

# 升级Catalyst 6000/6500系列交换机上的软件映像

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## 简介

本文档介绍在Catalyst 6000/6500系列交换机上升级软件映像的分步过程。

## 先决条件

## 要求

尝试进行此配置之前，请确保满足以下要求：

- 验证存储器和 Boot ROM 要求。
- 下载有效的软件映像。
- 在您的 PC 上安装 TFTP 服务器。
- 备份当前交换机配置和软件映像。

## 使用的组件

本文档不限于特定的软件和硬件版本。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

## 规则

有关文档约定的更多信息，请参考 Cisco 技术提示约定。

## 背景信息

本文档说明在 Supervisor 上运行 Catalyst 操作系统 (CatOS) 的 Catalyst 6000/6500 系列交换机上、在 MSM/MSFC 上运行 Cisco IOS® 以及 Cisco IOS 系统软件升级软件映像的分步过程。在以下情况下，需要升级软件镜像：

- 您想在网络中实现新软件版本中可用的新功能。
- 您想要安装新线卡，但在交换机上运行的最新软件版本不支持该线卡。
- 一个已知 Bug 影响了您的交换机，而该 Bug 在下一个软件版本中已得到解决。

## CatOS 和 Cisco IOS 系统软件之间的区别

Supervisor 上的 CatOS 和 MSFC 上的 Cisco IOS (混合)：

您可将 CatOS 映像用作系统软件，以在 Catalyst 6500/6000 交换机上运行 Supervisor。如果安装了可选的多层交换机功能卡 (MSFC)，请使用单独的 Cisco IOS 映像运行 MSFC。

Supervisor 和 MSFC 上的 Cisco IOS (本地)：

您可将单个 Cisco IOS 映像用作系统软件，以在 Catalyst 6500/6000 交换机上同时运行 Supervisor 和 MSFC。

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注意：有关详细信息，请参阅[Cisco Catalyst 6500系列交换机](#)。

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## 升级前步骤

### 检查存储器和 Boot ROM 要求

确定新软件版本需要的最少 DRAM、闪存和最低 Boot ROM 版本。检查您的交换机是否支持这些要求。请参阅 Catalyst 6000/6500 系列交换机发行版本注释以确定新软件映像的要求。

show version

命令会在交换机上显示 BootROM 版本、所安装的 DRAM 和 bootflash 大小。在运行 CatOS 的 Catalyst 6000/6500 交换机上发出 show version 命令。

<#root>

Cat6509> (enable)

show version

WS-C6509 Software, Version NmpSW: 5.5(5)  
Copyright (c) 1995-2000 by Cisco Systems  
NMP S/W compiled on Dec 14 2000, 17:05:38  
System Bootstrap Version: 5.3(1)

!--- This is the boot ROM version that runs on your switch.

Hardware Version: 3.0 Model: WS-C6509 Serial #: TBA05131085

Mod	Port	Model	Serial #	Versions
1	2	WS-X6K-SUP1A-2GE	SAD05060PU7	Hw : 7.0 Fw : 5.3(1) Fw1: 5.4(2) Sw : 5.5(5) Sw1: 5.5(5)
4	48	WS-F6K-PFC WS-X6348-RJ-45	SAD05060131 SAD0509003M	Hw : 1.1 Hw : 2.0 Fw : 5.4(2) Sw : 5.5(5)
15	1	WS-F6K-VPWR WS-F6K-MSFC	SAD05140AG0	Hw : 1.0 Hw : 1.4 Fw : 12.1(6)E1 Sw : 12.1(6)E1

DRAM

FLASH NVRAM

Module	Total	Used	Free	Total	Used	Free	Total	Used	Free
1	65408K	37654K	27754K	16384K	14984K	1400K	512K	255K	257K

!--- This is the amount of DRAM and Flash size installed on the switch.

Uptime is 149 days, 1 hour, 20 minutes  
Cat6509> (enable)

当运行 Cisco IOS 软件时，请检查 Supervisor 和 MSFC 上的存储器要求。在运行Cisco IOS软件的Catalyst 6000/6500交换机上发出show version命令。

<#root>

Cat6500#

**show version**

Cisco Internetwork Operating System Software  
Cisco IOS (tm) c6sup1\_rp Software (c6sup1\_rp-JSV-M), Version 12.1(8b)E9, EARLY DEPLOYMENT  
RELEASE SOFTWARE (fc3)  
TAC Support: <http://www.cisco.com/tac>  
Copyright (c) 1986-2002 by cisco Systems, Inc.  
Compiled Sun 17-Feb-02 12:01 by eaarmas  
Image text-base: 0x60020950, data-base: 0x61608000

*!--- This is the Boot ROM version that runs on your switch MSFC.*

**ROM: System Bootstrap, Version 12.0(3)XE, RELEASE SOFTWARE**

**BOOTFLASH: MSFC Software (C6MSFC-BOOT-M), Version 12.1(8b)E9, EARLY DEPLOYMENT  
RELEASE SOFTWARE (fc3)**

Cat6500 uptime is 7 minutes  
System returned to ROM by power-on (SP by reload)  
System image file is "sup-bootflash:c6sup11-jsv-mz.121-8b.E9"

*!--- The DRAM on the MSFC is the sum of these two values.*

**cisco Catalyst 6000 (R5000) processor with 114688K/16384K bytes of memory.**

Processor board ID SAD04120BNJ  
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.  
2 Virtual Ethernet/IEEE 802.3 interface(s)  
48 FastEthernet/IEEE 802.3 interface(s)  
18 Gigabit Ethernet/IEEE 802.3 interface(s)  
381K bytes of non-volatile configuration memory.  
4096K bytes of packet SRAM memory.

*!--- This is the bootflash size.*

16384K bytes of Flash internal SIMM (Sector size 256K).

Configuration register is 0x2102

Cat6500#

您还可以在Supervisor模块上发出show version命令。您可以使用命令从路由处理器(RP)提示符执行Supervisor处理器(SP) **remote command switch** 命令。

<#root>

Cat6500#

remote command switch show version

Cat6500-sp#  
Cisco Internetwork Operating System Software  
Cisco IOS (tm) c6sup1\_sp Software (c6sup1\_sp-SPV-M), Version 12.1(8b)E9,  
EARLY DEPLOYMENT RELEASE SOFTWARE (fc3)  
TAC Support: <http://www.cisco.com/tac>  
Copyright (c) 1986-2002 by cisco Systems, Inc.  
Compiled Sun 17-Feb-02 12:29 by eaarmas

Image text-base: 0x60020950, data-base: 0x60648000

*!--- This is the boot ROM version that runs on your switch supervisor.*

ROM: System Bootstrap, Version 5.3(1)

BOOTFLASH: c6sup1\_sp Software (c6sup1\_sp-SPV-M), Version 12.1(8b)E9,  
EARLY DEPLOYMENT RELEASE SOFTWARE (fc3)

Switch uptime is 2 minutes  
System returned to ROM by reload  
System image file is "bootflash:c6sup11-jsv-mz.121-8b.E9"

*!--- The DRAM on the Supervisor is the sum of these two values.*

cisco 6000 (NMP150) processor with 49152K/16384K bytes of memory.

R4700 CPU at 150Mhz, Implementation 33, Rev 1.0, 512KB L2 Cache  
Last reset from power-on  
X.25 software, Version 3.0.0.  
48 FastEthernet/IEEE 802.3 interface(s)  
18 Gigabit Ethernet/IEEE 802.3 interface(s)  
381K bytes of non-volatile configuration memory.

*!--- This is the external Flash card and internal bootflash size.*

24576K bytes of Flash PCMCIA card at slot 0 (Sector size 128K).  
16384K bytes of Flash internal SIMM (Sector size 256K).

