

Recover an MSFC Missing from the Supervisor Engine show module Command

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Introduction

This document explains how to recover a Multilayer Switch Feature Card (MSFC) when it is missing or in the other state in **show module** command output in the Catalyst 6500/6000 Supervisor Engine. When an MSFC is missing, the cause is typically attributed to the reload of the Supervisor Engine since the last time the MSFC was operational. When an MSFC is in the other state, the cause is typically attributed to the failure to reload the Supervisor Engine since the last time the MSFC was operational.

Prerequisites

Requirements

Cisco recommends that you have knowledge of the information in this section.

This is example command output from the **show module** command when the MSFC is missing:

```
Cat6500 (enable) show module

Mod Slot Ports Module-Type           Model                Sub Status
-----
1      1      2      1000BaseX Supervisor        WS-X6K-SUP1A-2GE    yes ok

Mod Module-Name           Serial-Num
-----
1                          SAD040200B3

Cat6500 (enable) session 15

Module 15 is not installed.
```

This is example command output from the **show module** command when the MSFC is in the other state:

```
Cat6500 (enable) show module
```

Mod	Slot	Ports	Module-Type	Model	Sub	Status
1	1	2	1000BaseX Supervisor	WS-X6K-SUP1A-2GE	yes	ok
15	1	1	Multilayer Switch Feature	WS-F6K-MSFC	no	other

```
Cat6500 (enable) session 15
```

```
Trying Router-15...
```

*!--- The session is not created. Press **Ctrl-C** to escape.*

Note: In this example, the Supervisor Engine and MSFC reside in slot 1. Hence, you must issue the **session 15** command in order to connect to the MSFC. If the MSFC is in slot 2, issue the **session 16** command in order to connect to that MSFC.

This list indicates the most common causes of a missing MSFC or an MSFC in the **other** state in the **show module** command output. See the corresponding section of this document for further information and recovery procedures:

- MSFC is in the ROM monitor (ROMmon) state.
- MSFC has an incorrect or missing boot statement.
- MSFC has a corrupted or missing Cisco IOS® Software image.
- MSFC has an incorrect configuration register.
- MSFC is stuck in boot mode.

Components Used

This document is not restricted to specific software or hardware versions.

Conventions

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

Recovery Procedures

MSFC Is in the ROMmon State

The output in this section is from the **show module** command when MSFC is in the ROMmon state.

Note: Issue one of these **session** commands:

- If the MSFC that you want to recover physically resides in the Supervisor Engine module in slot 1, issue the **session 15** command.
- If the MSFC is in slot 2, issue the **session 16** command.

Note: If the MSFC of the standby Supervisor Engine is inaccessible, see the instructions in the Recover a Standby Supervisor Engine MSFC in Dual Supervisor Engines in a Chassis section of this document before you proceed.

```
Cat6500 (enable) session 15
```

```
Trying Router-15...
```

```
Cat6500> (enable) show module 15
```

Module 15 is not installed.

This procedure guides you through the recovery of the MSFC when it is in the ROMmon state:

1. Connect to the Supervisor Engine through a console port connection.

Note: Do not connect through Telnet.

2. At the prompt, issue the **switch console** command.

```
Cat6500 (enable) switch console
```

```
Trying Router-15...  
Connected to Router-15.  
Type ^C^C^C to switch back...
```

```
!--- Press Enter here.
```

```
rommon 1 >
```

If you are able to access the ROMmon of the MSFC, proceed to Step 13.

3. If you are unable to access the ROMmon, as indicated in Step 2, complete these steps:

- a. Reset the Supervisor Engine switch.
- b. After you reset the switch, issue the **switch console** command as soon as you are able to access the Supervisor Engine command prompt.

At this point, you should be able to see the MSFC boot.

- c. Immediately press **Ctrl-Break** in order to break into the MSFC ROMmon.

