ECP², and then download it. c. Use Maven or another method to download release 1.2.14 of the open source logging framework called log4j. d. Copy your downloaded ECP and log4j files to <code>/\$OPENSSO_HOME/WEB-INF/lib, .</code> e. Restart your servlet container—for example, tomcat. f. In OpenAM Web, click Federation, and then click your IdP server instance—for example, dmsIdp. g. Click Advanced. h. In the ECP Configuration area, set the IDP Session Mapper value to com.cisco.dms.core.security.aaa.sso.saml2.ecp.idp.plugin.DmsIDPECPSessionMapper. i. Click Save.
<p>Step 3 Export SP metadata from Cisco DMS.</p>	<p>Export metadata from each SP that will participate in your OpenAM CoT.</p> <p>Tip For Cisco DMS, see the “Export SP Metadata from DMM” topic.</p>
<p>Step 4 Import SP metadata from Cisco DMS.</p>	<ol style="list-style-type: none"> a. Go to the console page and click Register Remote Service Provider. b. Check the File check box. c. Click Upload, and then navigate to the SP metadata that you exported from DMS-Admin and saved as dms_sp_config.xml. d. Click Configure, and then click Federation. e. Make sure that <i>dmsServiceProvider (SAMLv2 SP Remote)</i> has a defined value.
<p>Step 5 Make sure that OpenAM is configured to issue the <i>Principal</i> attribute.</p>	<ol style="list-style-type: none"> a. In OpenAM Web, click Federation, and then click your IdP server instance—for example, dmsIdp. b. Click Assertion Processing. c. In the Attribute Mapper area, set the Attribute Map value to UID=uid. d. Click Back. e. Click the SP entity instance for your DMM appliance. The Assertion Content tab is selected automatically. f. In the Request/Response Signing area, check both of these check boxes: <ul style="list-style-type: none"> • Authentication Requests Signed • Assertions Signed g. Choose Access Control > / (Top Level Realm) > Authentication. h. Click All Core Settings. i. Make sure that the User Profile value is set to Required. This will cause OpenAM to pass the user IDs of logged-in users to DMM and your other SPs. j. Click Save, and then click Back to Authentication. k. Log out of OpenAM Web.

Step 6 Cause Cisco DMS to trust OpenAM.	See the “ Import IdP Metadata into DMM ” topic.
Step 7 Use the Linux CLI to export IdP metadata.	<pre>wget --no-check-certificate https://<IdP_serverip>:<service_port>/opensso/saml2/jsp/exportmetadata.jsp -O dms_idp_config.xml</pre>

- Also, DMS-Admin includes a feature to test the configuration of your IdP. In the case of OpenAM, this testing feature uses ECP and fails in its absence.
- We provide a downloadable ECP implementation as a courtesy to you. Alternatively, you can obtain ECP from another source at your discretion.

Example: Configure Shibboleth to Interoperate with Cisco DMS

Before You Begin

Obtain a digital identity certificate from a well-known CA, install it on your IdP host system, and then enable SSL.

Procedure

Step 1 Obtain and install Shibboleth.	<ol style="list-style-type: none"> Go to http://www.shibboleth.net/downloads/identity-provider/latest/. Download the latest Identity Provider software package, such as shibboleth-identityprovider-2.3.0-bin.zip. Extract the downloaded archive, and then make the installer script within it, named <i>install.sh</i>, executable. For example: <pre>\$ unzip shibboleth-identityprovider-2.3.0-bin.zip \$ cd shibboleth-identityprovider-2.3.0 \$ chmod u+x install.sh</pre> Run the script to install Shibboleth. <pre>\$./install.sh</pre> <ul style="list-style-type: none"> The installer will prompt you to specify the installation directory. Its default is /opt/shibboleth-idp. In addition, it will prompt you to enter your Shibboleth system’s FQDN, such as shibboleth.example.com. <p>Respond appropriately to these prompts.</p> <p>Shibboleth is now installed and you have completed its basic configuration. Your new Shibboleth system contains these subfolders.</p> <pre>/opt/shibboleth-idp/bin/ /opt/shibboleth-idp/conf/ /opt/shibboleth-idp/credentials/ /opt/shibboleth-idp/lib/ /opt/shibboleth-idp/logs/ /opt/shibboleth-idp/metadata/ /opt/shibboleth-idp/war/</pre>
Step 2 Export SP metadata from Cisco DMS.	Export metadata from each SP that will participate in your Shibboleth CoT. Tip For Cisco DMS, see the “ Export SP Metadata from DMM ” topic.

Step 3	Import SP metadata from Cisco DMS.	Use SFTP or another method to save imported metadata where Shibboleth will access it: <code>/opt/shibboleth-idp/metadata/</code> .
Step 4	Log in remotely.	Use SSH, remote desktop, VNC, or a direct console connection to log in remotely to the system where you installed Shibboleth.
Step 5	Edit the attribute filter file.	<p>a. Open <code>/opt/shibboleth-idp/conf/attribute-filter.xml</code> for editing.</p> <p>b. Change the attributeID value (at or near line 24) to uid.</p> <pre><afp:AttributeRule attributeID="uid"></pre>
Step 6	Edit the attribute resolver file.	<p>a. Open <code>/opt/shibboleth-idp/conf/attribute-resolver.xml</code> for editing.</p> <p>b. Find this section:</p> <pre><!-- ===== -> <!-- Attribute Definitions -> <!-- ===== -></pre> <p>c. Enter these lines after the Attribute Definitions section heading, at or near line 29.</p> <pre><resolver:AttributeDefinition xsi:type="ad:Simple" id="uid" sourceAttributeID="sAMAccountName"> <resolver:Dependency ref="myLDAP" /> <resolver:AttributeEncoder xsi:type="enc:SAML2String" name="urn:oid:0.9.2342.19200300.100.1.1" friendlyName="uid" /> <resolver:AttributeEncoder xsi:type="enc:SAML2StringNameID" nameFormat="urn:oasis:names:tc:SAML:2.0:nameid-format:transient" /> </resolver:AttributeDefinition></pre> <p>d. Find this section:</p> <pre><!-- ===== -> <!-- Data Connectors -> <!-- ===== -></pre> <p>e. Enter these lines after the Data Connectors section heading, at or near line 288.</p> <pre><resolver:DataConnector id="myLDAP" xsi:type="dc:LDAPDirectory" xmlns="urn:mace:shibboleth:2.0:resolver:dc" ldapURL="ldap://<YOUR_ACTIVE_DIRECTORY_SERVER_IP>" baseDN="cn=<USERBASE>, dc=<HOSTNAME>, dc=<EXAMPLE>, dc=<COM>" principal="cn=<ADMINISTRATOR_CN>, cn=<USERBASE>, dc=<HOSTNAME>, dc=<EXAMPLE>, dc=<COM>" principalCredential="<ADMINISTRATOR_PASSWORD>" <dc:FilterTemplate> <![CDATA[(sAMAccountName=\$requestContext.principalName)]]> </dc:FilterTemplate> <LDAPProperty name="java.naming.referral" value="follow"/> </resolver:DataConnector></pre>
Step 7	Edit the handler file.	<p>a. Open <code>/opt/shibboleth-idp/conf/handler.xml</code> for editing.</p> <p>b. Uncomment line 109.</p> <pre><!-- Username/password login handler --> <ph>LoginHandler xsi:type="ph:UsernamePassword" jaasConfigurationLocation="file:///opt/shibboleth-idp/conf/login.config"> <ph:AuthenticationMethod>urn:oasis:names:tc:SAML:2.0:ac:classes:PasswordProtect edTransport</ph:AuthenticationMethod> </ph>LoginHandler></pre>

Step 8	Edit the login config file.	<p>a. Open <code>/opt/shibboleth-idp/conf/login.config</code> for editing.</p> <p>b. Find this string, at or near line 45:</p> <pre>};</pre> <p>c. Enter this material immediately before <code>};</code> .</p> <pre>edu.vt.middleware.ldap.jaas.LdapLoginModule optional ldapUrl="ldap://<YOUR_ACTIVE_DIRECTORY_SERVER_IP>:389" bindDn="cn=<ADMINISTRATOR_CN>, cn=<USERBASE>, dc=<HOSTNAME>, dc=<EXAMPLE>, dc=<COM>" bindCredential="<ADMINISTRATOR_PASSWORD>" baseDn="cn=<USERBASE>, dc=<HOSTNAME>, dc=<EXAMPLE>, dc=<COM>" ssl="false" tls="false" userFilter="sAMAccountName={0}";</pre>
Step 9	Edit the replying party file.	<p>a. Open <code>/opt/shibboleth-idp/conf/replying-party.xml</code> for editing.</p> <p>b. Find this section:</p> <pre><!-- ===== --> <!-- Metadata Configuration --> <!-- ===== --></pre> <p>c. Enter these lines after the Metadata Configuration section heading, at or near line 123.</p> <pre><metadata:MetadataProvider id="<HOSTNAME_ONLY_FOR_YOUR_SP>" xsi:type="FilesystemMetadataProvider" xmlns="urn:mace:shibboleth:2.0:metadata" metadataFile="/opt/shibboleth-idp/metadata/<EXPORTED_SP_SETTINGS_FILENAME>.xml" maintainExpiredMetadata="true" /> </metadata:MetadataProvider></pre>

Step 10 Prepare your Shibboleth config for use by Cisco DMS.	<p>a. Open <code>/opt/shibboleth-idp/metadata/opt/shibboleth-idp/metadata/Idp-metadata.xml</code> for editing.</p> <p>b. Delete lines 9 through 11.</p> <pre><Extensions> <shibmd:Scope regexp="false"><EXAMPLE>.<COM></shibmd:Scope> </Extensions></pre> <p>c. Delete lines 67 through 69.</p> <pre><Extensions> <shibmd:Scope regexp="false"><EXAMPLE>.<COM></shibmd:Scope> </Extensions></pre> <p>d. Find this string:</p> <pre></IDPSSODescriptor></pre> <p>e. Enter this new binding immediately before <code></IDPSSODescriptor></code>.</p> <pre><SingleSignOnService Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP" Location="https://<YOUR_SHIBBOLETH_SERVER_FQDN>:8443/idp/profile/SAML2/SOAP/EC " /></pre> <p>f. Append <code>:8443</code> to the end of every FQDN in this file.</p> <p>g. Save your edited copy of this file to your local system.</p> <p>Be sure to use your Shibboleth hostname in the local filename. For example, you might name this local copy <code>idp-shibboleth.xml</code>.</p>
Step 11 Cause Cisco DMS to trust Shibboleth.	<p>See the “Import IdP Metadata into DMM” topic.</p> <p>Note Make sure that before importing the <code>IDP_metadata.xml</code> file into the DMM, first remove the <code><Extensions></Extensions></code> tag.</p>
Step 12 Deploy Shibboleth.	<pre>cp /opt/shibboleth-idp/war/idp.war /usr/local/tomcat/webapps/</pre>
Step 13 Test your work.	<p>a. Restart Tomcat.</p> <p>b. Check for the “OK” message at <code>http://<hostname>:8080/idp/profile/Status</code>.</p>

Example: Configure PingFederate to Interoperate with Cisco DMS

Before You Begin

Install [PingFederate](#) and configure it with at least one Adapter instance to your authentication server, such as [LDAP](#) or OAM.

Procedure

Step 1	Export SP metadata from Cisco DMM.	Export metadata from each SP that will participate in your PingFederate CoT . Tip For Cisco DMS, see the “ Export SP Metadata from DMM ” topic.
Step 2	Import SP metadata into PingFederate.	<ol style="list-style-type: none"> a. Log in to PingFederate as its administrator. b. Find the SP Connections area in the My IdP Configuration column and click Create New. c. Click Do not use a template for this connection on the <i>Configuring SP Connection/Connection Template</i> page, and then click Next. d. Check the Browser SSO Profiles check box on the <i>Configuring SP Connection/Connection Type</i> page, choose SAML 2.0 from the Protocols list, and then click Next. e. Check the Browser SSO check box, and then click Next. f. Click Choose File on the <i>Configuring SP Connection/Import Metadata</i> page, and then navigate to the SP metadata that you exported from DMS-Admin as dms_sp_config.xml. g. Click Open, and then click Next THREE TIMES.

