

# CSM Server User Guide

# What is CSM Server?

CSM Server is a web-based, server-side automation and orchestration framework. It gives service providers the ability to simultaneously schedule and deploy IOS-XR (ASR9K, CRS, and NCS6K) SMUs & software upgrades across hundreds of routers in a scheduled manner through a simple point and click Web interface.

CSM Server leverages the Accelerated Upgrade Tool (AUT) to automate and relieve our customers of having to perform tedious & manual install steps themselves.

# CSM Server



## ▪ Requirements

- Runs on Linux machine
- Python interpreter 2.7.6 & supported libraries
- MySQL 5.6 or above
- Gunicorn web server
- Safari/Google Chrome/Firefox Browser

## ▪ Installation

- Refer to the Installation Guide.
- The Installation Guide will provide instructions on installing CSM Server and various components on different Linux distributions, as well as how to launch it.

## ▪ CSM Server Modules

### ▪ CSM Server

- Provides a Web GUI to provision hosts, jump servers, regions, and servers.
- Schedules different types of installation jobs.
- Browses database information and views system and session logs.
- Performs administrative tasks.

### ▪ CSM Dispatcher

- Runs scheduled download and install jobs.
- Collects software inventory information from hosts.
- Performs housekeeping tasks.

# High Level Overview

- **Login**
  - Use default Admin user authentication to login.
- **Modify User Password**
  - Click Tools – Edit My Profile.
- **Create CSM Server Users**
  - Click Admin – Create User.
- **Create Server Repositories**
  - Define TFTP/FTP/SFTP server information.
- **Create Regions**
  - Create regions and link them with server repositories.
- **Create Jump Servers**
  - Define jump servers if managed hosts are behind them.
- **Create Managed Hosts**
  - Define connection information and assign a region to a managed host.
  - Once a host is defined, CSM Server will connect to the host to retrieve software inventory information.
- **Host Dashboard**
  - Click the hostname under the Managed Hosts tab.
  - Display the host connection information, software packages, scheduled installations, and the install and software inventory history.
  - Allows installation to be scheduled.
- **Schedule Install**
  - From Host Dashboard, click Action - Schedule an Install.
- **Install Dashboard**
  - View scheduled/in-progress/failed/completed installations.

# Start & Stop CSM Server

# Start CSM Server

- For detailed information, refer to the installation guide.
- **Follow only if CSM Server is running inside virtualenv:**
  - To enter the virtual environment, from csmserver directory, type “source env/bin/activate”.
  - The shell prompt will display “(env)” which indicates you are inside the virtual environment.
  - Follow the instructions below to start CSM Server.
  - To leave the virtual environment, type “deactivate”. This will return you to the regular shell prompt.
- **To Start CSM Server**
  - From csmserver directory, type “./csmserver start”.
- **To Start CSM Server Securely**
  - Must have ssl.key and ssl.cert files.
  - From csmserver directory, type “./csmserver start secure”.

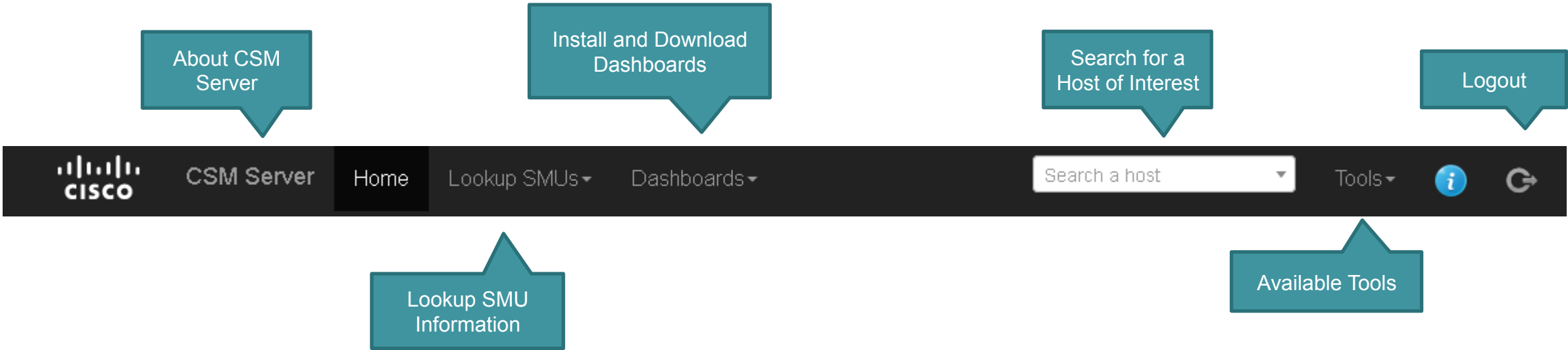
# Stop CSM Server

- For detailed information, refer to the installation guide.
- **Before stopping CSM Server, the following precautions will help eliminate unexpected results:**
  - On the Admin Dashboard, disable 'Allow Scheduled Installs to Run'.
  - Go to the Install Dashboard to see if there is any in-progress installation.
  - If there is no in-progress installation, follow the instructions below to stop CSM Server.
  - 'Allow Scheduled Installs to Run' will need to be re-enabled when CSM Server starts again.
- **If CSM Server is running inside virtualenv**
  - Follow the instructions on the previous slide to enter the virtual environment.
- **To Stop CSM Server**
  - From csmserver directory, type `./csmserver stop`.

