



Supervisor Engine 2T-10GE Connectivity Management Processor Configuration Guide

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Preface

This preface describes the audience, organization, and conventions of the *Supervisor Engine 2T-10GE Connectivity Management Processor Configuration Guide*. It also provides information on how to obtain related documentation.

This preface includes the following sections:

- [Audience, page v](#)
- [Organization, page v](#)
- [Document Conventions, page vi](#)
- [Obtaining Documentation and Submitting a Service Request, page vi](#)

Audience

This guide is for experienced network system administrators who configure and maintain Catalyst 6500 Series switches with Supervisor Engine 2T-10GE.

Organization

This document is organized as follows:

| Chapter | Description |
|--|---|
| Chapter 1, “Overview” | Describes the Connectivity Management Processor. |
| Chapter 2, “Configuring and Upgrading the CMP” | Explains how to connect the CMP to the network, how to configure the CMP, and how to upgrade the CMP software image. |
| Chapter 3, “Using the CMP” | Explains how to use the CMP to monitor the RP and system, how to use the CMP to reboot the RP or system, and how to use the RP to reboot the CMP. |

Document Conventions

Command descriptions use these conventions:

| Convention | Description |
|----------------------|---|
| boldface font | Commands and keywords are in boldface. |
| <i>italic font</i> | Arguments for which you supply values are in italics. |
| [] | Elements in square brackets are optional. |
| [x y z] | Optional alternative keywords are grouped in brackets and separated by vertical bars. |
| string | A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks. |

Screen examples use these conventions:

| | |
|-----------------------------|---|
| screen font | Terminal sessions and information that the switch displays are in screen font. |
| boldface screen font | Information you must enter is in boldface screen font. |
| <i>italic screen font</i> | Arguments for which you supply values are in italic screen font. |
| < > | Nonprinting characters, such as passwords, are in angle brackets. |
| [] | Default responses to system prompts are in square brackets. |
| !, # | An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line. |

This document uses the following conventions:



Note

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

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.



CHAPTER 1

Overview

This chapter provides an overview of the Connectivity Management Processor (CMP).

This chapter includes the following sections:

- [Information About the CMP, page 1-1](#)
- [CMP MGMT Ethernet Port, page 1-2](#)
- [Connecting to the CMP MGMT Ethernet Port, page 1-3](#)
- [Setting Up Access to the CMP, page 1-3](#)
- [High Availability, page 1-4](#)

Information About the CMP

The CMP is a separate processor included on the Supervisor Engine 2T-10GE in addition to the main route processor (RP). The CMP provides a backup network interface to the supervisor engine when the RP is unreachable. You can access the CMP to configure from the supervisor engine faceplate and to perform system operations, such as monitoring the RP console or restarting the RP.

Each CMP contains its own RAM, bootflash, and front panel management Ethernet port. The CMP eliminates the need for a separate permanent terminal server attached to your supervisor engine. You connect to the CMP through the front panel console, or a CMP-management Ethernet (CMP-MGMT ETH) port with a Secure Shell (SSH) or Telnet session, to monitor or reboot the supervisor engine.

Each CMP remains operational even if the supervisor engine is in standby mode or the supervisor engine is down because of issues such as overtemperature alarms. Each CMP receives power from an auxiliary power bus in the supervisor engine that remains operational as long as you have at least one power cable attached to the supervisor engine.

The CMP provides the following functions:

- Communicates with the supervisor engine and I/O modules even if a Cisco IOS router is not responding on the mgmt0 port.
- Maintains connectivity when you reboot the supervisor engine.
- Monitors the supervisor engine console port.
- Reboots the local supervisor engine.
- Takes over the supervisor engine console port.
- Collects failure logs and monitors bootup diagnostic messages.

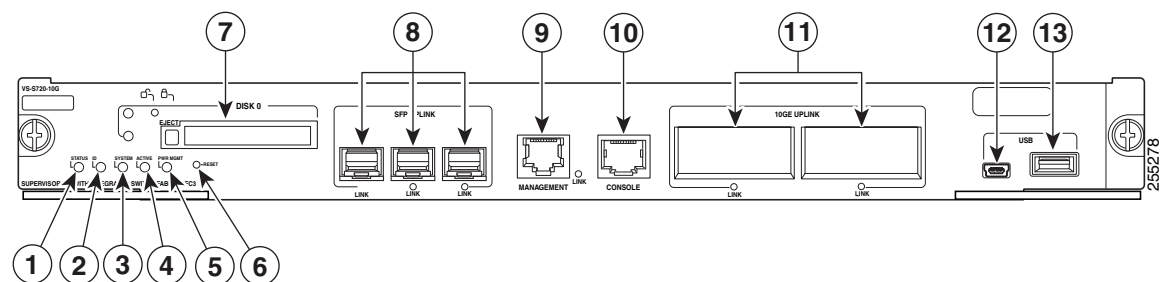
**Note**

The CMP runs a separate image from the Cisco IOS image on the switch (see the “[Upgrading the CMP Image](#)” section on page 2-4).