Configuration register is 0x2102

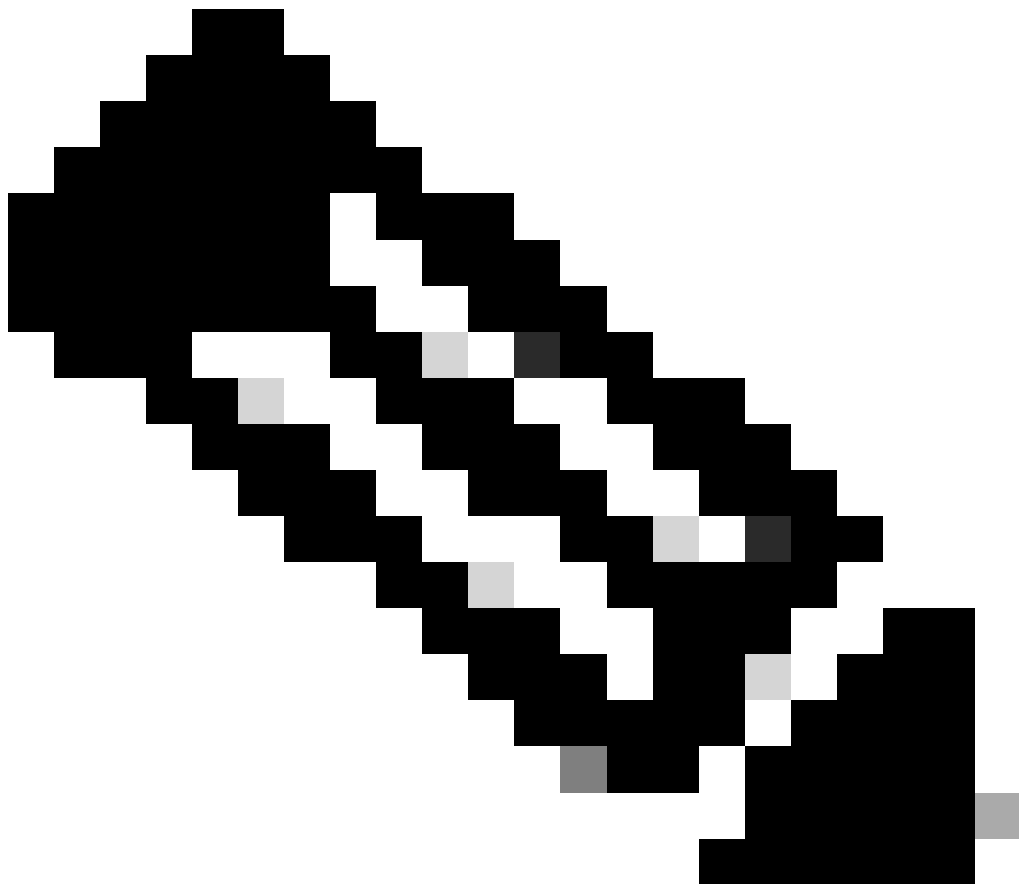
Cat6500#

Supervisor Boot ROM 版本升级即为 Boot ROM 硬件升级 ( 如果需要 )。可下载最新的 Bootstrap 软件映像以升级 MSFC Bootstrap 版本。  
请参阅以下文档以在 Supervisor 模块上升级 Boot ROM :

- [Catalyst 6000 系列 Supervisor 引擎 1 和 IA NMP Boot ROM 升级安装说明](#)

- [Catalyst 6000 系列 Supervisor 引擎 2 Boot ROM 和 Bootflash 设备升级安装说明](#)

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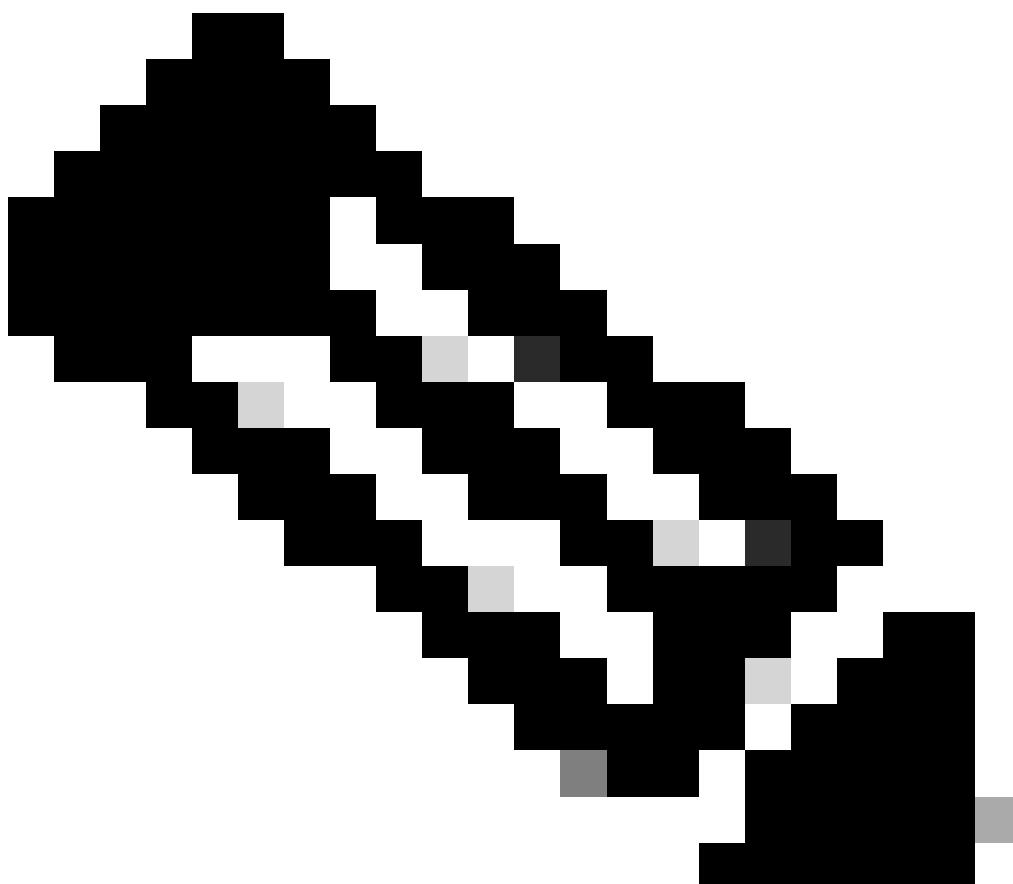
注：Supervisor 720当前没有可用的Boot ROM升级。

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## 下载软件镜像

在进行实际的映像升级前，必须将 CatOs 软件映像下载到充当 TFTP 服务器的 PC 上。您可以从[Cisco LAN交换软件中心](#)下载软件镜像。有关CatOS和Cisco IOS软件的详细信息，请参阅[CatOS和Cisco IOS系统软件之间的区别](#)部分。

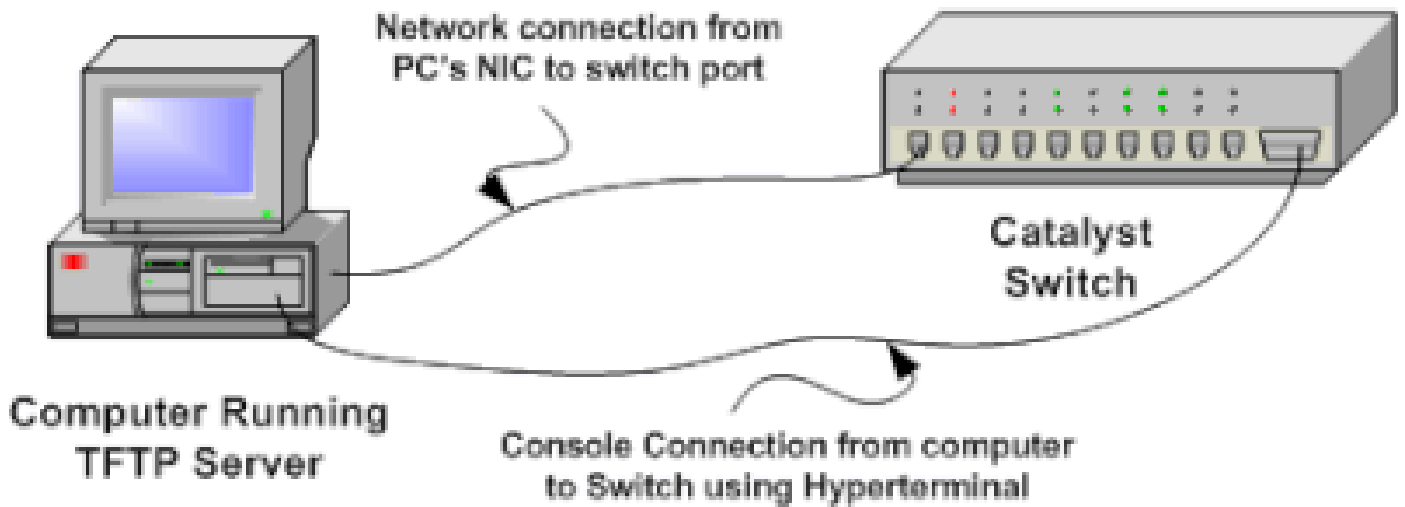
---



注意：只有思科注册用户才能访问思科内部工具和信息。

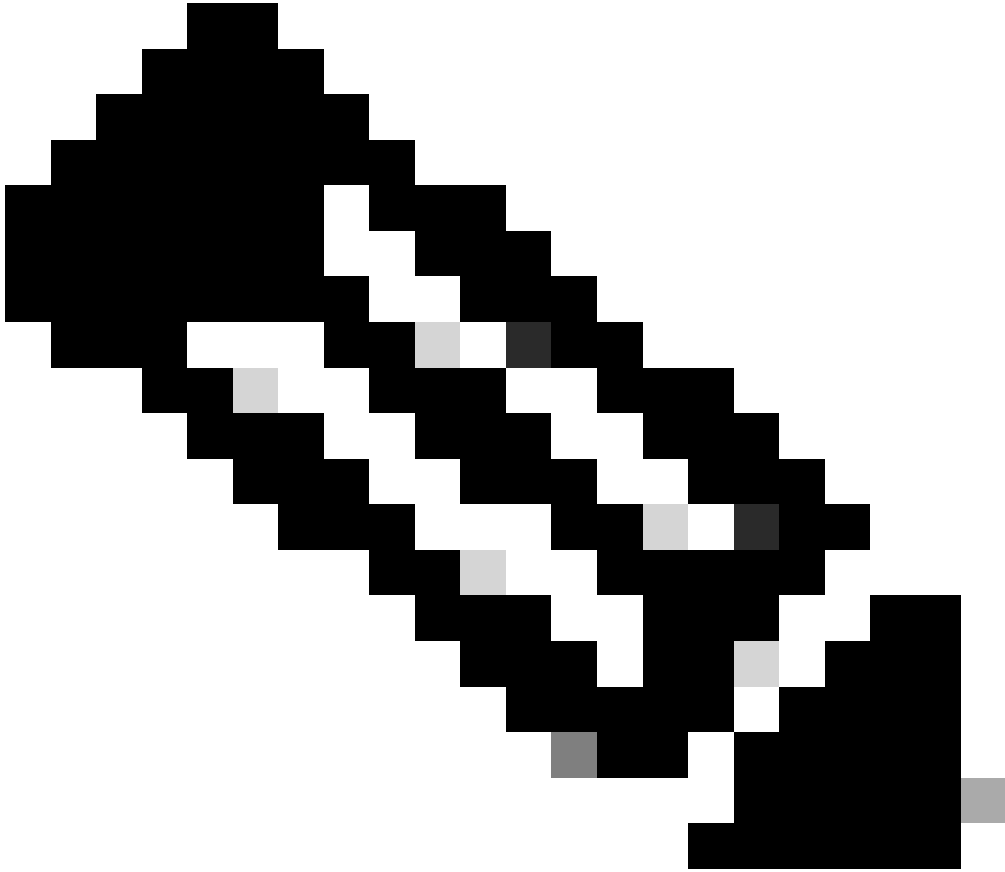
## 安装 TFTP 服务器

本文档中的输出示例使用运行 Microsoft™ Windows 2000 Professional 的 PC 上的 Cisco TFTP 服务器安装。可使用可在任何平台上安装的所有 TFTP 服务器。无需使用安装有 Windows 操作系统的 PC。



1.

