

# System Software Conversion from Cisco IOS to CatOS for Catalyst 6500/6000 Switches

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## Introduction

This document explains how to convert the system software on Cisco Catalyst 6500/6000 Series Switches from Cisco IOS® Software on both the Supervisor Engine and Multilayer Switch Feature Card (MSFC) to Catalyst OS (CatOS) on the Supervisor Engine and Cisco IOS Software on the MSFC.

This document does not talk about software conversion from CatOS to Cisco IOS Software. Refer to System Software Conversion from CatOS to Cisco IOS on Catalyst 6500/6000 Switches for this information.

## Prerequisites

### Requirements

There are no specific requirements for this document.

### Components Used

The information in this document is based on the Cisco Catalyst 6500/6000 Switch with Supervisor module and Multilayer Switch Feature Card (MSFC) that both run Cisco IOS Software.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

### Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

## Difference Between CatOS and Cisco IOS System Software

**CatOS on the Supervisor Engine and Cisco IOS Software on the MSFC (Hybrid):** a CatOS image can be used as the system software to run the Supervisor Engine on Catalyst 6500/6000 Switches. In the MSFC installed, a separate Cisco IOS Software image is used to run the routing module.

**Cisco IOS Software on both the Supervisor Engine and MSFC (Native):** a single Cisco IOS Software image can be used as the system software to run both the Supervisor Engine and MSFC on Catalyst 6500/6000 Switches.

**Note:** For more information, refer to Comparison of the Cisco Catalyst and Cisco IOS Operating Systems for the Cisco Catalyst 6500 Series Switch.

## Naming Convention That CatOS and Cisco IOS Software Images Use

### CatOS on the Supervisor Engine and Cisco IOS Software on the MSFC

This section describes the CatOS image naming conventions for Supervisor Engines 1, 2, 720, and 32 as well as the Cisco IOS Software image naming conventions for the MSFC1, MSFC2, MSFC2A, and MSFC3.

- **CatOS naming conventions for the Supervisor Engine 1, 1A, 2, 720, and 32**
  - ◆ **cat6000–sup** Supervisor Engine 1 and 1A
  - ◆ **cat6000–sup2** Supervisor Engine 2
  - ◆ **cat6000–sup720** Supervisor Engine 720
  - ◆ **cat6000–sup32** Supervisor Engine 32
- **Cisco IOS Software naming conventions for the MSFC1, MSFC2, MSFC2A, and MSFC3**
  - ◆ **c6msfc** MSFC1
  - ◆ **c6msfc2** MSFC2
  - ◆ **c6msfc2a** MSFC2A
  - ◆ **c6msfc3** MSFC3
  - ◆ **c6msfc–boot** MSFC1 boot image
  - ◆ **c6msfc2–boot** MSFC2 boot image
- **Examples of CatOS images for the Supervisor Engine and Cisco IOS Software images for the MSFC**
  - ◆ **cat6000–supk8.8–1–1.bin** is the Catalyst 6500/6000 Supervisor Engine 1 and 1A CatOS image, version 8.1(1).
  - ◆ **cat6000–sup720k8.8–1–1.bin** is the Catalyst 6500/6000 Supervisor Engine 720 CatOS image, version 8.1(1).
  - ◆ **cat6000–sup32pfc3k8.8–4–1.bin** is the Catalyst 6500/6000 Supervisor Engine 32 CatOS image, version 8.4.
  - ◆ **c6msfc–boot–mz.121–19.E** is the Catalyst 6500/6000 MSFC1 Cisco IOS Software Release 12.1(19)E boot image.
  - ◆ **c6msfc–ds–mz.121–19.E** is the Catalyst 6500/6000 MSFC1 Cisco IOS Software Release 12.1(19)E image.
  - ◆ **c6msfc2–jsv–mz.121–19.E** is the Catalyst 6500/6000 MSFC2 Cisco IOS Software Release 12.1(19)E image.
  - ◆ **c6msfc2a–adventerprisek9\_wan–mz.122–18.SXF** is the Catalyst 6500/6000 MSFC2A Cisco IOS Software Release 12.2(18)SXF image.
  - ◆ **c6msfc3–jsv–mz.122–14.SX2** is the Catalyst 6500 MSFC3 Cisco IOS Software Release 12.2(14)SX2 image.

## Cisco IOS Software Images for Both the Supervisor Engine and MSFC

- **Cisco IOS Software naming conventions for the Supervisor Engine 1A and 2 with MSFC1 or MSFC2**

The **c6supxy** indicates the Supervisor Engine/MSFC combination upon which the image runs. The **x** is the Supervisor Engine version, and **y** is the MSFC version. These versions appear in boldface in these lists:

- ◆ **c6sup** This is the original name for the Cisco IOS Software image. The image runs on the Supervisor Engine 1, MSFC1.
- ◆ **c6sup11** Supervisor Engine **1**, MSFC**1**
- ◆ **c6sup12** Supervisor Engine **1**, MSFC**2**
- ◆ **c6sup22** Supervisor Engine **2**, MSFC**2**

Here are examples of Cisco IOS Software images for the Supervisor Engine 1 and 2 with MSFC1 or MSFC2:

- ◆ **c6sup-is-mz.120-7.XE1** is the Catalyst 6500/6000 Cisco IOS Software Release 12.0(7)XE1 image (with Supervisor Engine 1/MSFC1).
- ◆ **c6sup11-dsv-mz.121-19.E1** is the Catalyst 6500/6000 Cisco IOS Software Release 12.1(19)E1 image (with Supervisor Engine **1**/MSFC**1**).
- ◆ **c6sup12-js-mz.121-13.E9** is the Catalyst 6500/6000 Cisco IOS Software Release 12.1(13)E9 image (with Supervisor Engine **1**/MSFC**2**).
- ◆ **c6sup22-psv-mz.121-11b.EX1** is the Catalyst 6500 Cisco IOS Software Release 12.1(11b)EX1 image (with Supervisor Engine **2**/MSFC**2**).

- **Cisco IOS Software naming conventions for the Supervisor Engine 32**

The **s32xy** indicates the MSFC/PFC combination on the Supervisor Engine 32. The **x** is the MSFC version, and **y** is the PFC version. These versions appear in boldface in this list:

- ◆ **s3223** MSFC**2**, PFC**3**

Here is an example of the Cisco IOS Software naming convention for the Supervisor Engine 32:

- ◆ **s3223-ipbasek9\_wan-mz.122-18.SXF** is the Catalyst 6500 Supervisor Engine 32 Cisco IOS Software Release 12.2(18)SXF image (with Supervisor Engine 32/MSFC**2A**/PFC**3B**).

**Note:** You can download all the images that this section mentions as well as a number of other images. Refer to the LAN Switches section of Downloads (registered customers only) .

## DRAM, Boot ROM, Bootflash, and PC Card (PCMCIA) Requirements

### DRAM and Boot ROM (ROM Monitor [ROMmon]) Requirements for Supervisor Engine 1A, 2, 720, and 32

Make sure to refer to the Catalyst 6500 Series Release Notes for your version of CatOS or Cisco IOS Software in order to see if there are any DRAM and Boot ROM (ROMmon) requirements. Issue the **show version** command in order to verify the DRAM and ROMmon (system bootstrap) version.

If you find that you need a physical DRAM or Boot ROM upgrade, refer to the upgrade instructions for your hardware. Refer to the *Module Upgrade Notes* section of Catalyst 6500 Series Configuration Notes for the instructions.

### Bootflash and PC Card (PCMCIA) Requirements for the Supervisor Engine 1A and 2

- **Use of Supervisor Engine bootflash versus PC card (PCMCIA)**

The Supervisor Engine 1 and 1A ship with 16 MB of bootflash. The Supervisor Engine 2 ships with 32 MB of bootflash. There is no option to upgrade the Supervisor Engine bootflash for the Supervisor Engine 1, 1A, or 2.

CatOS images (cat6000\*) are often stored in the Supervisor Engine bootflash. If you store more than one CatOS image, you might need to use a PC card. This requirement depends on the Supervisor Engine and image size.

**Note:** This document uses an asterisk (\*) to denote any image name.

Cisco IOS Software images (c6sup\*) are often stored in the Supervisor Engine bootflash. In Cisco IOS Software Release 12.1(11b)E and later, some of these images have increased in size and do not fit in the Supervisor Engine 1A 16 MB bootflash. In the case of a large image size, the Supervisor Engine 2 can only store one image in Supervisor Engine bootflash. The use of a PC card can be necessary in order to store one or more c6sup\* images. This requirement depends on the image size.

PCMCIA (Flash PC) cards can store either:

- ◆ CatOS images (cat6000\*)
- ◆ Cisco IOS Software images (c6sup\*)
- ◆ Cisco IOS Software for the MSFC images (c6msfc\*)

Flash PC cards are available in 16, 24, and 64 MB sizes for the Supervisor Engine 1, 1A, and 2.

- **Bootflash and PC Card (PCMCIA) Requirements for the Supervisor Engine 720**

The Supervisor Engine 720 ships with 64 MB of Supervisor Engine bootflash and 64 MB of MSFC bootflash. There are two slots that are available for CompactFlash Type II cards (disk0 and disk1) which provide additional storage. CompactFlash cards for the Supervisor Engine 720 are available in 64, 128, 256, and 512 MB sizes. A 1 GB MicroDrive is also available.

There are currently no flash memory limitations for Supervisor Engine 720 (s720xx\*) images. For information on how to install Supervisor Engine 720 flash cards or microdrives, refer to the Catalyst 6500 Series and Cisco 7600 Series Supervisor Engine 720 CompactFlash Memory Card Installation Note.

**Note:** Because some of the latest software images for Supervisor Engine 720 are larger than the bootflash device, a CompactFlash card is recommended.

For information on minimum and maximum memory that is available on the Catalyst switch platforms, refer to Memory/Flash Size Supported in Catalyst Switch Platforms.

