Installation Guide for Cisco Software Manager Server

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Preface

Note This product has reached end-of-life status. For more information, see the End-of-Life and End-of-Sale Notices.

This guide describes how to install a Cisco Software Manager (CSM) server.

- Audience, on page iii
- Changes to This Document, on page iii
- Obtaining Documentation and Submitting a Service Request, on page iii

Audience

This guide is for those responsible for installing the Cisco Software Manager server 4.0 and system administrators of Cisco routers.

This publication assumes that the reader has substantial background in installing and configuring router and switch-based hardware. The reader must also be familiar with electronic circuitry and wiring practices and experienced as an electronic or electromechanical technician.

Changes to This Document

This table lists the technical changes that are made to this document since it was first developed.

Table 1: Changes to This Document

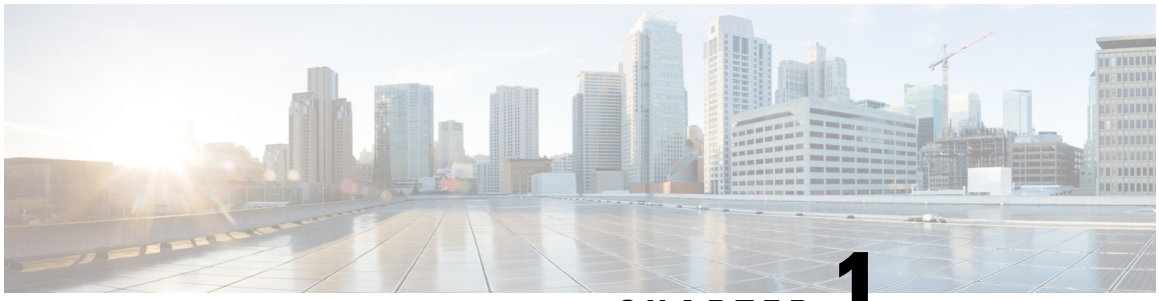
Date	Summary
April 2020	Initial Release of this document.

Obtaining Documentation and Submitting a Service Request

For the following purposes, see *What's New in Cisco Product Documentation*, at: http://www.cisco.com/c/en/us/td/docs/general/whatsnew/whatsnew.html.

- Getting information about obtaining documentation, using the Cisco Bug Search Tool (BST)
- Submitting a service request
- Gathering additional information

Subscribe to *What's New in Cisco Product Documentation*. This document lists all new and revised Cisco technical documentation as an RSS feed and delivers content directly to your desktop using a reader application. The RSS feeds are free service, and Cisco currently supports RSS Version 2.0.



CHAPTER 1

About Cisco Software Manager Server

This chapter provides an overview of the Cisco Software Manager server. This chapter also lists the restrictions to its installation.

- Introduction, on page 1
- Restrictions, on page 2

Introduction

Cisco Software Manager (CSM) server is a web-based automation tool. It helps you manage and simultaneously schedule software maintenance upgrades (SMUs) and service packs (SPs) across multiple routers. It provides recommendations that reduce effort in manually searching, identifying, and analysing SMUs and SPs that are required for a device. An SMU is a fix for a bug. An SP is a collection of SMUs bundled in one file.

To provide the recommendations, you must connect the CSM server must through the Internet to the cisco.com domain. CSM is designed to connect multiple devices and provides SMUs and SP's management for multiple Cisco IOS XR platforms and releases.

The platforms that are supported on CSM are:

- IOS XR (ASR 9000, CRS)
- IOS XR 64 bit (ASR 9000-X64, NCS 1000, NCS 4000, NCS 5000, NCS 5500, NCS 6000)
- IOS XE (ASR902, ASR903, ASR904, ASR907, ASR920)
- IOS (ASR901)

From version 4.0 onwards, there are multiple Docker containers that constitute the CSM architecture. These containers are:

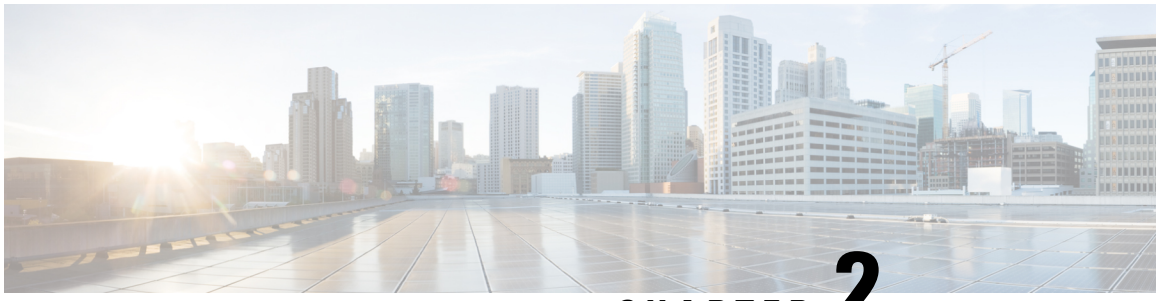
- CSM
- Database
- Supervisor

Installing CSM server through Docker is easy. You can upgrade to the latest CSM server version with the click of an upgrade button on the CSM server home page.

Restrictions

The following restrictions are applicable with respec t to the installation of the CSM server:

- This installation guide is not applicable to any CSM server versions before version 4.0.
- The CSM server should be able to connect to Cisco.com to get notified about the latest updates available.



CHAPTER 2

Preinstallation Requirements

This chapter provides information about the hardware and software that you require to install the CSM server.

- Hardware Requirements, on page 3
- Software Requirements, on page 3

Hardware Requirements

The minimum hardware requirements to install CSM server 4.0 are:

- 2 CPUs
- 8-GB RAM
- 30-GB HDD

Note

- For large networks, we recommend that you increase the number of CPUs to run more network installation operations at the same time.
- You can adjust the hard disk space to store images and packages and logs from the operations.

Software Requirements

The software requirements to install CSM server 4.0 are:

- systemd Linux distribution with Docker
- Docker Proxy Configuration (Optional)
- Firewalld (Optional)

systemd

To install the CSM server, you must use systemd. It is a suite that provides the building blocks to create various Linux operating systems. For more details about systemd, refer to Wikipedia.

Ensure that you meet the following requirements before you proceed with installation of CSM server 4.0:

- You need root privileges to install the CSM server because the configuration of CSM server is stored in the /etc/csm.json file. The installation process creates the systemd service for its automatic start. To get root privileges, run the installation script as a root user or as a user with the sudo program access.
- Ensure that you install Docker on the host operating system. For more information, see https://docs.docker.com/install/. Cisco recommends using Ubuntu, CentOS, or Red Hat Enterprise Linux as the host operating system running CSM server 4.0. CSM works with both Docker Community Edition (CE) and Docker Enterprise Edition (EE).

Docker

The CSM server works with both Docker Community Edition (CE) and Docker Enterprise Edition (EE). For more information, refer to official Docker documentation, https://docs.docker.com/install/overview/.

Use Docker 19.03 or later versions to install the CSM server. You can use the following command to check the version of the Docker:

```
$ docker version
Client: Docker Engine - Community
Version:           19.03.9
API version:       1.40
Go version:        go1.13.10
Git commit:        9d988398e7
Built:             Fri May 15 00:25:34 2020
OS/Arch:           linux/amd64
Experimental:      false

Server: Docker Engine - Community
Engine:
  Version:          19.03.9
  API version:      1.40 (minimum version 1.12)
  Go version:       go1.13.10
  Git commit:       9d988398e7
  Built:            Fri May 15 00:24:07 2020
  OS/Arch:          linux/amd64
  Experimental:     false
containerd:
  Version:          1.2.13
  GitCommit:        7ad184331fa3e55e52b890ea95e65ba581ae3429
runc:
  Version:          1.0.0-rc10
  GitCommit:        dc9208a3303feef5b3839f4323d9beb36df0a9dd
docker-init:
  Version:          0.18.0
  GitCommit:        fec3683
```

Docker Proxy Configuration (Optional)

If you install the CSM server behind an HTTPS proxy, for example, in corporate settings, you must configure the Docker systemd service file as follows:

1. Create a systemd drop-in directory for the docker service:

   ```
   $ sudo mkdir -p /etc/systemd/system/docker.service.d
   ```

2. Create a file titled */etc/systemd/system/docker.service.d/https-proxy.conf* that adds the HTTPS_PROXY environment variable. This file allows the Docker daemon to pull the containers from the repository by using the HTTPS Proxy:

```
[Service]
Environment="HTTPS_PROXY=http://proxy.example.com:443/"
```

Note It is common oversight that the HTTPS_PROXY environment variable uses capital letters and the proxy URL starts with http:// and not https://.