从 Internet 下载任何共享软件的 TFTP 软件，并在将 CatOS 软件映像复制到交换机所使用的 PC 上安装这些软件。TFTP 服务器根目录必须是软件映像的下载目录。您可以将镜像下载到 TFTP 服务器的默认根目录，也可以将根目录路径更改为软件镜像所在的目录。对于 Cisco TFTP 服务器，您可以从 View Menu > Options 更改根目录。



注意：本文档是在Cisco TFTP服务器可通过软件中心下载时编写的。Cisco 不再支持 Cisco TFTP 服务器。如果您使用的是 Cisco TFTP 服务器，请禁用日志记录功能以免生成过多日志，这会中断 TFTP 进程。

---

若要在 Cisco TFTP 服务器上禁用日志记录功能，请完成以下步骤：

a.

选择 View Menu > Options。

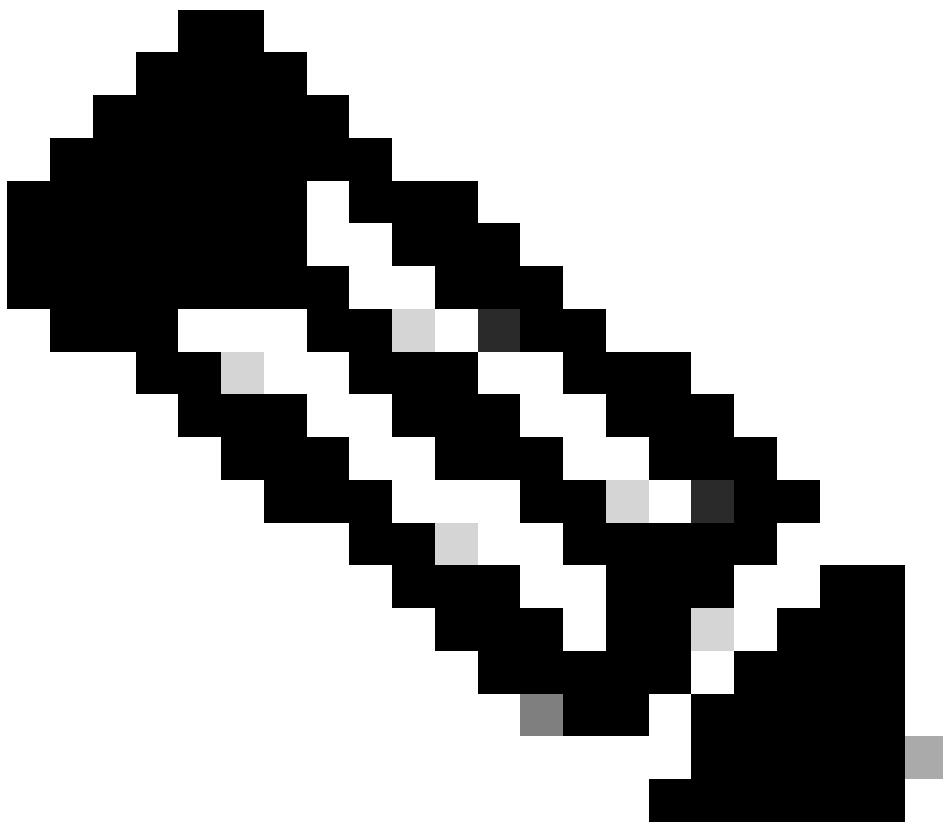
b.

清除 Enable Logging 选项。

c.

Click OK.

---



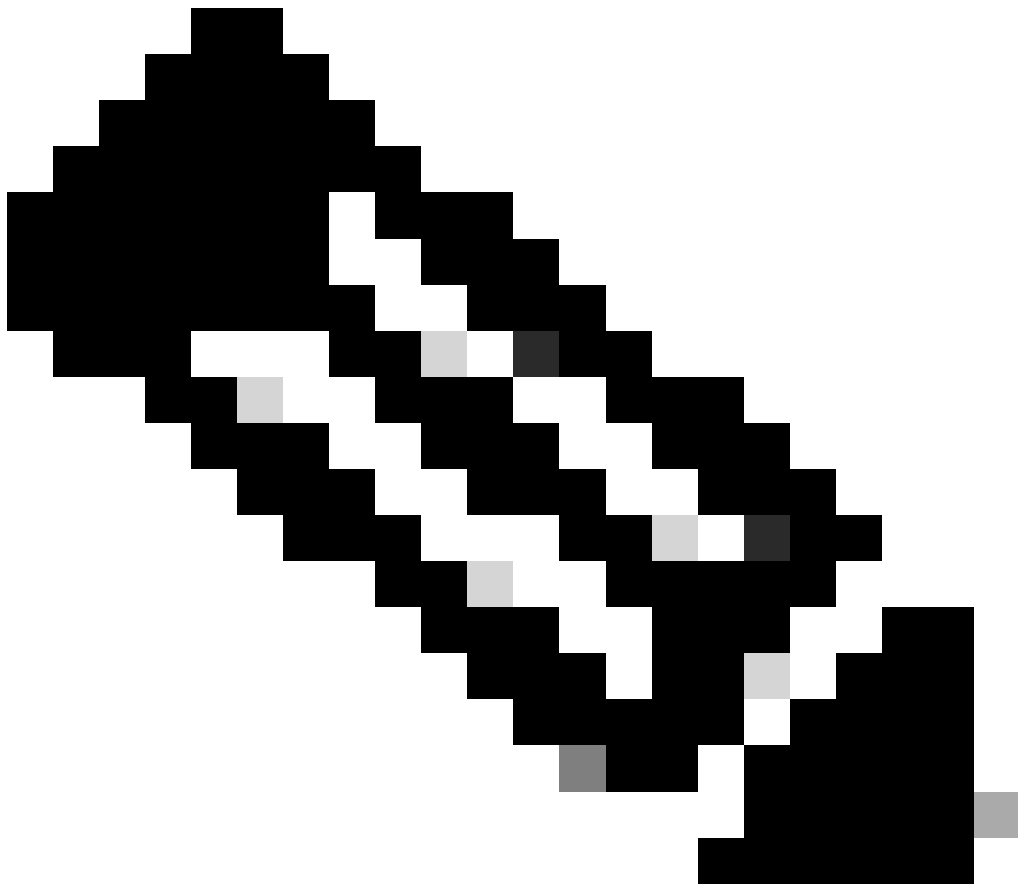
注：请注意，默认情况下会启用日志记录。

---

2.

在交换机控制台端口和PC之间连接一条控制台电缆，以访问交换机命令行界面(CLI)。请参阅[将终端连接到Catalyst交换机上的控制台端口](#)，以通过超级终端访问CLI。

---



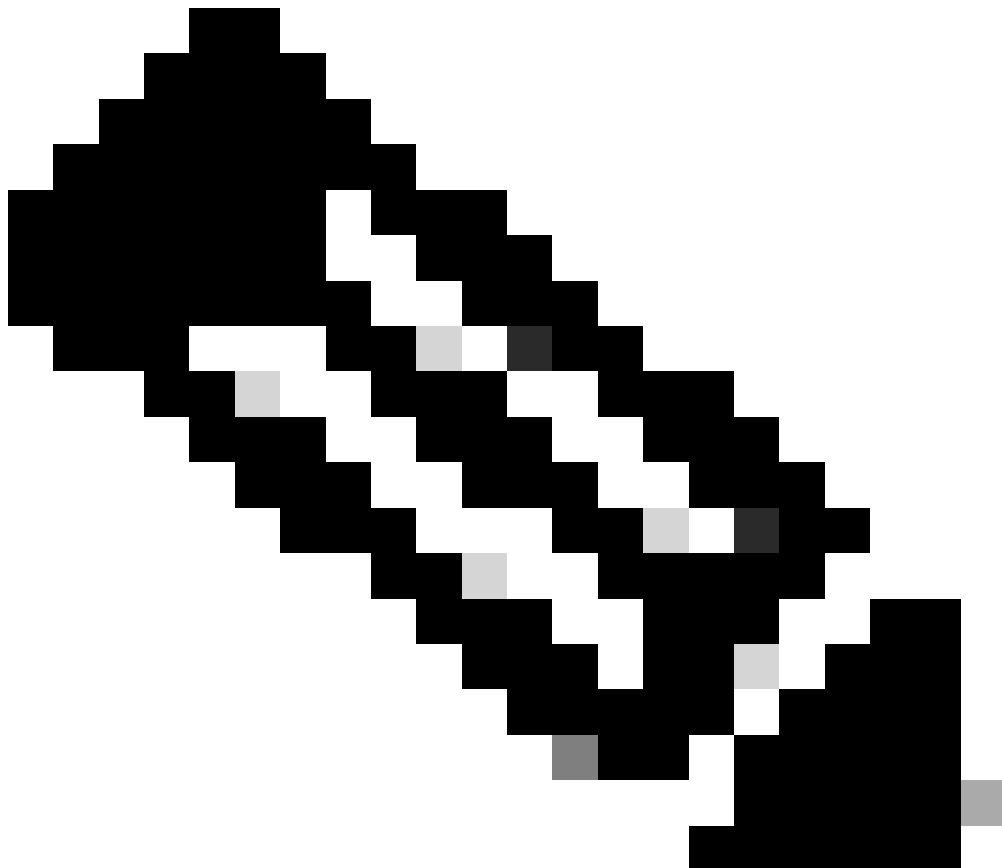
**注意：**您可以通过远程Telnet访问升级交换机。但是，在软件升级期间重新加载交换机时，您将断开 Telnet 连接。您可以在使用新映像加载交换机时重建 Telnet 会话。但是，为了在发生故障时排除故障，您必须具备本地控制台访问权限。Cisco 建议通过控制台访问升级交换机。