<p>Step 3 Configure SAML profile settings and IdP assertions.</p>	<ol style="list-style-type: none"> a. Click Configure Browser SSO on the <i>Configuring SP Connection/Browser SSO</i> page. b. Check the SP Initiated SSO check box on the <i>Browser SSO/SAML Profiles</i> page, and then click Next TWO TIMES. c. Click Configure Assertion Creation on the <i>Browser SSO/Assertion Creation</i> page. d. Click Transient on the <i>Assertion Creation/Identity Mapping</i> page, check the Include attributes in addition to the transient identifier check box, and then click Next. e. Set these attribute-value relationships in the Extend the Contract area on the <i>Assertion Creation/Attribute Contract</i> page. <ul style="list-style-type: none"> • SAML_AUTHN_CTX <code>urn:oasis:names:tc:SAML:2.0:attrname-format:uri</code> • UID <code>urn:oasis:names:tc:SAML:2.0:attrname-format:uri</code> • SAML_NAME_FORMAT <code>urn:oasis:names:tc:SAML:2.0:attrname-format:uri</code> f. Click Next. g. Click Map New Adapter Instance on the <i>Assertion Creation/IdP Adapter Mapping</i> page. h. Choose your appropriate authentication type and adapter instance from the next two pages. i. Click Next. The username attribute that you need next is probably part of the adapter contract. Therefore: j. Click Use only the Adapter Contract values in the SAML assertion on the <i>IdP Adapter Mapping/Assertion Mapping</i> page, and then click Next. k. On the <i>IdP Adapter Mapping/Attribute Contract Fulfillment</i> page: <ul style="list-style-type: none"> • Set the source to Text for the SAML_AUTHN_CTX attribute contract. Then, set its value to <code>urn:oasis:names:tc:SAML:2.0:ac:classes:PasswordProtectedTransport</code> • Set the source to Adapter for the UID attribute contract. Then: <ul style="list-style-type: none"> – Locate an adapter value, such as subject or userId, that maps to the username. – Set the UID attribute contract value to match the adapter value that you just found. l. Click Next > Done > Next > Done > Next.
<p>Step 4 Configure protocol settings.</p>	<ol style="list-style-type: none"> a. Click Configure Protocol Settings on the <i>Browser SSO/Protocol Settings</i> page. b. Make sure that the default binding value is set to POST on the <i>Protocol Settings/Assertion Consumer Service URL</i> page, delete all other bindings, and then click Next. c. Clear the Artifact check box on the <i>Protocol Settings/Allowable SAML Bindings</i> page, and then click Next. d. Check these check boxes on the <i>Protocol Settings/Signature Policy</i> page, and then click Next. <ul style="list-style-type: none"> • Require AuthN requests to be signed when received via the POST or Redirect bindings. • Always sign the SAML Assertion. e. Click None on the <i>Protocol Settings/Encryption Policy</i> page. f. Click Next > Done > Next > Done > Next.

Step 5	Configure credentials and their digital signatures.	<ul style="list-style-type: none"> a. Click Configure Credentials on the <i>SP Connection/Credentials</i> page. b. Click Configure on the <i>Credentials/Back-Channel Authentication</i> page. c. Check the Use Digital Signatures to guarantee payload in Browser SSO profile check box on the <i>Back-Channel Authentication/Inbound SOAP Authentication Type</i> page, and then click Next. d. Click Done on the <i>Back-Channel Authentication/Summary</i> page. e. Choose the appropriate certificate on the <i>Credentials/Digital Signature Settings</i> page, check the Include the certificate in the signature <KeyInfo> Element check box, and then click Next. f. Click Manage Signature Verification Settings... on the <i>Credentials/Signature Verification Settings</i> page. g. Click Unanchored on the <i>Signature Verification/Trust Model</i> page, and then click Next. h. Choose your DMM certificate (example: dmm.example.com) from the Primary list on the <i>Signature Verification/Signature Verification Certificate</i> page, and then click Next. <p>Note DO NOT choose any secondary certificate.</p> <p style="text-align: center;">OR</p> <p>If the Primary list does not include your DMM certificate, do the following.</p> <ul style="list-style-type: none"> 1. Click Manage Certificates on the <i>Signature Verification/Signature Verification Certificate</i> page. 2. Click Choose File on the <i>Import Certificate/Import Certificate</i> page, and then navigate to the X509 digital certificate file (*.cer) that you output from DMM. <p>Note Make sure that your certificate file includes the preamble and postscript that are mandatory for PEM-formatted certificates. The preamble and postscript look like this.</p> <pre style="margin-left: 40px;">-----BEGIN CERTIFICATE----- -----END CERTIFICATE-----</pre> <ul style="list-style-type: none"> 3. Click Open, and then click Next THREE TIMES. 4. Check the Make this the active certificate check box on the <i>Import Certificate/Summary</i> page, and then click Done. <ul style="list-style-type: none"> i. Click Done on the <i>Certificate Management/Manage Digital Verification Certificates</i> page. j. Click Next on the <i>Signature Verification/Signature Verification Certificate</i> page. k. Click Done on the <i>Signature Verification/Summary</i> page. l. Click Next on the <i>Credentials/Signature Verification Settings</i> page. m. Click Done on the <i>Credentials/Summary</i> page. n. Click Next on the <i>SP Connection</i> page.
Step 6	Activate and save the new settings.	Set the Connection Status to Active on the <i>SP Connection/Activation & Summary</i> page, and then click Save .

Export SP Metadata from DMM

Before you can use Cisco DMS in [federation](#) mode, you must export data from DMS-Admin in the form of an [SP](#) configuration file. Later, you will import this file into your [IdP](#).

Procedure

- Step 1** Make sure that your DMM appliance is running in embedded authentication mode or LDAP mode.
- Step 2** Log in as **superuser**.
- Step 3** Choose **Administration > Security > Authentication**.
- Step 4** Check the Federation check box.
- Step 5** Click **Export**.
- Step 6** Save the exported file to your client PC or laptop computer as **dms_sp_config.xml**.



Note See the technical documentation or tutorials for your [IdP](#) to understand how it imports [SP](#) configuration files. Alternatively, see the topic for your IdP platform in this chapter's "[IdP Configuration Examples](#)" section.

Related Topics

[Import IdP Metadata into DMM, page 8-39](#)

Import IdP Metadata into DMM

Before you can use Cisco DMS in [federation](#) mode, you must export data from your [IdP](#) in the form of an [IdP](#) configuration file. This topic explains how to use the exported file after you generate and save it.

Before You Begin

- See the technical documentation or tutorials for your [IdP](#) to understand how it exports configuration files for an [SP](#) (such as DMM) to import. Alternatively, see the topic for your IdP platform this chapter's "[IdP Configuration Examples](#)" section.
- Rename the exported [IdP](#) configuration file **idp_<type>.xml**. For example:
 - **idp_***openam*.xml
 - **idp_***shibboleth*.xml
 - **idp_***pingfederate*.xml

Procedure

- Step 1** Make sure that your DMM appliance is running in embedded authentication mode or LDAP mode.
- Step 2** Log in as **superuser**.
- Step 3** Choose **Administration > Security > Authentication**.
- Step 4** Click **Federation** to choose it as your authentication mode.
- Step 5** Click **Import**.
- Step 6** Choose and upload the IdP file (**idp_<type>.xml**) that you saved previously.

Step 7 Enter the necessary [LDAP](#) information to use your [Active Directory](#) server.

Related Topics

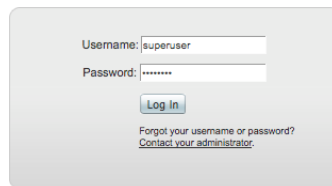
- [Define LDAP \(Active Directory\) Filters](#)
- [Export SP Metadata from DMM, page 8-39](#)

Bypass External Authentication During Superuser Login, as Needed

Your DMM server features a special login form, **which rejects every username except *superuser***. You use this special form whenever Cisco DMS runs in [federation](#) mode or an error has prevented migration from one authentication mode to another.

Procedure

- Step 1** Go to **<http://<FQDN>:8080/dmsadmin/admin/login>**.
- Enter **superuser** in the Username field.
 - Enter the corresponding password in the Password field.
 - Click **Log In**.



Username:

Password:

[Forgot your username or password?
Contact your administrator.](#)

Related Topics

[Federation Mode \(SSO\) FAQs, page 8-65](#)

Configure Active Directory Federation Services for Cisco Show and Share Release 5.3.12 and Later

This section describes how to install and configure Active Directory Federation Services (AD FS) 2.0 for use with Cisco Show and Share Release 5.3.12 and later. This section contains the following sections:

- [Installing Active Directory Federation Services, page 8-41](#)
- [Integrating Active Directory Federation Services with Cisco DMM, page 8-42](#)
- [Testing Single Sign On, page 8-49](#)

AD FS 2.0 is a software component that you can install on Windows Server operating systems to provide users with single sign-on access to systems and applications located across organizational boundaries. It uses a claims-based access control authorization model to maintain application security and implement federated identity.

By enabling AD FS, users can log in to the identity provider (IdP) which is AD FS. After logging in, they can access resources at one or more service providers (known as relying parties) without needing to log in at each service provider (SP). Users can also access system resources by initiating a SP login.

**Note**

The Cisco Show and Share iOS mobile application is not supported when the AD FS feature is enabled in Show and Share Release 5.3.12 and later.

AD FS 2.0 integrates with Active Directory Domain Services, using it as an identity provider. AD FS can interact with other Security Assertion Markup Language (SAML) 2.0-compliant federation services as federation partners.

AD FS 2.0 is a downloadable Windows Server 2008 update that is the successor to AD FS 1.0.

SAML version 2.0 is the standard for cross-domain web single sign-on in the enterprise space. Microsoft introduced SAML support in AD FS version 2.0.

**Note**

Windows Server 2008 R2 includes AD FS 1.0, which does not support SAML 2.0. You need to download the AD FS 2.0 release to web (RTW) package.

Installing Active Directory Federation Services

Follow these steps:

- Step 1** Start with Windows Server 2008 (R2) Domain Joined.
- Step 2** Create a DNS name for AD FS and point it to your AD FS server. For example, *adfs-bbb.local*.
- Step 3** [Download](#) and install Active Directory Federation Services 2.0 RTW.
- Step 4** In the IIS manager, create a SSL certificate for your DNS name, or use SelfSSL from the IIS 6.0 resource kit to create a self-signed certificate. Bind the SSL certificate with HTTPS port 443.
- Step 5** Run the AD FS Server Configuration Wizard to complete the following:
 - a. Create a new Federation Service.**
 - b. Choose Stand-alone federation server.**
 - c. Select the certificate** that you created for your DNS name.

Step 6 Create a service principal name for the DNS name so that Kerberos authentication between the browser and the AD FS IIS instance works correctly:

```
1 setspn -a HOST/adfs-bbb.test.local test\ADFSSVR01
2 setspn -a HOST/adfs-bbb test\ADFSSVR01
```

Step 7 These certificates are automatically generated by the AD FS 2.0 installation process on the AD FS server:

- Service Communication
- AD FS Token Signing
- AD FS Token Encryption

Export the **Service Communication** certificate, name the file *idp01.cer* and save it.

Integrating Active Directory Federation Services with Cisco DMM

To build a federation between two parties you need to establish a trust by exchanging some metadata. The metadata for the AD FS 2.0 instance is entered through the Federation Metadata.xml file into the DMM configuration. The DMM metadata is downloaded as an XML file that is used by AD FS 2.0.

For this configuration, there are two network domains:

- Network A (*https://dmm-aaa.cisco.com*) is the Cisco DMM
- Network B (*https://adfs-bbb.local.cisco.com*) is the Microsoft Active Directory Domain and holds the Identity Provider

SAML 2.0 defines several roles for parties involved in single sign-on:

- Service provider/relying party (DMM)
- Identity provider (AD FS server)
- User that authenticates to access services

This is the process for an IdP-initiated login into *dmm.cisco.com*:

1. The user authenticates to the AD FS server by using Integrated Windows Authentication (Kerberos tokens over HTTP) and requests login to *dmm.cisco.com*.
2. AD FS returns a SAML assertion to the user's browser
3. The browser automatically submits the assertion to *dmm.cisco.com*, which logs the user in.