3. Reload the configuration changes:

```
$ sudo systemctl daemon-reload
```

4. Restart the Docker:

```
$ sudo systemctl restart docker
```

5. Verify that you have loaded the configuration:

```
$ systemctl show --property=Environment docker
Environment=HTTPS_PROXY=http://proxy.example.com:443/
```

Verify the Docker configuration

To check if you have properly installed the Docker and to ensure that it is up and running, use the following command:

```
$ systemctl is-active docker
active
```

To verify whether you have properly configured the Docker demon, and whether the Docker is able to pull the images from the repository and is able execute the test container; use the following command:

```
$ docker run --rm hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
d1725b59e92d: Pull complete
Digest: sha256:0add3ace90ecb4adbf7777e9aacf18357296e799f81cabc9fde470971e499788
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (amd64)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
 $ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
 https://hub.docker.com/
```

```
For more examples and ideas, visit:
 https://docs.docker.com/get-started/
```

Firewalld (Optional)

CSM server can run together with Firewalld. Firewalld is provided in the following Linux distributions as the default firewall management tool:

- RHEL 7 and later versions
- CentOS 7 and later versions
- Fedora 18 and later versions
- SUSE 15 and later versions
- OpenSUSE 15 and later versions

Before you run CSM with firewalld, do the following:

1. Run the IP address command and then move the eth0 interface, which is our external interface for CSM, to the “external” zone.

```
$ ip address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen
1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default
 qlen 1000
    link/ether 08:00:27:f5:d8:3b brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic eth0
       valid_lft 84864sec preferred_lft 84864sec
    inet6 fe80::a00:27ff:fef5:d83b/64 scope link
       valid_lft forever preferred_lft forever
$ sudo firewall-cmd --permanent --zone=external --change-interface=eth0
```

Note By default, the eth0 interface is in a public zone. Moving it to an external zone enables masquerading for external connections to the CSM docker containers.

2. Allow incoming traffic on port 5000 per TCP because port 5000 is the default port of the web interface of the CSM server.

Note On some systems, you must move the “br-csm” interface to the “trusted” zone. The br-csm interface is the internal bridge interface that is created by CSM and is used for communication between CSM containers. This interface may not exist before the CSM installation. However, ensure that you run the following command before the CSM installation process:

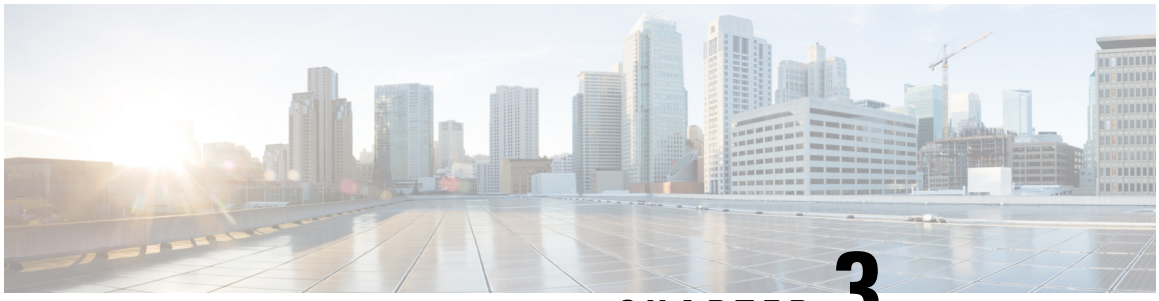
```
$ sudo firewall-cmd --permanent --zone=trusted --change-interface=br-csm
```

3. Reload the firewall daemon with new configuration.

```
$ sudo firewall-cmd –reload
```

Note If you have installed the Docker before installing firewalld, restart the docker daemon after making firewalld changes.

Note If you are using any other firewall application apart from firewalld, configure it as required and open port 5000 per TCP for any incoming traffic.



CHAPTER 3

Installing CSM Server

This chapter provides information about the installation and uninstallation procedure of CSM server. This chapter also describes how to open the CSM server page.

- Installation Procedure, on page 9
- Opening the CSM Server Page, on page 10
- Uninstalling the CSM Server, on page 11

Installation Procedure

To download the latest information about the currently posted software packages and SMUs, the CSM server requires an HTTPS connection to the Cisco site. The CSM server also checks periodically for a newer version of the CSM itself.