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## 备份配置和软件镜像

在运行 TFTP 服务器的 PC 上备份交换机配置和最新软件映像。如果升级过程因存储器不足或交换机 Bootflash 没有足够的空间来支持新映像等原因而失败，则始终可以使用交换机中的相同映像将交换机恢复到正常模式。如果您因任何原因而丢失交换机配置，则始终可以从 TFTP 服务器恢复这些配置。有关如何管理配置文件和软件映像的信息，请参阅[在Catalyst交换机上管理软件映像和使用配置文件](#)。

在运行Cisco IOS软件的Catalyst 6000/6500交换机上，您可以发出`copy startup-config tftp`或`copy startup-config bootflash:`命令以将配置复制或备份到TFTP服务器或bootflash。如果您对配置进行了修改，请务必发出`write memory`命令以将当前配置复制到启动配置中，并执行备份。可发出`copy bootflash: tftp`命令将当前软件映像从bootflash复制到TFTP服务器。如果要当前软件镜像从外部闪存卡复制到TFTP服务器，可以在Supervisor引擎1或2上使用`copy slot0: tftp`命令。在Supervisor引擎720上，请使用`copy disk0: tftp`或`copy disk1: tftp`命令。



---

注意：复制或备份配置文件时，如果交换机发现启动配置文件为空，则会显示%% Non-volatile configuration memory invalid or not present 错误消息。请在备份配置文件前发出 write memory 或 copy run start 命令，以避免此错误。

---

## 运行 CatOS 软件的交换机

### Supervisor 模块上的 CatOS

Catalyst 6000/6500 交换机 Supervisor 引擎 1 和 2 支持 PCMCIA 闪存卡的一个插槽，而 Supervisor 引擎 720 支持 2 个插槽。如果您已经在交换机上安装了 PCMCIA 闪存卡，那么您可以选择在 Bootflash 或 PCMCIA 闪存卡上复制新的软件镜像。

以下过程采用 Bootflash。如果使用 PCMCIA 闪存卡，则使用 Supervisor 1 或 2 时，所有命令中的 bootflash: 字替换 slot0；使用 Supervisor 720 时替换 disk0: / disk1:。

1.

确保验证存储器/Boot ROM 要求，已在 PC 上安装 TFTP 服务器，并且可从交换机控制台端口访问交换机控制台。如果您尚未做好以下设置的准备工作，请参阅[检查存储器](#)和[Boot ROM](#)要求部分。

2.

配置管理 IP 地址 (sc0)，并检查交换机与安装有 TFTP 服务器的 PC 之间的连通性。此示例方案将 IP 地址 10.10.10.1 用于交换机管理 (sc0)，将 IP 地址 10.10.10.2 用于 TFTP 服务器。

```
<#root>
```

```
!--- The management(sc0) IP address is configured on the switch.
```

```
Cat6509> (enable)
```

```
set interface sc0 1 10.10.10.1 255.255.255.0
```

Interface sc0 vlan set, IP address and netmask set.

*!--- Verify the management(sc0) IP address.*

Cat6509> (enable)

**show interface**

```
s10: flags=51<UP,POINTOPOINT,RUNNING>
      slip 0.0.0.0 dest 0.0.0.0
```

*!--- The sc0 is set in VLAN1 and*

*!--- the switch port that connects to the PC is in VLAN1.*

```
s10: flags=63<UP,BROADCAST,RUNNING>
```

```
vlan 1 inet 10.10.10.1 netmask 255.255.255.0 broadcast 10.10.10.255
```

Cat6509> (enable)

*!--- Verify the IP connectivity between*

*!--- the switch and PC with the TFTP server.*

Cat6509> (enable)

**ping 10.10.10.2**

!!!!

```
----10.10.10.2 PING Statistics----
```

```
5 packets transmitted, 5 packets received, 0% packet loss
round-trip (ms)  min/avg/max = 1/1/1
```

Cat6509> (enable)



3.

确保 Bootflash 中具有足够的可用空间，以便将新映像从 TFTP 服务器复制到 Bootflash。您可以在新映像所在的 PC 上查看该映像的大小。

```
<#root>
```

```
Cat6509> (enable)
```

```
dir bootflash:
```

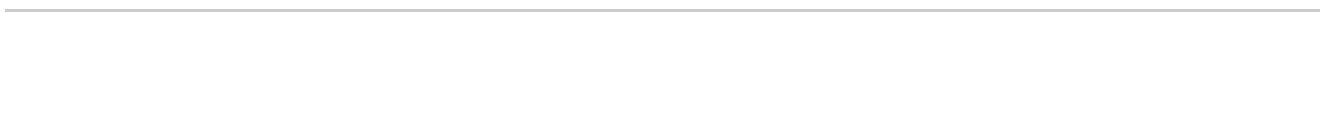
```

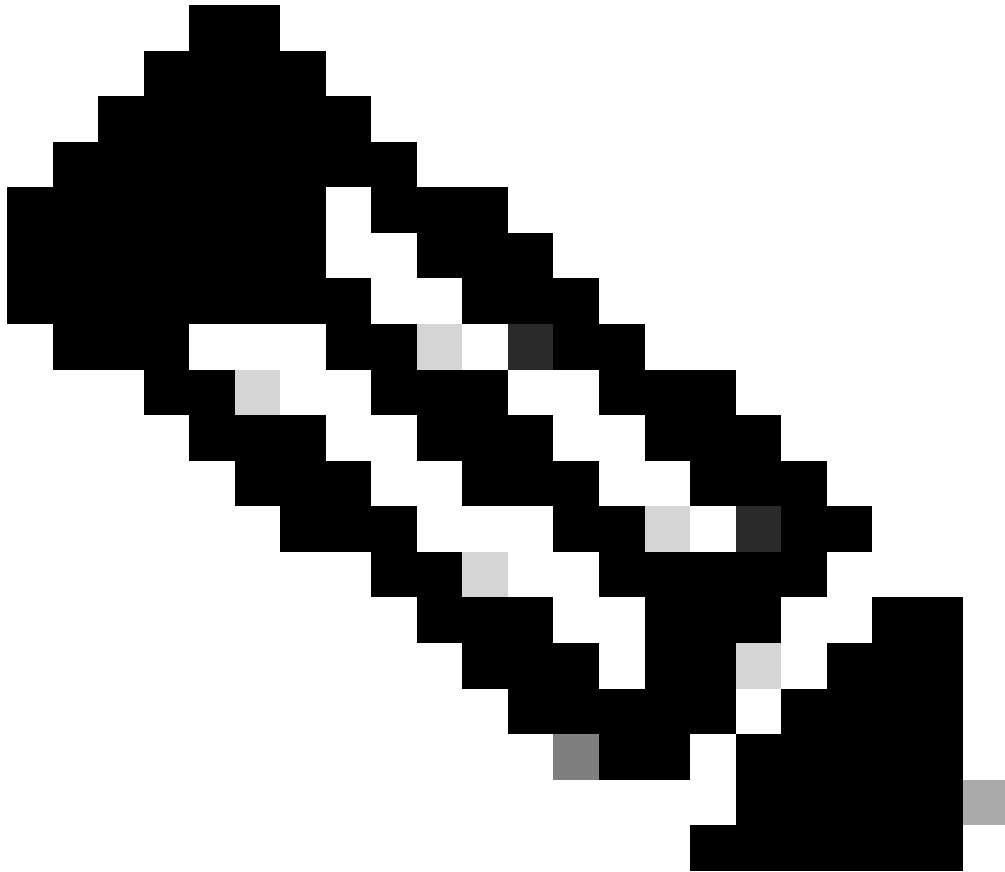
-#- -length- -----date/time----- name
  1 5741220 Aug 15 2002 15:05:35 cat6000-sup2.6-3-6.bin
26240220 bytes available (5741348 bytes used)
Cat6509> (enable)
```

```
!--- Note that the new image size is around 10 MB
!--- and the space available on bootflash is around 26MB
!--- which is sufficient. In case of insufficient space
!--- to copy the new image, delete the current image
!--- with the delete command and squeeze the bootflash
!--- with the squeeze command in order to get enough space on bootflash.
```

4.