To integrate AD FS with Cisco DMM, see these sections:

- [Configure Active Directory Federation Services, page 8-43](#)
- [Add a New Relying Party Trust, page 8-44](#)
- [Add a New Rule, page 8-45](#)
- [Configure Cisco DMM, page 8-48](#)
- [Enable SP-Initiated Login, page 8-49](#)

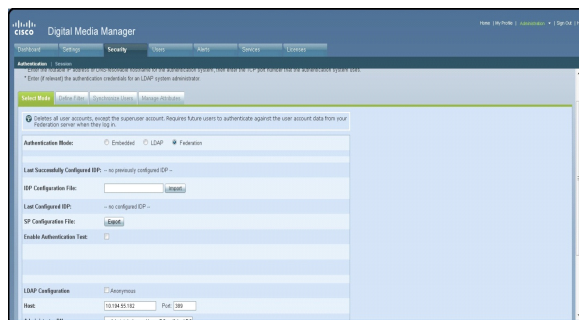
Configure Active Directory Federation Services

Follow these steps:

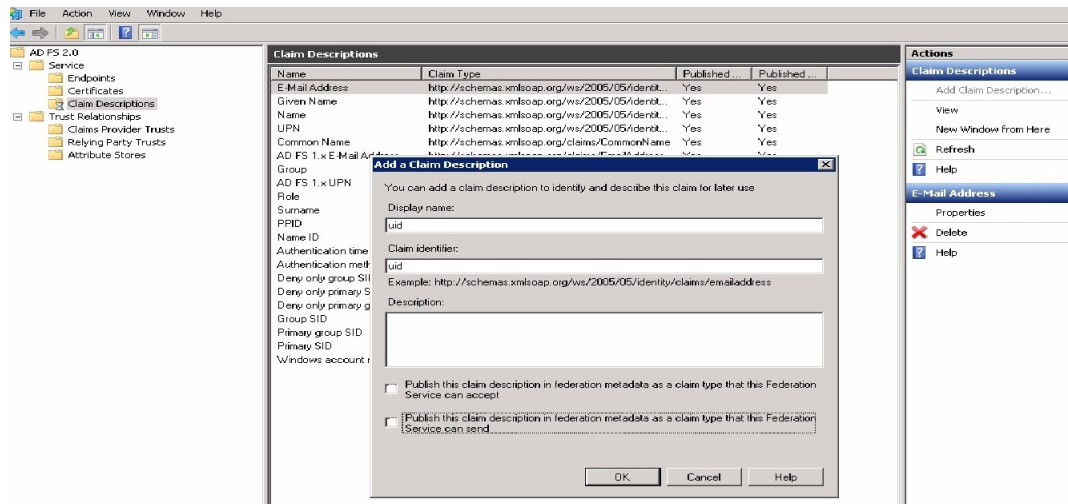
- Step 1** Generate a template with the Microsoft AD FS server details. You can access a Microsoft AD FS web page to generate XML files. Generate the AD FS output by navigating to:
- <https://<adfs-bbb.local.cisco.com>/federationmetadata/2007-06/federationmetadata.xml>

```
<?xml version="1.0" encoding="UTF-8"?>
- <EntityDescriptor xmlns="urn:oasis:names:tc:SAML:2.0:metadata" entityID="http://adfs.bbb.local.cisco.com/adfs/services/trust" ID="_Ofd36f6e-f09d-4-c7e4b92783ba">
- <IDPSSODescriptor protocolSupportEnumeration="urn:oasis:names:tc:SAML:2.0:protocol">
- <KeyDescriptor use="encryption">
- <KeyInfo xmlns="http://www.w3.org/2000/09/xmldsig#">
- <X509Data>
- <X509Certificate>MIIC9DCCAdygAwIBAgIQBneqIV0kCpMauUgD0oLwTANBgkqhkiG9w0BAQsFADA2MTQwMgYDVQQDEyBREZTIEVYy3
- </X509Data>
- </KeyInfo>
- </KeyDescriptor>
- <KeyDescriptor use="signing">
- <KeyInfo xmlns="http://www.w3.org/2000/09/xmldsig#">
- <X509Data>
- <X509Certificate>MIIC7jCCAdagAwIBAgIQMavR8Jfyn4BC3xfkeljQYzANBgkqhkiG9w0BAQsFADAzMTEwLwYDVQQDEyBREZTIFNpZ25pI
- </X509Data>
- </KeyInfo>
- </KeyDescriptor>
- <ArtifactResolutionService index="0" Location="https://adfs.bbb.local.cisco.com/adfs/services/trust/artifactresolution"
- Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP"/>
- <SingleLogoutService Location="https://adfs.bbb.local.cisco.com/adfs/ls/" Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Redirect"/>
- <SingleLogoutService Location="https://adfs.bbb.local.cisco.com/adfs/ls/" Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST"/>
- <NameIDFormat urn:oasis:names:tc:SAML:1.1:nameid-format:emailAddress/>
- <NameIDFormat urn:oasis:names:tc:SAML:2.0:nameid-format:persistent/>
- <NameIDFormat urn:oasis:names:tc:SAML:2.0:nameid-format:transient/>
- <SingleSignOnService Location="https://adfs.bbb.local.cisco.com/adfs/ls/" Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Redirect"/>
- <SingleSignOnService Location="https://adfs.bbb.local.cisco.com/adfs/ls/" Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST"/>
- <SingleSignOnService Location="https://dmsperf8-ilo.cisco.com/adfs/ls/" Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP"/>
- <Attribute xmlns="urn:oasis:names:tc:SAML:2.0:assertion" FriendlyName="E-Mail Address" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri" Name="http://schemas.xmlsoap.org/ws/2005/05/identity/claims/emailaddress"/>
- <Attribute xmlns="urn:oasis:names:tc:SAML:2.0:assertion" FriendlyName="Given Name" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri" Name="http://schemas.xmlsoap.org/ws/2005/05/identity/claims/givenname"/>
- <Attribute xmlns="urn:oasis:names:tc:SAML:2.0:assertion" FriendlyName="Name" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri" Name="http://schemas.xmlsoap.org/ws/2005/05/identity/claims/name"/>
```

- Step 2** (Optional) If using a self-signed certificate, import the Service Communication certificate that was generated by the AD FS server AAI interface. Navigate to **AAI > Certificate Management**. Select **IMPORT_ADFS_CERTS**.
- Step 3** Log in to DMM as superuser. Navigate to **Administration > Security > Select Mode**.
- Step 4** Click the SP Configuration File **Export** button to export the *dms_config_sp* file.



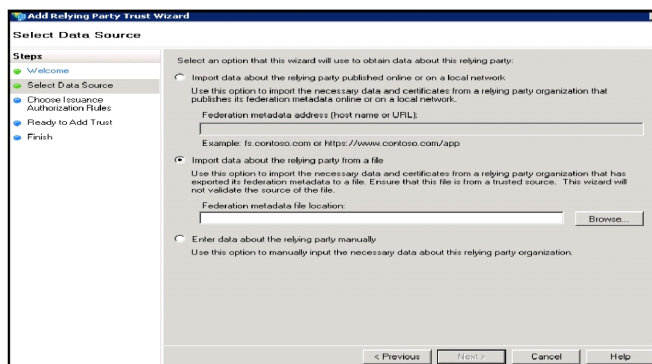
- Step 5** Navigate to **AD FS management console > Service > Claim Description > Add**. In the Claim description and identifier fields, enter **uid**. Click **OK**.



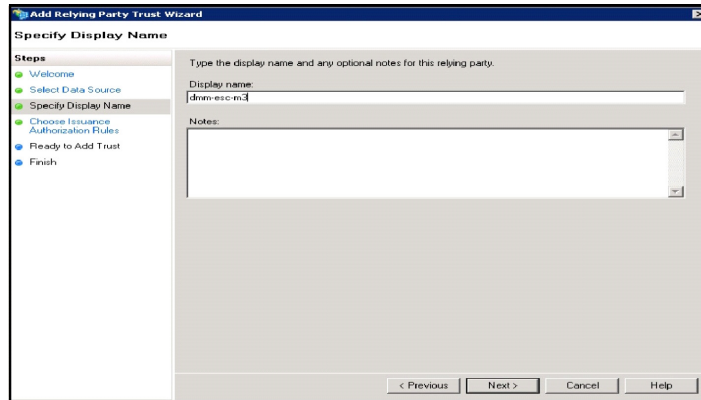
Add a New Relying Party Trust

Follow these steps:

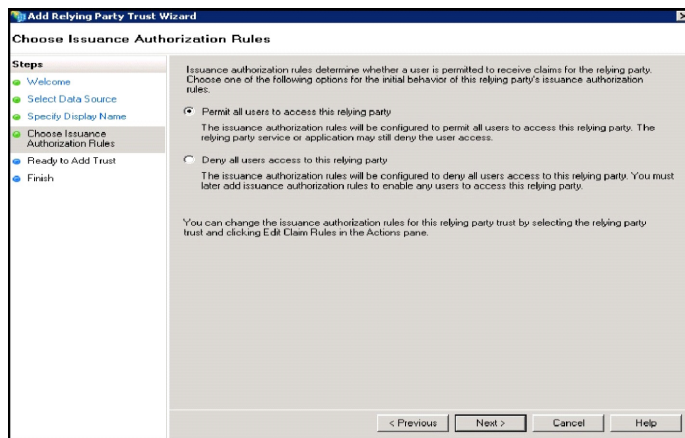
- Step 1** Click **Add Relying Party Trust** in the Actions window.
- Step 2** In the Overview window, click **Required: add a trusted relying party** to start the setup wizard. Enter these When the welcome screen appears, click **Start**.
- Step 3** Run the AD FS Relying Party Trust Wizard to complete the following:
- Select Data Source: choose **Import data about the relying party from a file** and browse to select the Federation metadata file.



- b. Specify Display Name: enter relying party display name.



- c. Issuance Authorization Rules: choose **Permit all users to access this relying party**.

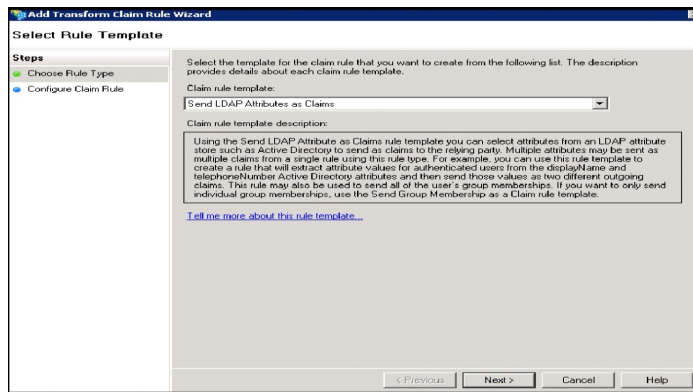


- Step 4** After importing the metadata, review the following properties:
- On the Encryption Tab, verify that the encryption Certificate is selected.
 - On the Signature Tab, verify that the signing Certificate is selected.
 - On the Advanced Tab, make sure that the SHA1 algorithm is selected.

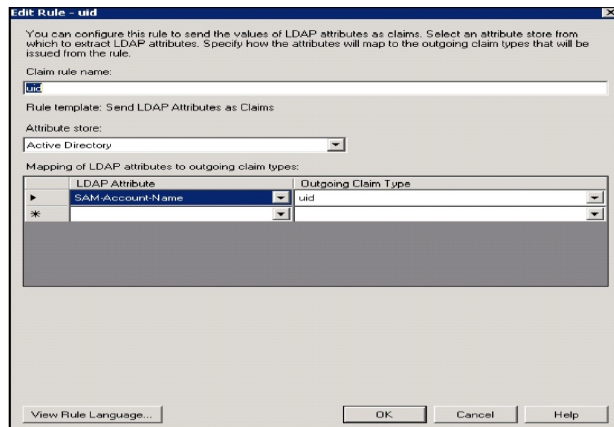
Add a New Rule

Follow these steps:

- Step 1** In the Claim Rules editor select the **Issuance Transform Rules** tab. Click **Add Rule**.
- Step 2** In the Choose Rule Type window, choose **Send LDAP Attributes as Claims** in the Claim rules template drop-down list. Click **Next**.

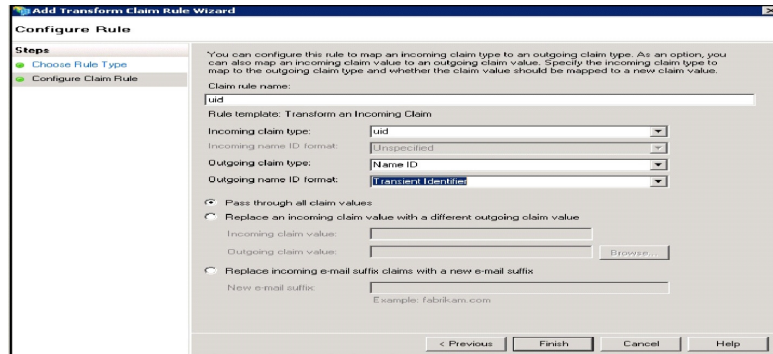


- Step 3** In the Edit Rule window:
- Add a Claim Description.
 - Enter **uid** in the Claim rule name field.
 - In the LADP Attribute drop-down list, choose **SAM-Account-Name**.
 - In the Outgoing Claim Type drop-down list, choose **uid**.
 - Click **OK**.



- Step 4** In the Claim rule template drop-down list, choose **Transform an Incoming Claim** and click **Next**.

- Step 5** In the Configure Claim Rule window:
- In the Outgoing claim type, choose **NameID**.
 - In the Outgoing name ID format, choose **Transient Identifier**.
 - Click **Finish**.

