



ROMMON Release Notes for WS-X45-SUP6-E, WS-X45-SUP6-LE, WS-C4900M, WS-C4948E, and WS-C4948E-F

Current Release: 12.2(44r)SG11—October 5, 2011

Prior Release: 12.2(44r)SG10, 12.2(44r)SG9, 12.2(44r)SG5, and 12.2(44r)SG3

This publication describes how to download the new ROMMON image from Cisco.com and then upgrade the ROMMON on WS-X45-SUP6-E, WS-X45-SUP6-LE, WS-C4900M, WS-4948E, and WS-C4948E-F.

This document consists of these sections:

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ROMMON Image Overview

This ROMMON image consists of a new ROMMON software image and a new FPGA image. Both are installed by following the ROMMON upgrade procedure ([Guidelines for Upgrading the ROMMON, page 3](#)).

These images are accepted on WS-X45-SUP6-E, WS-X45-SUP6-LE, WS-C4900M, WS-4948E, and WS-C4948E-F.



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Caveats

12.2(44r)SG11

The following caveats are resolved in this release:

In rare cases, if you use an SFP+ 10GSR module in conjunction with a WS-C4948E or WS-C4948E-F, you might see the following error message during system operation:

```
SFF8472-5-THRESHOLD_VIOLATION:
```

Workaround: After contacting TAC to confirm the issue, upgrade ROMMON to 12,2(44r)SG11. CSCt184242

12.2(44r)SG10

No caveats are resolved in this release.

12.2(44r)SG9

The following caveats are resolved in this release:

- The maximum command length at the ROMMON command prompt has been increased from 128 to 256 characters.

Workaround: None. CSCtb50340

- When a supervisor engine exits IOS, the switch's interface links remain up until IOS reloads. This behavior prevents neighbors from immediately detecting that the switch is inoperative and delays rerouting traffic around the switch.

ROMMON 12.2(44r)SG9 ensures that all interface links on the switch are brought down when the supervisor engine enters ROMMON, unless a hot-standby supervisor engine takes over.

Workaround: Use a standby supervisor engine. CSCtg99722

- A small number of WS-X45-SUP6-LE supervisor engines contains a bug in the firmware of the bootflash storage device that can cause file system corruption. Your ROMMON upgrade works around the firmware bug.

Workaround: None. CSCtg64250

- FPGA upgrade for WS-X45-SUP6-LE and WS-4948E that significantly decreases the amount of time required to load an IOS image.

Workaround: None. CSCti83927

12.2(44r)SG5

The following caveat is resolved in this release:

- While you are rebooting a supervisor engine or when your switch's power is lost due to power failure, either all ROMMON variables are cleared or junk characters are observed on the screen. If you type the set command at a ROMMON prompt you will only see 2 or 3 ROMMON variables. If your switch's baud rate differs from 9600, you observe junk characters.

Workaround: Re-set all the ROMMON variables. CSCsu05453

12.2(44r)SG3

The following caveats are resolved in this release:

- During and after booting a switch, the following compact flash card error message appears:

```
"Error in reading FlashDriverCompact - is it inserted correctly?
Please eject the card and re-insert it properly."
```

While the message displays, you cannot enter the **show slot0:** and **format slot0:** commands.

Workaround: Remove and reinsert the compact flash card.

The error message reappears when you repower the switch. (CSCsu36751)

- In rare instances, an active Supervisor Engine 6-E reloads when you insert the standby supervisor engine.

Workaround: None. (CSCsu73446)

- If you upgrade ROMMON with the **boot statement** command, the ROMMON upgrade occurs three times before IOS boots.

Workaround: None. CSCtx60355

Guidelines for Upgrading the ROMMON



Caution

If your supervisor engine is shipped with a newer version of ROMMON then do not downgrade! The new ROMMON will have board settings based on a hardware revision of components, and old settings will not work.

Upgrading the Supervisor Engine ROMMON



Caution

To avoid actions that might make your system unable to boot, read this entire section before starting the upgrade.



Note

The examples in this section use the programmable read-only memory (PROM) upgrade version 12.2(44r)SG9 and Cisco IOS Release 12.2(50)SG. For other releases, replace the ROMMON release and Cisco IOS software release with the appropriate releases and filenames. This document describes the procedure for a single supervisor system. You must perform the process on each supervisor in a dual supervisor system.