# Main Menu Bar



# Main Menu Bar



# CSM Server Home

# Home

Home

Schedule Installation  
for multiple hosts

14 Schedule Batch Installs

Information

CSM Server	
Server Time	05/13/2015 12:21 PM
Version	1.0
Login User	root
Privilege	Admin

Total Managed Hosts: 41		
Platform	Software	# Host
asr9k-px	4.3.1	1
asr9k-px	4.3.4	1
asr9k-px	5.1.1.53U	1
asr9k-px	5.1.1	1

Managed Hosts

Jump Servers

Regions

Server Repositories

Create

Filter

10 records per page

Search:

Hostname	Region	TS or IP	Platform	Software	Last Successful Retrieval	Action
9010 Cluster (dsegovia)		185 172.28.22.23	ASR9K	5.1.1 (asr9k-px)	78d 11h 20m ago	Install
ASR9K-PE3	Cisco Telecom West Coast	172.28.98.6	ASR9K	5 (a		Install
ASR9K-PE4	Cisco Telecom West Coast	172.28.98.3	ASR9K	4.3.4 (asr9k-px)	12h 20m 46s ago	Install
ASR9K-PE5	Cisco Telecom West Coast	172.28.98.5	ASR9K	5.1.3 (asr9k-px)	12h 20m 23s ago	Install

Showing 1 to 10 of 41 entries

← Previous

1

2

3

4

5

Next →

Number of  
Managed Hosts

Edit Host

Host that Failed Last  
Software Retrieval

Page Navigation

# Home Tab Options



Managed Hosts

Jump Servers

Regions

Server Repositories

Create ▾

- **Managed Hosts**

- Managed hosts are Cisco IOS-XR devices on which scheduling tasks can be performed.
- Each row represents one Cisco device.

- **Jump Servers (Optional)**

- A jump server is the server that CSM logs into in order to connect to the managed hosts.
- Many service provider environments place their devices behind a jump server. CSM first logs into the jump server, then to the router.

- **Regions**

- A region is mapped to multiple server repositories.
- All devices from the same region share the same set of TFTP, FTP, SFTP servers.

- **Server Repositories**

- Where you define the TFTP, FTP, and SFTP server repositories.

- **Create**

- Where you go to create managed hosts, jump servers, regions, and server repositories.


# Create a Server Repository

- Specify a unique server repository name.
- Select a server type for the server repository where the software packages reside.
- For TFTP server, specify the TFTP server path (e.g. tftp://202.153.144.25/auto/tftpboot). A TFTP server path usually has a corresponding Unix file directory (e.g. /auto/tftpboot). Specify that directory in the File Directory so that CSM Server can browse the software packages.
- For FTP/SFTP server, specify the FTP/SFTP server address (e.g. [ftp.easycgi.com](http://ftp.easycgi.com) or an IP address). If applicable, specify the remote directory. The remote directory is optional and should be relative to the default directory where FTP/SFTP client first connects.
- When scheduling an install, CSM Server uses this server repository information to provide the file and directory browsing function.

### Create Server Repository

Server Repository Name	<input type="text" value="East Coast TFTP"/>
Server Type	<div>TFTP ▾</div>
TFTP Server Path	<input type="text" value="tftp://202.153.144.25/auto/tftpboot"/>
File Directory (Used by CSM Server)	<input type="text" value="/auto/tftpboot"/>
<div>Check Reachability Save Cancel</div>	

### Create Server Repository

Server Repository Name	<input type="text" value="West Coast FTP"/>
Server Type	<div>FTP ▾</div>
FTP Server Address	<input type="text" value="172.20168.19"/>
Remote Directory	<input type="text"/>
Username	<input type="text" value="johnsmith"/>
Password	<div><input type="password" value="....."/> </div>
<div>Check Reachability Save Cancel</div>	

# Create a Region

- Specify a unique region name.
- Assign server repositories to the region.
- When creating a new host, a region is attached to the host.
- When scheduling an install, CSM Server uses the host's region to lookup server repositories and provide the file and directory browsing function.

### Edit Region

**Region Name**

### Server Repositories

**Available Servers** - showing 28

ACE server

Alberto ftp

BJ-RP-FTP

Cisco Telecom East Coast TFTP zeppelin-3

Cisco Telecom East Coast TFTP zeppelin-5

Dennis TFTP

Dsegovia Bldg 20

SJ20-4\_3\_1-CCO

SJ20-4\_3\_2-CCO

SJ20-4\_3\_4-CCO

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**Selected Servers** - showing 11

Alex TFTP Server

Dsegovia Bldg 18

Eddie SFTP

SJ18-4\_3\_1-CCO

SJ18-4\_3\_2-CCO

SJ18-4\_3\_4-CCO

SJ18-5\_1\_1-CCO

SJ18-5\_1\_2-CCO

SJ18-5\_1\_3-CCO

SJ18-5\_2\_0-CCO

Save

Cancel

# Create a Jump Server

- Specify a unique jump server name.
- Specify a connection type.
- Specify a sever name or the IP address of the server.
- Specify a telnet or ssh port number.
- A jump server may be assigned to a managed host if the managed host is behind the jump server.

### Create Jump Server

**Server Name**

### Connection Parameters

**Connection Type**

telnet

**Server or IP**

**Port Number**

**Username**

**Password**

.....

Check Reachability

Save

Cancel

# Create a Host

- Specify a unique host name.
- Select a platform and region for the managed host. Optionally, you may specify the role of the device. This will enable further filtering when creating batch schedule installs.
- If the device is attached to a terminal server, specify the terminal server IP.
- If the device is on the management network, specify the management IP.
- Multiple management IPs (i.e. RSP0 and RSP1) can be entered in the Terminal Server or Mgmt. IP field. Use a comma as the delimiter.
- Multiple terminal server ports can be entered in the Port Number field. Use a comma as the delimiter.

## Create Host

Hostname	<input type="text" value="ASR9-PE2-R1"/>
Platform	<input type="text" value="ASR9K"/>
Region	<input type="text" value="Pleasanton"/>
Roles	<input type="text" value="PE Router"/>

## Connection Parameters

Connection Type	<input type="text" value="telnet"/>
Terminal Server or Mgmt. IP	<input type="text" value="172.27.82.122"/>
Port Number	<input type="text" value="Leave Blank for Default"/>
Username	<input type="text" value="root"/>
Password	<input type="password" value="...."/>
Jump Server	<input type="text" value="None"/>



# Connect via Host Console Port

When a host console port is used for the connection, the syslog logging on the console should be disabled. Otherwise, it will interfere with the installation.