- **Bootflash and PC Card (PCMCIA) Requirements for the Supervisor Engine 32**

The Supervisor Engine 32 ships with 256 MB of Supervisor Engine bootflash and 256 MB of MSFC bootflash. The Supervisor Engine 32 has one external CompactFlash Type II slot and 256 MB of internal CompactFlash Flash memory. The internal CompactFlash, which is referred to as **bootdisk:** in command–line interface (CLI), is upgradable to 512 MB and 1 GB. The CompactFlash Type II slot supports CompactFlash Type II cards and IBM MicroDrive cards. CompactFlash cards for the Supervisor Engine 32 are available in 64, 128, and 256 MB sizes. The Supervisor Engine 32 hardware is able to support 512 MB and 1 GB of CompactFlash Type II Flash memory. The keyword for the external CompactFlash memory is **disk0:**. The keyword for the internal CompactFlash memory is **bootdisk:**

# Step-by-Step Procedure to Convert from Cisco IOS Software to CatOS System Software

This section describes the steps that are necessary to convert the software that runs on your Catalyst 6500/6000 Series Switch from Cisco IOS Software on the Supervisor Engine/MSFC to CatOS on the Supervisor Engine with Cisco IOS Software on the MSFC. This section provides three procedures. Complete the correct procedure for your Supervisor Engine:

- Conversion on Supervisor Engine 1A and Supervisor Engine 2
- Conversion on Supervisor Engine 720
- Conversion on Supervisor Engine 32
- Conversion on Redundant Supervisor Engines

## Conversion on Supervisor Engine 1A and Supervisor Engine 2

This section uses this terminology:

- **SP (Switch Processor)** Refers to the switch component of the system or Supervisor Engine.
- **Route Processor (RP)** Refers to the router component of the system or MSFC.

**Note:** The images that this document uses are for example purposes only. Replace the images with the images that you use in your switch environment.

### Step 1

Establish a console connection to the SP.

Log your console session as a best practice. The log enables you to capture a record of the session and compare the log to the steps in this document, if you need to troubleshoot. For example, in Windows HyperTerminal, choose **Transfer > Capture Text** in order to log a console session. For more information, refer to Connecting a Terminal to the Console Port on Catalyst Switches.

### Step 2

Back up the configuration.

You need to reconfigure the switch after you convert to CatOS as the system software because the conversion process loses the configuration. If you back up the configuration, the file can serve as a reference after the conversion or as a backup if you decide to convert back to Cisco IOS Software. Issue the **copy config tftp** command in order to back up the configuration.

For more information on use of the **copy config tftp** command to back up configuration files, refer to Managing Software Images and Working with Configuration Files on Catalyst Switches.

### Step 3

If you have an MSFC 1, verify that the MSFC boot image (c6msfc-boot) is in the RP bootflash.

**Note:** A boot image is a requirement for the MSFC1. The boot image for the MSFC1 (c6msfc-boot\*) must be in the RP bootflash. A boot image for the MSFC2 is not a requirement. However, use of a boot image is recommended, and this procedure uses it. A boot image is a much smaller, scaled-down version of the system image. With a boot image, you can perform a TFTP image transfer if the main system image becomes corrupt or lost. If you choose to use an MSFC2 boot image (c6msfc2-boot\*), you must store it in the RP bootflash.

Issue the **show version** command in order to verify the current version of software.

```
Router#show version
Cisco Internetwork Operating System Software
IOS (tm) c6sup2_rp Software (c6sup2_rp-JS-M), Version 12.1(19)E1,
EARLY DEPLOYMENT RELEASE SOFTWARE (fc2)

!--- Output suppressed.

Router uptime is 57 minutes
Time since Router switched to active is 57 minutes
System returned to ROM by power-on (SP by power-on)
System image file is "slot0:c6sup22-js-mz.121-19.E1"

!--- The current version of software in this case is Cisco IOS
!--- Software Release 12.1(19)E1 for the Supervisor Engine 2/MSFC2(c6sup22*).
!--- The image is on a PCMCIA or Flash PC card in slot0:.

Router#
```

#### Step 4

Issue the **directory** command in order to verify the location of images on the various flash devices.

```
Router#dir bootflash:
Directory of bootflash:/
  1  -rw-      1820192   Aug 13 2003 22:38:06  c6msfc2-boot-mz.121-19.E1

!--- This is the RP or MSFC bootflash.
!--- A boot image for the MSFC1 is a requirement and must be in the RP bootflash.
!--- Use of an MSFC2 boot image is not a requirement, but it is recommended.

15204352 bytes total (13384032 bytes free)
Router#dir slot0:
Directory of slot0:/
  1  -rw-      19766600   Aug 14 2003 15:54:17  c6sup22-js-mz.121-19.E1

!--- This is the PCMCIA or Flash PC device called slot0:
!--- This is the Cisco IOS Software image (c6sup*) that currently runs on the switch.

24772608 bytes total (5005880 bytes free)
Router#
Router#dir sup-bootflash:
Directory of sup-bootflash:/
  1  -rw-      8040396   Aug 14 2003 17:46:32  cat6000-sup2k8.8-1-1.bin

!--- This is SP or Supervisor Engine bootflash.
!--- This is the version of CatOS software for the Supervisor Engine
!--- for this conversion.

31981568 bytes total (23941044 bytes free)
Router#
```

If you see that the c6msfc\*-boot image is missing from the RP bootflash, or if the cat6000-sup\* image is missing from the SP bootflash, download the images. Step 5 provides the procedure. If you see that these images are present, go to Step 6.

#### Step 5 (Optional)

Issue the **copy tftp** command in order to download the boot image on the RP bootflash: or the CatOS image on the SP bootflash:.

**Note:** Complete this step only if the MSFC boot image (c6msfc\*-boot) is missing from RP bootflash or the CatOS image (cat6000-sup\*) is missing from SP bootflash. Step 4 determines the need for this step.

**Note:** You can free up space as necessary on the RP bootflash. Issue the **delete bootflash:filename** command in order to delete the file. Then, issue the **squeeze bootflash:** command in order to erase all deleted files from the device.

```
Router#copy tftp bootflash:
Address or name of remote host []? 10.1.1.2
Source filename []? c6msfc2-boot-mz.121-19.E1
Destination filename [c6msfc2-boot-mz.121-19.E1]?
Accessing tftp://10.1.1.2/c6msfc2-boot-mz.121-19.E1...
Loading c6msfc2-boot-mz.121-19.E1 from 10.1.1.2 (via FastEthernet4/1):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 1820192 bytes]
1820192 bytes copied in 18.068 secs (100741 bytes/sec)
Verifying compressed IOS image checksum...
Verified compressed IOS image checksum for bootflash:/c6msfc2-boot-mz.121-19.E1
Router#
```

*!--- Verify that the image is copied successfully.*

```
Router#dir bootflash:
Directory of bootflash:/
 1 -rw-      1820192   Aug 14 2003 16:49:20  c6msfc2-boot-mz.121-19.E1
15204352 bytes total (13384032 bytes free)
Router#
```

This example downloads the CatOS image on the SP bootflash:

```
Router#copy tftp sup-bootflash:
Address or name of remote host []? 10.1.1.2
Source filename []? cat6000-sup2k8.8-1-1.bin
Destination filename [cat6000-sup2k8.8-1-1.bin]?
Accessing tftp://10.1.1.2/cat6000-sup2k8.8-1-1.bin...
Loading cat6000-sup2k8.8-1-1.bin from 10.1.1.2 (via FastEthernet4/1):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!
[OK - 8040396 bytes]
8040396 bytes copied in 90.208 secs (89132 bytes/sec)
Verifying compressed IOS image checksum...
Verified compressed IOS image checksum for sup-bootflash:/cat6000-sup2k8.8-1-1.bin
Router#
```

*!--- Verify that the image is copied successfully.*

```
Router#dir sup-bootflash:Directory of sup-bootflash:/
 1 -rw-      8040396   Aug 14 2003 17:46:32  cat6000-sup2k8.8-1-1.bin
31981568 bytes total (23941044 bytes free)
Router#
```

### Step 6

Issue the **show boot** command in order to check the boot loader variable (BOOTLDR variable) and configuration register settings.

```
Router#show boot
BOOT variable = slot0:c6sup22-js-mz.121-19.E1,1
CONFIG_FILE variable =
BOOTLDR variable = bootflash:c6msfc2-boot-mz.121-19.E1
Configuration register is 0x2102
Standby is not up.
Router#
```

The BOOTLDR variable = must point to the c6msfc\*-boot image (which is c6msfc2-boot-mz.121-19.E1 in this case) on the RP bootflash. If the BOOTLDR variable is not set correctly, complete Step 7 in order to set the boot loader variable. If the BOOTLDR variable correctly points to the c6msfc\*-boot image on the RP bootflash, go to Step 8.

## Step 7 (Optional)

Issue the commands in this step in order to set the BOOTLDR variable so that it points to the c6msfc\*-boot image on the RP bootflash:.

**Note:** Complete this step only if the BOOTLDR variable = statement or the configuration register was not set correctly. Step 6 determines the need for this step.

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.

!--- Modify the BOOTLDR variable.

Router(config)#boot bootldr bootflash:c6msfc2-boot-mz.121-19.E1
Router(config)#end
Router#
02:21:59: %SYS-5-CONFIG_I: Configured from console by console

!--- Save the change.

Router#write memory
Building configuration...
[OK]

!--- Verify that the BOOTLDR variable is set correctly.

Router#show boot
BOOT variable = slot0:c6sup22-js-mz.121-19.E1,1
CONFIG_FILE variable =
BOOTLDR variable = bootflash:c6msfc2-boot-mz.121-19.E1
Configuration register is 0x2102
```

## Step 8

Issue this set of commands to change the configuration settings in order to boot into ROMmon:

```
Router(config)#config-register 0x0
02:29:17: %C6K_PLATFORM-SP-4-CONFREG_BREAK_ENABLED: The default factory setting
for config register is 0x2102. It is advisable to retain 1 in 0x2102 as it
prevents returning to ROMMON when break is issued.