Follow this procedure to upgrade your supervisor engine ROMMON:

Step 1

Directly connect a serial cable to the console port of the supervisor engine.



Note

This section assumes that the console baud rate is set to 9600 (default). If you want to use a different baud rate, change the configuration register value for your switch.

Step 2 Download the cat4500-e-ios-promupgrade-122_44r_SG9 program from Cisco.com, and place it on a TFTP server in a directory that is accessible from the switch that is upgraded.
 The cat4500-e-ios-promupgrade-122_44r_SG9 program is available on Cisco.com at the same location from which Catalyst 4500 system images are downloaded.

Step 3 Use the **dir bootflash:** command to ensure that sufficient space exists in Flash memory to store the PROM upgrade image. If you are using a CompactFlash card, replace **bootflash:** with **slot0:**



Note Because of CSCsu36751, you should use bootflash for this upgrade if your current ROMMON version is prior to 12.2(44r)SG3. Else, you might need to reseat the compact flash after rebooting.

Step 4 Download the cat4500-e-ios-promupgrade-122_44r_SG9 program into Flash memory with the **copy tftp** command.

The following example shows how to download the PROM upgrade image cat4500-e-ios-promupgrade-122_44r_SG9 from the remote host 172.20.58.78 to bootflash:

```
Switch# copy tftp: bootflash:
Address or name of remote host [172.20.58.78]?
Source filename [cat4500-e-ios-promupgrade-122_44r_SG9]?
Destination filename [cat4500-e-ios-promupgrade-122_44r_SG9]?
Accessing tftp://172.20.58.78/cat4500-e-ios-promupgrade-122_44r_SG9...
Loading cat4500-e-ios-promupgrade-122_44r_SG9 from 172.20.58.78 (via
FastEthernet2/1):!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!
[OK - 2404172 bytes]

2404172 bytes copied in 28.536 secs (84250 bytes/sec)
Switch#
```

Step 5 On a dual-supervisor system, copy the same ROMMON image to the standby supervisor engine with the **copy bootflash:cat4500-e-ios-promupgrade-122_44r_SG9 slavebootflash** command.

Step 6 Enter the **reload** command to reset the switch, press **Ctrl-C** to stop the boot process, then re-enter ROMMON mode.



Note On a redundant system, this action causes a switchover.

The following example shows the output after a reset into ROMMON:

```
Switch# reload
Proceed with reload? [confirm]

03:57:16:%SYS-5-RELOAD:Reload requested

Rom Monitor Program Version 12.2(44r)SG3

.
.(output truncated)
.

Established physical link 1Gb Full Duplex
Network layer connectivity may take a few seconds
rommon 1 >
```

Step 7 Run the PROM upgrade program by entering this command:
boot bootflash:cat4500-e-ios-promupgrade-122_44r_SG9

In a redundant supervisor configuration, after the ROMMON upgrade is complete, the peer supervisor's uplinks will go down. IOS must be reloaded on the peer supervisor to bring the uplinks back up. Because of this caveat, the recommended ROMMON upgrade procedure for redundant supervisors is to first bring both supervisors to the ROMMON prompt, then perform the ROMMON upgrade on both switches. After the ROMMON upgrade completes, the switches will automatically reboot and IOS will be loaded automatically (if autoboot is enabled). If autoboot is not enabled, the user should then boot IOS manually.



Caution

No intervention is necessary to complete the upgrade. To ensure a successful upgrade, do not interrupt the upgrade process. Do not perform a reset, power cycle, or OIR of the supervisor engine until the upgrade completes.