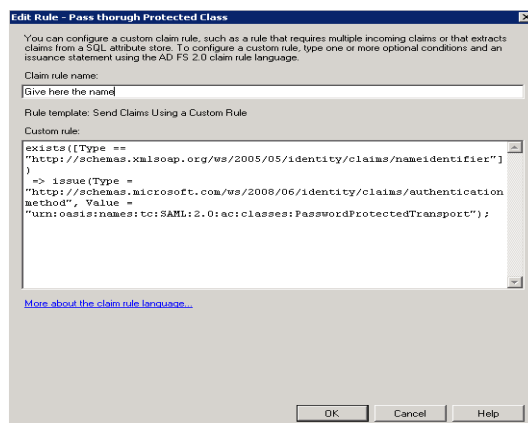


- Step 6** Click **Add Rule**. Choose **Send Claims Using a Custom Rule** and click **Next**. In the Edit Rule window:
- Enter the *Claim rule name*.
 - In the Custom Rule area, enter:


```
exists([Type == "http://schemas.xmlsoap.org/ws/2005/05/identity/claims/nameidentifier"]) =>
issue (Type = "http://schemas.microsoft.com/ws/2008/06/identity/claims/authenticationmethod",
Value = "urn:oasis:names:tc:SAML:2.0:ac:classes:PasswordProtectedTransport");
```
 - Click **OK**.



Note For the form-based authentication, you need to provide the appropriate value in the relying party response by checking for the presence of *NameID* and then parsing *urn:oasis:names:tc:SAML:2.0:ac:classes:PasswordProtectedTransport* in the SAML response.



Configure Cisco DMM

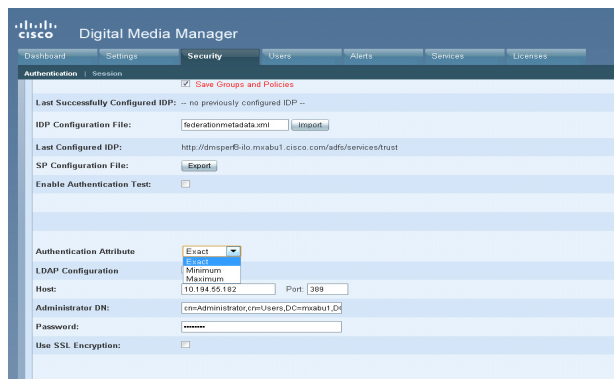
Before you begin:

- Confirm that LDAP is configured.
- Make sure that the DMM Authentication Attribute is set to **minimum** to enable form-based authentication.
- The *SPAuthnContextMapper* is configured for the DMM (Service Provider) and maps the parameters in the incoming HTTP requests to an authentication context. For more information about the *AuthncontextComparisonType* attributes, go to:

<http://docs.oracle.com/cd/E19681-01/820-3748/ggidh/index.html>

Follow these steps:

-
- Step 1** Log in to the Cisco DMM as superuser. Navigate to **Administration > Security**.
 - Step 2** Click the **Save LDAP User Groups and Policies** check box.
 - Step 3** Import the *federationmetadata.xml* file.
 - Step 4** Select Authentication Attributes. (The Authentication Attributes option is visible after importing the *federationmetadata.xml* file.)
 - Step 5** Click **Update**.



Enable SP-Initiated Login

With identity provider (IdP)-initiated login you will configure a link on the company intranet that users click to access the Cisco DMM. A service provider (SP)-initiated login happens when a user clicks a direct link to Cisco DMM. For SP-initiated login to work, you need to set the AD FS Secure Hash Algorithm parameter to SHA-1. This is because the DMM uses the SHA-1 algorithm when signing SAML requests, and AD FS defaults to SHA-256.

Follow these steps:

-
- Step 1** Log in to DMM as superuser. Navigate to **Relying Party Trust > DMM Properties > Advanced** tab.
- Step 2** Set the secure hash algorithm to **SHA1**.

If you do not change the secure hash algorithm, the following message will appear in the AD FS event log:

```
1 Event ID: 378
2 SAML request is not signed with expected signature algorithm. SAML request is signed
with signature algorithm http://www.w3.org/2001/04/xmldsig-more#rsa-sha256 . Expected
signature algorithm is http://www.w3.org/2000/09/xmldsig#rsa-sha1
```

Testing Single Sign On

Before testing the AD FS single sign-on solution, confirm that the user exists in both the AD FS and DMM user database. In the DMM, navigate to in User tab. The user should appear in the DMM user database list.

Testing the Configuration

For an SP-initiated login, you can navigate directly to the entity ID. For example, <https://dmm-aaa.cisco.com>.

For an IdP-initiated login, access dmm-server.cisco.com which will navigate to adfs.aaa.local.cisco.com and ask for authentication. After logging in to the AD FS server, it will directly navigate to the DMM Administration page.

Follow these steps:

-
- Step 1** Bookmark a link from inside dmm-aaa.cisco.com then log out of the system.
- Step 2** Reload your browser and select the bookmark. You should be redirected to your IdP, authenticated and then redirected back to the bookmarked link.
-

If you get an error from AD FS then check the AD FS logs in **Server Manager > Diagnostics > Applications and Services Logs > AD FS 2.0 > Admin**. You can also access [MSDN Claims-Identity blog](#) for more information about AD FS 2.0 diagnostic tools.

Reference

- [Software UI and Field Reference Tables](#), page 8-50
- [Sample SP Configuration File from DMM](#), page 8-57
- [Sample IdP Metadata](#), page 8-61
- [FAQs and Troubleshooting](#), page 8-64

Software UI and Field Reference Tables

- [Elements to Choose and Enable an Authentication Mode](#), page 8-50
- [Elements to Define, Validate, and Add LDAP Filters](#), page 8-53
- [Elements to Use LDAP Bookmarks for Synchronization](#), page 8-54
- [Elements to Schedule Synchronization](#), page 8-55
- [Elements to Manage Attributes](#), page 8-56

Elements to Choose and Enable an Authentication Mode

Navigation Path

Administration > Security > Authentication > Select Mode

Table 8-1 Elements for Authentication Modes

Element	Description
Authentication Mode Area	
Embedded	Requires users who log in to DMM or Show and Share to authenticate against a user account database that is native to DMM. This database is independent of every other type of authentication that you might use in your network.
LDAP	Automatically deletes all user accounts except <i>superuser</i> . Requires future users to authenticate against the user account data from your Active Directory server when they log in to DMM or Show and Share. Microsoft Active Directory is the only LDAP implementation that we support in this release.
Federation	Automatically deletes all user accounts except <i>superuser</i> . Requires future users to authenticate themselves to your IdP when they log in to DMM or Show and Share.
Federation Mode Elements Area	
Last Successfully Configured IdP	This value becomes populated for the first time after you succeed at least once in importing configuration metadata into DMM from your IdP . This element is visible in federation mode only.
IdP Configuration File	Provides the means to import configuration metadata that you previously exported from your IdP and saved to a file. Click Import to browse for the file, which you can then import. This element is visible in federation mode only.

Table 8-1 Elements for Authentication Modes (continued)

Element	Description
Last Configured IdP	<p>(CSCtn15472) While it names an IdP explicitly, this value does not necessarily identify the IdP in current use. Instead, this value describes only your most recent <i>attempt</i> to import configuration metadata from an IdP, without regard for whether the attempt failed or succeeded.</p> <p>This element is visible only in federation mode. It becomes populated for the first time after you attempt at least once to import IdP metadata.</p> <p>Tip Compare this value to the “Last Successfully Configured IdP” value. When they differ, you know that your latest such attempt actually failed.</p>
(SP Configuration File) Export	<p>Provides the means to export configuration metadata from DMM. Click Export to begin browsing for a folder on a locally mounted drive where you can save the exported config file. Later, you will import this file into your IdP.</p> <p>This element is visible in federation mode only.</p>
Enable Authentication Test	<p>Helps you to test whether your federation mode settings are correct and will allow SSO for your ordinary users.</p> <p>Check this check box to expose UI elements that are otherwise hidden. Clear this check box to hide such elements.</p>
Test Username	Enter a username that your IdP already knows. Do not use the “superuser” username. This element is visible only while the Enable Authentication Test check box is checked.
Test User Password	Enter the password that corresponds to the test username. This element is visible only while the Enable Authentication Test check box is checked.
LDAP Configuration Area	
Anonymous	<p>Enables or disables an anonymous connection between your DMM appliance and your Active Directory server.</p> <ul style="list-style-type: none"> An anonymous connection is suitable when you want to see or use <i>public</i> information on the Active Directory server. In contrast, when you want to see or use <i>privileged</i> information on your Active Directory server, the server will require you to enter login credentials to prove that you have sufficient access rights. <p>In the latter case, your Active Directory server will reject any attempt to log in anonymously. This check box is available to you only when you choose LDAP mode or federation mode.</p>
Host	Enter the routable IP address or DNS-resolvable hostname for the Active Directory server. This field is available to you only when you choose LDAP mode or federation mode.
Port	<p>Enter the TCP port number that your Active Directory server uses for communications. This field is available to you only after you choose LDAP mode or federation mode.</p> <p>The Active Directory port number by default is:</p> <ul style="list-style-type: none"> 389 for LDAP communications. 636 for LDAPS (<i>Secure LDAP</i>, or <i>LDAP over SSL</i>) and SSO communications.

Table 8-1 Elements for Authentication Modes (continued)

Element	Description
Administrator DN	<p>Enter the distinguished name of the Active Directory server administrator.</p> <p>This field is available to you only after you choose LDAP mode or federation mode and uncheck the Anonymous check box.</p> <p>Tip See administrator DN, page 8-3.</p>
Password	<p>Enter the password that is associated with the Administrator DN.</p> <p>This field is available to you only after you choose LDAP mode or federation mode and uncheck the Anonymous check box.</p>
Use SSL Encryption	<p>The check box to enable or disable encrypted sign-on. This check box is available to you only when you use LDAP mode or federation mode.</p> <p>Note Whenever you enable SSL or install a new SSL certificate for LDAP, you must restart Web Services (Tomcat) from AAI. Otherwise, LDAP users cannot log in and the new (or newly enabled) SSL certificate cannot take effect. Also—if your DMM server is one half of a failover pair—the Tomcat restart will trigger immediate failover. (CSCt109696)</p> <ul style="list-style-type: none"> • Check the check box to enable encryption. • Uncheck it to disable encryption. <p>Enabling SSL causes the connections between your DMM appliance and your Active Directory server to use LDAPS. An LDAPS connection is suitable when you want to prevent untrusted third parties from reading credentials that the servers exchange.</p>
Active Directory Certificate File	<p>Helps you to upload the digital certificate that your Active Directory server uses for LDAPS communications. This field is available to you only while the Use SSL Encryption check box is checked.</p>

Command Buttons

Update	Saves and applies your work on the Authentication Mode property sheet.
Cancel	Discards your work on the Authentication Mode property sheet and resets all values to their previous configuration.

Related Topics

- [Choose an Authentication Method](#), page 8-23
- [Elements to Define, Validate, and Add LDAP Filters](#), page 8-53
- [Elements to Use LDAP Bookmarks for Synchronization](#), page 8-54
- [Elements to Manage Attributes](#), page 8-56

Elements to Define, Validate, and Add LDAP Filters

Navigation Path

Administration > Security > Authentication > Define Filter

Table 8-2 Elements for Filters

Element	Description
Description	Enter a human-readable description for the filter.
User Base DN	Enter the distinguished name of the Active Directory user base that you will search.
User Filter	Enter a user filter to limit the number of matching user accounts to import from the user base that you specified.
User Group (in DMM)	Choose or create a user group to associate with the filter. At the very least, the list includes these options. <ul style="list-style-type: none"> • All Users Group • Create a New User Group • Digital Signage Users

Command Buttons

Add	Adds the filter, exactly as entered, without first validating it.
Validate	Validates the filter to confirm, before you add it, that it will return meaningful results.
Clear	Clears all entries from the Define Filters property sheet.

Related Topics

- [Choose an Authentication Method, page 8-23](#)
- [Elements to Choose and Enable an Authentication Mode, page 8-50](#)
- [Elements to Use LDAP Bookmarks for Synchronization, page 8-54](#)
- [Elements to Manage Attributes, page 8-56](#)

Elements to Use LDAP Bookmarks for Synchronization

Navigation Path

Administration > Security > Authentication > Synchronize Users

Table 8-3 Elements for Bookmarks

Element	Description
LDAP Bookmarks property sheet	
Synchronization	<p>One of the following types.</p> <ul style="list-style-type: none"> • Initial • Update • Overwrite • Delete <p>Note When you click Delete on the LDAP Bookmarks sub-tab, we ask you whether to delete groups and policies. When you choose Yes, we delete all of the following from Cisco DMS.</p> <ul style="list-style-type: none"> • All user accounts that match the filter. • The particular user group that is associated to the filter. • All access policies associated to the particular user group. <p>The deletion process can take as long as 1 minute to finish. (CSCtn22370)</p>
Command Buttons	
Update	Submits your selections for the type of synchronization and the scope of access that you chose and configured. Synchronization of the specified type starts immediately.
Cancel	Resets all entries to their previous values on the LDAP Bookmarks property sheet. <ul style="list-style-type: none"> • Discards all changes to the configuration of behaviors for synchronizations. • Discards all changes to the scope of access.