To install the CSM server, run the following command to download and execute the installation script:

```
$ bash -c "$(curl -sL
https://devhub.cisco.com/artifactory/software-manager-install-group/install.sh)"
```

Note Instead of downloading and executing the script, you can also choose to download the following script without executing it. After downloading the script, you can manually run it with some additional options if necessary:

```
$ curl -Ls https://devhub.cisco.com/artifactory/software-manager-install-group/install.sh
-O
$ chmod +x install.sh
```

```
$ ./install.sh  --help
CSM Server installation script:
$ ./install.sh [OPTIONS]
  Options:
    -h
        Print help
    -d, --data <dir>
        Select the directory for data share
    --no-prompt
        Non interactive mode
    --dry-run
        Dry run. Commands are not executed.
    --https-proxy URL
        Use the HTTPS Proxy URL
    --uninstall
        Uninstall CSM Server (Remove all data)
```

Note If you do not run the script as a "sudo/root" user, you are prompted to enter the "sudo/root" password.

Opening the CSM Server Page

Use the following steps to open the CSM server page:

SUMMARY STEPS

1. Open CSM server Page by using this URL: http://<server_ip>:5000 at a web browser, where “server_ip” is the IP address or Hostname of the Linux server. The CSM server uses TCP port 5000 to provide access to the `Graphical User Interface (GUI) of the CSM server.
2. Login to the CSM server with the following default credentials.

DETAILED STEPS

	Command or Action	Purpose
Step 1	Open CSM server Page by using this URL: http://<server_ip>:5000 at a web browser, where “server_ip” is the IP address or Hostname of the Linux server. The CSM server uses TCP port 5000 to provide access to the `Graphical User Interface (GUI) of the CSM server.	**Note** It takes approximately 10 minutes to install and launch the CSM server page.
Step 2	Login to the CSM server with the following default credentials.	• **Username:** root • **Password:** root

	Command or Action	Purpose
		Note Cisco strongly recommends you to change the default password after the initial login.

What to do next

For more information about using the CSM server, click Help from the top menu bar of the CSM server GUI, and selecting “Admin Tools”.

Uninstalling the CSM Server

To uninstall the CSM server from the host system, run the following script in the host system. This script is the same install script that you downloaded earlier with: curl -Ls https://devhub.cisco.com/artifactory/software-manager-install-group/install.sh -O to install the CSM server.

```
$ ./install.sh --uninstall
20-02-25 15:36:32 NOTICE CSM Supervisor Startup Script: /usr/sbin/csm-supervisor
20-02-25 15:36:32 NOTICE CSM AppArmor Startup Script: /usr/sbin/csm-apparmor
20-02-25 15:36:32 NOTICE CSM Config file: /etc/csm.json
20-02-25 15:36:32 NOTICE CSM Data Folder: /usr/share/csm
20-02-25 15:36:32 NOTICE CSM Supervisor Service: /etc/systemd/system/csm-supervisor.service
20-02-25 15:36:32 NOTICE CSM AppArmor Service: /etc/systemd/system/csm-apparmor.service
20-02-25 15:36:32 WARNING This command will DELETE all the CSM containers and shared data
folder from the host
Are you sure you wish to continue [yes|No]: yes
20-02-25 15:36:34 INFO CSM uninstalling started
20-02-25 15:36:34 INFO Removing Supervisor Startup Script
20-02-25 15:36:34 INFO Removing AppArmor Startup Script
20-02-25 15:36:34 INFO Stopping csm-supervisor.service
20-02-25 15:36:35 INFO Disabling csm-supervisor.service
20-02-25 15:36:35 INFO Removing csm-supervisor.service
20-02-25 15:36:35 INFO Stopping csm-apparmor.service
20-02-25 15:36:35 INFO Removing csm-apparmor.service
20-02-25 15:36:35 INFO Removing CSM Docker containers
20-02-25 15:36:37 INFO Removing CSM Docker images
20-02-25 15:36:37 INFO Removing CSM Docker bridge network
20-02-25 15:36:37 INFO Removing CSM config file: /etc/csm.json
20-02-25 15:36:37 WARNING Removing CSM Data Folder (database, logs, certificates, plugins,
 local repository): '/usr/share/csm'
Are you sure you wish to continue [yes|No]: yes
20-02-25 15:36:42 INFO CSM Data Folder deleted: /usr/share/csm
20-02-25 15:36:42 INFO CSM Server uninstalled successfully
```

During uninstallation, you can save the CSM data folder by answering "No" at the last question. By answering "No", you can uninstall the CSM application and then reinstall it with the preserved data.