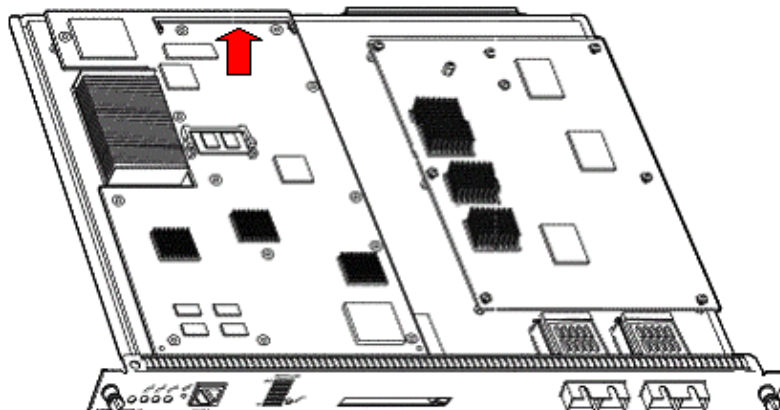
If you are able to access the MSFC `rommon >` prompt, proceed to Step 13.

Note: The break sequence that you enter depends on the terminal emulation software and the operating system that you use. For example, HyperTerminal on Microsoft Windows 2000 uses **Ctrl-Break** as the break sequence. For more information, refer to Standard Break Key Sequence Combinations During Password Recovery.

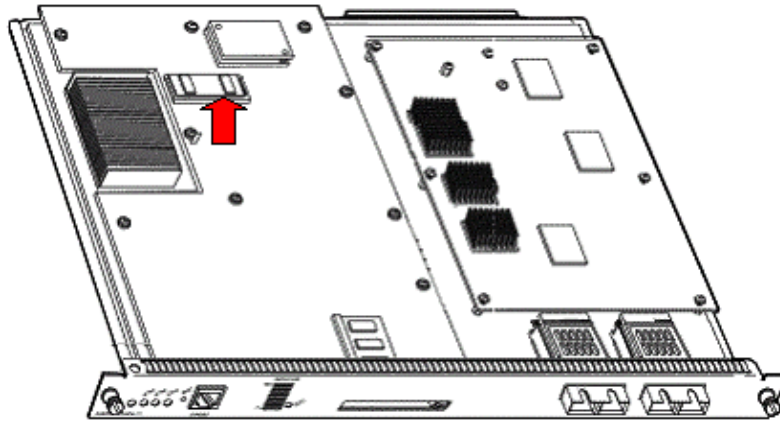
- d. If attempts to access the MSFC ROMmon fail, power down the switch and physically remove the MSFC bootflash.

These illustrations show the physical bootflash locations with red arrows:

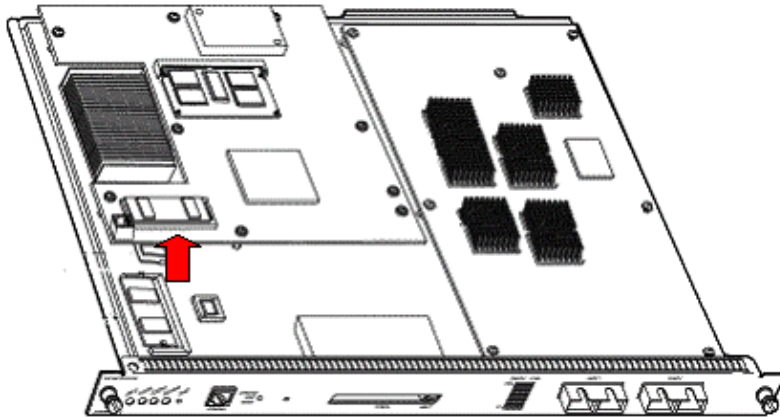
Bootflash Location for MSFC



Bootflash Location for MSFC2 Shipped Before November, 2001



Bootflash Location for MSFC2 Shipped After November, 2001



4. Power the switch back up and issue the **switch console** command in order to access the MSFC ROMmon.

Note: If output still scrolls on the screen or you are not presented with the `rommon >` prompt, send a break sequence to the MSFC. Refer to Standard Break Key Sequence Combinations During Password Recovery for more information.