Related Topics

- [Choose an Authentication Method, page 8-23](#)
- [Elements to Choose and Enable an Authentication Mode, page 8-50](#)
- [Elements to Define, Validate, and Add LDAP Filters, page 8-53](#)
- [Elements to Manage Attributes, page 8-56](#)

Elements to Schedule Synchronization

Navigation Path

Administration > Security > Authentication > Synchronize Users

Table 8-4 Elements for Scheduling

Element	Description
Scheduling property sheet	
Synchronization Mode	Enables one synchronization mode to receive updated user account information from an Active Directory server. We support two such modes but they are mutually exclusive. Whenever you enable one, you disable the other. Click either Manual Synchronization or Automatic Synchronization .
Command Buttons	
Update	Submits your selections for the type of synchronization and the scope of access that you chose and configured. Synchronization of the specified type starts immediately.
Cancel	Resets all entries to their previous values on the Scheduling property sheet. <ul style="list-style-type: none"> Discards all changes to the configuration of behaviors for synchronizations. Discards all changes to the scope of access.

Related Topics

- [Configure Automatic LDAP \(Active Directory\) Synchronization, page 8-27](#)
- [Choose an Authentication Method, page 8-23](#)
- [Elements to Choose and Enable an Authentication Mode, page 8-50](#)
- [Elements to Define, Validate, and Add LDAP Filters, page 8-53](#)
- [Elements to Manage Attributes, page 8-56](#)

Elements to Manage Attributes

Navigation Path

Administration > Security > Authentication > Manage Attributes

Table 8-5 Elements for Attributes Management

Element	Description
DMM Attribute Name	Values that DMS-Admin uses to describe and identify various attributes that it associates with each user account. You cannot change the values in this column. They are for your reference only, to help you enter suitable values (and recognize suitable values when you see them) in the LDAP Attribute Name column and the Values to Use by Default column.
LDAP Attribute Name	Values that your Active Directory server uses—which correspond one-to-one with values in the DMM Attribute Row column—to describe and identify attributes of each user account. In its factory-default configuration, DMS-Admin prepopulates all fields in this column with the most commonplace values that Active Directory servers use for this purpose. When the values for these attributes differ on your Active Directory server or when you prefer to import objects that use other Active Directory attributes, you can edit the values in this column.
Values to Use by Default	<p>Enter text to insert automatically when the value is blank for the corresponding attribute in an Active Directory user account that you import or synchronize. To ensure that DMS-Admin imports each valid user account that matches a filter, we recommend that you enter values for these attributes:</p> <ul style="list-style-type: none"> • First Name • Last Name <p>For your convenience, you can also enter values to insert automatically when the values are blank for other attributes—such as Company, Department, or Phone Number—but this is optional.</p> <p>Note You cannot enter a value to use by default as the Login User Name value.</p>
Ignore User Account Control Flags	Tells DMM to ignore whether your Active Directory server makes use of the User Account Control Flags attribute. DMM expects to find this attribute on your Active Directory server and, when the attribute is not present, authentication fails.

Command Buttons

Reset to Factory Default	Returns all values in the LDAP Attribute Name column to the most commonplace values that Active Directory servers use. If you entered different values manually because the labels for these attributes differ on your Active Directory server or because you prefer to import user accounts that use other Active Directory attributes, DMS-Admin deletes what you entered.
Update	Saves and applies your work in the Manage Attributes property sheet.

Related Topics

- [Choose an Authentication Method, page 8-23](#)
- [Elements to Choose and Enable an Authentication Mode, page 8-50](#)
- [Elements to Define, Validate, and Add LDAP Filters, page 8-53](#)
- [Elements to Use LDAP Bookmarks for Synchronization, page 8-54](#)

Sample SP Configuration File from DMM

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<!--
!
!           DMS SAML2 Service Provider Metadata
!
!
!   Actual Service Provider configuration for the IDP will be instantiated
!   from this template and be deposited onto the IDP.
!   (Auto-generated on/at: Wed May 11 16:58:14 PDT 2011)
!
!           Copyright (c) 2011 Cisco Systems, Inc.
!-->
<EntityDescriptor entityID="http://DMMSP.example.com:8080/opensso"
xmlns="urn:oasis:names:tc:SAML:2.0:metadata">
  <SPSSODescriptor AuthnRequestsSigned="true" WantAssertionsSigned="true"
protocolSupportEnumeration="urn:oasis:names:tc:SAML:2.0:protocol"
xmlns:ds="http://www.w3.org/2000/09/xmldsig#">

    <KeyDescriptor>
      <ds:KeyInfo>
        <ds:KeyName>tomcat</ds:KeyName>
        <ds:X509Data>

<ds:X509SubjectName>/C=US/ST=CA/L=SJ/O=CISCO/OU=CISCO/CN=DMMSP.example.com</ds:X509Subject
Name>

          <ds:X509IssuerSerial>
            <ds:X509IssuerName>DMMSP.example.com</ds:X509IssuerName>
            <ds:X509SerialNumber>1304558251</ds:X509SerialNumber>
          </ds:X509IssuerSerial>

<ds:X509Certificate>Mk6g1VAwAIGUk0QTNwaEzqUECAcVzAMCSDsUIgAQELICqwfQhOABhGjiQwgBBYcKAHAIB
9DGMQE COBecGAAT0Qg4wBBMMVTzVzC1DEQAM8K1AQVKNDwDMBGF0TxWJACA0YNENgQxCSADEVNlQUwQxDV
BDbAQ0M8pvGTNUFyMtzWtYxTAMVTMMAXx3EMLEcTDDFMvzNEMwvTMNco2LmhgTVw2MTaMAMvx1ALMOQADBkjVwACMB
GNTh0F1BQVJJAQAUM1BSDQwTHAsxAVgM1NMjTCVEQEegzCwEUCAAQxh8Y0GkMMBZzGTwSVNX0EUBglbgRvgwJrADA5
QYF32B9PNQEBVJANQIBb5K8YwNUQNYo0aQDjDjYmhbjswjcdGAM0IYJIoAGAGBr/qwladeTiX6wNGw1+Pn2rhopPL7
cCzUI2aNCNyK+D99sLujKL/kjyCBZ9lqkPecArxWfKycC3/QqgO/SNz33b8JSh6iG35kVwA3OMZplEtLX4CfbkdsXY
TVaKIRPRLMSOH9u9vH6ELFgSz18dH/tL1o3aJADhnG4gcFA8tGE8QIXZBdBQdNw1DYj1AAAARYsKS6wV2vCEgTNEI
MAQbvd A87sb03cvDpQUCJ5SQ00/ 4xQA531HhBHSCDOFbU1q+ PetKB4dkGsIst9BPaIr43bW03zfkMbrU2A WNu+
dPcBZp01raWmP2I8ZErlDYpJSEstzmac30kkeXg4nfe10KCx1QH8BAQusegy38+ oh8NLYw3N dzQ15vs=
</ds:X509Certificate>
        </ds:X509Data>
      </ds:KeyInfo>
    </KeyDescriptor>

    <SingleLogoutService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Redirect"
Location="http://DMMSP.example.com:8080/opensso/SPSloRedirect/metaAlias/sp"
ResponseLocation="http://DMMSP.example.com:8080/opensso/SPSloRedirect/metaAlias/sp" />
    <SingleLogoutService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST"
Location="http://DMMSP.example.com:8080/opensso/SPSloPOST/metaAlias/sp"
ResponseLocation="http://DMMSP.example.com:8080/opensso/SPSloPOST/metaAlias/sp" />
    <SingleLogoutService Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP"
Location="http://DMMSP.example.com:8080/opensso/SPSloSoap/metaAlias/sp" />
    <ManageNameIDService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Redirect"
Location="http://DMMSP.example.com:8080/opensso/SPMniRedirect/metaAlias/sp"
ResponseLocation="http://DMMSP.example.com:8080/opensso/SPMniRedirect/metaAlias/sp" />
    <ManageNameIDService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST"
Location="http://DMMSP.example.com:8080/opensso/SPMniPOST/metaAlias/sp"
ResponseLocation="http://DMMSP.example.com:8080/opensso/SPMniPOST/metaAlias/sp" />
    <ManageNameIDService Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP"
Location="http://DMMSP.example.com:8080/opensso/SPMniSoap/metaAlias/sp"
ResponseLocation="http://DMMSP.example.com:8080/opensso/SPMniSoap/metaAlias/sp" />
    <NameIDFormat>urn:oasis:names:tc:SAML:2.0:nameid-format:transient</NameIDFormat>
    <NameIDFormat>urn:oasis:names:tc:SAML:1.1:nameid-format:emailAddress</NameIDFormat>
  </SPSSODescriptor>
</EntityDescriptor>
```

```

<NameIDFormat>urn:oasis:names:tc:SAML:1.1:nameid-format:unspecified</NameIDFormat>

<NameIDFormat>urn:oasis:names:tc:SAML:1.1:nameid-format:WindowsDomainQualifiedName</NameID
Format>
  <NameIDFormat>urn:oasis:names:tc:SAML:2.0:nameid-format:kerberos</NameIDFormat>