- **To disable logging**
  - RP/0/RSP0/CPU0:GW# config
  - RP/0/RSP0/CPU0:GW(config)# logging console disable
  - RP/0/RSP0/CPU0:GW(config)# commit

# Host Dashboard

# Host Dashboard

- **Invocation**

- Navigate to this page by clicking the hostname under the Managed Hosts tab on the Home page.
- Also invoked by using the “Search a host” search bar on the main menu bar.

- **Overview**

- The Host Dashboard is a dynamic view. It refreshes every 10 seconds to display up-to-date information.

- **General**

- Display the host connection information.

- **Software Packages**

- Display the software packages of the host.

- **Scheduled Installations**

- Display all the scheduled installations. When an installation is executing, a runner icon is displayed next to the scheduled installation.

- **Install/Software Inventory History**

- Display both the install and software inventory history.
- By default, only the last 10 records are displayed. To change the default, select a different number from the selector.

- **Action**

- Schedule an Install.
- Delete All Scheduled Installs.
- Delete All Failed Installs.
- Retrieve the Latest Software.
- Edit Host.

# Host Dashboard

Host: ASR9K-PE1-R0

Last Successful Retrieval: 12h 13m 56s ago

## General

Region	Cisco Telecom West Coast
Platform	ASR9K
Software	5.1.3
Host or IP	172.28.98.2
Username	cisco
Connection	telnet
Created By	root

## active-committed

View  
Packages

Search:

disk0:asr9k-fpd-px-5.1.3  
disk0:asr9k-k9sec-px-5.1.3  
disk0:asr9k-mcast-px-5.1.3  
disk0:asr9k-mgbl-px-5.1.3  
disk0:asr9k-mini-px-5.1.3  
disk0:asr9k-mpis-px-5.1.3  
disk0:asr9k-nx-5.1.3

Package  
State

## inactive-committed

View  
History

Install History

Software Inventory History

Action

Available  
Actions

Schedule an Install

Delete All Scheduled Installs

Delete All Failed Installs

Retrieve Latest Software

Edit Host

## Scheduled Installations

Install Action

Scheduled Time

Install Add

01/16/2015 10:10 AM

Scheduled  
Install

# Install History

View History

Install History

Software Inventory History

Action



Install History

[Return to Top](#)

Retrieve Last 10 Records:

10

Number of Records to  
Retrieve from the  
Database

10 records per page

Search:

Install Action	Scheduled Time	Start Time	Packages	Status	Status Time	Log	Created By
Install Add	10/05/2014 11:38 PM	10/05/2014 11:38 PM		failed	10/05/2014 11:39 PM		root
Install Add	10/05/2014 11:19 PM	10/05/2014 11:19 PM		completed	10/05/2014 11:19 PM		root
Install Add	10/05/2014 11:09 PM	10/05/2014 11:09 PM		completed	10/05/2014 11:09 PM		root
Install Add	10/01/2014 09:18 PM	10/01/2014 09:18 PM			10/01/2014 09:18 PM		root

View Logs

View  
Packages

# Software Inventory History

View History

Install HistorySoftware Inventory HistoryAction

Software Inventory History

[Return to Top](#)

10 records per page

Search:

Description	Status	Status Time	Elapsed Time	Log
Software retrieved successfully	completed	10/27/2014 12:01 AM	16h 35m 47s ago	View Logs
Failed retrieving software	failed	10/26/2014 12:00 AM	1d 16h 36m ago	
Software retrieved successfully	completed	10/25/2014 12:01 AM	2d 16h 35m ago	
Software retrieved successfully	completed	10/24/2014 12:01 AM	3d 16h 35m ago	
Failed retrieving software	failed	10/23/2014 12:00 AM	4d 16h 36m ago	View Traces

# Schedule an Install

# Available Install Actions

- **Pre-Upgrade**

- Establishes initial device connection.
- Records running software version.
- Records the running configuration and stores it in a file.
- Checks the state of all nodes on the system.
- Verifies server repository reachability.
- Records inactive, active, committed package list.

**Optional Plugins:**

- Records OSPF and ISIS neighbors.
- Sets ISIS set-overload-bit if ISIS is running.
- Records total number of BGP neighbors.
- Records total number of MPLS LDP neighbors.
- Records total number of PIM neighbors.
- Records total number of HSRP neighbors and states.
- Records total number of VRRP neighbors and states.

- **Install Add**

- Copies software packages to the device.

- **Activate**

- Activates packages on the device.

- **Post-Upgrade**

- Checks node status, standby role status, configuration failure, software package states, etc.
- Verifies error/tracebacks/core files.

- **Commit**

- Executes Install Commit on the device.







# Available Install Actions - Continue

- **ALL**
  - CSM Server will create Pre-Upgrade, Install Add, Activate, Post-Upgrade, and Commit installation actions with the successor depending on the predecessor. Until the predecessor has executed successfully, the successor will not run.
- **Remove**
  - Remove inactive packages on the device.
- **Deactivate**
  - Deactivate active packages on the device.

# Schedule an Install

- Invoked from the Host Dashboard's Action menu.
- Select an install action. Multiple install actions may be selected at once.
- Depending on the selected install action, software packages can be selected from Server Repository, CCO, Inactive Packages, or Install History.
- If a dependency is selected, the scheduled installation will not proceed until the dependency is completed successfully. The dependency can only be specified when only one install action is selected (not available for batch installs).

Schedule Install > Region: Cisco Telecom West Coast > Host: ASR9K-PE1-R0 (ASR9K-PX-5.3.1.20I)

Install Action	<input type="text" value="× Install Add"/>
Select From	 Server Repository  CCO
Software Packages	<div></div>
Scheduled Time	<input type="text" value="05/11/2015 02:10 PM"/> 
Dependency	<input type="text" value="None"/> 

# Browse Server Repository

- Invoked by clicking the Server Repository icon on the Schedule Install dialog.
- Select a server repository.
- Use the Server Directory selector to navigate to the desired directory on the server repository. The software packages in the selected directory will be displayed in the dual list box.
- For Software upgrade, enter the target software release and click Auto Select. This will select packages from the Available Packages list box which match the device software packages.