!--- This message is not present in all software versions and is informational only.

Router(config)#end
Router#
02:29:30: %SYS-5-CONFIG_I: Configured from console by console

!--- Verify the settings.
```



```

Router#show boot
BOOT variable = slot0:c6sup22-js-mz.121-19.E1,1
CONFIG_FILE variable =
BOOTLDR variable = bootflash:c6msfc2-boot-mz.121-19.E1
Configuration register is 0x2102 (will be 0x0 at next reload)
Standby is not up.
Router#

```

**Note:** When you change the configuration register value on the RP to 0x0, the configuration register is automatically synchronized on the SP to 0x0.

## Step 9

Reload the router.

Because you set the configuration register to boot into ROMmon, the router now boots into the SP ROMmon.

```

Router#reload
System configuration has been modified. Save? [yes/no]: no
Proceed with reload? [confirm]
02:39:07: %SYS-5-RELOAD: Reload requested
02:39:10: %OIR-SP-6-CONSOLE: Changing console ownership to switch processor
***
*** --- SHUTDOWN NOW ---
***
02:39:13: %SYS-SP-5-RELOAD: Reload requested
02:39:13: %OIR-SP-6-CONSOLE: Changing console ownership to switch processor
System Bootstrap, Version 7.1(1)
Copyright (c) 1994-2001 by cisco Systems, Inc.
c6k_sup2 processor with 131072 Kbytes of main memory

!--- After this message, the router goes to SP ROMmon.

```

## Step 10

Because you want to revert back to CatOS as the system software, you need to load the CatOS image for the Supervisor Engine.

**Note:** Remember that, before the reload, the CatOS image was already downloaded on the SP bootflash.

Issue the **dir bootflash:** command in order to verify that the CatOS image is on the SP bootflash.

```

rommon 1 > dir bootflash:
      File size      Checksum   File name
8040396 bytes (0x7aafcc)  0xb16e3014  cat6000-sup2k8.8-1-1.bin

```

## Step 11

Issue the **boot** command in order to start the bootup sequence.

```

rommon 2 > boot bootflash:cat6000-sup2k8.8-1-1.bin
Self decompressing the image : #####
#####
##### [OK]
System Power On Diagnostics
DRAM Size .....128 MB
Testing DRAM .....Passed
Verifying Text Segment .....Passed
NVRAM Size .....512 KB

```

```
Level2 Cache .....Present
Level3 Cache .....Present
System Power On Diagnostics Complete
Currently running ROMMON from F1 region
Boot image: bootflash:cat6000-sup2k8.8-1-1.bin
Running System Diagnostics from this Supervisor (Module 1)
This may take several minutes...please wait
IP address for Catalyst not configured
DHCP/BOOTP will commence after the ports are online
Ports are coming online ...
Cisco Systems Console
```

*!--- Output suppressed.*

Console>

*!--- This is the SP or Supervisor Engine console prompt.*

## Step 12

At this point, the CatOS image has successfully booted, but the Supervisor Engine Flash devices are still formatted with the previous Cisco IOS Software algorithm. Therefore, SP cannot correctly write to **bootflash:** or **slot0:**. You need to reformat these flash devices before you continue.

Issue the **format** command in order to format both the **bootflash:** and **slot0:** devices.

*!--- Format the Supervisor Engine bootflash.*

```
Console> (enable) format bootflash:
All sectors will be erased, proceed (y/n) [n]? y
Enter volume id (up to 31 characters):
```

*!--- Press Enter.*

```
Formatting sector 1
Format device bootflash completed
```

*!--- Format the PCMCIA or Flash PC card.*

```
Console> (enable) format slot0:
All sectors will be erased, proceed (y/n) [n]? y
Enter volume id (up to 31 characters):
```

*!--- Press Enter.*

```
Formatting sector 1
Format device slot0 completed
Console> (enable)
```

## Step 13

When you formatted the Supervisor Engine Flash devices in Step 12, the action erased all data on these devices, which included the CatOS image that is used to boot the Supervisor Engine. You need to recopy this CatOS image (cat6000-sup\*). You also need to recopy a Cisco IOS image for the MSFC (c6msfc\*).

You can store these images on either the Supervisor Engine bootflash (bootflash:) or the PC card (slot0:), which depends on the Supervisor Engine Flash capacity and image sizes. The recommendation is to store the CatOS image in the Supervisor Engine bootflash. You can store the MSFC image in either the Supervisor Engine bootflash or on the PC card (PCMCIA).

Issue the **copy tftp** command in order to recopy the CatOS image into the Supervisor Engine bootflash:

**Note:** The configuration of an sc0 management IP address and/or default route can be necessary in order to reestablish connectivity to your TFTP server. Make sure that the switch port that you use for Telnet is enabled and that you can ping your TFTP server from the switch.

```
Console> (enable) copy tftp bootflash:
IP address or name of remote host []? 10.1.1.2
Name of file to copy from []? cat6000-sup2k8.8-1-1.bin
31981440 bytes available on device bootflash, proceed (y/n) [n]? y
cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
File has been copied successfully.
Console> (enable)
```

*!--- Verify that the image has been copied successfully.*

```
Console> (enable) dir bootflash:
-#- -length- ----date/time----- name
  1 8040396 Aug 14 2003 20:35:52 cat6000-sup2k8.8-1-1.bin
23941044 bytes available (8040524 bytes used)
Console> (enable)
```

## Step 14

Issue the **copy tftp** command in order to copy the MSFC image (c6msfc\*) onto either the Supervisor Engine bootflash or to the PC card (PCMCIA).

```
Console> (enable) copy tftp slot0:
IP address or name of remote host [10.1.1.2]?
Name of file to copy from [cat6000-sup2k8.8-1-1.bin]? c6msfc2-jsv-mz.121-19.E1
```

*!--- The PC card (slot0:) was used in this case*

*!--- to store the Cisco IOS Software MSFC image.*

```
24772480 bytes available on device slot0, proceed (y/n) [n]? y
cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
cccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
File has been copied successfully.
Console> (enable)
```

*!--- Verify that the image has been copied successfully.*

```
Console> (enable) dir slot0:
-#- -length- ----date/time----- name
  1 14564636 Aug 14 2003 20:43:33 c6msfc2-jsv-mz.121-19.E1
10207844 bytes available (14564764 bytes used)
Console> (enable)
```

## Step 15

Issue the **show module** command on the SP in order to check the status of the RP:

```
Console> (enable) show module
Mod Slot Ports Module-Type Model Sub Status
```

```

-----
1 1 2 1000BaseX Supervisor WS-X6K-SUP2-2GE yes ok
3 3 48 10/100BaseTX Ethernet WS-X6348-RJ-45 no ok
4 4 48 10/100BaseTX Ethernet WS-X6348-RJ-45 yes ok
5 5 0 Switch Fabric Module 2 WS-X6500-SFM2 no ok
6 6 16 10/100/1000BaseT Ethernet WS-X6516-GE-TX no ok
Mod Module-Name Serial-Num
-----
1 SAD051307GG
3 SAL044411EG
4 SAD042709B7
5 SAD061604HV
6 SAL0651AC2P
Mod MAC-Address(es) Hw Fw Sw
-----
1 00-02-7e-27-b0-a6 to 00-02-7e-27-b0-a7 2.4 7.1(1) 8.1(1)
  00-02-7e-27-b0-a4 to 00-02-7e-27-b0-a5
  00-04-9b-bf-04-00 to 00-04-9b-bf-07-ff
3 00-03-6c-2a-6b-e0 to 00-03-6c-2a-6c-0f 2.1 5.4(2) 8.1(1)
4 00-b0-c2-f7-29-20 to 00-b0-c2-f7-29-4f 1.1 5.3(1) 8.1(1)
5 00-01-00-02-00-03 1.2 6.1(3) 8.1(1)
6 00-09-11-f1-79-c8 to 00-09-11-f1-79-d7 2.5 6.3(1) 8.1(1)
Mod Sub-Type Sub-Model Sub-Serial Sub-Hw Sub-Sw
-----
1 L3 Switching Engine II WS-F6K-PFC2 SAD0513064H 1.3
4 Inline Power Module WS-F6K-VPWR 1.0 0.0(0)
Console> (enable)

```

**Note:** This output does not show MSFC2 in slot 15 because the MSFC2 (RP) is still in the ROMmon mode.

## Step 16

Issue the **switch console** command in order to access the RP:

```

Console> (enable) switch console
Trying Router-15...
Connected to Router-15.
Type ^C^C to switch back...
rommon 1 >

!--- This is the RP ROMmon.

```

**Note:** If you try to issue the **session 15** command, you receive this error:

```

Console> (enable) session 15
Module 15 is not installed.

```

## Step 17

The MSFC has its own flash which it knows as **bootflash:** This is where the MSFC boot image (c6msfc\*-boot) is stored.

Issue the **dir bootflash:** command in order to verify that the MSFC boot image (c6msfc\*-boot) is in the RP bootflash.

```

rommon 1 > dir bootflash:
      File size      Checksum  File name
1820192 bytes (0x1bc620)  0x4c67101a  c6msfc2-boot-mz.121-19.E1

PS1=rommon ! >
SLOTCACHE=

```

```
BOOTLDR=bootflash:c6msfc2-boot-mz.121-2.E
?=0
```

## Step 18

The MSFC main system image (c6msfc\*) is much larger and often needs to be stored on one of the Supervisor Engine Flash devices. The MSFC knows the Supervisor Engine Flash devices as **sup-bootflash:** and **sup-slot0:**. You must boot from one of these two devices, which depends on where you previously chose to store the image.

**Note:** The MSFC cannot read the PC card (PCMCIA) or the Supervisor Engine bootflash with use of the **directory** command. However, the MSFC can copy to or from **sup-slot0:** or **sup-bootflash:**. The MSFC can boot from both of these devices as well.