<NameIDFormat>urn:oasis:names:tc:SAML:1.1:nameid-format:X509SubjectName</NameIDFormat>
  <AssertionConsumerService index="0" isDefault="true"
Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST"
Location="http://DMMSP.example.com:8080/opensso/Consumer/metaAlias/sp"/>
  <AssertionConsumerService index="1"
Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Artifact"
Location="http://DMMSP.example.com:8080/opensso/Consumer/metaAlias/sp"/>
  <AssertionConsumerService index="2"
Binding="urn:oasis:names:tc:SAML:2.0:bindings:PAOS"
Location="http://DMMSP.example.com:8080/opensso/Consumer/ECP/metaAlias/sp"/>
  </SPSSODescriptor>
</EntityDescriptor>

```

Summary Configuration Sample (PingFederate)

SP Connection

Connection Type	<i>Connection Role:</i>	SP
	<i>Browser SSO Profiles:</i>	true
	<i>Protocol:</i>	SAML 2.0
	<i>Connection Template:</i>	No Template
	<i>WS-Trust STS:</i>	false
Connection Options	<i>Browser SSO:</i>	true
	<i>Attribute Query:</i>	false
	<i>SaaS Provisioning:</i>	false
General Info	<i>Partner's Entity ID (Connection ID):</i>	http://example.cisco.com:8080/opensso

Browser SSO

SAML Profiles	<i>IdP-Initiated SSO:</i>	false
	<i>IdP-Initiated SLO:</i>	false
	<i>SP-Initiated SSO:</i>	true
	<i>SP-Initiated SLO:</i>	false

Assertion Lifetime	<i>Assertion Minutes Before:</i>	5
	<i>Assertion Minutes After:</i>	5

Assertion Creation

Identity Mapping	<i>Enable Transient Identifier:</i>	true
	<i>Include additional attributes:</i>	true

Attribute Contract	<i>Attribute:</i>	SAML_AUTHN_CTX
	<i>Attribute:</i>	UID

IdP Adapter Mapping	<i>Adapter instance name:</i>	LDAP¹
	<i>Attribute:</i>	SAML_NAME_FORMAT

Authentication Type	<i>Authentication Type:</i>	Single-Factor Authentication
---------------------	-----------------------------	-------------------------------------

Adapter Instance	<i>Selected adapter:</i>	LDAP¹
------------------	--------------------------	-------------------------

Assertion Mapping	<i>Adapter:</i>	LDAP Authentication Service 2.2
	<i>Data Store or Assertion:</i>	Use only the Adapter Contract values in the SAML assertion

Attribute Contract Fulfillment	<i>SAML_AUTHN_CTX:</i>	urn:oasis:names:tc:SAML:2.0:ac:classes:PasswordProtectedTransport (Text)
	<i>UID:</i>	subject² (Adapter)

Protocol Settings

Assertion Consumer Service URL	<i>Endpoint URL:</i>	https://example.cisco.com:8443/opensso/Consumer/metaAlias/sp (POST)
--------------------------------	----------------------	--

Reference

Allowable SAML Bindings	<i>Artifact:</i>	false
	<i>POST:</i>	true
	<i>Redirect:</i>	true
	<i>SOAP:</i>	true

Protocol Settings

Signature Policy	<i>Require digitally signed AuthN requests:</i>	true
	<i>Always sign the SAML Assertion:</i>	true

Encryption Policy	<i>Status:</i>	Inactive
-------------------	----------------	-----------------

Credentials

Inbound SOAP Authentication Type	<i>SOAP Authentication Type:</i>	Use Digital Signatures to guarantee payload in Browser SSO profile
	<i>SSL required:</i>	true

Digital Signature Settings	<i>Selected Certificate:</i>	CN=<your_organization>, O=<your_department>, L=<your_city_or_village>, ST=<your_state_or_province>, C=<your_country>
	<i>Include Certificate in KeyInfo:</i>	true
	<i>Selected Signing Algorithm:</i>	RSA SHA1

Signature Verification

Trust Model	<i>Trust Model:</i>	Unanchored
Signature Verification Certificate	<i>Selected Certificate:</i>	CN=<FQDN_of_your_DMM_SP>, OU=<your_organization>, O=<your_department>, L=<your_city_or_village>, ST=<your_state_or_province>, C=<your_country>

1. Although we use this name value in our testbed, you might use some other name.
2. "Sample" is merely an example.

Sample IdP Metadata

- [Exported IdP Metadata Sample from OpenAM, page 8-61](#)
- [Exported IdP Metadata Sample from Shibboleth, page 8-62](#)
- [Exported IdP Metadata Sample from PingFederate, page 8-64](#)

Exported IdP Metadata Sample from OpenAM

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<EntityDescriptor entityID="dmsIdp" xmlns="urn:oasis:names:tc:SAML:2.0:metadata">
  <IDPSSODescriptor WantAuthnRequestsSigned="false"
  protocolSupportEnumeration="urn:oasis:names:tc:SAML:2.0:protocol">
    <KeyDescriptor use="signing">
      <ds:KeyInfo xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
        <ds:X509Data>
          <ds:X509Certificate>
            MJEwVFggTTQ1MUwD9w0kQACIQNICQQWGBYlAqqAMBGUzAwAEkVsiagAELKkCBKDCADdhAUIQIGE
            CYABEMTxwVzNBKQLNQZDMA1NCEQ1ADJzAKC0E4QgQSBExwGGVwzM0AAgQOVDUDT0A8cCNTxMFBVV
            BxxjNambbJAQRbThnMxjlmNFYm8cpt2mDovLMTvENv4pAJIw2yNDRAYDMMTAG0wOyET3MLEXgMw
            ZEMA AVk80JDVMVT1TSghThEMxBwjAU1zkwFMYEODCAQGH0MGQQGAJCNLEUNBQEBsCCBAwQVMlQAx
            DGgwkJ5EAY9vMADP2y0NbJIQo0jV5RaXw8YbsQsTVQDjx5ZKNKNzaUgMBByUDjhcYjN2wJBSWQ0bnABmAo2eD4JQ1QA
            hEVyPDgAQEMZBUiAtNdgrxA0BcYIB9QuG4aWYHGx/ LcxHcYOE50MIYciud6KmI+/ kq/ YpRbA30QYctD0uax/
            0M7BUD/SMT+PlkQhA9dCLiOeu2WB2dKFWOwLihgne7omCI+ozijrImy+4C3fz9zC/VrBA3bQZMcnsE6YbZJDC7Ih
            AjNAEAoQNZ5gGAKxBYEABzXjgAQwcDpvFYKlyNqr wArSlA7b3VkhN42iQVjvJ8I3No2ssay4LZyBsffkrm+
            gATatC/ HvyvNGoapGS9K4fLZNzBaXDW99/ 728x7bGciRWFdx4V0dPABkis+ alHad9B1j8uCupvRp/ wkRkP+
            6hldOYEWQyVmrwid02g3S5Gtb+ ErQO7KA5G1wKvrw=
          </ds:X509Certificate>
        </ds:X509Data>
      </ds:KeyInfo>
    </KeyDescriptor>
    <ArtifactResolutionService index="0" isDefault="true"
    Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP"
    Location="http://OpenAM.example.com:8080/opensso/ArtifactResolver/metaAlias/idp"/>
      <SingleLogoutService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Redirect"
      Location="http://OpenAM.example.com:8080/opensso/IDPSloRedirect/metaAlias/idp"
      ResponseLocation="http://OpenAM.example.com:8080/opensso/IDPSloRedirect/metaAlias/idp"/>
        <SingleLogoutService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST"
        Location="http://OpenAM.example.com:8080/opensso/IDPSloPOST/metaAlias/idp"
        ResponseLocation="http://OpenAM.example.com:8080/opensso/IDPSloPOST/metaAlias/idp"/>
          <SingleLogoutService Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP"
          Location="http://OpenAM.example.com:8080/opensso/IDPSloSoap/metaAlias/idp"/>
            <ManageNameIDService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Redirect"
            Location="http://OpenAM.example.com:8080/opensso/IDPMniRedirect/metaAlias/idp"
            ResponseLocation="http://OpenAM.example.com:8080/opensso/IDPMniRedirect/metaAlias/idp"/>
              <ManageNameIDService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST"
              Location="http://OpenAM.example.com:8080/opensso/IDPMniPOST/metaAlias/idp"
              ResponseLocation="http://OpenAM.example.com:8080/opensso/IDPMniPOST/metaAlias/idp"/>
                <ManageNameIDService Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP"
                Location="http://OpenAM.example.com:8080/opensso/IDPMniSoap/metaAlias/idp"/>
                  <NameIDFormat>urn:oasis:names:tc:SAML:2.0:nameid-format:persistent</NameIDFormat>
                  <NameIDFormat>urn:oasis:names:tc:SAML:2.0:nameid-format:transient</NameIDFormat>
                </ManageNameIDService>
              </ManageNameIDService>
            </ManageNameIDService>
          </SingleLogoutService>
        </SingleLogoutService>
      </SingleLogoutService>
    </ArtifactResolutionService>
    <NameIDFormat>urn:oasis:names:tc:SAML:1.1:nameid-format:emailAddress</NameIDFormat>
    <NameIDFormat>urn:oasis:names:tc:SAML:1.1:nameid-format:unspecified</NameIDFormat>
    <NameIDFormat>urn:oasis:names:tc:SAML:1.1:nameid-format:WindowsDomainQualifiedName</NameID
    Format>
    <NameIDFormat>urn:oasis:names:tc:SAML:2.0:nameid-format:kerberos</NameIDFormat>
    <NameIDFormat>urn:oasis:names:tc:SAML:1.1:nameid-format:X509SubjectName</NameIDFormat>
  </IDPSSODescriptor>
</EntityDescriptor>
```

```

    <SingleSignOnService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Redirect"
Location="http://OpenAM.example.com:8080/opensso/SSORedirect/metaAlias/idp"/>
    <SingleSignOnService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST"
Location="http://OpenAM.example.com:8080/opensso/SSOPOST/metaAlias/idp"/>
    <SingleSignOnService Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP"
Location="http://OpenAM.example.com:8080/opensso/SSOsoap/metaAlias/idp"/>
    <NameIDMappingService Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP"
Location="http://OpenAM.example.com:8080/opensso/NIMSoap/metaAlias/idp"/>
    <AssertionIDRequestService Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP"
Location="http://OpenAM.example.com:8080/opensso/AIDReqSoap/IDPRole/metaAlias/idp"/>
    <AssertionIDRequestService Binding="urn:oasis:names:tc:SAML:2.0:bindings:URI"
Location="http://OpenAM.example.com:8080/opensso/AIDReqUri/IDPRole/metaAlias/idp"/>
    </IDPSSODescriptor>
</EntityDescriptor>

```

Exported IdP Metadata Sample from Shibboleth

```

<EntityDescriptor entityID="https://sso.example.com/idp/shibboleth"
  xmlns="urn:oasis:names:tc:SAML:2.0:metadata"
  xmlns:ds="http://www.w3.org/2000/09/xmldsig#"
  xmlns:shibmd="urn:mace:shibboleth:metadata:1.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

  <IDPSSODescriptor protocolSupportEnumeration="urn:mace:shibboleth:1.0
urn:oasis:names:tc:SAML:1.1:protocol urn:oasis:names:tc:SAML:2.0:protocol">

    <KeyDescriptor>
      <ds:KeyInfo>
        <ds:X509Data>
          <ds:X509Certificate>
MIICRTCCAa6gAwIBAgIETOrk+jANBgkqhkiG9w0BAQUFADBmMQswCQYDVQQGEwJVUzELMAkGA1UE
CBMCQ0ExCzAJBgNVBACtAlNKMzQ4wDAYDVQQKEwVDSVNDTzEOMAwGA1UECxmFQ01TQ08xHTAbBgNV
BAMTFGZydWl0bG9vcHMuy21zY28uY29tMCAXDTEwMTEyMjEzY28uY29tMCAXDTEwMTEyMjEzY28uY29t
WjBmMQswCQYDVQQGEwJVUzELMAkGA1UECmFQ01TQ08xHTAbBgNVBAMTFGZydWl0bG9vcHMuy21zY28uY29t
TzEOMAwGA1UECxmFQ01TQ08xHTAbBgNVBAMTFGZydWl0bG9vcHMuy21zY28uY29tMIGfMA0GCSqG
SIb3DQEBAQUAA4GNADCBiQKBgQCX0tTliXR7pGh9NNEKbIkChNB0t/H+2ysm4xr1Y60+hFssJGGx
qnNv8UEqH7SIk7Z9eDBW61JreiH3KtSWIJBvtV1hLGZAlwPTu/b6GzVHGx9uZaj3Jyw0N8rul8k8
BoTsdNag7ZhQ7vIfcQ1HjLw9RT3u+n5Zkd+hbwEktKePEwIDAQAABMA0GCSqGSIb3DQEBBQUAA4GB
AA932Gf51EY1c3w/ALuEXiDdtLnzRrNZxF7ZneDPfnjygnMOLgYTWCARDjdW40Xurd2RGSJC3MYJ
bhqMISTStbYPBB6KLuEWkk+AW+/uprX5T49SY6hS918tcErmWdW0CYFlIiRa2hMaJz6AbWAqKR80
+n5IWxwE01kmOPdWd1B/
          </ds:X509Certificate>
        </ds:X509Data>
      </ds:KeyInfo>
    </KeyDescriptor>

    <ArtifactResolutionService
Binding="urn:oasis:names:tc:SAML:1.0:bindings:SOAP-binding"

Location="http://sso.example.com:8080/idp/profile/SAML1/SOAP/ArtifactResolution"
  index="1"/>

    <ArtifactResolutionService Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP"

Location="http://sso.example.com:8080/idp/profile/SAML2/SOAP/ArtifactResolution"
  index="2"/>

    <NameIDFormat>urn:mace:shibboleth:1.0:nameIdentifier</NameIDFormat>
    <NameIDFormat>urn:oasis:names:tc:SAML:2.0:nameid-format:transient</NameIDFormat>

    <SingleSignOnService Binding="urn:mace:shibboleth:1.0:profiles:AuthnRequest"

```



```

Location="http://sso.example.com:8080/idp/profile/Shibboleth/SSO" />

  <SingleSignOnService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST"

Location="http://sso.example.com:8080/idp/profile/SAML2/POST/SSO" />

  <SingleSignOnService
Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST-SimpleSign"

Location="http://sso.example.com:8080/idp/profile/SAML2/POST-SimpleSign/SSO" />

  <SingleSignOnService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Redirect"

Location="http://sso.example.com:8080/idp/profile/SAML2/Redirect/SSO" />

  <SingleSignOnService Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP"

Location="http://sso.example.com:8080/idp/profile/SAML2/SOAP/SSO"/>

  </IDPSSODescriptor>

  <AttributeAuthorityDescriptor
protocolSupportEnumeration="urn:oasis:names:tc:SAML:1.1:protocol
urn:oasis:names:tc:SAML:2.0:protocol">

    <KeyDescriptor>
      <ds:KeyInfo>
        <ds:X509Data>
          <ds:X509Certificate>
MIICRTCCAa6gAwIBAgIETOrk+jANBgkqhkiG9w0BAQUFADBmMQswCQYDVQQGEwJVUzELMAkGA1UE
CBMCQ0ExCzAJBgNVBACeTA1NKMQ4wDAYDVQQKEwVDSVNDTzEOMAwGA1UECjMFQ01TQ08xHTAbBgNV
BAMTFGZydWl0bG9vcHMuY21zY28uY29tMCAXDTEwMTEyMjEzY28uY29tMIGfMA0GCSqG
SIb3DQEBAQUAA4GNADCBiQKBgQCX0tTliXR7pGh9NNEKbIkChNB0t/H+2ysm4xr1Y60+hFssJGgX
qnNv8UEqH7SIk7Z9eDBW6lJreiH3KtSWIJBvtV1hLGA1wPTu/b6GzVHGx9uZaj3Jyw0N8rul8k8
BoTsdNag7ZhQ7vIfcQ1HjLw9RT3u+n5ZkD+hbwEktKePEwIDAQAEMA0GCsqGSIb3DQEBBQUAA4GB
AA932Gf51EY1c3w/ALuEXiDdtLnzRrNZxF7ZneDPfnjygnMOLgYTwCARdjdW40Xurd2RGSJC3MYJ
bhqMISTStbYPBB6KLuEWkk+AW+/uprX5T49SY6hS918tcErmWdW0CYF1IiRa2hMaJz6AbWAqKR80
+n5IwxwE01kmOPdWd1B/
          </ds:X509Certificate>
        </ds:X509Data>
      </ds:KeyInfo>
    </KeyDescriptor>

    <AttributeService Binding="urn:oasis:names:tc:SAML:1.0:bindings:SOAP-binding"

Location="http://sso.example.com:8080/idp/profile/SAML1/SOAP/AttributeQuery" />

    <AttributeService Binding="urn:oasis:names:tc:SAML:2.0:bindings:SOAP"

Location="http://sso.example.com:8080/idp/profile/SAML2/SOAP/AttributeQuery" />

    <NameIDFormat>urn:mace:shibboleth:1.0:nameIdentifier</NameIDFormat>
    <NameIDFormat>urn:oasis:names:tc:SAML:2.0:nameid-format:transient</NameIDFormat>

  </AttributeAuthorityDescriptor>

</EntityDescriptor>

```


LDAP (Active Directory) FAQs

Q. Which Active Directory releases does Cisco DMS support?

A. Our completed tests succeeded as follows.

Windows Active Directory Server 2000

- Cisco DMS 5.3

Windows Active Directory Server 2003

- Cisco DMS 5.3

Windows Active Directory Server 2008R2

- Cisco DMS 5.3

Federation Mode (SSO) FAQs

Q. Are there any special APIs to use federation mode?

A. No. We support one set of API calls that work identically across all supported authentication modes. See <http://developer.cisco.com>.