The following example shows the output from a successful upgrade, followed by a system reset:

```
rommon 2 > boot bootflash:cat4500-e-ios-promupgrade-122_44r_SG9
```

```
Image Name : Cat4K_Mpc8548_Rommon
Image size : 1048576 bytes
```

```
Uncompressing image....
Done!
```

```
*****
*           ** Now Upgrading Primary ROMMON Image **           *
*****
```

```
Offset: 7E00000
erasing... writing... reading... verifying... Done!
```

```
*****
*           ** Now Programming FPGA Image **                   *
*****
```

```
Image Name : Cat4K_JAWA_Fpga
Image size : 524288 bytes
```

```
Uncompressing image....
Done!
```

```
Device ID 12, status 0, size 524288 bytes, we have 524288 bytes
erasing... writing/verifying sectors... 0 1 2 3 4 5 6 7 Done!
```

```
*****
System will now reset itself and reboot within few seconds
*****
```

```
*!*
```

```
*****
*
* Welcome to Rom Monitor for WS-X45-SUP6-E System.             *
* Copyright (c) 2003-2010 by Cisco Systems, Inc.              *
* All rights reserved.                                         *
*                                                               *
*****
```

```

...
Rom Monitor Program Version 12.2(44r)SG9
 CPU Rev: 2.0, Board Rev: 4, Board Type: 10, CPLD Jawa Rev: 20
...
rommon 1>

```

- Step 8** Boot the Cisco IOS software image. This may happen automatically if the system is configured to auto-boot.
- Step 9** On a redundant system, hook up a console to the now-active supervisor engine. After the system achieves an SSO state, repeat steps 6-8.
- Step 10** Use the **show module** command to verify that you have upgraded the ROMMON:

```

Switch# show module
Chassis Type : WS-C4510R-E

Power consumed by backplane : 40 Watts

Mod Ports Card Type                               Model                               Serial No.
-----+-----+-----+-----+-----+-----+-----
 3   48  10/100/1000BaseT POE E Series                 WS-X4648-RJ45V-E                 JAE1129QL9N
 4   48  10/100/1000BaseT Premium POE E Series         WS-X4648-RJ45V+E                 JAE1129QSAV
 5    6   Sup 6-E 10GE (X2), 1000BaseX (SFP)       WS-X45-SUP6-E                   JAE1225MJMN
 6    6   Sup 6-E 10GE (X2), 1000BaseX (SFP)       WS-X45-SUP6-E                   JAE1224LAOS
 7   48  10/100/1000BaseT (RJ45)V, Cisco/IEEE         WS-X4548-RJ45V+                 JAB1229BCMD
 8   24  10/100/1000BaseT (RJ45)V, Cisco/IEEE         WS-X4524-GB-RJ45V              JAB0815059Q

M MAC addresses                               Hw  Fw           Sw           Status
-----+-----+-----+-----+-----+-----+-----
 3 001c.58f8.2240 to 001c.58f8.226f 0.3                               Ok
 4 001c.58f8.2090 to 001c.58f8.20bf 0.3                               Ok
 5 0017.94c9.85c0 to 0017.94c9.85c5 1.1 12.2(44r)SG9 12.2(50)SG Ok
 6 0017.94c9.85c6 to 0017.94c9.85cb 1.1 12.2(44r)SG9 12.2(50)SG Ok
 7 000a.8aff.3830 to 000a.8aff.385f 0.1                               Ok
 8 0030.850e.3e78 to 0030.850e.3e8f 0.6                               Ok  ...

Switch#

```

- Step 11** Use the **delete** command on the active supervisor to delete the PROM upgrade program from bootflash. The following example shows how to delete **cat4500-e-ios-promupgrade-122_44r_SG9** image from bootflash:

```
Switch# delete bootflash:cat4500-e-ios-promupgrade-122_44r_SG9
```

- Step 12** On a redundant system, also delete the upgrade file from the standby supervisor engine.

```
Switch# delete slavebootflash:cat4500-e-ios-promupgrade-122_44r_SG9
```

The ROMMON has now been upgraded.

Upgrading the Supervisor Engine ROMMON with Telnet



Caution

To avoid actions that might make your system unable to boot, read this entire section before starting the upgrade.

Follow this procedure to upgrade your supervisor engine ROMMON to Release 12.2(44r)SG10. This procedure can be used when console access is not available and when the ROMMON upgrade must be performed remotely.



Note In the following section, use the PROM upgrade version bootflash:cat4500-e-ios-promupgrade-122_44r_SG10.

Step 1 Establish a Telnet session to the supervisor engine.



Note In the following discussion, we assume that at least one IP address has been assigned to either an SVI or a routed port.