Select Software Packages > Host: ASR9K-PE1-R0 (ASR9K-PX-5.3.1.20I) X

Server Repository

Terastream-tme(172.20.168.195)

Server Directory

↑

×

Target Software Release

Software Upgrade Only (enter X.X.X format)

Auto Select

Available Packages - showing 84

Filter

asr9k-k9sec-px.pie-5.3.0  
asr9k-mgbl-px.pie-5.1.3.08I.SIT\_IMAGE  
asr9k-mini-px.pie  
asr9k-mini-px.pie-5.1.0  
asr9k-mini-px.vm-4.3.4  
asr9k-mpls-px.pie-5.1.0  
asr9k-px-4.3.2.sp-1.0.0.pie  
asr9k-px-4.3.2.sp3.pie  
asr9k-px-4.3.4.CSCum45008.pie  
asr9k-px-5.1.0.CSCul19600.pie  
asr9k-px-5.1.0.CSCul19600.pie

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Selected Packages - showing 0

Filter

Save

Cancel

# Browse CCO

- Invoked by clicking the Browse CCO icon on the Schedule Install dialog.
- Use the Lookup SMUs button to navigate to the desired platform and release.
- Select the server repository where the downloaded SMUs should be stored.
- Select the SMUs or Service Packs of interest.

Lookup SMUs Navigate to Different Platforms and Releases

Server Repository: TeraStream-trm(172.20.168.195)

Server Directory

ASR9K-PX-5.2.2 > SMUs 23 Service Packs 1

100 records per page

Filter the List by Keywords Search:

	Posted Date	SMU ID	DDTS	Type	Description	Impact	Functional Areas
<input checked="" type="checkbox"/>	04/30/2015	AA09461	CSCut84094	Optional	Umbrella DDTS for CSCuq91944 and CSCur83141	Needs Reboot	IPV6-ND
<input checked="" type="checkbox"/>	04/27/2015	AA09582	CSCus53525	Optional	'show controllers switch data-path statist loc node' resets VSM linecard	Hitless	PARSER
<input type="checkbox"/>	04/27/2015	AA09620	CSCut30719	Optional	DHCPv6 Relay drops relay-reply packets in 6VPE topology	Hitless	DHCPV6

Click to Select

# Browse Inactive Packages

- Invoked by clicking the Browse Inactive Pkgs icon on the Schedule Install dialog.
- The Last Successful Retrieval text field displays the elapsed time since the software packages was last successfully retrieved.
- Click the Retrieve Latest Software icon to retrieve latest software.

## Select Inactive Software Packages to Activate

X

Host

ASR9K-PE1-R0

Last Successful Retrieval

2d 14h 46m ago



### Available Software-Packages - showing 31

Filter

asr9k-base-5.1.3.sp2-1.0.0  
asr9k-bng-px-5.3.1.30I  
asr9k-doc-px-5.3.1.30I  
asr9k-fpd-px-5.1.3  
asr9k-fpd-px-5.3.1.30I  
asr9k-fwding-5.1.3.sp1-1.0.0  
asr9k-fwding-5.1.3.sp2-1.0.0  
asr9k-infra-test-px-5.1.3  
asr9k-infra-test-px-5.3.1.30I  
asr9k-k9sec-px-5.1.3



### Selected Software-Packages - showing 0

Filter

Save

Cancel

# Browse Install History

- Invoked by clicking the Browse Install History icon on the Schedule Install dialog.
- Select the packages from one of the successful Install Add operations.

## Select from Install History

Host

ASR9K-PE1-R0

100 records per page

Search:

Packages		Installed Time	Installed By
<input type="checkbox"/>	asr9k-bng-px.pie-5.3.1.30I.SIT_IMAGE asr9k-doc-px.pie-5.3.1.30I.SIT_IMAGE asr9k-fpd-px.pie-5.3.1.30I.SIT_IMAGE asr9k-infra-test-px.pie-5.3.1.30I.SIT_IMAGE asr9k-k9sec-px.pie-5.3.1.30I.SIT_IMAGE asr9k-li-px.pie-5.3.1.30I.SIT_IMAGE asr9k-mcast-px.pie-5.3.1.30I.SIT_IMAGE asr9k-mgbl-px.pie-5.3.1.30I.SIT_IMAGE asr9k-mini-px.pie-5.3.1.30I.SIT_IMAGE asr9k-mini-px.vm-5.3.1.30I.SIT_IMAGE asr9k-mpls-px.pie-5.3.1.30I.SIT_IMAGE asr9k-optic-px.pie-5.3.1.30I.SIT_IMAGE	04/29/2015 12:06 PM	root

Showing 1 to 17 of 17 entries

← Previous 1 Next →

Save

Cancel

# Schedule Install – Prerequisite Checks

After clicking the Schedule button, CSM Server performs the following functions:

- It checks for missing pre-requisites on selected software packages.
- It determines whether selected software packages are on the server repository. If they are not, CSM Server prompts the user to download them.
- The scheduled install will not proceed at its scheduled time until the software packages are successfully downloaded and copied to the server repository.