CMP MGMT Ethernet Port

The CMP has a dedicated front-panel Ethernet port but does not have its own front-panel console port. [Figure 1-1](#) shows the supervisor engine front panel, with the CMP MGMT Ethernet port and its Link LED in the middle of the front panel.

Figure 1-1 Supervisor Engine Front Panel



The supervisor engine contains an LED that indicates the status of the CMP MGMT Ethernet port. [Figure 1-1](#) identifies the LEDs and [Table 1-1](#) describes which processor uses each LED.

Table 1-1 RP and CMP LEDs, Slots, Ports, and Connectors

| Callout | LED, Slot, Port, or Connector | Processor Usage |
|---------|-----------------------------------|---|
| 1 | STATUS LED | RP only. |
| 2 | ID LED | RP only. |
| 3 | SYSTEM LED | RP only. |
| 4 | ACTIVE LED | RP only. |
| 5 | PWR MGMT LED | RP only. |
| 6 | RESET switch LED | RP only. |
| 7 | PCMCIA slot | RP only. |
| 8 | SFP UPLINK ports and LEDs | RP only. |
| 9 | MANAGEMENT RJ45 connector and LED | CMP only. LED on right side on connector indicates port status. |
| 10 | CONSOLE RJ45 connector | Shared by CMP and RP. |
| 11 | 10GE UPLINK port and LEDs | RP only. |
| 12 | USB console port | Shared by CMP and RP. |
| 13 | USB host port | Unsupported. |

You can view the baud rate, parity, number of stop bits, and data bits settings of the front panel console by entering the **show line console** command.

Connecting to the CMP MGMT Ethernet Port

To connect the CMP to the network, follow these steps for each installed supervisor engine:

-
- Step 1** Connect a modular, RJ-45, UTP cable to the CMP MGMT ETH port on the supervisor engine.
- Step 2** Connect the other end of the cable to the networking device.
-

You configure the cmp-mgmt interface by accessing the CMP console. For more information on accessing the console see, [“Setting Up Access to the CMP” section on page 1-3](#).



Caution

To prevent an IP address conflict, do not connect the CMP MGMT port to the network until the initial configuration is complete.

Setting Up Access to the CMP

When the RP and CMP are both operational, you can log in using your admin username and password. If the RP is operational, the CMP accepts logins from users with network-admin privileges. The default login username is **root** or **admin** and password is **default**. You cannot add users but you can change the password for admin or root users.

[Table 1-2](#) lists the ways you can change the password:

Table 1-2 *Changing Password for Root or Admin Users*

| | Action | Command |
|---------------|---|---------------------------------|
| Step 1 | Enter configuration mode on the CMP. | <code>configure terminal</code> |
| Step 2 | Changes the password for admin or root users. | <code>password</code> |

[Table 1-3](#) shows the character sequences to switch between the RP and CMP on a console connection.

Table 1-3 *Switching Access Between RP and CMP on a Console Connection*

| Action | Control Sequence |
|-----------|---|
| RP to CMP | Press Ctrl-c and then Shift-m 3 times consecutively: Ctrl-c Shift-m Ctrl-c Shift-m Ctrl-c Shift-m |
| CMP to RP | Press Ctrl r and then Shift m 3 times consecutively: Ctrl-r Shift-m Ctrl-r Shift-m Ctrl-r Shift-m |

You cannot disable the SSH server on the CMP because it is enabled by default on the CMP. If required, you can enable the Telnet server. Table 1-4 lists the commands that you can use to enable or disable the Telnet server from the configure terminal mode (router-cmp(config)#).

Table 1-4 *Enabling and Disabling Commands for the SSH Server and Telnet Server*

| Action | Command |
|------------------------|--------------------------------------|
| Enable Telnet server. | <code>telnet server enable</code> |
| Disable Telnet server. | <code>no telnet server enable</code> |

High Availability

A fully redundant switch contains two supervisor engines. Each of these supervisor engines contains a CMP. Although only one supervisor engine is active at any one time, the CMP software in each supervisor engine is always active. To configure for a high-availability, connect two Ethernet cables one to each cmp-mgmt interface. Also, configure two IP addresses, one for each cmp-mgmt interface.