从 TFTP 服务器上新的软件映像复制到 Bootflash 中，并验证镜像复制是否正确。检查新镜像的文件大小是否确切地与 Cisco.com 软件中心提及的大小匹配。如果存在差异，请检查该映像是否已在传输期间损坏。重新下载映像，确保交换机在重新加载之后不会进入 ROMMON 模式。





注意：运行Microsoft Windows操作系统的PC显示文件大小的方式可能与实际大小不同。右键单击文件名，并选择“属性”以便验证文件实际大小（以字节为单位）。

---

<#root>

Cat6509> (enable)

copy tftp bootflash:

IP address or name of remote host []? 10.10.10.2

```
Name of file to copy from []? cat6000-sup2cvk8.7-3-2.bin
26240092 bytes available on device bootflash, proceed (y/n) [n]? y
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
File has been copied successfully.
Cat6509> (enable)
Cat6509> (enable)
```

**dir bootflash:**

```
-#- -length- -----date/time----- name
  1  5741220 Aug 15 2002 15:05:35 cat6000-sup2.6-3-6.bin
  2 10580536 Oct 08 2002 18:25:56 cat6000-sup2cvk8.7-3-2.bin
15659556 bytes available (16322012 bytes used)
Cat6509> (enable)
```

5.

更改引导变量，以使交换机在重置后使用新的软件映像进行引导。

<#root>

Cat6509> (enable)

**show boot**

*!--- The switch originally boots with this image.*

```
BOOT variable = bootflash:cat6000-sup2.6-3-6.bin,1;
CONFIG_FILE variable =
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
Cat6509> (enable)
```

*!--- Old boot variable is cleared.*

Cat6509> (enable)

```
clear boot system flash bootflash:cat6000-sup2.6-3-6.bin
```

```
BOOT variable =
```

```
!--- New boot variable is configured.
```

```
Cat6509> (enable)
```

```
set boot system flash bootflash:cat6000-sup2cvk8.7-3-2.bin
```

```
BOOT variable = bootflash:cat6000-sup2cvk8.7-3-2.bin,1;
```

```
Cat6509> (enable)
```

```
show boot
```

```
BOOT variable = bootflash:cat6000-sup2cvk8.7-3-2.bin,1;
```

```
CONFIG_FILE variable = slot0:switch.cfg
```

```
!--- Make sure the config-register is set to 0x2102 so that the  
!--- switch boots with a valid software image. You can change the  
!--- config-register with the set boot config-register 0x2102  
!--- command. If the boot variable is not specified correctly,  
!--- your switch can reload in ROMMON mode.
```

```
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
```

```
Cat6509> (enable)
```

6.

重置交换机，以使交换机在重新加载期间使用新的软件映像进行引导。

```
Cat6509> (enable) reset
This command will reset the system.
Do you want to continue (y/n) [n]? y
2002 Oct 08 18:32:02 %SYS-5-SYS_RESET:System reset from Console//
Powering OFF all existing linecards
System Bootstrap, Version 7.1(1)
Copyright (c) 1994-2001 by cisco Systems, Inc.
c6k_sup2 processor with 131072 Kbytes of main memory
```

*!--- The switch boots with the new image.*

Autoboot executing command:

```
"boot bootflash:cat6000-sup2cvk8.7-3-2.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 S (Gold) region
Boot image: bootflash:cat6000-sup2cvk8.7-3-2.bin
Running System Diagnostics from this Supervisor (Module 1)
This may take up to 2 minutes....please wait
```

```
2002 Oct 08 18:33:26 %SYS-4-NVLOG:convert_post_SAC_CiscoMIB:Block 0
converted from version 8 to 11
```

```
Cisco Systems Console
Cat6509> (enable)
```

7.

验证交换机是否已加载新的软件映像。

<#root>

```
Cat6509> (enable)
```

show version

WS-C6509 Software, Version NmpSW: 7.3(2)

!--- The switch runs CatOS version 7.3(2).

Copyright (c) 1995-2002 by Cisco Systems  
NMP S/W compiled on Aug 1 2002, 17:38:15  
System Bootstrap Version: 7.1(1)  
System Web Interface Version: Engine Version: 5.3.4 ADP Device: Cat6000  
ADP Version: 1.9 ADK: 40  
Hardware Version: 2.0 Model: WS-C6509 Serial #: SCA034401HK

PS1 Module: WS-CAC-1300W Serial #: ACP03470856

Mod	Port	Model	Serial #	Versions
1	2	WS-X6K-SUP2-2GE	SAL060808K7	Hw : 3.4 Fw : 7.1(1) Fw1: 6.1(3) Sw : 7.3(2) Sw1: 7.3(2)
3	48	WS-F6K-PFC2 WS-X6348-RJ-45	SAL060801AG SAD04230FB6	Hw : 3.0 Hw : 1.1 Fw : 5.3(1) Sw : 7.3(2)
5	0	WS-C6500-SFM	SAD043702RP	Hw : 1.0 Fw : 6.1(3) Sw : 7.3(2)

Module	DRAM			FLASH			NVRAM		
	Total	Used	Free	Total	Used	Free	Total	Used	Free
1	131072K	62774K	68298K	32768K	17476K	15292K	512K	258K	254K

Uptime is 0 day, 0 hour, 1 minute  
Cat6509> (enable)

在Supervisor引擎720上，如果您使用PCMCIA闪存卡，请用disk0: 或disk1:替换此过程的所有命令中的bootflash: 一词。

请完成以下步骤以升级软件映像：

1.

验证disk0：中是否有足够的可用空间，以便将新映像从TFTP服务器复制到disk0。您可以在新映像所在的 PC 上查看该文件的大小。

```
<#root>
```

```
Cat6509-E (enable)
```

```
dir disk0:
```

```
2  -rw- 15057472  Apr 11 2006 07:28:11 cat6000-sup720k8.8-3-3.bin
```

```
49205248 bytes available (15060992 bytes used)
```

```
!--- Note that the new image size is around 15 MB and space  
!--- available on disk0 is around 49 MB, which is sufficient.  
!--- In case there is not enough free space to copy the new image,  
!--- delete the current image with the delete <drive> <filename> command  
.
```

2.

使用 **delete disk0:cat6000-sup720k8.8-3-3.bin**命令删除disk0：中的当前映像。然后，发出**squeeze disk0:**命令以从设备中清除所有已删除的文件。此步骤是可选的。

```
<#root>
```

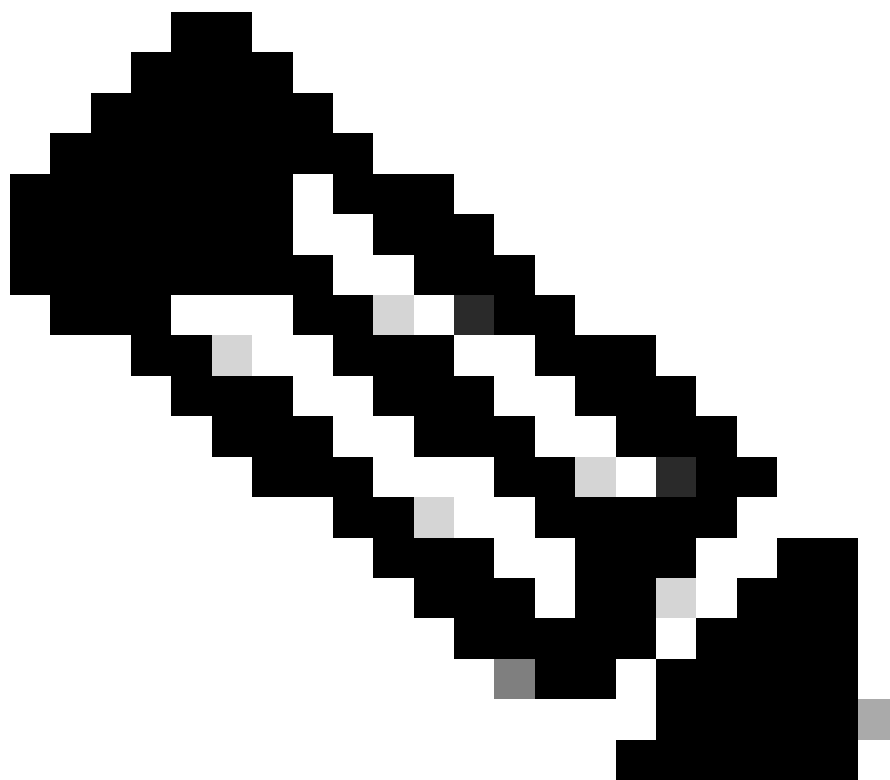
```
Cat6509-E (enable)
```

```
delete disk0:cat6000-sup720k8.8-3-3.bin
```

File disk0:cat6000-sup32pfc3k8.8-4-5.bin will be deleted permanently,  
continue (y/n) [n]? y

•

将新软件映像从 TFTP 服务器复制到 disk0 中，并验证是否已正确复制该映像。检查新镜像的文件大小是否确切地与 Cisco.com 软件中心提及的大小匹配。如果存在差异，请检查该映像是否已在传输期间损坏。重新下载映像，确保交换机在重新加载之后不会进入 ROMMON 模式。



注意：此过程使用FTP服务器，并且在映像传输期间没有问题。



Cat6509-E (enable)

copy ftp disk0:

```
IP address or name of remote host []? 10.66.64.10
Username for ftp[anonymous]? cisco
Password for User cisco[]:
Name of file to copy from []? cat6000-sup720k8.8-5-3.bin
64266240 bytes available on device disk0, proceed (y/n) [n]? y
```

```
Loading cat6000-sup720k8.8-5-3.bin
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