Step 2 Download the bootflash:cat4500-e-ios-promupgrade-122_44r_SG10 program from Cisco.com, and place it on a TFTP server in a directory that is accessible from the switch to be upgraded.

The bootflash:cat4500-e-ios-promupgrade-122_44r_SG10 programs are available on Cisco.com at the same location from which you download Catalyst 4500 system images.

Step 3 Use the **dir bootflash:** command to ensure that there is sufficient space in Flash memory to store the PROM upgrade image. If there is insufficient space, delete one or more images.

If you are using a CompactFlash card, replace **bootflash:** with **slot0:**.

Step 4 Download the bootflash:cat4500-e-ios-promupgrade-122_44r_SG10 program into Flash memory using the **copy tftp** command.

The following example shows how to download the PROM upgrade image

bootflash:cat4500-e-ios-promupgrade-122_44r_SG10 from the remote host 172.20.58.78 to bootflash:

```
Switch# copy tftp: bootflash:
Address or name of remote host [172.20.58.78]?
Source filename [bootflash:cat4500-e-ios-promupgrade-122_44r_SG10]?
Destination filename [cat4500-e-ios-promupgrade-122_44r_SG10]?
Accessing tftp://172.20.58.78/ bootflash:cat4500-e-ios-promupgrade-122_44r_SG10...
Loading bootflash:cat4500-e-ios-promupgrade-122_44r_SG10 from 172.20.58.78 (via
FastEthernet2/1):!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 455620 bytes]
```

```
455620 bytes copied in 2.644 secs (172322 bytes/sec)
Switch#
```

Step 5 Use the **no boot system flash bootflash:file_name** command to clear all BOOT variable commands in the configuration file. In this example, the BOOT variable was set to boot the image cat4500e-entservices-mz.151-2.SG.bin from bootflash:

```
Switch# configure terminal
Switch(config)# no boot system flash
bootflash:cat4500e-entservices-mz.151-2.SG.bin
Switch(config)# exit
Switch# write
Building configuration...
Compressed configuration from 3641 to 1244 bytes [OK]
Switch#
```

Use the boot system flash bootflash:file_name command to set the BOOT variable. You will use two BOOT commands: one to upgrade the ROMMON and a second to load the Cisco IOS software image after the ROMMON upgrade is complete. Notice the order of the BOOT variables in the example below. At bootup the first BOOT variable command upgrades the

ROMMON. When the upgrade is complete the supervisor engine will autoboot, and the second BOOT variable command will load the Cisco IOS software image specified by the second BOOT command



Note

For a successful ROMMON upgrade, the config-register must be set to enable reading the **boot system** commands (i.e. the last digit of the configuration register is set to 2; for example, 0x0102.)

In this example, we assume that the console port baud rate is set to 9600 bps and that the config-register is set to 0x0102.

Use the config-register command to autoboot using image(s) specified by the BOOT variable. Configure the BOOT variable to upgrade the ROMMON and then autoboot the IOS image after the ROMMON upgrade is complete. In this example, we are upgrading the ROMMON to version 12.2(44r)SG10. After the ROMMON upgrade is complete, the supervisor engine will boot Cisco IOS software Release 151-2.SG.

```
Switch# configure terminal
Switch(config)# boot system flash bootflash:cat4500-e-ios-promupgrade-122_44r_SG10
Switch(config)# boot system flash bootflash:cat4500e-entservices-mz.151-2.SG.bin
Switch(config)# config-register 0x2102
Switch(config)# exit
Switch# write
Building configuration...
Compressed configuration from 3641 to 1244 bytes [OK]
Switch#
```

Step 6 Use the **show bootvar** command to verify the boot string. The BOOT variable in this example will first run the PROM upgrade to upgrade ROMMON. Then, the upgrade software will reload and the supervisor engine will load the Cisco IOS software image.

```
Switch# show bootvar
BOOT variable =
bootflash:cat4500-e-ios-promupgrade-122_44r_SG10,1;bootflash:cat4500e-entservices-mz.151-2
.SG.bin,1;
CONFIG_FILE variable does not exist
BOOTLDR variable does not exist
Configuration register is 0x2102
```

Step 7 Run the PROM upgrade program by issuing the **reload** command. Issuing this command will terminate your Telnet session.