Note Supervisor engine switchovers do not reload the CMPs.

A CMP failure does not cause a supervisor engine switchover.



CHAPTER 2

Configuring and Upgrading the CMP

This chapter explains how to connect and configure the Connectivity Management Processor (CMP) on a Supervisor Engine 2T-10GE. It also explains how to update the software image for the CMP.

This chapter includes the following sections:

- [Configuring the CMP, page 2-1](#)
- [Verifying the CMP Configuration, page 2-4](#)
- [Upgrading the CMP Image, page 2-4](#)
- [Resetting the CMP Password, page 2-5](#)
- [Saving the Configuration File, page 2-5](#)
- [Default Settings for CMP Parameters, page 2-6](#)

Configuring the CMP

This section includes the following topics:

- [Configuring the CMP-MGMT Interface, page 2-1](#)
- [Saving Console Output on the CMP, page 2-2](#)
- [Logging CMP Messages, page 2-3](#)
- [Displaying Saved Messages, page 2-3](#)
- [Configuring CMPs on a Dual Supervisor Engine, page 2-3](#)
- [Verifying the CMP Configuration, page 2-4](#)

Configuring the CMP-MGMT Interface

You must configure the CMP-MGMT interface before you can connect to the CMP through a SSH or Telnet session. The switch is shipped with the CMP network interface set to a default configuration.

BEFORE YOU BEGIN

Ensure that you are logged in to the CMP before configuring the default gateway and IP address.

SUMMARY STEPS

1. **configure terminal**
2. **interface cmpmgmt**
3. **ip default gateway** *ipv4-address*
4. **ip address** *ipv4-address/length*
5. **end**
6. **show running-config**

DETAILED STEPS

| | Command | Purpose |
|--------|---|---|
| Step 1 | switch-cmp# configure terminal | Enters configuration mode on the CMP. |
| Step 2 | switch-cmp(config)# interface cmpmgmt | Enters interface configuration mode for the cmp-mgmt interface on either the active or the standby supervisor engine. |
| Step 3 | switch-cmp(config-if)# ip default gateway 192.0.2.10 | Configures the default gateway for the cmp-mgmt interface. |
| Step 4 | switch-cmp(config-if)# ip address 192.0.2.1/16 | Configures the IP address for this cmp-mgmt interface. |
| Step 5 | switch-cmp(config-if)# end | (Optional) Exits the configuration mode. |
| Step 6 | switch-cmp(config)# show running-config | (Optional) Displays the CMP configuration. |

Saving Console Output on the CMP

You can log console output on the CMP to help you troubleshoot problems that you might encounter when reloading the RP on a Supervisor Engine 2T-10GE. To manage the log file on the CMP, you can display its logs. The changes that you make to manage the logging of console output are recorded in the running configuration. To activate these changes for future sessions, you must copy the running configuration to the startup configuration after making the changes.

This section includes the following topics:

- [Logging Console Output on the CMP, page 2-2](#)
- [Displaying Logged Output, page 2-2](#)
- [Archiving a Log File, page 2-3](#)

Logging Console Output on the CMP

When the log file fills with logs, the system creates another file and begins filling it with logs. The default file size of your CMP log is 100 kilobytes (KB).

Displaying Logged Output

To display all of the logs in the log file, enter **show logging route-processor console**.

Archiving a Log File

The CMP automatically archives the RP console output log file in its flash-based syslog partition. By default, when the log file reaches its maximum size, the CMP compresses the log file before archiving it. The CMP retains up to four compressed log files per type of log.

The first step in archiving consists of renaming each archived file by incrementing the number in its filename extension. For example, the archived file number four, if present, is deleted, and the slot for archived file number one becomes available. The current log file then is compressed and becomes archived file number one. This process is completed by creating a new uncompressed log file.

Logging CMP Messages

Logging CMP messages occurs automatically. The CMP and RP pass information to each other using shared memory.

Displaying Saved Messages

You can display up to a maximum number of lines according to the type of log that you want to display. The maximum number is 500 for RP logs, 200 for CMP app, 200 for kernel logs, and 50 for epcinfo. The command can retrieve log data from the archived file if the current log file does not have enough lines of data.