```
rommon 2 > boot sup-slot0:c6msfc2-jsv-mz.121-19.E1
Self decompressing the image :
#####
#####
##### [OK]
RP: Currently running ROMMON from S (Gold) region
Loading slot0:c6msfc2-jsv-mz.121-19.E1 .from 127.0.0.11 (via EOBC0/0): !!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 14564636 bytes]
Self decompressing the image : #####
#####
##### [OK]
```

*!--- Output suppressed.*

```
Press RETURN to get started!
Router>
```

## Step 19

At this point, the conversion is complete. The SP runs the CatOS image (which is cat6000-sup2k8.8-1-1.bin in this case) and the RP runs the MSFC image (which is c6msfc2-jsv-mz.121-19.E1 in this case).

Now, set the boot variables so that the SP and RP can autoboot. Because you are at the RP (Router> prompt), change the boot variables of the RP first. Issue these commands in order to change and verify the boot variables:

```
Router>
Router>enable
```

*!--- Check the current settings.*

```
Router#show boot
BOOT variable = slot0:c6sup22-js-mz.121-19.E1,1
```

*!--- The BOOT variable incorrectly points to the old Cisco IOS image (c6sup\*).*

```
CONFIG_FILE variable =
BOOTLDR variable = bootflash:c6msfc2-boot-mz.121-19.E1
```

*!--- The BOOTLDR variable is set correctly.*

```
Configuration register is 0x0
Router#
```

```

!--- Set the boot variable to boot the c6msfc* image.

Router(config)#boot system flash sup-slot0:c6msfc2-jsv-mz.121-19.E1

!--- Set the configuration register back to normal.

Router(config)#config-register 0x2102
Router#end
00:01:03: %SYS-5-CONFIG_I: Configured from console by console

!--- Verify the changes.

Router#show boot
BOOT variable = slot0:c6sup22-js-mz.121-19.E1,1

!--- The BOOT variable still points to the Cisco IOS image (c6sup*).
!--- You must save the changes to NVRAM in order to commit the
!--- boot variable changes.

CONFIG_FILE variable =
BOOTLDR variable = bootflash:c6msfc2-boot-mz.121-19.E1
Configuration register is 0x0 (will be 0x2102 at next reload)
Router#

!--- Save the changes.

Router#write memory
Building configuration...
[OK]

!--- Verify the BOOT variable after the save.

Router#show boot
BOOT variable = sup-slot0:c6msfc2-jsv-mz.121-19.E1,1
CONFIG_FILE variable =
BOOTLDR variable = bootflash:c6msfc2-boot-mz.121-19.E1
Configuration register is 0x0 (will be 0x2102 at next reload)
Router#

```

## Step 20

The MSFC is now up and running and is ready to be configured. However, before you can have any real network access, you need to finish the SP side.

In order to go back to the SP, enter Ctrl-C three times on the RP.

```

!--- Enter Ctrl-C three times.

Router#^C
Router#^C
Router#^C
Console> (enable)

```

## Step 21

Set the boot variables and the configuration register value on the SP so that the switch can autoboot successfully.

Issue these commands in order to set the boot variables and the configuration register values:

*!--- Check the boot variables.*

```
Console> (enable) show boot
BOOT variable = bootflash:,1;
CONFIG_FILE variable = bootflash:switch.cfg
Configuration register is 0x10f
ignore-config: disabled
auto-config: non-recurring, overwrite, sync disabled
console baud: 9600
boot: image specified by the boot system commands
Console> (enable)
```

*!--- Clear the boot variable.*

```
Console> (enable) clear boot system all
BOOT variable =
```

*!--- Set the configuration register.*

```
Console> (enable) set boot config-register 0x2102
Configuration register is 0x2102
ignore-config: disabled
auto-config: non-recurring, overwrite, sync disabled
console baud: 9600
boot: image specified by the boot system commands
```

*!--- Verify the image name.*

```
Console> (enable) dir bootflash:
-#- -length- -----date/time----- name
  1 8040396 Aug 14 2003 20:35:52 cat6000-sup2k8.8-1-1.bin
23941044 bytes available (8040524 bytes used)
Console> (enable)
```

*!--- Set the boot variable to load the CatOS image from the  
!--- Supervisor Engine bootflash.*

```
Console> (enable) set boot system flash bootflash:cat6000-sup2k8.8-1-1.bin
BOOT variable = bootflash:cat6000-sup2k8.8-1-1.bin,1;
Console> (enable)
```

*!--- Verify the boot variable.*

```
Console> (enable) show boot
BOOT variable = bootflash:cat6000-sup2k8.8-1-1.bin,1;
CONFIG_FILE variable = bootflash:switch.cfg
Configuration register is 0x2102
ignore-config: disabled
auto-config: non-recurring, overwrite, sync disabled
console baud: 9600
boot: image specified by the boot system commands
Console> (enable)
```

## Step 22

Reset the switch in order to make sure that it comes up automatically with CatOS loaded on the SP and the MSFC image loaded on the RP.

```
Console> (enable) reset
This command will reset the system.
Do you want to continue (y/n) [n]? y
2003 Aug 14 22:28:40 %SYS-5-SYS_RESET: System reset from Console//
Powering OFF all existing linecards
```

*!--- Output suppressed.*

Once the switch has booted back up, issue the **show version** command on the SP in order to verify that you run the correct version of CatOS. Session to the RP (MSFC) and issue the **show version** command in order to verify that you run the correct version of Cisco IOS Software for the MSFC.

## Conversion on Supervisor Engine 720

This section uses this terminology:

- **SP (Switch Processor)** Refers to the switch component of the system or Supervisor Engine.
- **RP (Route Processor)** Refers to the router component of the system or MSFC.

**Note:** Before you perform this conversion, verify that you have the standard bootflash and not the internal CompactFlash adapter (referred to as bootdisk) on the Supervisor Engine 720. The CompactFlash adapter is not supported in the Supervisor Engine 720 that runs the Catalyst operating system (CatOS). For more information, refer to Cisco CompactFlash Adapter for Bootflash Upgrade Installation Note.

In order to continue with the conversion:

- Replace the internal CompactFlash adapter with a standard bootflash, or
- Make use of an external CompactFlash card instead of the internal CompactFlash adapter.

**Note:** The images that this document uses are for example purposes only. Replace the images with the images that you use in your switch environment.

### Step 1

Establish a console connection to the SP.

Log your console session as a best practice. This log enables you to capture a record of the session and compare the log to the steps in this document, if you need to troubleshoot. For example, in HyperTerminal, choose **Transfer > Capture Text** in order to log a console session. For more information, refer to Connecting a Terminal to the Console Port on Catalyst Switches.

### Step 2

Back up the configuration.

You need to reconfigure the switch after you convert to CatOS as the system software because the conversion process loses the configuration. If you back up the configuration, the file can serve as a reference after the conversion or as a backup if you decide to convert back to Cisco IOS Software. Issue the **copy start tftp** command in order to back up the configuration.

For more information on use of the **copy start tftp** command to back up configuration files, refer to Managing Software Images and Working with Configuration Files on Catalyst Switches.

### Step 3

Verify that the MSFC3 (c6msfc3\*) run-time image is on the RP bootflash.

```
Router#dir bootflash:
Directory of bootflash:/
 1  -rw-   16050204   Aug 18 2003 12:10:51  c6msfc3-jsv-mz.122-14.SX2
```



*!--- This is the operating system image for the MSFC for use in the conversion.*

```
2 -rw-      649603   Aug 18 2003 13:29:29  c6msfc3-rm2.srec.122-14r.S9
65536000 bytes total (48835936 bytes free)
Router#
```

If you do not have the MSFC3 run-time image in RP bootflash, go to Step 4. If you do have the MSFC3 run-time image, go to Step 5.

#### Step 4 (Optional)

Download the MSFC image into RP bootflash:.

**Note:** Complete this step only if you do not have the required MSFC run-time image (c6msfc3\*) in RP bootflash:.. Step 3 determines the need for this step.

**Note:** You can free up space as necessary on the RP bootflash. Issue the **delete bootflash:filename** command in order to delete the file. Then, issue the **squeeze bootflash:** command in order to erase all deleted files from the device.

```
Router#copy tftp bootflash:
Address or name of remote host []? 10.1.1.2
Source filename []? c6msfc3-jsv-mz.122-14.SX2
Destination filename [c6msfc3-jsv-mz.122-14.SX2]?
Accessing tftp://10.1.1.2/c6msfc3-jsv-mz.122-14.SX2...
Loading c6msfc3-jsv-mz.122-14.SX2 from 10.1.1.2 (via FastEthernet1/1): !!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 16050204 bytes]
16050204 bytes copied in 159.488 secs (100636 bytes/sec)
Verifying compressed IOS image checksum...
Verified compressed IOS image checksum for bootflash:/c6msfc3-jsv-mz.122-14.SX2
Router#
Router#dir bootflash:
Directory of bootflash:/
 1 -rw-      16050204   Aug 18 2003 14:10:03  c6msfc3-jsv-mz.122-14.SX2
 2 -rw-       649603   Aug 18 2003 13:29:29  c6msfc3-rm2.srec.122-14r.S9
65536000 bytes total (48835936 bytes free)
Router#
```

#### Step 5

Verify that you run the minimum ROMmon version that is necessary for the conversion.

Unlike the Supervisor Engine 1A with MSFC1, the Supervisor Engine 720 for the MSFC3 requires no boot image. The basic functionality to boot the MSFC3 is embedded in ROMmon (which includes TFTP capability). When you convert the system software on a Supervisor Engine 720 from Cisco IOS Software on the Supervisor Engine/MSFC to CatOS on the Supervisor Engine and Cisco IOS Software on the MSFC, a minimum version of ROMmon is required. The required minimum ROMmon version is Cisco IOS Software Release 12.2(14r)S9.

Issue the **show version** command in order to verify the ROMmon version:

```
Router#show version
Cisco Internetwork Operating System Software
IOS (tm) s72033_rp Software (s72033_rp-PSV-M), Version 12.2(14)SX1,
EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)
TAC Support: http://www.cisco.com/tac
```

```
Copyright (c) 1986-2003 by cisco Systems, Inc.
Compiled Tue 27-May-03 19:24 by ccai
Image text-base: 0x40008C10, data-base: 0x41ACE000
ROM: System Bootstrap, Version 12.2(14r)S8, RELEASE SOFTWARE (fc1)
```

```
!--- This line displays the ROMmon version for the RP.
!--- Output suppressed.
```

If you do not have at least the minimum version of ROMMON installed, go to Step 6. If you do have the minimum version or a later version, go to Step 7.

## Step 6 (Optional)

Download the latest version of the ROMmon software.

**Note:** Complete this step only if you do not have the required minimum ROMmon software version, Cisco IOS Software Release 12.2(14r)S9, or later. Step 5 determines the need for this step.

In order to download the latest version of the ROMmon software, refer to Software Download – Catalyst 6000 Platform ROMMON (registered customers only) .