Caution

Verify the boot string in step 6. No intervention is necessary to complete the upgrade. To ensure a successful upgrade, do not interrupt the upgrade process. Do not perform a reset, power cycle, or OIR of the supervisor engine until the upgrade is complete.

The following example shows the console port output from a successful ROMMON upgrade followed by a system reset. Your Telnet session is disconnected during the ROMMON upgrade, so you will not see this output. This step could take 2-3 minutes to complete. You will need to reconnect your Telnet session after 2-3 minutes when the Cisco IOS software image and the interfaces are loaded.

```
Switch# reload
Proceed with reload? [confirm]

*Feb 28 04:11:33.271 PST: %SYS-5-RELOAD: Reload requested by console. Reload Reason:
Reload command.
```



```

*****
*
* Welcome to Rom Monitor for WS-X45-SUP6-E System
* Copyright (c) 2003-2011 by Cisco Systems, Inc.
* All rights reserved.
*
*****

```

```

Flash die # 0: AMD 67108864Bytes
Flash die # 1: AMD 67108864Bytes

```

```

Determining FTL format status of volume.
Volume is FTL formatted.

```

```

Checking the partition table and boot sector...
Checking FAT, Files and Directories...
Reclaiming unused space...
Updating FAT...
Rom Monitor Program Version 12.2(44r)SG10
CPU Rev: 2.0, Board Rev: 6, Board Type: 10, CPLD Jawa Rev: 20
Chassis: WS-C4507R+E

```

```

Front Panel Phy is Bcm5482s
Got Mac Address: 00:1c:58:f8:b0:31

```

```

MAC Address   : 00-1c-58-f8-b0-31
IP Address    : 10.5.84.11
Netmask       : 255.255.255.0
Gateway       : 10.5.84.1
TftpServer    : 10.5.84.50

```

```

Peer supervisor not detected or is not running IOS
Supervisor uplinks and all linecards have been reset

```

```

***** The system will autoboot in 5 seconds *****

```

```

Type control-C to prevent autobooting.
. .
Established physical link 100Mb Full Duplex
Network layer connectivity may take a few seconds
. . .

```

```

***** The system will autoboot now *****

```

```

config-register = 0x2102
Autobooting using BOOT variable specified file....

```

```

Current BOOT file is --- bootflash:cat4500-e-ios-promupgrade-122_44r_SG10

```

```

*****
*

```

```

*      ROM Monitor/FPGA Upgrade for WS-X45-SUP6-E System  *
*
*      Copyright (c) 2003-2011 by Cisco Systems, Inc.    *
*      All rights reserved.                               *
*
*****

```

```

*****
* Upgrading ROMMON                                     *
*****

```

```

Image Name : Cat4K_Mpc8548_Rommon
Image size : 1048576 bytes

```

```

Uncompressing image....
Done!

```

```

*****
*          ** Now Upgrading Primary ROMMON Image **      *
*****
erasing... writing... reading... verifying... Done!

```

```

*****
*          ** Now Programming FPGA Image **              *
*****

```

```

Image Name : Cat4K_JAWA_Fpga
Image size : 524288 bytes

```

```

Uncompressing image....
Done!

```

```

Device ID 12, status 0, size 524288 bytes, we have 524288 bytes
erasing... writing/verifying sectors.. 0 1 2 3 4 5 6 7 Done!

```

```

*****
System will now reset itself and reboot within few seconds
*****

```

```

*!*
*@*
?

```

```

*****
*
* Welcome to Rom Monitor for WS-X45-SUP6-E System      *
* Copyright (c) 2003-2011 by Cisco Systems, Inc.      *
* All rights reserved.                                 *
*
*****

```

```

Flash die # 0: AMD 67108864Bytes
Flash die # 1: AMD 67108864Bytes

```

```

Determining FTL format status of volume.
Volume is FTL formatted.