Following pre-requisite(s) were not selected, but should be included. ✕

asr9k-px-4.2.3.CSCul52017.pie  
asr9k-px-4.2.3.CSCui33805.pie  
asr9k-px-4.2.3.CSCum86633.pie

Include Pre-requisites

Ignore

Cancel

Following files are missing on the server repository. Those that are identified as 'Downloadable' can be downloaded from CCO. If you choose to download them, the scheduled installation will not proceed until the files are successfully downloaded and copied to the server repository. ✕

asr9k-px-4.2.3.CSCur72219.pie (Downloadable)  
asr9k-px-4.2.3.CSCul54537.pie (Downloadable)

Download

Ignore

Cancel

# Lookup SMUs Menu



# Lookup SMUs Menu

- From the Lookup SMUs menu, users can query SMUs and Service Packs information on various IOS-XR platforms and releases.
- Go to Tools – User Preferences to exclude certain platforms and releases from displaying under the Lookup SMUs menu.
- If a SMU has already been downloaded to the internal repository, a green check icon is displayed.
- Download a SMU by checking the checkbox and selecting Action – Download SMU/Service Pack. Then, select the server repository that will store the downloaded image.

**CSM Server** Home **Lookup SMUs** Dashboards Search a host

Navigate Different Platforms and Releases

ASR9K-PX-5.1.3 > SMUs 41 Service

100 records per page

	Status	Posted Date	SMU ID	DDTS	Type
<input type="checkbox"/>	⚠	05/08/2015	AA09744	CSCut49958	Optional
<input type="checkbox"/>	⚠	04/29/2015	AA09744	CSCut49958	Optional
<input type="checkbox"/>	⚠	04/28/2015	AA09744	CSCut49958	Optional
<input type="checkbox"/>	⚠	04/28/2015	AA09561	CSCut11994	Optional
<input type="checkbox"/>	⚠	04/24/2015	AA09748	CSCut11994	Optional
<input type="checkbox"/>	⚠	04/17/2015	AA09635	CSCus71103	Recommended
<input type="checkbox"/>	✓		AA09744	CSCut49958	Optional

View Additional SMU Info

View Bug Info

SMU Download Status

Yellow Highlight for SMUs Posted within a Week

Optimal

DHCP proxy inner and outer cos command doesn't work with unica:

# Install Dashboard

# Install Dashboard

- **Action**

- Schedule Batch Installs.
- Delete All Scheduled Installs.
- Delete All Failed Installs.

- **Install Dashboard Tabs**

- **Scheduled**
  - Lists any pending scheduled tasks.
- **In Progress**
  - Lists currently executing tasks.
- **Failed**
  - Lists any task that failed & provides links to appropriate logs.
- **Completed**
  - Lists of completed tasks plus install logs.

Install Dashboard

Available Actions

Action

Schedule Batch Installs

Delete All Scheduled Installs

Delete All Failed Installs

Search:

Scheduled 6 In Progress 0 Failed 21 Completed (showing 25 of 145)

10 records per page

Hostname	Install Action	Dependency	Scheduled Time	Packages	Created By	Action
ASR9K-PE4	Activate	Yes	10/22/2014 02:38 AM	asr9k-fpd-px.pie-5.1.3 asr9k-k9sec-px.pie-5.1.3 asr9k-mcast-px.pie-5.1.3 asr9k-mgbl-px.pie-5.1.3 asr9k-mini-px.pie-5.1.3 asr9k-mpls-px.pie-5.1.3	root	Delete
ASR9K-PE4	Post-Upgrade	Yes	10/22/2014 02:38 AM	asr9k-fpd-px.pie-5.1.3 asr9k-k9sec-px.pie-5.1.3 asr9k-mcast-px.pie-5.1.3 asr9k-mgbl-px.pie-5.1.3 asr9k-mini-px.pie-5.1.3 asr9k-mpls-px.pie-5.1.3	root	Delete

Scheduled 0 In Progress 1 Failed 1 Completed 5

10 records per page Search:

Hostname	Install Action	Scheduled Time	Status	Status Time
VALKYRIE3	Install Add	08/19/2014 12:00 AM	Executing :Install Add Packages	08/25/2014 05:30 PM

# Schedule Batch Installs

- Select a region of interest.
- Select a role and/or software version to further filter hosts.
- All managed hosts belonging to the selected region and role will be displayed.
- Use the dual list box to select multiple hosts for the same scheduled installation.
- By default, the scheduled time is now. The installation will be executed immediately. Click the calendar icon next to the Scheduled Time to select a different date and time.

### Select Hosts

**Region**  
CA-SJ-18-LAB185

**Role**  
Any

**Software Version**  
asr9k-px 5.1.1

**Available Hosts** - showing 1  
Filter  
9010 Cluster (dsegovia)

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**Selected Hosts** - showing 0  
Filter

### Schedule Batch Installs

**Install Action**  
Select Desirable Install Actions

**Scheduled Time**  
05/13/2015 12:14 PM

Schedule

Cancel

# Download Dashboard

# SMU/SP Download Dashboard

- **Action**

- Delete All Scheduled Downloads.
- Delete All Failed Downloads.

- **Download Dashboard Tabs**

- **Scheduled**

- Lists any pending downloads.

- **In Progress**

- Lists downloads that are in progress.

- **Failed**

- Lists all failed downloads.

- **Completed**

- Lists completed downloads.

- **CSM Server Repository**

- Lists SMU tar files that have been downloaded. All requested downloads are first saved in this repository before being transferred to the designated server repository.

## Download Dashboard

CSM Server Repository

Action

Scheduled 0

In Progress 1

Failed 0

Completed (showing 10 of 24)

10 records per page

Search:

Image Name	Server Repository	Status	Status Time	Created By
hfr-px-4.2.3.CSCub59736.tar	Alex TFTP Server	Downloading 2105344 of 85401600 bytes.	01/27/2015 05:38 PM	root

Showing 1 to 1 of 1 entries

← Previous 1 Next →

CSM Server Repository (requested download is first downloaded to this area, then transferred to the designated server repository)

[Return to Top](#)

10 records per page

Search:

Image Name	Size (in bytes)	Action
asr9k-px-4.2.3.CSCui21691.tar	1587200 bytes	<a href="#">Delete</a>
asr9k-px-4.2.3.CSCur14058.tar	4188160 bytes	<a href="#">Delete</a>
hfr-px-4.2.3.CSCun65949.tar	1433600 bytes	<a href="#">Delete</a>

# Tools Menu – Non Admin

# Tools Menu

- **List Hosts**

- Displays all managed hosts with their connection information. To make changes, click the host name of interest.