5. At the prompt, issue the **set** command in order to display the current ROMmon boot variable settings.

```
rommon 2 > set

PS1=rommon ! >
BOOTLDR=bootflash:c6msfc-boot-mz.121-6.E
BOOT=bootflash:c6msfc-jsv-mz.121-6.E,1;?=1
```

6. Issue the **BOOT=** command and the **BOOTLDR=** command in order to reset the BOOT and BOOTLDR variables.

Note: These commands are case sensitive.

```
rommon 2 > BOOT=

rommon 3 > BOOTLDR=
```

7. Issue the **confreg 0x0** command in order to set the configuration register to 0x0.

Note: This command is case sensitive.

```
rommon 4 > confreg 0x0
```

8. At the prompt, issue the **sync** command in order to synchronize the boot and configuration register settings, and then issue the **reset** command.

```
rommon 5 > sync

rommon 6 > reset
```

```
System Bootstrap, Version 12.0(3)XE, RELEASE SOFTWARE
Copyright (c) 1998 by cisco Systems, Inc.
Cat6k-MSFC platform with 131072 Kbytes of main memory
```

9. After the MSFC resets, issue the **set** command in order to verify that the settings were saved.

```
rommon 1 > set

PS1=rommon ! >
BOOT=
BOOTLDR=
CONFREG=0x0
```

10. Power down the switch and reinsert the MSFC bootflash.
11. Power up the switch and issue the **switch console** command in order to access the MSFC.
12. Issue the **dir bootflash:** command in order to display the contents of the MSFC bootflash:

```
rommon 1 > dir bootflash:

File size Checksum File name
1730952 bytes (0x1a6988) 0x880dbda7 c6msfc-boot-mz.121-6.E1.bin
12212028 bytes (0xba573c) 0xbe32bc20 c6msfc-jsv-mz.121-8a.E2
```

13. Issue the **boot bootflash:** command in order to boot the MSFC.

Be sure to specify the appropriate system image (jsv, dsv, isv) that the **dir bootflash:** command output displays.

Note: Do not specify the image with `boot` in the file name.

```
rommon 1 > boot bootflash:c6msfc-jsv-mz.121-8a.E2

Self decompressing the image : #####
##### [OK]
cisco Cat6k-MSFC (R5000) processor with 57344K/8192K bytes of memory.
Processor board ID SAD04010CCY
R5000 CPU at 200Mhz, Implementation 35, Rev 2.1, 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.
123K bytes of non-volatile configuration memory.
4096K bytes of packet SRAM memory.
16384K bytes of Flash internal SIMM (Sector size 256K).
```

14. Press **Return** in order to get started.

If this procedure fails to recover the MSFC, contact Cisco Technical Support.

MSFC Has an Incorrect or Missing Boot Statement

The MSFC fails to boot properly if the saved configuration is missing or has an incorrect boot statement. This section shows example command output from an MSFC with an incorrect or missing boot statement, and it details the procedure to solve this problem.

```
MSFC#dir bootflash:

Directory of bootflash:/
 1 -rw- 1730952 Mar 27 2001 13:11:10 c6msfc-boot-mz.121-6.E1.bin
 2 -rw- 12212028 Jul 16 2001 10:52:05 c6msfc-jsv-mz.121-8a.E2
```

```
15990784 bytes total (2047548 bytes free)
```

```
MSFC#show run
```

```
Building configuration...
Current configuration : 274 bytes
!
version 12.1
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname MSFC
!
boot system flash bootflash:c6msfc-wrong-image.bin
```

Complete these steps in order to solve this problem:

1. Remove the incorrect boot statement.

```
MSFC(config)#no boot system flash bootflash:c6msfc-wrong-image.bin
```

2. Add the correct boot statement.

```
MSFC(config)#boot system flash bootflash:c6msfc-jsv-mz.121-8a.E2
```

```
MSFC(config)#^Z
```

```
MSFC#
```

```
00:04:23: %SYS-5-CONFIG_I: Configured from console by console
```

```
MSFC#show run
```

```
Building configuration...
Current configuration : 275 bytes
!
version 12.1
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname MSFC
!
boot system flash bootflash:c6msfc-jsv-mz.121-8a.E2
```

Note: Be sure to save the configuration before you reload the MSFC. Issue the **write memory** command or the **copy running-config startup-config** command.

Be sure to properly configure the `bootldr` statement and specify the desired boot image. This is example command output that shows how to properly configure and verify the `bootldr` statement:

```
MSFC#dir
```

```
Directory of bootflash:/
 1 -rw- 1730952 Mar 27 2001 13:11:10 c6msfc-boot-mz.121-6.E1.bin
 2 -rw- 12212028 Jul 16 2001 10:52:05 c6msfc-jsv-mz.121-8a.E2
15990784 bytes total (316064 bytes free)
```

```
MSFC#show run
```

```
Building configuration...
Current configuration : 326 bytes
!
version 12.1
```


Also, you can compare the file size that the **dir** command or the **show bootflash:** command reports. You can reference the correct file size at the Software Center (Downloads) [↗](#) (registered customers only) .

If the MSFC fails to boot properly after you confirm the boot variables, image integrity, and configuration register, there is a possibility that the Flash device is faulty or corrupt. Before you replace the Flash device, issue the **format bootflash:** command in order to format the device. Download a new image through TFTP in order to complete the format.

Note: You can use TFTP in order to transfer software image files from a PC to your device. This document was written with output from the Cisco TFTP Server application. Cisco has discontinued this application and no longer supports it. If you do not have a TFTP server, obtain any third-party TFTP server application from another source.



Caution: Be careful when you format the Flash device. If the MSFC is reloaded before a new image is downloaded, you must recover the MSFC with Xmodem. If you format the Flash device and replace the image but this does not work, investigate a replacement of the Flash device.

MSFC Has an Incorrect Configuration Register

The configuration register is a value that dictates the MSFC boot behavior in addition to other variables. Issue the **show boot** command or the **show version** command in order to verify this value.

```
MSFC#show boot
```

```
BOOT variable = bootflash:c6msfc-jsv-mz.121-8a.E2,1
CONFIG_FILE variable =
BOOTLDR variable = bootflash:c6msfc-boot-mz.121-6.E1.bin
Configuration register is 0x102
```

```
MSFC#show version
```

```
Cisco Internetwork Operating System Software
IOS (tm) MSFC Software (C6MSFC-JSV-M),
  Version 12.1(8a)E2, EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Fri 03-Aug-01 14:23 by hqluong
Image text-base: 0x60008950, data-base: 0x61928000
ROM: System Bootstrap, Version 12.0(3)XE, RELEASE SOFTWARE
BOOTFLASH: MSFC Software (C6MSFC-BOOT-M),
  Version 12.1(6)E1, EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)
MSFC uptime is 3 minutes
System returned to ROM by reload at 19:20:19 UTC Sun Sep 3 2000
Running default software
cisco Cat6k-MSFC (R5000) processor with 57344K/8192K bytes of memory.
Processor board ID SAD04010CCY
R5000 CPU at 200Mhz, Implementation 35, Rev 2.1, 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.
123K bytes of non-volatile configuration memory.
4096K bytes of packet SRAM memory.
16384K bytes of Flash internal SIMM (Sector size 256K).
Configuration register is 0x102
```

You do *not* need to write the MSFC (or any Cisco router) configuration to memory after you change the configuration register variable. Correct configuration register settings include 0x102 and 0x2102.