```

```

Checking the partition table and boot sector...
Checking FAT, Files and Directories...
Reclaiming unused space...
Updating FAT...
  Rom Monitor Program Version 12.2(44r)SG10
  CPU Rev: 2.0, Board Rev: 6, Board Type: 10, CPLD Jawa Rev: 20
  Chassis: WS-C4507R+E

Front Panel Phy is Bcm5482s
Got Mac Address: 00:1c:58:f8:b0:31

MAC Address   : 00-1c-58-f8-b0-31
IP Address    : 10.5.84.11
Netmask       : 255.255.255.0
Gateway       : 10.5.84.1
TftpServer    : 10.5.84.50

Peer supervisor not detected or is not running IOS
Supervisor uplinks and all linecards have been reset

***** The system will autoboot in 5 seconds *****

Type control-C to prevent autobooting.
. .
Established physical link 100Mb Full Duplex
Network layer connectivity may take a few seconds
. . .

***** The system will autoboot now *****

config-register = 0x2102
Autoboot using BOOT variable specified file....

Current BOOT file is --- bootflash:cat4500e-entservices-mz.151-2.SG.bin

```

Step 8 Use the **no boot system flash bootflash:file_name** command to clear the BOOT command used to upgrade the ROMMON.

```

Switch# configure terminal
Switch(config)# no boot system flash
bootflash:cat4500-e-ios-promupgrade-122_44r_SG10
Switch(config)# exit
Switch# write
Building configuration...
Compressed configuration from 3641 to 1244 bytes [OK]
Switch#

```

Step 9 Use the **show version** command to verify that the ROMMON has been upgraded.

```

Switch# sh version
Cisco IOS Software, Catalyst 4500 L3 Switch Software (cat4500e-ENTSERVICES-M), Version
15.1(2)SG RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2012 by Cisco Systems, Inc.
Compiled Wed 04-Jul-12 01:16 by gsbuprod

ROM: 12.2(44r)SG10
6e uptime is 9 minutes
Uptime for this control processor is 9 minutes
System returned to ROM by power-on
System image file is "bootflash:cat4500e-entservices-mz.151-2.SG.bin"

```

Darkside Revision 4, Jawa Revision 20, Tatooine Revision 141, Forerunner Revision 1.83

Last reload reason: Reload command

```
cisco WS-C4507R+E (MPC8548) processor (revision 6) with 524288K bytes of memory.
Processor board ID NWG133602E3
MPC8548 CPU at 1.33GHz, Supervisor 6-E
Last reset from PowerUp
5 Virtual Ethernet interfaces
24 FastEthernet interfaces
228 Gigabit Ethernet interfaces
2 Ten Gigabit Ethernet interfaces
511K bytes of non-volatile configuration memory.
```

Configuration register is 0x2102

Switch#

Step 10 Use the **delete** command to delete the PROM upgrade program from bootflash.

The following example shows how to delete the cat4500-e-ios-promupgrade-122_44r_SG10 image from bootflash and reclaim unused space:

```
Switch# delete bootflash:cat4500-e-ios-promupgrade-122_44r_SG10
Delete filename [cat4500-e-ios-promupgrade-122_44r_SG10]?
Delete bootflash:cat4500-e-ios-promupgrade-122_44r_SG10? [confirm]
```

Switch#

Step 11 Use the **show bootvar** command to verify that the ROMMON upgrade program has been removed from the BOOT variable.

```
Switch# show bootvar
BOOT variable = bootflash:cat4500e-entservices-mz.151-2.SG.bin
CONFIG_FILE variable does not exist
BOOTLDR variable does not exist
Configuration register is 0x2102
```

The ROMMON has now been upgraded.

Netbooting from ROMMON

Netbooting using a boot loader image is not supported. Instead, use one of the following options to boot an image:

1. Boot from a Compact Flash card by entering the following command:

```
rommon 1> boot slot0:<bootable_image>
```
2. Use ROMMON TFTP boot.



Note To use ROMON tftp boot, the TFTP server must be accessible from the Ethernet management port on the supervisor engine.