- **Optimize List**

- Given a SMU list, this produces an optimized list that includes any missing pre-requisites.

- **Edit User**

- Modifies the current user authentication and other information.

- **User Preferences**

- Excludes platforms from the Lookup SMUs menu.
- Defines Cisco authentication.

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# Optimize List

- Given a SMU list, CSM Server identifies any missing pre-requisites as well as superseded SMUs and returns an optimal list.
- The SMU names in the list can be in different formats so long as the platform and release are identifiable.

The screenshot displays the 'Optimize List' interface, which is divided into two main sections: 'SMU or Service Pack List' and 'Optimized SMUs or Service Packs'.

**SMU or Service Pack List:** This section contains a text input area with the instruction 'Paste the SMU names on below text window and click the green arrow to optimize.' Below the instruction, four SMU names are listed: `asr9k-px-4.2.1.CSCul39674.pie`, `asr9k-px-4.2.1.CSCua37747.pie`, `asr9k-px-4.2.1.CSCue79489.pie`, and `asr9k-px-4.2.1.CSCuj77582.pie`. A green arrow labeled 'Optimize' is located at the top right of this section.

**Optimized SMUs or Service Packs:** This section displays the results of the optimization. It starts with the instruction 'The resultant list will indicate any missing pre-requisites or superseded SMUs.' Below this, a list of SMUs is shown, each followed by a status in parentheses: `asr9k-px-4.2.1.CSCtx53395.pie (A Missing Pre-requisite)`, `asr9k-px-4.2.1.CSCud40419.pie (A Missing Pre-requisite)`, `asr9k-px-4.2.1.CSCub25750.pie (A Missing Pre-requisite)`, `asr9k-px-4.2.1.CSCuj21109.pie (A Missing Pre-requisite)`, `asr9k-px-4.2.1.CSCue24148.pie (A Missing Pre-requisite)`, `asr9k-px-4.2.1.CSCub42561.pie (A Missing Pre-requisite)`, `asr9k-px-4.2.1.CSCud90009.pie (A Missing Pre-requisite)`, `asr9k-px-4.2.1.CSCul39674.pie`, `asr9k-px-4.2.1.CSCua37747.pie`, `asr9k-px-4.2.1.CSCue79489.pie (Superseded)`, and `asr9k-px-4.2.1.CSCuj77582.pie`. A 'Toggle Results' button with a document icon is at the top right.

Callouts highlight specific features:

- 'Switch to Different Display' points to the 'Toggle Results' button.
- 'Identify any Missing Pre-requisites' points to the list of SMUs marked as '(A Missing Pre-requisite)'.
- 'Identify any Superseded SMUs' points to the SMU marked as '(Superseded)'.

# User Preferences

- Defines the per-user preferences. This includes excluding certain platforms and releases from displaying under the Lookup SMUs menu and CCO authentication information.

**Filter Platforms**

To exclude certain platforms from displaying under the Lookup SMUs menu, check the checkbox next to the platform and release.

Search:


<input type="checkbox"/>	ASR9K-P	4.2.3
<input type="checkbox"/>	ASR9K-P	4.2.1
<input type="checkbox"/>	ASR9K-PX	5.3.0
<input type="checkbox"/>	ASR9K-PX	5.2.2

**CCO Authentication**

Authentication information is used when downloading SMUs or Service Packs from CCO.

**Username**

**Password**

Use Password on File 

Validate

Save

# Tools Menu - Admin

# Admin Menu – Requires Admin Privilege

- **Admin Dashboard**
  - Allows the administrator to configure CSM Server.
- **Import Hosts**
  - Imports hosts via comma delimited texts.
- **Create User**
  - Creates new users on the system.
- **List All Users**
  - Displays all the users defined in the system. To make changes, click the user name of interest.
- **System Logs**
  - Displays all the system logs captured by CSM Server. These logs help determine anomalies that have occurred on CSM Server.

# Admin Dashboard

## Process Settings

CSM Dispatcher must be restarted in order for the changes below to take place.

Number of Software Inventory Processes	<input type="text" value="5"/>
Number of Install Processes	<input type="text" value="10"/>
Number of SMU Download Processes	<input type="text" value="5"/>

## Software Inventory Settings

CSM Dispatcher must be restarted in order for the changes below to take place.

Enable Software Inventory	<input checked="" type="radio"/> Yes <input type="radio"/> No
Hour to Perform Software Inventory	<input type="text" value="12:00 AM"/>

- **Process Settings**
  - The number of processes to use to retrieve software inventory information.
  - The number of processes to use to perform scheduled installation.
  - The number of processes to use to download SMUs or Service Packs.
- **Software Inventory Settings**
  - Enabled by default.
  - Specify the hour of the day to perform the software inventory function (i.e. retrieving software package information from managed hosts).
  - After the software inventory function is performed, CSM Server will perform other housekeeping tasks (see Housekeeping Settings).

# Admin Dashboard

- **Scheduled Install Settings**

- By default, CSM Server enables users to schedule installations on managed hosts.
- By Default, CSM Server enables scheduled installations to run.

- **Email Notification Settings**

- Email notification is disabled by default. Click Yes to enable it.
- Define the SMTP server information. Some SMTP servers may require user authentication. If that is the case, click Yes and define the user authentication information.
- CSM Server uses the SMTP settings to email users about scheduled install status.

### Scheduled Install Settings

Allow Users to Schedule Install

Yes

No

Allow Scheduled Installs to Run

Yes

No

### Email Notification Settings

Enable Email Notification

Yes

No

Outgoing SMTP Server

smtp.gmail.com

SMTP Server Port

587

Sender Email Address

alextang.lds@gmail.com

### Logon Information

Server uses Authentication

Yes

No

Username

root

Password

••••

Secure Connection

TLS


# Admin Dashboard

## Default Host Authentication

The default host authentication will be used when a host does not have username and password specified.