This example command output shows how to correct the configuration register:

```
MSFC#show boot

BOOT variable = bootflash:c6msfc-jsv-mz.121-8a.E2,1
CONFIG_FILE variable =
BOOTLDR variable = bootflash:c6msfc-boot-mz.121-6.E1.bin
Configuration register is 0x0

MSFC#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

MSFC(config)#config-register 0x102

MSFC#show boot

BOOT variable = bootflash:c6msfc-jsv-mz.121-8a.E2,1
CONFIG_FILE variable =
BOOTLDR variable = bootflash:c6msfc-boot-mz.121-6.E1.bin
Configuration register is 0x0 (will be 0x102 at next reload)
```

Refer to Booting Commands for more information on the **config-register** command.

MSFC Is Stuck in Boot Mode

The MSFC can be stuck in boot mode for any of these reasons:

- A mismatch between the actual file name of the image in Flash and the file name that is used in the **boot** command
- An incorrect boot statement
- An incorrect configuration register value
- A corrupted or missing Cisco IOS Software image

Workaround

- If there is a mismatch between the actual file name of the image in Flash and the file name that is used in the **boot** command, correct the mismatch and reboot the MSFC.
- If there is an incorrect boot statement, complete the steps in the section MSFC Has an Incorrect or Missing Boot Statement.
- If there is an incorrect configuration register, complete the steps in the section MSFC Has an Incorrect Configuration Register.
- If there is a corrupted or missing Cisco IOS Software image, complete the steps in the section MSFC Has a Corrupted or Missing Cisco IOS Software Image.

Recover a Standby Supervisor Engine MSFC in Dual Supervisor Engines in a Chassis

The recovery procedures that this document has discussed so far apply to the recovery of an MSFC that belongs to the active Supervisor Engine, either in a single Supervisor Engine–equipped or a dual Supervisor Engine–equipped chassis. In a dual Supervisor Engine switch, the console of the standby Supervisor Engine is locked and only the console of the active Supervisor Engine is available. Because an MSFC does not have a physical external console port, you must issue the **switch console** command in order to get to the console of the active Supervisor Engine MSFC.

Note: In the example in this section, the active Supervisor Engine/MSFC resides in slot 1, while the standby Supervisor Engine/MSFC is in slot 2. If the standby Supervisor Engine/MSFC is in slot 1 and the active Supervisor Engine/MSFC is in slot 2, replace all references to `á6` with `á5`.

You have two options to recover the MSFC present in the standby Supervisor Engine that is shown as module 16:

1. Issue the **switch supervisor** command from the current active Supervisor Engine in order to make active the Supervisor Engine for which you need to recover the MSFC. This fails over to the second Supervisor Engine. You can follow the Recovery Procedures because the former standby Supervisor Engine is now the active Supervisor Engine and the console is accessible.

This method is straightforward, but it does have a disadvantage. The procedure can cause disruption to network operation until the MSFC is recovered. Therefore, use this method during a scheduled maintenance window or in less-demanding situations. If a spare chassis is available, you can remove the standby Supervisor Engine from the current chassis, install it in the spare chassis, and subsequently recover it without adverse effects on current operations of the production switch.

2. There is a less-intrusive method to enable the recovery of the MSFC in the standby Supervisor Engine without network downtime. In order to get to the console of the standby Supervisor Engine MSFC, issue the **switch console 16** command from the active Supervisor Engine. This command activates the standby Supervisor Engine console for the MSFC that you need to recover. Connect a terminal to the console of the standby Supervisor Engine. Then, you can use the Recovery Procedures for active Supervisor Engine MSFC recovery.

After you complete the recovery of the MSFC, press **Ctrl-C** three times in order to reactivate the console port on the active Supervisor Engine. The console on the standby Supervisor Engine is again locked, as before.

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Related Information

- [Booting the MSFC for the First Time](#)
- [Standard Break Key Sequence Combinations During Password Recovery](#)
- [LAN Product Support Pages](#)
- [LAN Switching Support Page](#)
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