Q. Does DMM perform trust validation of certificates that it imports with IdP metadata?

A. Yes.

Q. Do you support any use of certificate revocation lists?

A. No. Not in this release.

Q. Can I use one browser to connect simultaneously to more than one DMM appliance or more than one Show and Share appliance?

A. No. Each time that you connect to an additional instance, you are logged out of any prior instance in that browser. However, you can use multiple browsers together for this purpose.

Q. Why would user sessions time out for Show and Share or DMM users after a different interval than I set in DMM?

A. This can happen when session timeout values differ between your DMM appliance and your IdP. Reconfigure these servers to share one identical session timeout value.

Error Message FAQs

Q. Why does an error message state that an Active Directory password is not valid?

Explanation A “User must change password at next login” flag might be set on your Active Directory server. While this flag is set, the affected user cannot log in to any Cisco DMS component. DMS-Admin cannot change any password on your Active Directory server.

Recommended Action Use features that your Active Directory server provides for this purpose.

Q. Why does an error message state that filter validation has failed?

Explanation Filters fail when they point to empty containers. They also fail in response to filter expressions that includes any spaces.

Recommended Action Make sure on your [Active Directory](#) server that your filter did not refer to an empty organizational unit (OU) container. **Confirm also that your filter expression does not contain even one space.**

- Q.** Why would my API calls receive an HTTP 401 Unauthorized error?

Recommended Action When you use [federation](#) mode, enable ECP on your [IdP](#) server.

Network Policy FAQs

- Q.** When I use LDAP authentication with Cisco DMS, which ports must remain open in my network?

- A.** Your DMM appliance accepts user authentication requests securely through **port 443**. DMM then passes these requests securely to your [Active Directory](#) server through **port 389**. Also, SSL uses **port 636**.

User Exclusion FAQs

- Q.** Can I block Cisco DMS access to one particular [Active Directory](#) user account, when it is among the matched results for an otherwise useful LDAP filter?

- A.** Yes. Extend your query to include a logical NOT (!) operator for an attribute whose value is unique to this user. This example uses the LDAP “`samAccountName`” attribute name, which DMM uses by default to populate the corresponding login name for DMM. However, if your [Active Directory](#) server uses any other attribute name than “`samAccountName`” for this purpose, you must update the example syntax accordingly when you extend your query.

```
( & ( currentFilter ) ( samAccountName != username-to-be-excluded ) )
```



Tip

Information on the [Manage Attributes](#) property sheet in DMS-Admin confirms whether your [Active Directory](#) server uses the “`samAccountName`” attribute name.



Users and Groups

Revised: March 2015

- [Concepts, page 9-1](#)
- [Procedures, page 9-2](#)
- [Reference, page 9-8](#)



Note

Although visible in the Cisco DMM user interface, Release 5.5 and 5.6 software does not support Cisco Digital Signs, Cisco Digital Media Players (DMPs), Cisco Cast, Cisco Digital Media Designer, or the Cisco Digital Media Player Device Manager.

Concepts

- [Understand User Accounts, page 9-1](#)
- [Understand User Roles, page 9-2](#)

Understand User Accounts

You can create user accounts manually or you can import them from an Active Directory server. Imported accounts and created accounts can coexist.


You cannot create any new user accounts manually while your authentication method is LDAP.

Understand User Roles

User roles in DMS-Admin are the automatic result of a logical operation. You cannot use DMS-Admin to assign a user role directly to any user.

In some cases, users who are authorized to use more than one licensed feature of Cisco DMS. The DMS-Admin user role that you see for a user account is based on *all* privileges and access settings that the user has, combined across *all* of your licensed and activated features.

Table 9-1 Logic That Determines User Role Designations in DMS-Admin

User Role	Logic
Admin	This user role is assigned automatically to any user who is an administrator in any DMM software module. These users have full read/write access to all users and user groups in DMS-Admin and can manage settings for them.
Group Admin	This user role is assigned automatically to any user who is a content author for <i>Show and Share</i> but is not an administrator in any DMM software module. These users cannot see information about user accounts and groups in DMS-Admin, nor can they create, edit, or delete them. However, these users can create user groups as part of the workflow in Show and Share Administration when they assign the rights to view a new or preexisting video.
ReadOnly	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  <p>Caution Each user account has only the user role “ReadOnly” until you assign additional access rights and privileges. User accounts with this role have severely limited access.</p> </div> <p>This user role in DMS-Admin is assigned automatically to any user who has not been granted any explicit access settings or privileges in any DMM software module, or who can log in to <i>Show and Share</i> but has no other privileges. These users are prevented from logging in to any DMM software module.</p>

Procedures

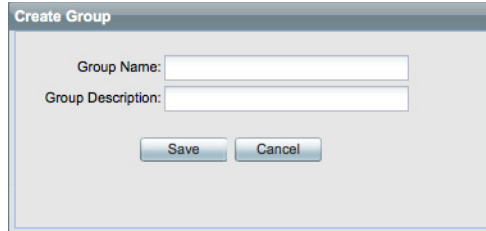
- [Create User Groups, page 9-3](#)
- [Delete User Groups, page 9-4](#)
- [Create User Accounts, page 9-4](#)
- [Assign Users to Groups, page 9-6](#)
- [Edit User Accounts, page 9-6](#)
- [Delete User Accounts, page 9-7](#)
- [Assign User Access Rights and Permissions, page 9-8](#)

Create User Groups

Procedure

Step 1 Choose **Administration > Users**.

Step 2 Click **Create Group**.



Step 3 Enter values to name and describe the group.



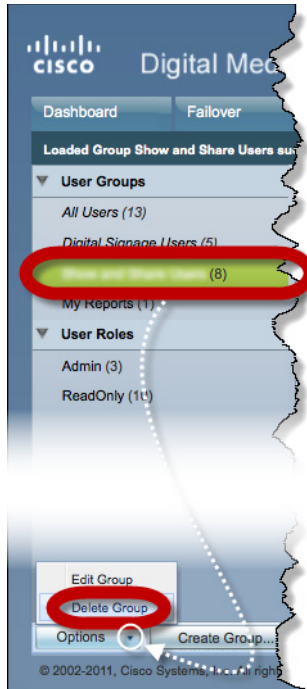
Tip **The name that you enter for a user group must not contain any spaces or special characters.**

Step 4 Click **Save** to save your work.

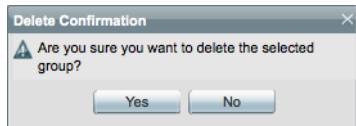
Delete User Groups

Procedure

- Step 1** Choose **Administration > Users**.
- Step 2** Click a group name to highlight it.



- Step 3** Choose **Options > Delete Group**.



- Step 4** Click **Yes** in the Delete Confirmation dialog box.

Create User Accounts

Procedure

- Step 1** Choose **Administration > Users**.
- Step 2** Click **Add New User**.

Step 3 Enter the required values in the Add New User dialog box.

Step 4 (Optional) Enter contact information.

Step 5 (Optional) Assign the user to a user group.

Groups	Description	ID
<input type="checkbox"/> Digital Signage Users	Digital Signage Users	2
<input type="checkbox"/> My Reports	My direct reports.	4
<input type="checkbox"/> Show and Share Users		3

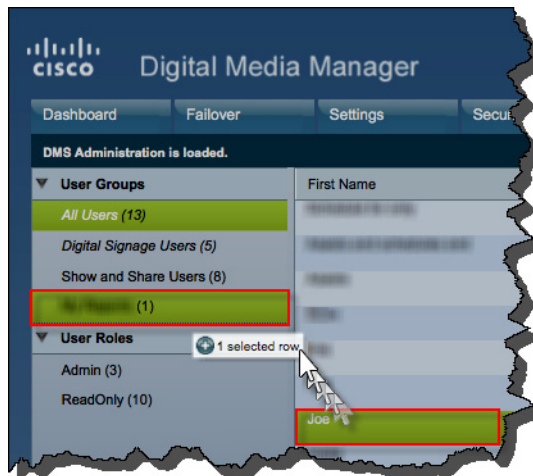
Step 6 Click **Save**.

Assign Users to Groups

When you first create a user account in DMS-Admin, you can associate the account with a user group immediately or you can do so after you assign access rights and permissions to the user.

Procedure

- Step 1** Drag a user from the table to the group name.



OR

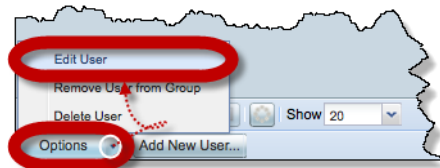
Use the Edit User dialog box.

Edit User Accounts

You can edit user account settings manually.

Procedure

- Step 1** Choose **Administration > Users**.
- Step 2** Click an entry in the untitled table that describes all user accounts.
- Step 3** Choose **Options > Edit User**.



Step 4 Make changes to its values in the Edit User dialog box.

Step 5 (Optional) Enter contact information.

Optional contact info

Step 6 (Optional) Assign the user to a user group.

Optional group selection

Groups	Description	ID
<input type="checkbox"/>	Digital Signage Users	2
<input type="checkbox"/>	My Reports	4
<input type="checkbox"/>	Show and Share Users	3

Step 7 Click Save.

Delete User Accounts



Note

You cannot delete the superuser account. However, you can delete any other user account.

Procedure

Step 1 Choose **Administration > Users**.

Step 2 Click an entry in the untitled table that describes all user accounts.

To mark multiple user accounts for deletion, Ctrl-click.

Step 3 Choose **Options > Delete User**.

Assign User Access Rights and Permissions



Note **User rights and privileges are feature-specific.** You cannot use DMS-Admin to assign rights or privileges to any user.

Before You Begin

- Obtain and install the license keys to activate licensed features.
- Create or import user accounts.

Procedure

Step 1 Assign access rights and privileges to users in the individually licensed features they will use.

Reference

- [Elements to Configure User Account Settings, page 9-8](#)
- [FAQs, page 9-9](#)

Elements to Configure User Account Settings

Navigation Path

Administration > Users

Table 9-2 *Elements for Creating and Editing User Accounts Manually*

Element	Description
First Name	This required value might be identical for multiple users. Note We do not validate that this value is strictly alphanumeric. Specifically, we support your use of opening and closing quotation marks, forward slashes, and back slashes.
Last Name	This required value might also be identical for multiple users. Note We do not validate that this value is strictly alphanumeric. Specifically, we support your use of opening and closing quotation marks, forward slashes, and back slashes.
Email Address	The email address to be associated with this user account.
Username	A unique username. The name is unique in the sense that you have not used it as the name for any other user account for any component of Cisco DMS. You must enter the username. Note Usernames are now case-insensitive and the minimum username length is lowered to two characters. (Previously, the minimum username length was four characters.)

Table 9-2 Elements for Creating and Editing User Accounts Manually (continued)

Element	Description
Password	The password for the user account. You must enter a password, then reenter it.
Re-enter password	
Active list	Signifies whether the account holder is an active or inactive user of Cisco DMS. Alternatively, signifies whether the account holder is active in your organization.
Optional Contact Info	
Company	The agency, corporation, nonprofit organization, or other such institution to be associated with this user account.
Department	The department within the institution.
Phone	The telephone number to be associated with this user account.
Optional Group Selection	
Unlabeled check box	Marks the groups to which this user should belong.
Groups column	Shows the group name.
Description column	Optional, brief description of the group and its purpose.

FAQs

- Q. What might prevent a user from logging in to DMM with an account that I created in DMS-Admin?**
- A.** By default, DMS-Admin assigns all newly created user accounts to a user role called “ReadOnly.” Users with this role cannot log in to DMM. To grant this right to users, you must assign module-specific rights to them in *Digital Signs* or *Show and Share Administration*. Afterward, their user role changes to “Admin.”