To boot from ROMMON, perform the following tasks while in ROMMON mode:

- a. Ensure that the Ethernet management port on the supervisor engine is physically connected to the network.
- b. Set IP address of the Ethernet management port on the supervisor engine by entering the following command: **set interface fa1** *ip_address ip_mask*

For example, to set the supervisor engine Ethernet port with an IP address 172.16.1.5 and IP mask 255.255.255.0, enter the following command:

```
rommon 2> set interface fa1 172.16.1.5 255.255.255.0
```

- c. Set default gateway for the Ethernet management port on the supervisor engine by entering the following command: **set ip route default** *gateway_ip_address*. The default gateway should be directly connected to the supervisor engine Ethernet management port subnet.
- d. Ping the TFTP server to ensure that there is connectivity to the server from the Ethernet management port on the supervisor engine by entering the following command: **ping** *tftp_server_ip_address*.
- e. Once the ping is successful, boot the image from the TFTP server by entering the following command: **boot tftp://tftp_server_ip_address / image_path_and_file_name**

For example, to boot the Cisco IOS image cat4500e-entservices-mz.151-2.SG.bin located on the TFTP server 172.16.1.8, enter the following command:

```
rommon 3> boot tftp://172.16.1.8/tftpboot/cat4500e-entservices-mz.151-2.SG.bin
```

Related Documentation

Although their Release Notes are unique, the 4 platforms (Catalyst 4500-X, Catalyst 4500E, Catalyst 4500, and Catalyst 4900M/4948E/4948E-F) use the same *Software Configuration Guide*, *Command Reference Guide*, and *System Message Guide*. Refer to the following home pages for additional information:

- Catalyst 4500 Series Switch Documentation Home
<http://www.cisco.com/en/US/products/hw/switches/ps4324/index.html>
- Catalyst 4900 Series Switch Documentation Home
<http://www.cisco.com/en/US/products/ps6021/index.html>

Hardware Documents

Installation guides and notes including specifications and relevant safety information are available at the following URLs:

- *Catalyst 4500 Series Switches Installation Guide*
<http://www.cisco.com/en/US/docs/switches/lan/catalyst4500/hardware/installation/guide/78-14409-08/4500inst.html>
- For information about individual switching modules and supervisors, refer to the *Catalyst 4500 Series Module Installation Guide* at:
http://www.cisco.com/en/US/products/hw/switches/ps4324/prod_installation_guides_list.html
- *Regulatory Compliance and Safety Information for the Catalyst 4500 Series Switches*

http://www.cisco.com/en/US/docs/switches/lan/catalyst4500/hardware/regulatory/compliance/78_13233.html

- Installation notes for specific supervisor engines or for accessory hardware are available at:
http://www.cisco.com/en/US/products/hw/switches/ps4324/prod_installation_guides_list.html
- Catalyst 4900 and 4900M hardware installation information is available at:
http://www.cisco.com/en/US/products/ps6021/prod_installation_guides_list.html

Software Documentation

Software release notes, configuration guides, command references, and system message guides are available at the following URLs:

- Catalyst 4500 release notes are available at:
http://www.cisco.com/en/US/products/hw/switches/ps4324/prod_release_notes_list.html
- Catalyst 4900 release notes are available at:
http://www.cisco.com/en/US/products/ps6021/prod_release_notes_list.html

Software documents for the Catalyst 4900M, Catalyst 4948E, and Catalyst 4948E-L are available at the following URLs:

- *Catalyst 4500 Series Software Configuration Guide*
http://www.cisco.com/en/US/products/hw/switches/ps4324/products_installation_and_configuration_guides_list.html
- *Catalyst 4500 Series Software Command Reference*
http://www.cisco.com/en/US/products/hw/switches/ps4324/prod_command_reference_list.html
- *Catalyst 4500 Series Software System Message Guide*
http://www.cisco.com/en/US/products/hw/switches/ps4324/products_system_message_guides_list.html

Cisco IOS Documentation

Platform-independent Cisco IOS documentation may also apply to the Catalyst 4500 and 4900 switches. These documents are available at the following URLs:

- Cisco IOS configuration guides, Release 12.x
http://www.cisco.com/en/US/products/ps6350/products_installation_and_configuration_guides_list.html
- Cisco IOS command references, Release 12.x
http://www.cisco.com/en/US/products/ps6350/prod_command_reference_list.html

You can also use the Command Lookup Tool at:

<http://tools.cisco.com/Support/CLILookup/cltSearchAction.do>

- Cisco IOS system messages, version 12.x
http://www.cisco.com/en/US/products/ps6350/products_system_message_guides_list.html

You can also use the Error Message Decoder tool at:

<http://www.cisco.com/pegi-bin/Support/Errordecoder/index.cgi>

- For information about MIBs, refer to:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

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.

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