```
Router#copy tftp bootflash:
Address or name of remote host []? 10.1.1.2
Source filename []? c6msfc3-rm2.srec.122-14r.S9
Destination filename [c6msfc3-rm2.srec.122-14r.S9]?
Accessing tftp://10.1.1.2/c6msfc3-rm2.srec.122-14r.S9...
Loading c6msfc3-rm2.srec.122-14r.S9 from 10.1.1.2 (via FastEthernet1/1): !!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 649603 bytes]
Router#dir bootflash:
Directory of bootflash:/
   1  -rw-   16050204   Aug 18 2003 12:10:51  c6msfc3-jsv-mz.122-14.SX2
   2  -rw-    649603   Aug 18 2003 13:29:29  c6msfc3-rm2.srec.122-14r.S9
65536000 bytes total (48835936 bytes free)
Router#
```

You perform the actual ROMmon upgrade as you continue with this procedure. For now, go on to Step 7.

## Step 7

Verify that the CatOS image (cat6000-sup720\*) is on either SP bootflash (**sup-bootflash:**) or a CompactFlash card (**disk0:** or **disk1:**).

```
Router#dir sup-bootflash:

!--- This is the SP bootflash and the location of the current
!--- Cisco IOS image (s72033*).

Directory of sup-bootflash:/
   2  -rw-   32983632   Aug 16 2003 19:44:42  s72033-psv-mz.122-14.SX1.bin
65536000 bytes total (18912432 bytes free)
Router#

Router#dir disk0:

!--- This is the CompactFlash device that is called disk0:.
!--- If your CompactFlash card is in disk1:, issue the dir disk1: command.

Directory of disk0:/
```

```

1  -rw-      13389508   Aug 16 2003 20:36:40  cat6000-sup720k8.8-1-1.bin

!--- This is the CatOS (cat6000-sup720*) image version for use in this conversion.

128626688 bytes total (115236864 bytes free)

```

If you do not have the CatOS image on either **sup-bootflash:** or on **disk0:** or **disk1:**, go to Step 8. If you have the CatOS image installed, go to Step 9.

## Step 8 (Optional)

Download the CatOS image.

**Note:** Complete this step only if the Supervisor 720 CatOS image is on neither the SP bootflash (**sup-bootflash:**) nor the CompactFlash (**disk0:** or **disk1:**). Step 7 determines the need for this step.

**Note:** You might need to format the CompactFlash if it has never been used before or if it was formatted with use of the Cisco IOS Software algorithm. In order to format CompactFlash on a Supervisor Engine 720, issue the **format disk0:** command and/or the **format disk 1:** command. You can also free up space as necessary on the Flash devices. Issue the **delete sup-bootflash:** command or the **delete disk0:** or **delete disk1:filename** command in order to delete the file. Then, issue the **squeeze sup-bootflash:** command or the **squeeze disk0:** or **squeeze disk1:** command in order to erase all deleted files from the device.

Issue the **copy tftp sup-bootflash:** command, the **copy tftp disk0:** command, or the **copy tftp disk1:** command in order to download the image to either SP bootflash or to one of the Flash cards.

```

Router#copy tftp disk0:
Address or name of remote host []? 10.1.1.2
Source filename []? cat6000-sup720k8.8-1-1.bin
Destination filename [cat6000-sup720k8.8-1-1.bin]?
Accessing tftp://10.1.1.2/cat6000-sup720k8.8-1-1.bin...
Loading cat6000-sup720k8.8-1-1.bin from 10.1.1.2 (via FastEthernet1/1): !!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 13389508 bytes]
13389508 bytes copied in 103.044 secs (129940 bytes/sec)
Verifying compressed IOS image checksum...
Verified compressed IOS image checksum for disk0:/cat6000-sup720k8.8-1-1.bin
Router#
Router#dir disk0:
Directory of disk0:/
  1  -rw-      13389508   Aug 18 2003 15:17:36  cat6000-sup720k8.8-1-1.bin
128626688 bytes total (115236864 bytes free)
Router#

```

## Step 9

Change the configuration register setting in order to put the switch into ROMmon at the next reload.

```

Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#config-register 0x0
Router(config)#end
Router#

```

Issue the **show boot** command in order to verify the new configuration register setting.

```

Router#show boot
BOOT variable = sup-bootflash:s72033-psv-mz.122-14.SX1.bin,1

```



```

Boot image: disk0:cat6000-sup720k8.8-1-1.bin
Firmware compiled 29-Jun-03 19:12 by integ Build [100]
Running System Diagnostics from this Supervisor (Module 5)
This may take several minutes...please wait
IP address for Catalyst not configured
DHCP/BOOTP will commence after the ports are online
Ports are coming online ...
2003 Aug 18 15:49:58 %SYS-4-NVLOG:initBootNvram:Bootarea checksum failed: 0x4665
(0x44AA)Cisco Systems Console

```

*!--- Output suppressed.*

Console>

*!--- This is the SP console prompt.*

## Step 13

From the SP console prompt, issue the **show module** command in order to check the status of the RP.

```

Console> (enable) show module
Mod Slot Ports Module-Type           Model                               Sub Status
-----
1   1   48   10/100BaseTX Ethernet             WS-X6548-RJ-45             no ok
5   5   2   1000BaseX Supervisor             WS-SUP720-BASE             yes ok
Mod Module-Name                      Serial-Num
-----
1                                      SAL06489DVD
5                                      SAD07170009
Mod MAC-Address(es)                  Hw      Fw      Sw
-----
1  00-09-11-f2-f3-a8 to 00-09-11-f2-f3-d7 5.1     6.3(1)  8.1(1)
5  00-0c-ce-63-da-fe to 00-0c-ce-63-da-ff 2.1     7.7(1)  8.1(1)
   00-0c-ce-63-da-fc to 00-0c-ce-63-da-ff
   00-0c-86-a0-10-00 to 00-0c-86-a0-13-ff
Mod Sub-Type                          Sub-Model                          Sub-Serial  Sub-Hw  Sub-Sw
-----
5  L3 Switching Engine III WS-F6K-PFC3A                      SAD071501AB 1.1
Console> (enable)

```

**Note:** This output does not show the MSFC3 in slot 15 because the MSFC3 (RP) is still in ROMmon mode.

## Step 14

Issue the **switch console** command in order to access the RP.

```

Console> (enable) switch console
Trying Router-15...
Connected to Router-15.
Type ^C^C^C to switch back...
rommon 1 >

```

*!--- This is the RP ROMmon.*

**Note:** If you try to issue the **session 15** command at this point, you receive this error:

```

Console> (enable) session 15
Module 15 is not installed.

```

If you found in Step 6 that you did not have the required minimum ROMmon software version (Cisco IOS Software Release 12.2(14r)S9 or later), go to Step 15. If you do have the required minimum ROMmon version, go to Step 16.

## Step 15 (Optional)

Format NVRAM for the CatOS system software before you upgrade the ROMmon version.

This step is a requirement if you do not have the required ROMmon software, Cisco IOS Software Release 12.2(14r)S9 or later. Issue the **nvrाम\_erase** command from ROMmon privileged mode.

```
rommon 2 > priv

!--- Press Enter or Return.
!--- You have entered ROMmon privileged mode.
!--- You see this output:You now have access to the full set of monitor commands.

Warning: some commands will allow you to destroy your
configuration and/or system images and could render
the machine unbootable.

rommon 3 > fill

!--- Press Enter or Return.
!--- Be sure to enter these parameters exactly:
!--- The first line is a "be" (no space) followed by six zeros ("000000").
!--- The next line is an "8" (no space) followed by four zeros ("0000").

Enter in hex the start address [0x0]: be000000

!--- Press Enter or Return.

Enter in hex the test size or length in bytes [0x0]: 80000

!--- Press Enter or Return.

Enter in hex the pattern to be written [0x0]: ffff

!--- Press Enter or Return.

Enter the operation size 'l'ong, 'w'ord, or 'b'yte []: l

!--- Press Enter or Return.
!--- After the NVRAM erase has completed, issue the reset command.

rommon 4 > reset

!--- Press Enter or Return.
```

## Step 16

Issue the **dir bootflash** command in order to verify that the MSFC run-time image (c6msfc3\*) is present on the RP bootflash. Then, issue the **boot** command in order to boot this image.