```
!!--Output Surpressed--!!
[OK - 17659732 bytes copied in 61.671 secs (286354 bytes/sec)
```

```
File disk0:cat6000-sup720k8.8-5-3.bin checksum verified and is Ok.
File has been copied successfully.
```

•  
更改引导变量，以使交换机在重置后使用新的软件映像进行引导。

<#root>

Cat6509-E (enable)

show boot

BOOT variable =

disk0:cat6000-sup720k8.8-3-3.bin,1;

CONFIG\_FILE variable = disk0: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

Image auto sync is enabled  
Image auto sync timer is 120 seconds

*!--- The switch originally boots with the old image.*

Cat6509-E (enable)

```
clear boot system flash disk0:cat6000-sup720k8.8-3-3.bin
```

BOOT variable =

*!--- Old boot variable is cleared.*

Cat6509-E (enable)

```
set boot system flash disk0:cat6000-sup720k8.8-5-3.bin
```

BOOT variable = disk0:cat6000-sup720k8.8-5-3.bin,1;

*!--- New boot variable is configured.*

Cat6509-E (enable)

```
show boot
```

BOOT variable =

```
disk0:cat6000-sup720k8.8-5-3.bin,1;
```

CONFIG\_FILE variable = bootflash: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

Image auto sync is enabled  
Image auto sync timer is 120 seconds

•

重置交换机，以使交换机在重新加载期间使用新的软件映像进行引导。

<#root>

Cat6509-E (enable)

**reset**

This command will reset the system.  
Do you want to continue (y/n) [n]? y  
2006 Apr 11 09:29:07 %SYS-5-SYS\_RESET:System reset from Console//  
Powering OFF all existing linecards  
Cat6509-E (enable)  
System Bootstrap, Version 8.1(3)  
Copyright (c) 1994-2004 by cisco Systems, Inc.  
Cat6k-Sup720/SP processor with 1048576 Kbytes of main memory  
  
Autoboot executing command: "boot disk0:cat6000-sup720k8.8-5-3.bin"  
Loading image, please wait ...

Self decompressing the image : #####  
!--- Output suppressed.

##### [OK]

System Power On Diagnostics  
DRAM Size .....1024 MB  
Testing DRAM .....Passed  
Verifying Text Segment .....Passed  
NVRAM Size .....2048 KB  
Level2 Cache .....Present  
Level3 Cache .....Present  
System Power On Diagnostics Complete

Currently running ROMMON from S (Gold) region  
Boot image: disk0:cat6000-sup720k8.8-5-3.bin

Firmware compiled 27-Jan-06 16:09 by integ Build [100]

Running System Diagnostics from this Supervisor (Module 5)  
This may take several minutes....please wait

Cisco Systems Console

Cat6509-E (enable)

.

验证交换机是否已加载新的软件映像。

<#root>

Cat6509-E (enable)

show version

WS-C6509-E Software, Version NmpSW: 8.5(3)  
Copyright (c) 1995-2006 by Cisco Systems  
NMP S/W compiled on Jan 28 2006, 17:37:02

System Bootstrap Version: 8.1(3)

System Boot Image File is 'disk0:cat6000-sup720k8.8-5-3.bin'

System Configuration register is 0x2102

Hardware Version: 1.0 Model: WS-C6509-E Serial #: SCA080600KT

PS1 Module: WS-CAC-2500W Serial #: ART0824E17L

Mod	Port	Model	Serial #	Versions
5	2	WS-SUP720-3BXL	SAL09148BCH	Hw : 4.3 Fw : 8.1(3) Fw1: 8.5(3) Sw : 8.5(3) Sw1: 8.5(3)
		WS-F6K-PFC3BXL	SAL091594QY	Hw : 1.6 Sw :
15	1	WS-SUP720	SAL09148NUB	Hw : 2.3 Fw : 12.2(17d)SXB11 Sw : 12.2(17d)SXB11

Module	DRAM			FLASH			NVRAM		
	Total	Used	Free	Total	Used	Free	Total	Used	Free
5	1048576K	205619K	842957K	64000K	14705K	49295K	2048K	262K	1786K

Uptime is 0 day, 0 hour, 2 minutes  
Cat6509-E (enable)

## Supervisor 引擎 32

Supervisor 引擎 32 具有以下功能：

1.

通过内部微型闪存设备（在 CLI 中称为“bootdisk”）提供 256 MB 的 Bootflash

2.

闪存插槽( disk 0)

有关Supervisor功能的详细信息，请参阅[Catalyst 6500系列软件版本8.x发行版本注释](#)。

请完成以下步骤以升级软件映像：

1.

验证disk0：中是否有足够的可用空间，以便将新映像从TFTP服务器复制到disk0。您可以在新映像所在的 PC 上查看该文件的大小。

<#root>

Console> (enable)

dir disk0:

```
2      -rw- 9356096   Apr 10 2006 17:50:28 cat6000-sup32pfc3k8.8-4-5.bin
```

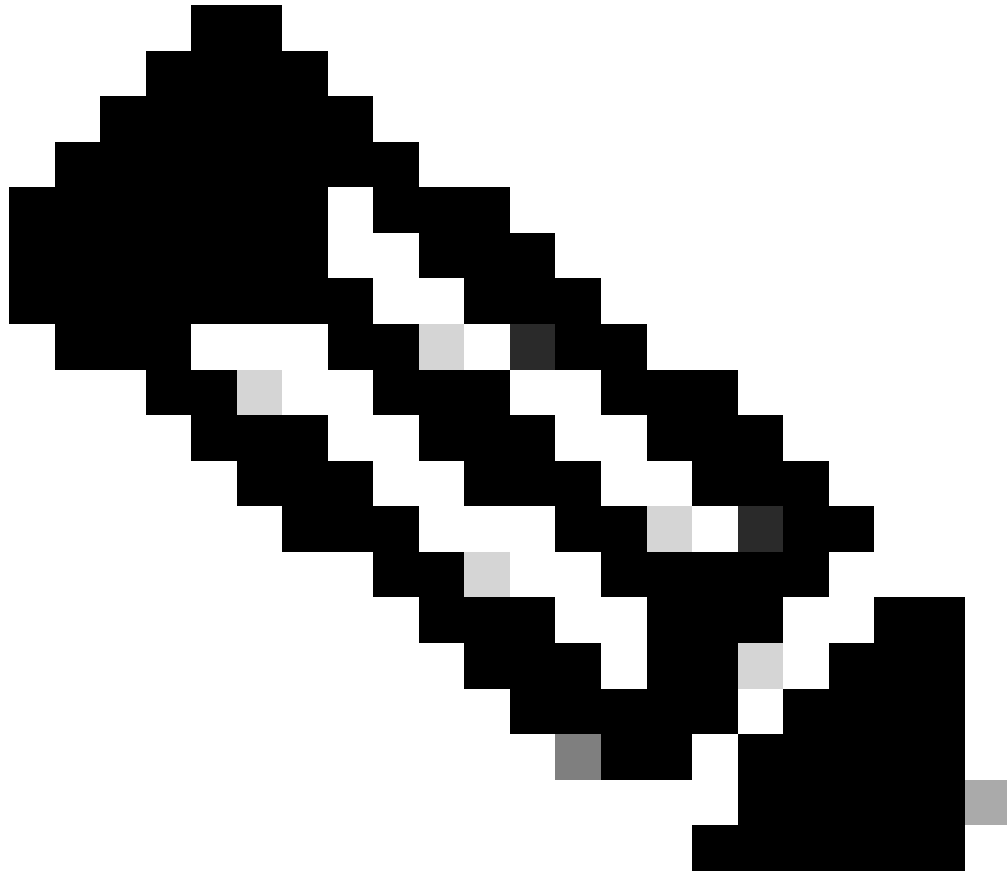
245751808 bytes available (9361542 bytes used)

*!--- Note that the new image size is around 11 MB and space  
!--- available on disk0 is around 53 MB, which is sufficient.  
!--- In case there is not enough free space to copy the new image,  
!--- delete the current image with the delete command.*

2.

使用delete disk0:cat6000-sup32pfc3k8.8-4-5.bin命令删除disk0 : 中的当前映像。此步骤是可选的。





注意：squeeze 命令不适用于Supervisor 32。

---

<#root>

Console> (enable)

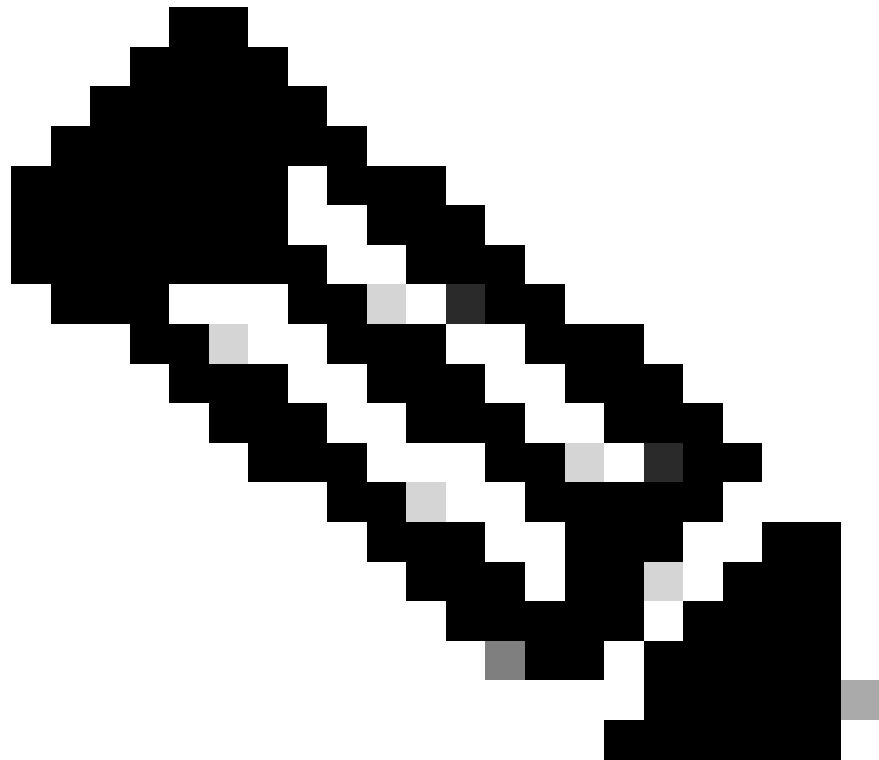
delete disk0:cat6000-sup32pfc3k8.8-4-5.bin

File disk0:cat6000-sup32pfc3k8.8-4-5.bin will be deleted permanently,

continue (y/n) [n]? y

•

将新软件映像从 TFTP 服务器复制到 disk0 中，并验证是否已正确复制该映像。检查新镜像的文件大小是否确切地与 Cisco.com 软件中心提及的大小匹配。如果存在差异，请检查该映像是否已在传输期间损坏。重新下载映像，确保交换机在重新加载之后不会进入 ROMMON 模式。



注意：此过程使用FTP服务器，并且在映像传输期间没有问题。



Console> (enable)

copy ftp disk0:

IP address or name of remote host [10.66.64.10]? 10.66.64.10  
Username for ftp[anonymous]? cisco  
Password for User cisco[ ]:  
Name of file to copy from [cat6000-sup32pfc3k8.8-5-3.bin]?  
64258048 bytes available on device disk0, proceed (y/n) [n]? y

Loading cat6000-sup32pfc3k8.8-5-3.bin

!!!!!!

!--- Output suppressed.

[OK - 10011264 bytes copied in 43.985 secs (227606 bytes/sec)

File disk0:cat6000-sup32pfc3k8.8-5-3.bin checksum verified and is Ok.  
File has been copied successfully.

•

更改引导变量，以使交换机在重置后使用新的软件映像进行引导。

<#root>

Console> (enable)

show boot

BOOT variable = disk0:cat6000-sup32pfc3k8.8-4-5.bin,1;  
CONFIG\_FILE variable =

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

Image auto sync is enabled  
Image auto sync timer is 120 seconds

!--- The switch originally boots with the old image.

Console> (enable)