To display saved messages, enter one or more of these commands:

| Command | Purpose |
|---|---|
| switch# <code>show logging cmp app</code> | Displays CMP application messages. |
| switch# <code>show logging cmp kernel</code> | Displays CMP Linux kernel messages. |
| switch# <code>show logging route-processor console</code> | Displays RP console messages. |
| switch# <code>show logging route-processor epcinfo</code> | Displays RP crash information messages. |

Configuring CMPs on a Dual Supervisor Engine

The CMP runs in active mode on both supervisor engines, even when only one supervisor engine is active, so you must configure each CMP individually. You can configure a unique IP address for each CMP. To perform all other CMP configuration functions, switch to the CMP that you are configuring to perform those functions.

Verifying the CMP Configuration

To display CMP configuration information from the CMP CLI, use the following commands:

| Command | Purpose |
|--------------------------------------|--|
| <code>show interface cmpmgmt</code> | Displays information about the cmp-mgmt interface. |
| <code>show interface loopback</code> | Displays loopback network interface information. |
| <code>show running-config</code> | Displays the running configuration for the CMP. |
| <code>show version</code> | Displays the software image versions for the supervisor engine RP and the CMP. |

Upgrading the CMP Image

There is no version dependency tracking between CMP and RP images. You can load additional CMP images in the CMP bootflash. CMP keeps three kernel images in bootflash: a gold image (master image), F1, and F2. Only F1 and F2 are upgradeable.

When you enter the **upgrade** command, the system determines which region (F1 or F2) to load the new image file to. The image file is downloaded into memory and stored in the selected region in the boot flash. If the **show kernel upgrade** command is run after the **upgrade** command is executed, you will see **FIRST_RUN** as the status of the region. To complete the upgrade, you must reboot the CMP with the **reload** command. Once the new image is loaded, the status changes to **APPROVED** and the upgraded image becomes the running kernel image.

BEFORE YOU BEGIN

Ensure that you are in CMP mode.

SUMMARY STEPS

1. **show kernel upgrade**
2. **upgrade kernel file {scp: | sftp: | tftp:} file-path**
3. **show version**

DETAILED STEPS

| | Command | Purpose |
|---------------|---|---|
| Step 1 | <code>switch-cmp# show kernel upgrade</code> | Displays the versions of Gold, F1 and F2 images. |
| Step 2 | <code>switch-cmp# upgrade kernel file {scp: sftp: tftp:} file-path</code> | Upgrades the CMP kernel image. |
| Step 3 | <code>switch-cmp# show version</code> | Displays the BIOS and software image versions of the CMP. |

Resetting the CMP Password

You can reset the admin or root password CMP password to a default password.

BEFORE YOU BEGIN

Ensure that you are in CMP mode.

SUMMARY STEPS

1. **reload**
2. Press any key to put you in to the u-boot CLI when the CMP prompts “Hit any key to stop autoboot:”.
3. **priv**
4. **passwd reset**
5. **boot**
6. **root:default**

DETAILED STEPS

| | Command | Purpose |
|--------|---------------------------------------|--|
| Step 1 | switch-cmp# reload | Reboots the CMP. |
| Step 2 | press any key to stop autoboot: | Stops the autoboot sequence and puts you in uboot mode when you press any key at the “press any key to stop autoboot:” prompt. |
| Step 3 | switch-cmp-uboot# priv | Enters Privilege mode (#). |
| Step 4 | switch-cmp-uboot# passwd reset | Resets the password to root:default. |
| Step 5 | switch-cmp-uboot# boot | Continues the boot up cycle. |
| Step 6 | switch-cmp# root:default | Enters you into the admin or root user level of CMP. |

Saving the Configuration File

You can save the running configuration file into the startup configuration file.

BEFORE YOU BEGIN

Ensure that you are in CMP mode.

SUMMARY STEPS

1. **write file** or **write memory**
2. **show startup-config** and **show running-config**

DETAILED STEPS

| | Command | Purpose |
|--------|---|---|
| Step 1 | switch-cmp# write file | Saves the running configuration to the startup configuration. |
| | or switch-cmp# write memory | |
| Step 2 | switch-cmp# show startup-config | Verifies that the process was completed successfully because both files display the same information. |
| | and switch-cmp# show running-config | |

**Note**

You can view the running configuration file with the **write terminal** command.

Default Settings for CMP Parameters

Table 2-1 lists the default settings for CMP parameters.

Table 2-1 Default CMP Parameter Settings

| Parameters | Default |
|-----------------|------------------|
| IP address | 192.168.1.101/24 |
| Default gateway | 192.168.1.1 |
| SSH server | Enabled |
| Telnet server | Disabled |



CHAPTER 3

Using the CMP

This chapter explains how to use the Connectivity Management Processor (CMP) to monitor the supervisor engine remote processor (RP) on the active supervisor engine and to reboot the RP or Cisco IOS switch. It also explains how you can reboot the CMP from the RP or the CMP.