```
rommon 2 > dir bootflash:
      File size      Checksum   File name
 16050204 bytes (0xf4e81c)  0x4221810c  c6msfc3-jsv-mz.122-14.SX2
   649603 bytes (0x9e983)  0x64867cc  c6msfc3-rm2.srec.122-14r.S9
rommon 3 > boot bootflash:c6msfc3-jsv-mz.122-14.SX2
Self decompressing the image : #####
#####
```

```
#####
```

```
[OK]
```

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Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, California 95134-1706

```
Cisco Internetwork Operating System Software
IOS (tm) MSFC3 Software (C6MSFC3-JSV-M), Version 12.2(14)SX2,
EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2003 by cisco Systems, Inc.
Compiled Mon 30-Jun-03 14:12 by cmong
Image text-base: 0x40008C10, data-base: 0x41D16000
flashfs[1]: 2 files, 1 directories
flashfs[1]: 0 orphaned files, 0 orphaned directories
flashfs[1]: Total bytes: 1792000
flashfs[1]: Bytes used: 2048
flashfs[1]: Bytes available: 1789952
flashfs[1]: flashfs fsck took 2 seconds.
flashfs[1]: Initialization complete.cisco MSFC3 (R7000) processor with 458752K/
65536K bytes of memory.
Processor board ID
SR71000 CPU at 600Mhz, Implementation 0x504, Rev 1.2, 512KB L2 Cache
Last reset from power-on
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology Corp).
TN3270 Emulation software.
512K bytes of non-volatile configuration memory.
8192K bytes of packet buffer memory.
65536K bytes of Flash internal SIMM (Sector size 512K).
Logging of %SNMP-3-AUTHFAIL is enabled
Press RETURN to get started!
```

```
!--- Output suppressed.
```

```
Router>
```

If you do not have the required ROMmon software version, Cisco IOS Software Release 12.2(14r)S9 or later, go to Step 17. If you have the required version or a later version, go to Step 18.

## Step 17

Upgrade the version of RP ROMmon.

**Note:** Complete this step only if you do not have the required minimum ROMmon software version, Cisco IOS Software Release 12.2(14r)S9 or later.

**Note:** Do not issue the **write memory** command or the **copy startup-config** command before you complete the ROMmon upgrade procedure.

Issue the **show rom-monitor slot x rp** command in order to view the output of RP ROMmon before the upgrade:

```
Router>enable
Router#show rom-monitor slot 5 rp
```

*!--- The slot number varies and depends on where you have the  
!--- Supervisor Engine installed.*

```
Region F1: INVALID
Region F2: INVALID
Currently running ROMMON from S (Gold) region
```

Issue the **upgrade rom-monitor slot x rp file flash device:filename** command in order to upgrade the version of RP ROMmon:

```
Router#upgrade rom-monitor slot 5 rp file bootflash:c6msfc3-rm2.srec.122-14r.S9

!--- This command upgrades the RP ROMmon version for the Supervisor Engine
!--- in slot 5 with use of the file bootflash:<filename>.
!--- The slot number varies and depends on where you have the
!--- Supervisor Engine installed.

01:31:59: ROMMON image upgrade in progress
01:31:59: Erasing flash
Router#
01:32:02: Programming flash
01:32:04: Verifying new image
01:32:04: ROMMON image upgrade complete
The card must be reset for this to take effect
Router#
```

Now, issue the **reload** command in order to reset the RP and complete the ROMmon upgrade. The RP tries to boot the first image in bootflash:. If this fails, issue the **dir bootflash** command in order to verify that the MSFC run-time image (c6msfc3\*) is present on the RP bootflash. Then, issue the **boot** command in order to boot this image.

```
rommon 2 > dir bootflash:
      File size      Checksum  File name
16050204 bytes (0xf4e81c)  0x4221810c  c6msfc3-jsv-mz.122-14.SX2
 649603 bytes (0x9e983)  0x64867cc  c6msfc3-rm2.srec.122-14r.S9
```

```
rommon 3 > boot bootflash:c6msfc3-jsv-mz.122-14.SX2
Self decompressing the image : #####
#####
#####
[OK]
```

*!--- Output suppressed.*

```
Router>
```

Issue the **show rom-monitor slot x rp** command in order to view the output of RP ROMmon after the upgrade and reload:

```
Router>enable
Router#show rom-monitor slot 5 rp
Region F1: APPROVED, preferred
Region F2: INVALID
Currently running ROMMON from F1 region
```

## Step 18

Set the boot variables for both the SP and RP to autoboot. Because you are already on the RP, alter these variables first.

*!--- Set the boot variable to boot the MSFC image.*



```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#boot system flash bootflash:c6msfc3-jsv-mz.122-14.SX2
Router(config)#
```

*!--- Change the configuration register back to its normal setting.*

```
Router(config)#config-register 0x2102
Router(config)#end
Router#
```

*!--- Save your changes.*

```
Router#write memory
Building configuration...
[OK]
Router#
```

*!--- Verify the new boot parameters.*

```
Router#show boot
BOOT variable = bootflash:c6msfc3-jsv-mz.122-14.SX2,1
CONFIG_FILE variable does not exist
BOOTLDR variable does not existConfiguration register is 0x0 (will be 0x2102 at next reload)
Router#
```

**Note:** The BOOTLDR variable is not necessary because the bootloader functionality is contained within ROMmon.

## Step 19

The MSFC3 is now up and running properly and is ready for configuration. However, there are still a few things for you to do on the SP.

In order to go back to the SP, enter **Ctrl-C** three times on the RP.

*!--- Enter Ctrl-C three times.*

```
Router#^C
Router#^C
Router#^C
Console>
```

## Step 20

If the SP bootflash: or the CompactFlash (**disk0:** or **disk1:**) was formatted while you ran Cisco IOS system software, CatOS cannot write to SP bootflash: or onto the CompactFlash devices successfully. CatOS can only read from these devices. You need to reformat these flash devices and replace the images on them.

```
Console> (enable) format bootflash:

All sectors will be erased, proceed (y/n) [n]? y
Enter volume id (up to 31 characters):

Formatting sector 1
Format device bootflash completed
Console> (enable)
```

```
Console> (enable) format disk0:
```

```
!--- Also format disk1: if you have a Flash card there.
```

```
All sectors will be erased, proceed (y/n) [n]? y  
Enter volume id (up to 31 characters):
```

```
Format: Drive communication & 1st Sector Write OK...  
Writing Monlib sectors.....  
.....  
Monlib write complete  
Format: All system sectors written. OK...  
Format: Total sectors in formatted partition: 251616  
Format: Total bytes in formatted partition: 128827392  
Format: Operation completed successfully.  
Console> (enable)
```

## Step 21

When you formatted the Supervisor Engine Flash devices in Step 20, the action erased all data on these devices, which included the CatOS image that is used to boot the Supervisor Engine. You need to recopy this CatOS image (cat6000–sup720).

**Note:** Remember that the conversion lost the configuration. You must configure an IP address on the sc0 interface and possibly a default route in order to reestablish connectivity to your TFTP server. Verify that you can ping your TFTP server from the switch.

```
Console> (enable) copy tftp bootflash:
```

```
!--- The CatOS image (cat6000-sup720*) is copied to SP bootflash (sup-bootflash:)  
!--- in this case.
```

```
IP address or name of remote host []? 10.1.1.2  
Name of file to copy from []? cat6000-sup720k8.8-1-1.bin  
65535872 bytes available on device bootflash, proceed (y/n) [n]? y  
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCCC  
File has been copied successfully.  
Console> (enable)
```

```
!--- Verify the image location in SP bootflash.
```

```
Console> (enable) dir bootflash:  
-#- -length- ----date/time----- name  
  1 13389508 Aug 18 2003 16:54:11 cat6000-sup720k8.8-1-1.bin  
52146364 bytes available (13389636 bytes used)  
Console> (enable)
```

## Step 22

Set the boot variables and the configuration register value on the SP so that the switch can autoboot successfully.

Issue these commands in order to set the boot variables and the configuration register values:

```
!--- Check the boot variables.
```

```
Console> (enable) show boot
BOOT variable = bootflash:1;
CONFIG_FILE variable = bootflash:switch.cfg
Configuration register is 0x10f
ignore-config: disabled
auto-config: non-recurring, overwrite, sync disabled
console baud: 9600boot: image specified by the boot system commands
Console> (enable)
```

*!--- Clear the boot variable.*

```
Console> (enable) clear boot system all
BOOT variable =Console> (enable)
```

*!--- Set the configuration register to boot normally.*

```
Console> (enable) set boot config-register 0x2102
Configuration register is 0x2102
ignore-config: disabled
auto-config: non-recurring, overwrite, sync disabled
console baud: 9600boot: image specified by the boot system commands
Console> (enable)
```

*!--- Display the image name and location.*

```
Console> (enable) dir bootflash:
-#- -length- ----date/time----- name
   1 13389508 Aug 18 2003 16:54:11 cat6000-sup720k8.8-1-1.bin
52146364 bytes available (13389636 bytes used)
Console> (enable)
```

*!--- Set the boot variable to load the CatOS image from bootflash:.*

```
Console> (enable) set boot system flash bootflash:cat6000-sup720k8.8-1-1.bin
BOOT variable = bootflash:cat6000-sup720k8.8-1-1.bin,1;
Console> (enable)
```

*!--- Verify the environment variables.*

```
Console> (enable) show boot
BOOT variable = bootflash:cat6000-sup720k8.8-1-1.bin,1;
CONFIG_FILE variable = bootflash:switch.cfg
Configuration register is 0x2102
ignore-config: disabled
auto-config: non-recurring, overwrite, sync disabled
console baud: 9600
boot: image specified by the boot system commands
Console> (enable)
```

## Step 23

Reset the switch.