**Enable Default Host Authentication** ☒ Yes ☐ No

**Default Host Username**

**Default Host Password**  

## Housekeeping Settings

**Software Inventory History Per Host**

**Install History Per Host**

**SMU/SP Download History Per User**

**Total System Logs**

- **Default Host Authentication**
  - Disabled by default.
  - The default host authentication will be used when a host does not have username and password specified.
- **Housekeeping Settings**
  - Specify the number of software inventory history records to keep per host.
  - Specify the number of install history records to keep per host.
  - Specify the number of SMU/SP download history records to keep per user.
  - Specify the number of system log records to keep on the system.
  - CSM Server will purge the history records based on the numbers specified on a daily basis (see Software Inventory Settings).

# Import Hosts

Import Hosts

Platform

ASR9K

Region

Comma Delimited Data

To import Hosts, enter or paste the information in the text window below. Data fields must be comma delimited. If a data field contains commas, the data field must be double-quoted (e.g. ip and port may contain multiple values separated by a comma). If no username and password is specified, the default host username and password defined on CSM Server will be used. The first data line must be a header as shown below.

```
hostname,ip,username,password,connection,port <- header line  
myhost1,172.27.22.34,johnsmith,password,telnet, <- leave port field blank if not needed  
myhost2,172.27.22.35,davidsmith,password,ssh,"2033,2034"
```

Import

Cancel

## Import Hosts

- Select the platform type of the hosts to be imported.
- Select the region for the hosts to be imported.

## Comma Delimited Data

- Paste the comma delimited data in the text window. The first line must be a header line followed by the host data fields to be imported.
- The username and password fields are not mandatory. If no hostname and password is specified, CSM Server will use the default host authentication defined on the Admin Dashboard if it is enabled.
- The ip and port data fields support comma delimited values. In this case, double quotes must be used to quote the values.



# Additional Topics

- Password Encryption
- Security Privileges
- System & Session Logs
- Navigate Between Hosts
- Software Inventory
- Installation Dependency
- Dynamic Views

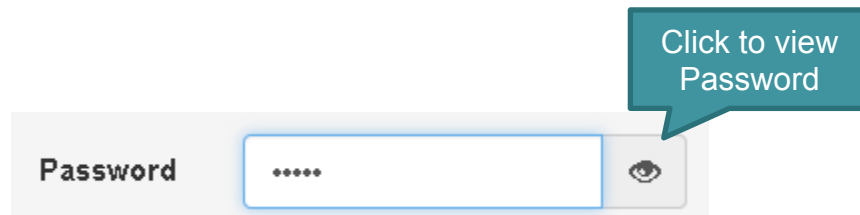
# Password Encryption

- **User Password**

- All user passwords are encrypted with a one-way hash algorithm. It is impossible to decrypt the password. If a user forgets the password, the administrator will have to reset it.

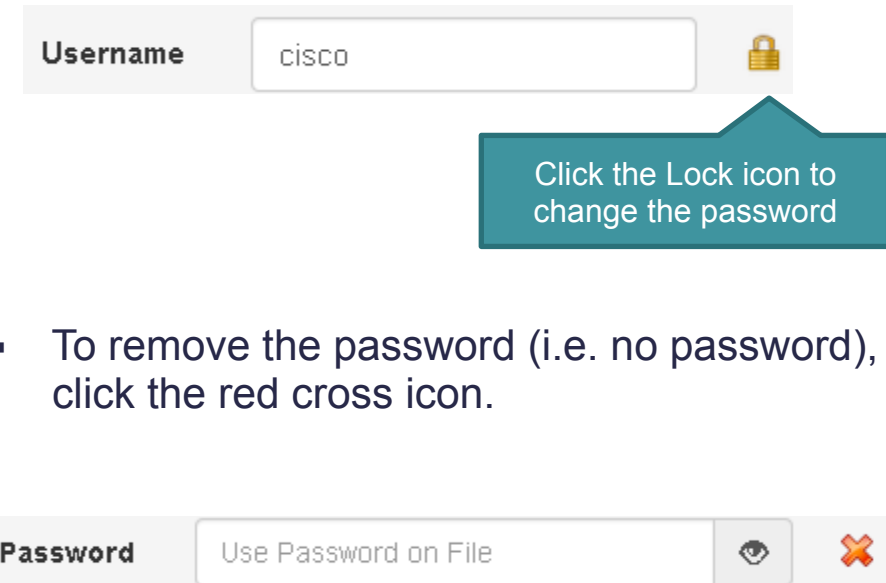
- **Other Passwords**

- Passwords for hosts, jump servers, server repositories, and SMTP mail server are encrypted as well.
- When a password is first defined, it will be masked by dots. To see the password unencrypted, click the eye icon.



- **Saved Passwords**

- Once the password is saved, it will no longer be viewable. Instead, the password field shows 'Use Password on File'. To modify the password, click the lock icon next to the Username field. Then, enter the new password.



- To remove the password (i.e. no password), click the red cross icon.

# Security Privileges

## Three levels of security privileges:

- **Admin**
  - Users with this privilege have no limitation.
  - Only admin users can create hosts, jump servers, regions, and server repositories.
  - Only admin users can access the Admin menu.
  - Only admin users can view and modify other users.
- **Operator**
  - Users with this privilege can only schedule/modify/delete installations.
  - They cannot create hosts, jump servers, regions, and server repositories.
- **Viewer**
  - Users with this privilege can only view information.

# System & Session Logs

- **System Logs**

- Click Admin – System Logs from the main menu bar.
- These logs are created when exceptions are encountered. They can be used for system debugging. These exceptions may or may not affect system stability and performance.

- **Session Logs**

- Session logs are created during software inventory or installation operation.
- CSM Server uses the Accelerated Upgrade Tool (AUT) to perform software inventory and installation. These logs provide valuable insights on what has taken place on the router.
- If an error condition happens, a file called “expect\_out.log.error” will be created. This file provides information on error encountered.