This chapter includes the following sections:

- [Attaching to and Detaching From the RP, page 3-1](#)
- [Copying Files from the CMP to External Hosts, page 3-2](#)
- [Copying Files from the CMP to RP Disk0: or Bootdisk:, page 3-2](#)
- [Rebooting the RP, page 3-2](#)
- [Rebooting the CMP from the RP, page 3-2](#)
- [Rebooting the CMP from the CMP, page 3-3](#)
- [Verifying the Status of the CMP, page 3-4](#)



Note

The [USB host port](#) is not supported. The CLI might display **usbflash0:**, but use of it is not supported.

Attaching to and Detaching From the RP

To attach to or detach from the supervisor engine RP, use the following optional commands from SSH or Telnet sessions:

| Command | Purpose |
|--------------------------------------|---|
| switch-cmp# attach | Takes control of the local supervisor engine RP console port. |
| switch# Ctrl x switch-cmp# | Exits from the RP console and returns to CMP. |

Copying Files from the CMP to External Hosts

To transfer files from syslog: on the CMP to external servers, perform this task:

| Command | Purpose |
|--|--|
| switch-cmp# copy syslog [scp: sftp: tftp:] | Transfers files from syslog: on the CMP to external servers. |

Copying Files from the CMP to RP Disk0: or Bootdisk:

To copy files from a TFTP server on the CMP to a compact flash disk in disk0: or bootdisk: on the RP, perform this task:

| Command | Purpose |
|---|---|
| switch-cmp# copy tftp: [rp-bootdisk: rp-bootdisk:] | Transfers files from a TFTP server on the CMP to a compact flash disk in disk0: or bootdisk: on the RP. |

Rebooting the RP

To reboot the supervisor engine RP from the CMP, perform this task:

| | Command | Purpose |
|---------------|---|---|
| Step 1 | switch-cmp# reload route-processor { hard soft } | Reboots the supervisor engine. |
| Step 2 | switch-cmp# show system reset-reason | Displays all recorded reboot causes for CMP and RP. |

Rebooting the CMP from the RP

To reboot the CMP from Cisco IOS on the supervisor engine RP, perform this task:

| | Command | Purpose |
|---------------|---|---|
| Step 1 | switch# hw-module cmp slot reset { hard soft } | Reboots the CMP. |
| Step 2 | switch-cmp# show system reset-reason | Displays all recorded reboot causes for CMP and RP. |

Rebooting the CMP from the CMP

To reboot the CMP from the CMP, perform this task:

| | Command | Purpose |
|---------------|---|---|
| Step 1 | switch-cmp# reload | Reboots the CMP. |
| Step 2 | switch-cmp# show system reset-reason | Displays all recorded reboot causes for CMP and RP. |

Verifying the Status of the CMP

You can verify the status of the CMP by entering one or more of the following commands:

| Command | Purpose |
|--|--|
| switch-cmp# show interface cmpmgmt | Displays information for the interface 'eth0'. |
| switch-cmp# show interface loopback | Displays information for the interface 'lo'. |
| switch-cmp# show kernel upgrade | Displays version and status of the GOLD image. |
| switch-cmp# show line console | Displays information for the front panel console. |
| switch-cmp# show logging cmp app | Displays the last 200 lines of the CMP application log. |
| switch-cmp# show logging cmp kernel | Displays the last 200 lines of the CMP Linux kernel log. |
| switch-cmp# show logging route-processor console | Displays the last 500 lines of the RP console log. |
| switch-cmp# show logging route-processor epcinfo | Displays the last RP crash info data. |
| switch-cmp# show running-config | Displays the configuration in use by the CMP. |
| switch-cmp# show software authenticity debug | Displays the debug mode settings for digital signature verification. |
| switch-cmp# show software authenticity file <i>filepath</i> | Displays the signature information of the specified file. |
| switch-cmp# show software authenticity keys | Displays the information of the keys stored in bootflash. |
| switch-cmp# show software authenticity running | Displays the signature information of the running image. |
| switch-cmp# show system reset-reason | Displays the recent reset causes for both RP and CMP. |

Recovering the RP Using TFTP boot

To reboot the RP with TFTP boot, perform this task:

| Command | Purpose |
|---|--|
| rommon> boot tftp://server ip-addr/path to image | Reboots the RP using its boot loader ROMMON. |



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