```
Console> (enable) reset
This command will reset the system.
Do you want to continue (y/n) [n]? y
2003 Aug 18 17:20:43 %SYS-5-SYS_RESET:System reset from Console//
Powering OFF all existing linecards
```

After the switch has booted back up, issue the **show version** command on the SP in order to verify that you run the correct version of CatOS. Session to the RP (MSFC) and issue the **show version** command in order to

verify that you run the correct version of Cisco IOS Software for the MSFC.

## Conversion on Supervisor Engine 32

This section uses this terminology:

- **SP (Switch Processor)** Refers to the switch component of the system or Supervisor Engine.
- **RP (Route Processor)** Refers to the router component of the system or MSFC.

**Note:** The images that this document uses are for example purposes only. Replace the images with the images that you use in your switch environment.

### Step 1

Establish a console connection to the SP.

Log your console session as a best practice. The log enables you to capture a record of the session and compare the log to the steps in this document, if you need to troubleshoot. For example, in HyperTerminal, choose **Transfer > Capture Text** in order to log a console session. For more information, refer to [Connecting a Terminal to the Console Port on Catalyst Switches](#).

### Step 2

Back up the configuration.

You need to reconfigure the switch after you convert to CatOS as the system software because the conversion process loses the configuration. If you back up the configuration, the file can serve as a reference after the conversion or as a backup if you decide to convert back to Cisco IOS Software. Issue the **copy start tftp** command in order to back up the configuration.

For more information on use of the **copy start tftp** command to back up configuration files, refer to [Managing Software Images and Working with Configuration Files on Catalyst Switches](#).

### Step 3

Verify that the MSFC2A (c6msfc2a\*) run-time image is on the RP bootflash.

```
Router#dir bootflash:
Directory of bootflash:/
  1  -rwx   17498136  Feb 15 2006 14:46:06 +00:00  c6msfc2a-adventerprisek9_wan-mz.
    122-18.SXF.bin

    !--- This is the operating system image for the MSFC for use in the conversion.

  2  -rw-      649603  Feb 15 2006 14:48:44 +00:00  c6msfc2a-rm2.srec.122-17r.S6

65536000 bytes total (47388004 bytes free)
Router#
```

If you do not have the MSFC2A run-time image in RP bootflash, go to Step 4. If you do have the MSFC2A run-time image, go to Step 5.

### Step 4 (Optional)

Download the MSFC image into RP bootflash:.

**Note:** Complete this step only if you do not have the required MSFC2A run-time image (c6msfc2a\*) in RP bootflash:. Step 3 determines the need for this step.

**Note:** You can free up space if necessary on RP bootflash. Issue the **delete bootflash:filename** command in order to delete the file. Then, issue the **squeeze bootflash:** command in order to erase all deleted files from the device.

```
Router#copy tftp bootflash:
Address or name of remote host []? 10.1.1.2
Source filename []? c6msfc2a-adventerprisek9_wan-mz.122-18.SXF
Destination filename [c6msfc2a-adventerprisek9_wan-mz.122-18.SXF]?
Accessing tftp://10.1.1.2/c6msfc2a-adventerprisek9_wan-mz.122-18.SXF...
Loading c6msfc2a-adventerprisek9_wan-mz.122-18.SXF from 10.1.1.2 (via FastEthernet1/1):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 17498136 bytes]
17498136 bytes copied in 165.718 secs (105590 bytes/sec)
Verifying compressed IOS image checksum...
Verified compressed IOS image checksum for bootflash:/c6msfc2a-adventerprisek9_wan-mz.
122-18.SXF
Router#
Router#dir bootflash:
Directory of bootflash:/
  1  -rw-   17498136  Feb 15 2006 14:46:06 +00:00  c6msfc2a-adventerprisek9_wan-mz.
    122-18.SXF.bin
65536000 bytes total (48037851 bytes free)
Router#
```

## Step 5

Verify that the CatOS image (cat6000-sup32\*) is on either SP bootflash (**sup-bootdisk:**) or on a CompactFlash card (**disk0:**).

```
Router#dir sup-bootdisk:

!--- This is the SP bootflash and the location of the current
!--- Cisco IOS image (s3223*).

Directory of sup-bootdisk:/
  1  -rw-   45032388  Feb 14 2006 13:56:24 +00:00  s3223-ipbase_wan-mz.122-18.SXF
255954944 bytes total (210919424 bytes free)
Router#
Router#dir disk0:

!--- This is the CompactFlash Type II device called disk0:.

Directory of disk0:/
  1  -rw-   14670392  Feb 15 2006 14:50:42 +00:00  cat6000-sup32pfc3cvk8.8-4-1.bin

!--- This is the CatOS (cat6000-sup32*) image version for use in this conversion.

128094208 bytes total (113423802 bytes free)
Router#
```

If you do not have the CatOS image on either **sup-bootdisk:** or on **disk0:**, go to Step 6. If you have the CatOS image installed, go to Step 7.

## Step 6 (Optional)

Issue the **copy tftp sup-bootdisk:** command or the **copy tftp disk0:** command in order to download the image to either SP bootflash or to the CompactFlash card.

**Note:** Complete this step only if the Supervisor Engine 32 CatOS image is on neither the SP bootflash (**sup-bootdisk:**) nor the CompactFlash (**disk0:**). Step 5 determines the need for this step.

**Note:** You might need to format the CompactFlash if it has never been used before or if it was formatted with use of the Cisco IOS Software algorithm. In order to format CompactFlash on a Supervisor Engine 32, issue the **format disk0:** command. You can also free up space as necessary on the Flash devices. Issue the **delete sup-bootdisk:** or **delete disk0:filename** command in order to delete the file.

```
Router#copy tftp disk0:
Address or name of remote host []? 10.1.1.2
Source filename []? cat6000-sup32pfc3k8.8-4-1.bin
Destination filename [cat6000-sup32pfc3k8.8-4-1.bin]?
Accessing tftp://10.1.1.2/cat6000-sup32pfc3k8.8-4-1.bin...
Loading cat6000-sup32pfc3k8.8-4-1.bin from 10.1.1.2 (via FastEthernet1/1): !!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 14670392 bytes]
14670392 bytes copied in 107.544 secs (136413 bytes/sec)
Verifying compressed IOS image checksum...
Verified compressed IOS image checksum for disk0:/cat6000-sup32pfc3k8.8-4-1.bin
Router#
Router#dir disk0:
Directory of disk0:/
  1  -rw-      14670392  Feb 15 2006 14:50:42 +00:00  cat6000-sup32pfc3cvk8.8-4-1.bin
128094208 bytes total (113423802 bytes free)
Router#
```

## Step 7

Change the configuration register setting in order to put the switch into ROMmon on the next reload.

```
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#config-register 0x0
1d15h: %C6K_PLATFORM-SP-4-CONFREG_BREAK_ENABLED: The default factory setting for
config register is 0x2102.
It is advisable to retain 1 in 0x2102 as it prevents returning to ROMMON when break
is issued.
Router(config)#end
Router#
```

Issue the **show bootvar** command in order to verify the new configuration register setting:

```
Router#show bootvar
BOOT variable = sup-bootdisk:s3223-ipbase_wan-mz.122-18.SXF,1;
CONFIG_FILE variable does not exist
BOOTLDR variable does not exist
Configuration register is 0x2102 (will be 0x0 at next reload)
Standby is not present.
Router#
```

## Step 8

Reload the router.

```
Router#reload
System configuration has been modified. Save? [yes/no]: no
Proceed with reload? [confirm]
1d15h: %SYS-5-RELOAD: Reload requested by console. Reload Reason: Reload Command.
1d15h: %SYS-SP-3-LOGGER_FLUSHING: System pausing to ensure console debugging output.
1d15h: %OIR-SP-6-CONSOLE: Changing console ownership to switch processor.
```



*!--- This is the SP console prompt.*

## Step 11

From the SP console prompt, issue the show module command in order to check the status of the RP.

```
Console> enable
Console> (enable) show module
Mod Slot Ports Module-Type           Model                Sub Status
-----
 4   4   48   10/100BaseTX Ethernet      WS-X6248-RJ-45       no ok
 6   6    9   1000BaseX Supervisor    WS-SUP32-GE-3B       yes ok
Mod Module-Name           Serial-Num
-----
 4                               SAD035101Z8
 6                               SAD092408DE
Mod MAC-Address(es)      Hw    Fw    Sw
-----
 4  00-30-19-c0-05-a8 to 00-30-19-c0-05-d7 1.1    4.2(0.24)V 8.4(1)
 6  00-11-5c-e1-cb-6a to 00-11-5c-e1-cb-6b 4.1    12.2       8.4(1)
    00-11-5c-e1-cb-60 to 00-11-5c-e1-cb-6b
    00-11-bc-90-5c-00 to 00-11-bc-90-5f-ff
Mod Sub-Type              Sub-Model            Sub-Serial  Sub-Hw  Sub-Sw
-----
 6  L3 Switching Engine III WS-F6K-PFC3B        SAD0923024J 2.1
Console> (enable)
```

**Note:** This output does not show MSFC2A in slot 15 because the MSFC2A (RP) is still in the ROMmon mode.

## Step 12

Issue the **switch console** command in order to access the RP.

```
Console> (enable) switch console
Trying Router-15...
Connected to Router-15.
Type ^C^C^C to switch back...
rommon 1 >
```

*!--- This is the RP ROMmon.*

**Note:** If you try to issue the **session 15** command at this point, you receive this error:

```
Console> (enable) session 15
Module 15 is not installed.
```

## Step 13

Purge the NVRAM.

You must purge NVRAM at this point in order to avoid the traverse of any corrupted file during the software conversion. Issue these commands from ROMmon privileged mode in order to purge the NVRAM:

```
rommon 2 > priv
```

*!--- Press **Enter** or **Return**.*



```

!--- You have entered ROMmon privileged mode.
!--- You see this output:

You now have access to the full set of monitor commands.
Warning: some commands will allow you to destroy your
configuration and/or system images and could render
the machine unbootable.

rommon 3 > fill

!--- Press Enter or Return.
!--- Be sure to enter these parameters exactly:
!--- The first line is a "be" (no space) followed by six zeros ("000000").
!--- The next line is an "8" (no space) followed by four zeros ("0000").

Enter in hex the start address [0x0]: be000000

!--- Press Enter or Return.

Enter in hex the test size or length in bytes [0x0]: 80000

!--- Press Enter or Return.

Enter in hex the pattern to be written [0x0]: ffff

!--- Press Enter or Return.