Events and Notifications

Revised: March 2015

- [Concepts, page 10-1](#)
- [Procedures, page 10-4](#)
- [Reference, page 10-7](#)



Note

Although visible in the Cisco DMM user interface, Release 5.5 and 5.6 software does not support Cisco Digital Signs, Cisco Digital Media Players (DMPs), Cisco Cast, Cisco Digital Media Designer, or the Cisco Digital Media Player Device Manager.

Concepts

- [Overview, page 10-1](#)
- [Restrictions, page 10-2](#)
- [Understand SNMP Concepts, page 10-2](#)
- [Understand MIB and NMS Concepts, page 10-2](#)
- [Understand IP Address Conflict Events, page 10-3](#)
- [Understand Supported Event Types, page 10-3](#)
- [Understand Notification Methods, page 10-4](#)

Overview

DMS-Admin supports email (SMTP) natively.

In addition, you can purchase and install a license key to activate the *SNMP Notifications Module*. After you activate this module, you can start to use:

- A network management MIB file called *CISCO-DIGITAL-MEDIA-SYSTEMS-MIB.my*.
- The *agent capabilities* file that describes which MIB objects we support in this release.

In this framework, you can define alarms that associate system events with methods to deliver notification messages.

**Timesaver**

The Alerts gauge at Administration > Dashboard shows the total count of notification messages delivered in the past 1 hour. Click **View Alerts** to jump directly to the Alerts page.

Restrictions

- **SNMP features in this release are read-only.**
 - Your NMS can use SNMP to submit queries to DMS-Admin but cannot use SNMP to edit the configuration of any Cisco DMS component.
 - You cannot edit the (default) community string of your DMM appliance.
- **SNMPv1 and SNMPv2c are not secure protocols.** You cannot use a firewall to secure SNMP traffic.
- In this release, the SNMP Notification Module does not support:
 - The SNMPv3 protocol.
 - Any monitoring of Cisco Digital Media Encoders (DMEs).

Understand SNMP Concepts

Your fully licensed and equipped DMS-Admin software can use *SNMPv1* or *SNMPv2c* to:

- Respond to Cisco DMS MIB schema-compliant queries from your NMS.
- Send notification messages automatically to your NMS whenever predefined system event types occur.

Understand MIB and NMS Concepts

Any dedicated NMS that supports SNMP can load *CISCO-DIGITAL-MEDIA-SYSTEMS-MIB.my* into its MIB browser. CiscoWorks is one example. Your NMS can then send SNMP queries to DMS-Admin and represent its responses correctly to monitor objects from our MIB schema.

- Cisco DMS server appliances.
- Cisco DMPs—*in the sense that, when your DMPs report their events to your DMM appliance, it forwards the appropriate SNMP alerts.*
- Cisco Digital Media Manager software.
- Cisco Show and Share software.

Our MIB schema models three object groups.

Object Group	Description
DMS Systems Group	Models all distributed component parts of this Cisco DMS installation as a single, abstract system.
DMS Features Group	Categorizes licensed and unlicensed features.
DMS Inventory Group	Lists the devices that constitute your Cisco DMS installation and describes their operational status.

Understand IP Address Conflict Events

An address conflict occurs when a DHCP server assigns to one registered DMP the exact dynamic IP address that some other registered DMP used previously.

When the DMP that previously used the address is no longer in active use, you should delete the record of it in *Digital Signs*.

When the DMP that previously used the address is one that should remain active, confirm that it is still running and still connected to the network, then restart it and confirm that its DHCP server does not assign IP addresses with expiration dates.

Understand Supported Event Types

- [Global Event Categories, page 10-3](#)
- [DMP Event Categories, page 10-3](#)
- [Show and Share Event Categories, page 10-3](#)
- [Failover Cluster Event Categories, page 10-4](#)
- [WAAS Event Categories, page 10-4](#)

Global Event Categories

Categories	Notification Messages
All Internal Events	List all signals exchanged between and among the internal components of Cisco DMS.
All Notifiable Events	List all.
Deployment Failures	Messages list recently failed deployments of content for all components of Cisco DMS.
Deployment Successes	Messages list recently failed deployments of content for all components of Cisco DMS.

DMP Event Categories

Categories	Notification Messages
Outages	List all registered but unreachable DMPs.
Restarts	List all registered DMPs that restarted recently.
IP Conflicts	List all registered DMPs with IP address conflicts.
IP Registrations	List all newly registered DMPs.

Show and Share Event Categories

Categories	Notification Messages
Show and Share Outages	List registered but unreachable <i>Show and Share</i> appliances.
Show and Share Restarts	List registered <i>Show and Share</i> appliances that restarted recently.

Categories	Notification Messages
Show and Share Content Publishing Failures	List recently failed deployments of content for use on <i>Show and Share</i> .
Show and Share Content Publishing Successes	List recently successful deployments of content for use on <i>Show and Share</i> .

Failover Cluster Event Categories

Categories	Notification Messages
Cluster Node Outages	List instances when either node in any failover pair is not responsive.
Cluster Node Activations	List instances when either node in any failover pair becomes responsive.

WAAS Event Categories

Categories	Notification Messages
WAAS Connections	Lists instances when DMM established a connection to a WAAS share.
WAAS Disconnections	Lists instances when DMM lost its connection to a WAAS share.
WAAS Low Disk Space	Lists instances when the WAAS share was low on disk space.

Understand Notification Methods

Email

Activates automatic delivery of email notification messages for all corresponding event types.

SNMP

Activates automatic delivery of SNMPv2c notification messages to your NMS for all corresponding event types.

Syslog

Activates automatic delivery of notification messages to your Syslog collector.

All

All of the above.

Procedures

- [Enable or Disable Email, page 10-5](#)
- [Configure Alert Reports and Notification Settings, page 10-6](#)

Enable or Disable Email

You can enable or disable the email service (SMTP) on your DMM appliance. When this service is enabled, DMS-Admin can send email notifications automatically to you or other interested parties whenever system events of predefined types occur.

Before You Begin

To see and use the Settings tab, you must be logged in as an administrator.

Procedure

-
- Step 1** Choose **Settings > External Servers > SMTP**.
- Step 2** Enter the required values to start or stop email service on your DMM appliance. You must enter these values or you cannot send notification messages:

Value	Description
Server Status	Click the radio button to enable or disable the email service.
Host	The routable IP address or DNS-resolvable hostname.
Port	The number to identify which TCP port is reserved for SMTP traffic.

- Step 3** Click **Save**.
- Step 4** Stop. You have completed this procedure.
-

Configure SNMP Server Settings for Your DMM Appliance

Cisco DMS can convey its notifications to an external SNMP server.

Procedure

-
- Step 1** Choose **Settings > SNMP**.
- Step 2** Click the Server Status radio button to enable or disable SNMP monitoring.
- Step 3** Enter in the Host field the routable IP address or DNS-resolvable hostname of your NMS.
- Step 4** Enter in the Port field the numeric UDP port assignment reserved for SNMP traffic.
- Step 5** Apply the community string.
- Step 6** Enter in the Community String field the password to identify that community.



Tip The default Community String value is *public*.

- Step 7** Click **Save**.
-

Populate the MIB Browser in Your NMS

Procedure

Step 1 Log in to your Cisco.com account on ftp.cisco.com.

Step 2 Navigate to  <ftp://ftp-sj.cisco.com/pub/mibs/v2/>.



Timesaver

Alternatively, go to <http://cisco.com/go/dms/mib>.

Step 3 Download these files:

09/23/2008 12:00AM	2,392	CISCO-DIGITAL-MEDIA-SYSTEMS-CAPABILITY.my
06/02/2008 12:00AM	43,053	CISCO-DIGITAL-MEDIA-SYSTEMS-MIB.my

Step 4 Load both files into your network management system (NMS).



Tip **Manufacturer documentation for your NMS should tell you how to do this.**

Step 5 When your NMS prompts you to enter the SNMP port number for your DMM appliance, use the port number **161**.

Configure Alert Reports and Notification Settings

- [Define Alert Report Parameters, page 10-6](#)
- [Define Notification Rules, page 10-7](#)

Define Alert Report Parameters

Procedure

Step 1 Click the **Alerts** tab.

Step 2 Click **Alert Reports**, .

Step 3 Click the radio button to choose a monitoring mode.

- In *Live Monitor Mode*, we refresh displayed values in something close to real time.
- In *Snapshot Mode*, we do not refresh displayed values.

Step 4 Choose the range of dates.

Step 5 Choose an event type from the Type list, and then click **Apply**.

Step 6 Click **Save**.

Define Notification Rules

Before You Begin

- Before you can deliver notification messages to any email recipient, you must configure SMTP and enable notification operations for it.
- Before you can deliver notification messages to any NMS, you must purchase and install a license key that activates the SNMP Notification Module. Then, you must configure SNMP and enable both notification operations **and** query operations for it.
- Before you can deliver notification messages to any Syslog collector, you must configure Syslog and enable notification operations for it.

Procedure

Step 1 Choose **Alerts > Notification Rules**.

Step 2 Check the check boxes to turn On one or more notification methods for each listed event type.

OR

Uncheck every check box for an event type to stop its delivery of notification messages through any medium or channel.

Step 3 **(Optional)** *Did you check Email?*

If so, you activated the Recipient field, which is now editable. Enter the email address that should receive notification messages.



Note Enter only one email address in this field. It rejects any entry that contains multiple email addresses (**CSCts96411**).



Tip You can enter a unique recipient address for each notification rule.

Step 4 Click **Save**.

Reference

- [SMTP FAQs, page 10-7](#)
- [SNMP and MIB FAQs, page 10-8](#)

SMTP FAQs

- Q.** What might interfere with the delivery of configured email notifications for events that the Alert Browser shows?

Explanation This might happen when DMM cannot connect to your SMTP server—due to either a misconfiguration or a service outage (SMTP error 421). To determine the cause, get copies of your DMM system logs from AAI and inspect `/var/log/dms/EmsService.log` file.

Recommended Action Make sure the SMTP server configuration is correct in DMS-Admin. If the configuration is correct, test with a different mail server.

SNMP and MIB FAQs

Q. Which SNMP versions does the MIB support?

A. *SNMPv1* and *SNMPv2*.



Note This release does not support *SNMPv3*.

Q. If multiple DMPs become unreachable at the same time, will I receive separate SNMP notifications for each?

A. Maybe. This can occur when you configure DMS-Admin to send SNMP notifications for unreachable DMPs.



Note This release does not support notification throttling.

Q. Where can I download the MIB and its agent capabilities file?

A. Log in to your Cisco.com account and go to <ftp://ftp.cisco.com/pub/mibs/v2/>. Alternatively, go to <http://cisco.com/go/dms/mib>.

Q. Which object groups does the MIB support?

A. This release supports:

- *cdmsSystem*
- *cdmsFeatures*
- *cdmsInventory*

To understand these object groups, see the agent capabilities file.

Q. Can I configure the community for my...

• ... SNMP agent to accept 'get' requests?	A. Yes, from the public community.
• ... SNMP agent to accept 'set' requests?	A. No, not in this release.
• ... external SNMP server, which receives traps?	A. No, not in this release.



Configure Failover

Revised: March 2015

To configure failover for Cisco Show and Share, refer to the *Failover Configuration Guide for Cisco Digital Media Suite 5.5 and 5.6* on Cisco.com:

<http://www.cisco.com/c/en/us/support/conferencing/show-share/products-installation-and-configuration-guides-list.html>



Note

Configuring Digital Signs Failover on a DMM running Release 5.5 and 5.6 is not supported.

The screenshot shows the Cisco Digital Media Manager web interface. The top navigation bar includes 'Dashboard', 'Failover', 'Settings', 'Security', 'Users', 'Alerts', 'Services', and 'Licensing'. The main content area is titled 'Failover Configuration' and contains three sections:

- Digital Media Suite Cluster Settings:** Includes a 'Name' field and radio buttons for 'Set As Master' and 'Master FQDN'.
- Digital Media Manager Failover Settings:** Includes a 'Management Interface' section with 'Primary FQDN', 'Secondary FQDN', and 'Virtual FQDN' fields, and a 'Replication Interface' section with 'Crossover' and 'Switched' radio buttons, 'Primary IP', 'Secondary IP', and 'Subnet Mask' fields.
- Show and Share Failover Settings:** Includes a 'Management Interface' section with 'Primary FQDN', 'Secondary FQDN', and 'Virtual FQDN' fields, and a 'Replication Interface' section with 'Crossover' and 'Switched' radio buttons, 'Primary IP', 'Secondary IP', and 'Subnet Mask' fields.

At the bottom of the configuration area are 'Save' and 'Reset' buttons. A copyright notice is visible at the very bottom: '© 2010-2011, Cisco Systems, Inc. All rights reserved. Warranty and End-User License Agreement'.