```
clear boot system flash disk0:cat6000-sup32pfc3k8.8-4-5.bin
```

BOOT variable =

*!--- Old boot variable is cleared.*

Console> (enable)

```
set boot system flash disk0:cat6000-sup32pfc3k8.8-5-3.bin
```

BOOT variable = disk0:cat6000-sup32pfc3k8.8-5-3.bin,1;

*!--- New boot variable is configured.*

Console> (enable)

```
show boot
```

```
BOOT variable = disk0:cat6000-sup32pfc3k8.8-5-3.bin,1;  
CONFIG_FILE variable =
```

```
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
```

```
Image auto sync is enabled  
Image auto sync timer is 120 seconds
```

•

重置交换机，以使交换机在重新加载期间使用新的软件映像进行引导。

<#root>

Console> (enable)

reset

This command will reset the system.  
Do you want to continue (y/n) [n]? y  
2006 Apr 10 22:12:14 %SYS-5-SYS\_RESET:System reset from Console//  
Powering OFF all existing linecards  
Console> (enable)  
System Bootstrap, Version 12.2(18r)SX2, RELEASE SOFTWARE (fc1)  
Technical Support: <http://www.cisco.com/techsupport>  
Copyright (c) 2004 by cisco Systems, Inc.  
Cat6k-Sup32 platform with 262144 Kbytes of main memory

Autoboot executing command: "boot disk0:cat6000-sup32pfc3k8.8-5-3.bin"  
Self decompressing the image : ##  
!--- Output suppressed.

## [OK]

System Power On Diagnostics  
DRAM Size .....256 MB  
Testing DRAM .....Passed  
Verifying Text Segment .....Passed  
NVRAM Size .....2048 KB  
Level2 Cache .....Present  
Level3 Cache .....Absent  
System Power On Diagnostics Complete

Currently running ROMMON from S (Gold) region  
Boot image: disk0:cat6000-sup32pfc3k8.8-5-3.bin

Firmware compiled 27-Jan-06 16:09 by integ Build [100]

Running System Diagnostics from this Supervisor (Module 5)  
This may take several minutes....please wait

Cisco Systems Console  
Console>

•

验证交换机是否已加载新的软件映像。

<#root>

Console> (enable)

show version

WS-C6509 Software, Version NmpSW: 8.5(3)  
Copyright (c) 1995-2006 by Cisco Systems  
NMP S/W compiled on Jan 28 2006, 17:09:40

System Bootstrap Version: 12.2

System Boot Image File is 'disk0:cat6000-sup32pfc3k8.8-5-3.bin'

System Configuration register is 0x2102

Hardware Version: 2.0 Model: WS-C6509 Serial #: SCA044903GE

PS1 Module: WS-CAC-3000W Serial #: SNI0803AL1X

Mod	Port	Model	Serial #	Versions
5	3	WS-SUP32-10GE-3B	SAD092003PK	Hw : 1.2 Fw : 12.2 Fw1: 8.5(3) Sw : 8.5(3) Sw1: 8.5(3)
		WS-F6K-PFC3B	SAD091607E3	Hw : 2.1 Sw :

Module	DRAM			FLASH			NVRAM		
	Total	Used	Free	Total	Used	Free	Total	Used	Free
5	262144K	123285K	138859K	249772K	18920K	230852K	2048K	261K	1787K

Uptime is 0 day, 0 hour, 1 minute

## MSM 和 MSFC/MSFC2/MSFC3 上的 Cisco IOS

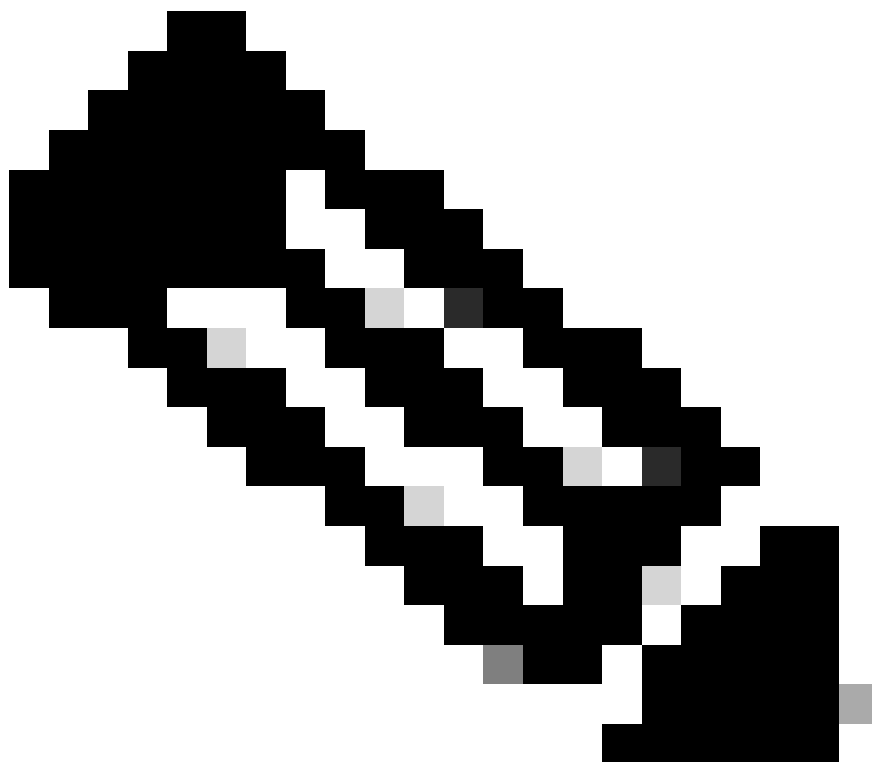
请参阅[升级Catalyst交换机第3层模块上的软件映像](#)，以获取升级Multilayer Switch Module (MSM)和Multilayer Switch Feature Card (MSFC)/ Multilayer Switch Feature Card 2 (MSFC2) : / Multilayer Switch Feature Card 3 (MSFC3)上软件映像的分步过程。

## 运行 Cisco IOS 软件的交换机

1.

确保证存储器/Boot ROM 要求，已在 PC 上安装 TFTP 服务器，并且可从交换机控制台端口访问交换机控制台。如果您没准备好这些设置，请参阅[检查内存和Boot ROM要求](#)部分。

---



**注意：**许多TFTP实施都无法传输16 MB或更大的文件。在 Cisco IOS 软件版本 12.1 (8a)E 和更高版本中，Supervisor 引擎 II 的系统软件映像大于 16 MB。使用FTP或远程复制协议(RCP)传输 16 MB或更大的文件。有关如何使用 FTP 或 RCP 的过程，请参阅加载和维护系统映像与微码。以下过程采用 Cisco TFTP 服务器，并且在图像传输期间未发生任何问题。

---

2.

配置管理IP地址 ( VLAN接口), 并检查交换机与安装有TFTP服务器的PC之间的连通性。此示例将 IP 地址 10.10.10.1 用于交换机管理 (int vlan1), 将 IP 地址 10.10.10.2 用于 TFTP 服务器。