Enter the operation size 'l'ong, 'w'ord, or 'b'yte []: l

!--- Press Enter or Return.
!--- After the NVRAM erase has completed, issue the reset command.

rommon 4 > reset

!--- Press Enter or Return.

System Bootstrap, Version 12.2(17r)SX3, RELEASE SOFTWARE(fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright(c) 2004 by cisco Systems, Inc.

!--- Output suppressed.

```

## Step 14

Issue the **dir bootflash** command in order to verify that the MSFC run-time image (c6msfc2a\*) is present on the RP bootflash. Then, issue the **boot** command in order to boot this image.

```

rommon 2 > dir bootflash:
      File size           Checksum      File name
17498136 bytes (0x10b0018) 0xba6225c2   c6msfc2a-adventerprisek9_wan-mz.122-18.SXF.
                               bin
      649603 bytes (0x9e983) 0xc0d75a91   c6msfc2a-rm2.srec.122-17r.S6

rommon 3 > boot bootflash:c6msfc2a-adventerprisek9_wan-mz.122-18.SXF.bin
Self decompressing the image : #####
#####
[OK]

!--- Output suppressed.

Cisco Internetwork Operating System Software
IOS (tm) MSFC2A Software (C6MSFC2A-ADVENTERPRISEK9_WAN-M), Version 12.2(18)SXF,

```

```
RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2005 by cisco Systems, Inc.
Compiled Fri 09-Sep-05 19:09 by ccai
Image text-base: 0x40101040, data-base: 0x4258800
```

*!--- Output suppressed.*

```
cisco MSFC2A (R7000) processor (revision MSFC2A) with 229376K/32768K bytes of memory.
Processor board ID MSFC2A
R7000 CPU at 300Mhz, Implementation 0x27, Rev 3.3, 256KB L2, 1024KB L3 Cache
Last reset from power-on
SuperLAT software (copyright 1990 by Meridian Technology Corp).
X.25 software, Version 3.0.0.
Bridging software.
TN3270 Emulation software.
509K bytes of non-volatile configuration memory.
65536K bytes of Flash internal SIMM (Sector size 512K).
```

Press RETURN to get started!

*!--- Output suppressed.*

Router>

## Step 15

Set the boot variables for both the SP and RP to autoboot. Because you are already on the RP, alter these variables first.

*!--- Set the boot variable to boot the MSFC image.*

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#boot system flash bootflash:c6msfc2a-adventerprisek9_wan-mz.122-18.SXF.bin
Router(config)#
```

*!--- Change the configuration register back to its normal setting.*

```
Router(config)#config-register 0x2102
Router(config)#end
Router#
```

*!--- Save your changes.*

```
Router#write memory
Building configuration...
[OK]
Router#
```

*!--- Verify the new boot parameters.*

```
Router#show bootvar
BOOT variable = bootflash:c6msfc2a-adventerprisek9_wan-mz.122-18.SXF.bin,1;
CONFIG_FILE variable does not exist
BOOTLDR variable does not exist
Configuration register is 0x0 (will be 0x2102 at next reload)
```

```
Standby is not present.
Router#
```

**Note:** The BOOTLDR variable is not necessary because the bootloader functionality is contained within ROMmon.

## Step 16

The MSFC2A is now up and running properly and is ready for configuration. However, there are still a few things for you to do on the SP.

In order to go back to the SP, enter **Ctrl-C** three times on the RP.

*!--- Enter Ctrl-C three times.*

```
Router#^C
Router#^C
Router#^C
Console>
```

## Step 17

If the SP bootflash (**bootdisk:**) or the CompactFlash (**disk0:**) was formatted while you ran Cisco IOS system software, CatOS cannot write to SP bootflash or onto the CompactFlash devices successfully. CatOS can only read from these devices. You need to reformat these flash devices and replace the images on them.

```
Console> (enable) format bootdisk:
```

```
All sectors will be erased, proceed (y/n) [n]? y
Enter volume id (up to 31 characters):
Format: Drive communication & 1st Sector Write OK...
```

*!--- Output suppressed.*

```
Format: Total sectors in formatted partition: 500192
Format: Total bytes in formatted partition: 256098304
Format: Operation completed successfully.
Console> (enable)
```

```
Console> (enable) format disk0:
```

```
All sectors will be erased, proceed (y/n) [n]? y
Enter volume id (up to 31 characters):
```

```
Format: Drive communication & 1st Sector Write OK...
Writing Monlib sectors.....
.....
```

*!--- Output suppressed.*

```
Console> (enable)
```

## Step 18

When you formatted the Supervisor Engine Flash devices in Step 17, the action erased all data on these devices, which include the CatOS image that is used to boot the Supervisor Engine. You need to recopy the CatOS image (cat6000-sup32).

**Note:** Remember that the conversion lost the configuration. You must configure an IP address on the sc0 interface and possibly a default route in order to reestablish connectivity to your TFTP server. Verify that you can ping your TFTP server from the switch.



```
Console> (enable)
```

```
!--- Display the image name and location.
```

```
Console> (enable) dir bootdisk:
```

```
10997  -rw- 14670392   Feb 16 2006 06:55:28 cat6000-sup32pfc3cvk8.8-4-1.bin
```

```
241094656 bytes available (14671872 bytes used)
```

```
Console> (enable)
```

```
!--- Set the boot variable to load the CatOS image from bootdisk:.
```

```
Console> (enable) set boot system flash bootdisk:cat6000-sup32pfc3k8.8-4-1.bin
```

```
BOOT variable = bootdisk:cat6000-sup32pfc3k8.8-4-1.bin,1;
```

```
Console> (enable)
```

```
!--- Verify the environment variables.
```

```
Console> (enable) show boot
```

```
BOOT variable = bootdisk:cat6000-sup32pfc3k8.8-4-1.bin,1;
```

```
CONFIG_FILE variable = bootdisk:switch.cfg
```

```
Configuration register is 0x2102
```

```
ignore-config: disabled
```

```
auto-config: non-recurring, overwrite, sync disabled
```

```
ROMMON console baud: 9600
```

```
boot: image specified by the boot system commands
```

```
!--- Output suppressed.
```

```
Console> (enable)
```

## Step 20

Reset the switch.

```
Console> (enable) reset
```

```
This command will reset the system.
```

```
Do you want to continue (y/n) [n]? y
```

```
2006 Feb 16 07:03:29 %SYS-5-SYS_RESET: System reset from Console//
```

```
Powering OFF all existing linecards
```

```
!--- Output suppressed.
```

```
Currently running ROMMON from S (Gold) region
```

```
Boot image: bootdisk:cat6000-sup32pfc3cvk8.8-4-1.bin
```

```
Firmware compiled 27-Dec-04 14:33 by integ Build [100]
```

```
Running System Diagnostics from this Supervisor (Module 6)
```

```
This may take several minutes...please wait
```

```
2006 Feb 16 07:05:18 %SYS-1-SYS_ENABLEPS: Power supply 1 enabled
```

```
Cisco Systems Console
```

```
Enter password:
```

```
Console>
```

After the switch has booted back up, issue the **show version** command on the SP in order to verify that you run the correct version of CatOS.

```
Console> enable
```

```
Console> (enable) show version
```

```
WS-C6506 Software, Version NmpSW: 8.4(1)
Copyright (c) 1995-2004 by Cisco Systems
NMP S/W compiled on Dec 27 2004, 20:22:02
```

```
System Bootstrap Version: 12.2
System Web Interface Version: Engine Version: 5.3.4 ADP Device: Cat6000
ADP Version: 7.0 ADK: 49
System Boot Image File is 'bootdisk:cat6000-sup32pfc3cvk8.8-4-1.bin'
System Configuration register is 0x2102
```

*!--- Output suppressed.*

```
Console> (enable)
```

Switch session to the RP (MSFC) and issue the **show version** command in order to verify that you run the correct version of Cisco IOS Software for the MSFC.

```
Console> (enable) switch console
Trying Router-16...
Connected to Router-16.
Type ^C^C to switch back...
Router>enable
Router#show version
Cisco Internetwork Operating System Software
IOS (tm) MSFC2A Software (C6MSFC2A-ADVENTERPRISEK9_WAN-M), Version 12.2(18)SXF,
RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2005 by cisco Systems, Inc.
Compiled Fri 09-Sep-05 19:09 by ccai
Image text-base: 0x40101040, data-base: 0x42588000

ROM: System Bootstrap, Version 12.2(17r)SX3, RELEASE SOFTWARE (fc1)
BOOTLDR: MSFC2A Software (C6MSFC2A-ADVENTERPRISEK9_WAN-M), Version 12.2(18)SXF,
RELEASE SOFTWARE (fc1)
```

*!--- Output suppressed.*

## Conversion on Redundant Supervisor Engines

**Note:** Do not attempt to convert one Supervisor Engine with another Supervisor Engine that is installed at the same time. The conversion process was not designed for this type of conversion.

Complete these steps when you convert redundant Supervisor Engines:

1. Eject the standby Supervisor Engine.
2. Run the appropriate conversion procedure on the active Supervisor Engine, and then verify.

For the procedure, see the Step-by-Step Procedure to Convert from Cisco IOS Software to CatOS System Software section of this document.

3. Eject the active Supervisor Engine.
4. Insert the standby Supervisor Engine, and complete and verify the same procedure.
5. Insert the other Supervisor Engine for a redundant configuration.

For information on how to upgrade the software images in Catalyst 6500/6000 Switches with redundant supervisors, refer to Catalyst 6000/6500 Series Switches with Redundant Supervisor Engines Software Image Upgrade Configuration Example.

## Related Information

- **System Software Conversion from CatOS to Cisco IOS for Catalyst 6500/6000 Switches**
  - **Managing Software Images and Working with Configuration Files on Catalyst Switches**
  - **Working With the Flash File System**
  - **Modifying, Downloading, and Maintaining Configuration Files**
  - **LAN Product Support**
  - **LAN Switching Technology Support**
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