## System Logs


Search:


	Create Time	Trace
Inventory job = 642	10/31/2014 12:00 AM	<a href="#">View</a>
Inventory job = 641	10/31/2014 12:00 AM	<a href="#">View</a>


## Session Logs: ConPE\_dmahisek\_PE8


Session Log Files


 autlogs/1\_71\_53\_12-2015\_01\_20\_18\_51\_15-11/aut\_debug.log

 autlogs/1\_71\_53\_12-2015\_01\_20\_18\_51\_15-11/aut\_output

 autlogs/1\_71\_53\_12-2015\_01\_20\_18\_51\_15-11/config\_backup.log

 autlogs/1\_71\_53\_12-2015\_01\_20\_18\_51\_15-11/expect\_out.log

 autlogs/1\_71\_53\_12-2015\_01\_20\_18\_51\_15-11/expect\_out.log.error

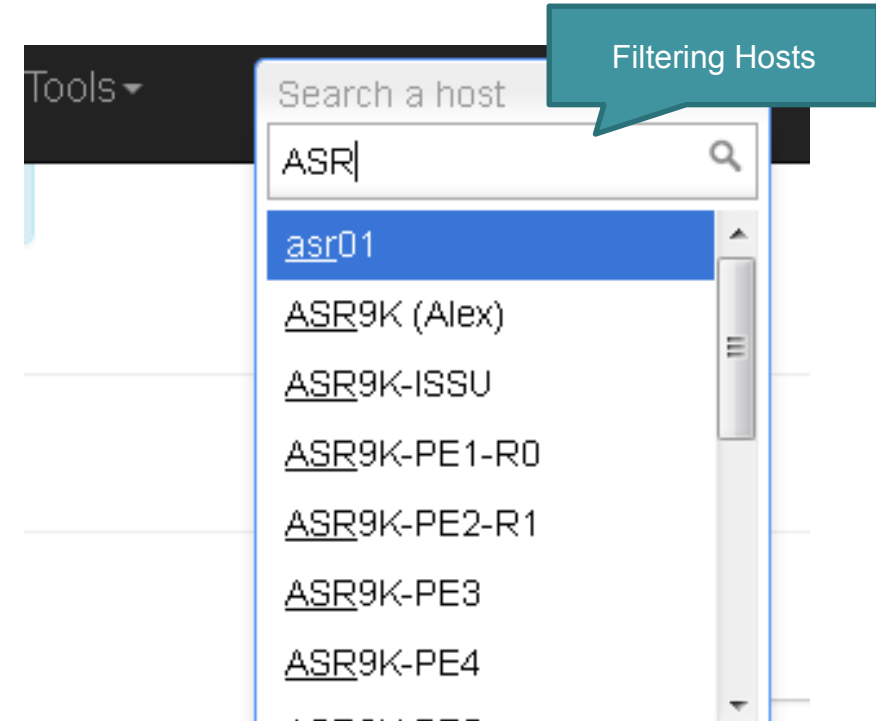
 \_20\_18\_51\_15-11/session.log

Open File

Download File

# Navigate Between Hosts

- **Search a host**
  - The Search a host bar provides a quick way to navigate in real-time between managed hosts. When a host is selected, the Host Dashboard is displayed.
  - Further filtering can be done by typing the string matching part of the hostname.



# Software Inventory

- Through the Admin Dashboard, the administrator can enable software inventory and specify the hour of the day to perform this operation.
- When the hour is reached, CSM Dispatcher will connect to the managed hosts and collect software inventory information.
- Hosts that fail the software inventory retrieval will have a red highlight on the Last Successful Retrieval field on the Home page.
- Software Inventory history can be viewed on the Host Dashboard. The Last Successful Retrieval label provides information on the last successful software inventory time.
- To retrieve the latest software, click Action – Retrieve Latest Software from the Host Dashboard.

# Installation Dependency

- A dependency can be specified when creating a scheduled install. For example, Install Activate should not be performed unless Install Add is successful.
- If an installation failed, any scheduled install that has the failed installation as its dependency will not execute.
- When multiple install actions or 'ALL' is selected, CSM Server will create the dependency automatically.
- Deleting a scheduled install will also delete all of its dependencies.

Scheduled Time

10/31/2014 01:57 PM

Dependency

None

None

Install Add - 10/31/2014 03:50 AM

Activate - 10/31/2014 03:50 AM

Post-Upgrade - 10/31/2014 03:50 AM

Scheduled 2

In Progress 0

Failed 1

Completed (showing


10

 records per page

Hostname	Install Action	Dependency
WEST-PE-ASR9K-2	Activate	Yes

# Dynamic Views

- The Host, Install, and SMU Download Dashboards are dynamic views. They are updated in every 10 seconds.
- When a scheduled install is running, a runner icon will appear next to the scheduled install on the Host Dashboard.
- The running scheduled install will also appear under the In Progress tab on the Install Dashboard.
- In order to reduce the number of records sent between client and CSM Server, the default number of records to return is 25.

Scheduled Installations		
Install Action	Scheduled Time	Action
Install Add 	10/31/2014 02:18 PM	Delete

Scheduled 0 In Progress 1 Failed 0 Completed (showing 10 of 18)

10 records per page

Hostname	Install Action	Packages	Start Time	Status
1.1.1.1	Install Add	disk0:asr9k-mgbl-px-4.2.3	10/31/2014 02:25 PM	processing

Status will be updated

Scheduled 2 In Progress 0 Failed 1 Completed (showing 25 of 240)

Retrieve Last 25 Records:

By default, 25 records are returned

25



# About CSM Server

Click to Display



CSM Server

Home

Lookup SMUs▼

Dashboards▼

Search a host

Tools▼



## Cisco Software Manager Server

Automation and Orchestration Framework

Simultaneously deploy IOS-XR, SMUs & software upgrades

Software Build Date

Build Date: 05/13/2015

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Thank you.