```
<#root>
```

```
!--- By default, all ports are Layer 3 ports. Port FastEthernet 4/48  
!--- is configured to the Layer 2 port, which is connected to the  
!--- PC that runs the TFTP server.
```

```
Cat6500#
```

```
configure terminal
```

```
Enter configuration commands, one per line. End with CNTL/Z.  
Cat6500(config)#
```

```
interface fa4/48
```

```
Cat6500(config-if)#
```

```
switchport
```

```
Cat6500(config-if)#
```

```
switchport mode access
```

```
Cat6500(config-if)#
```

```
switchport access vlan 1
```

```
Cat6500(config-if)#
```

```
no shutdown
```

```
Cat6500(config-if)#
```

```
exit
```

```
!--- Port fa4/48 is configured in VLAN 1. VLAN 1 is the  
!--- management VLAN.
```

```
Cat6500(config)#
```

```
int vlan 1
```

```
Cat6500(config-if)#
```

```
ip address 10.10.10.1 255.255.255.0
```

```
Cat6500(config-if)#
```

```
no shutdown
```

```
Cat6500(config-if)#
```

```
^Z
```

```
Cat6500#
```

```
00:04:25: %SYS-5-CONFIG_I: Configured from console by console
```

*!--- The configuration for interface fa4/48.*

Cat6500#

**show running-config int fa4/48**

Building configuration...

Current configuration : 85 bytes

!

interface FastEthernet4/48

no ip address

switchport

switchport mode access

end

Cat6500#

*!--- Make sure that the VLAN 1 and fa4/48 interfaces are up.*

Cat6500#

**show ip int brief**

Interface	IP-Address	OK?	Method	Status	Protocol
Vlan1	10.10.10.1	YES	manual	up	up
GigabitEthernet1/1	unassigned	YES	unset	administratively down	down
-- output skipped --					
FastEthernet4/46	unassigned	YES	unset	administratively down	down
FastEthernet4/47	unassigned	YES	unset	administratively down	down
FastEthernet4/48	unassigned	YES	unset	up	up

Cat6500#

*!--- IP connectivity with the PC that runs TFTP server is verified.*

Cat6500#



```
ping 10.10.10.2
```

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 10.10.10.2, timeout is 2 seconds:

!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms

Cat6500#

3.

Cisco IOS 软件需要两个软件映像：

a.

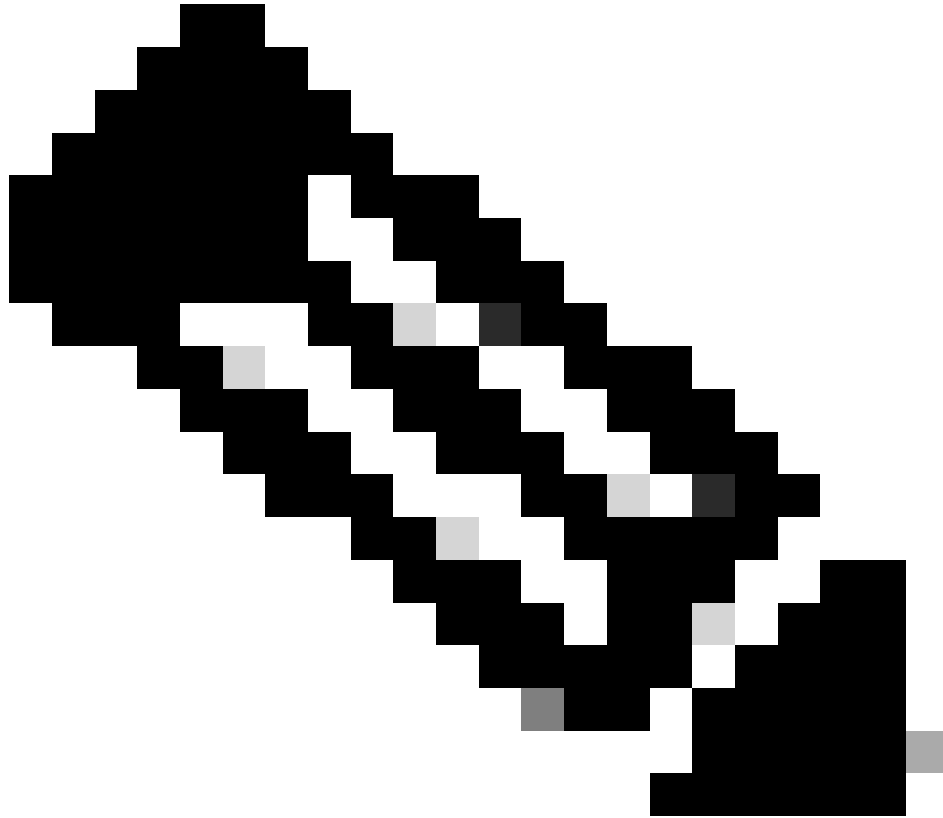
主要软件映像

b.

引导加载程序映像

---

---



注意：引导加载程序映像对于MSFC1是必需的，必须放在MSFC bootflash中。MSFC2 不需要引导加载程序映像。但 Cisco 建议您使用引导映像，类似本过程中所示。引导映像是系统映像的小型、精简版本。使用引导映像，如果主系统映像损坏或丢失，您可执行 TFTP 映像传送。如果您选择使用 MSFC2 引导映像，则必须将其存储在 MSFC Bootflash 中。

---

最佳实践是将主要软件镜像保存在slot0中，将启动加载器镜像保存在MSFC Bootflash中。验证 slot0 和 MSFC Bootflash 中是否具有足够的空间来复制 TFTP 服务器中的新映像。您可以检查下载它的PC的新镜像尺寸。Supervisor引擎720使用术语disk0:和disk1:而不是slot0:，因此在本示例中，请将slot0: 替换为disk0:或disk1:，这取决于您使用哪个磁盘。

<#root>

Cat6500#

dir slot0:

Directory of slot0:/

```
  1  -rw-    21611516   Mar 01 1993 00:08:04  c6sup22-jsv-mz.121-11b.E4
24772608 bytes total (
```

3160964 bytes free

)  
Cat6500#

*!--- The free space on slot0 is around 3 MB. The new image  
!--- size is around 22 MB. Delete the current image in order to  
!--- make room in slot0.*

Cat6500#

delete slot0:c6sup22-jsv-mz.121-11b.E4

Delete filename [c6sup22-jsv-mz.121-11b.E4]?  
Delete slot0:c6sup22-jsv-mz.121-11b.E4? [confirm]

Cat6500#

*!--- After you delete the image, you cannot use the  
!--- free space until you squeeze slot0 to use the free space.*

Cat6500#

squeeze slot0:

All deleted files will be removed. Continue? [confirm]  
Squeeze operation may take a while. Continue? [confirm]

Squeeze of slot0 complete  
Cat6500#  
Cat6500#

dir bootflash:

Directory of bootflash:/

```
  1  -rw-      1734148   Mar 01 1993 21:01:07  c6msfc2-boot-mz.121-11b.E4
15204352 bytes total (
```

13470076 bytes free

)

Cat6500#

*!--- The free space on bootflash is around 13 MB,  
!--- and the new boot loader image size is just 1.66 MB.  
!--- You do not need to remove the current boot loader image.*

•

从TFTP服务器上将新的主要软件镜像复制到slot0上，引导镜像复制到Bootflash上。验证是否已正确复制映像。检查新映像的文件大小是否与软件中心上的文件大小相符。如果不相符，请检查该映像是否已在传输期间损坏。重新下载映像，确保交换机不会在 ROMMON 模式下重新加载。

<#root>

Cat6500#

copy tftp slot0:

Address or name of remote host []?

10.10.10.2

Source filename []?

c6sup22-jsv-mz.121-12c.E2

*!--- This is the new main software image.*

Destination filename [c6sup22-jsv-mz.121-12c.E2]?

Loading c6sup22-jsv-mz.121-12c.E2 from 10.10.10.2 (via Vlan1): !!!!!!!!!!!!!!!  
!!  
!!  
!!  
!!  
!!  
!!  
!!

*!--- Output suppressed.*

!!  
!!

[OK - 22338124/44676096 bytes]  
22338124 bytes copied in 235.880 secs (95055 bytes/sec)  
Cat6500#

dir slot0:

Directory of slot0:/

```
1  -rw-   22338124   Mar 01 1993 00:20:15  c6sup22-jsv-mz.121-12c.E2
```

*!--- The new software image is properly copied to slot0.*

24772608 bytes total (2434356 bytes free)  
Cat6500#

*!--- Copy the boot image in bootflash.*

Cat6500#

copy tftp bootflash:

Address or name of remote host [10.10.10.2]?

Source filename [c6sup22-jsv-mz.121-12c.E2]? c6msfc2-boot-mz.121-12c.E2

Destination filename [c6msfc2-boot-mz.121-12c.E2]?

```
Loading c6msfc2-boot-mz.121-12c.E2 from 10.10.10.2 (via Vlan1): !!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 1744836/3488768 bytes]
```

```
1744836 bytes copied in 9.340 secs (193870 bytes/sec)
Cat6500#
```

```
dir bootflash:
```

```
Directory of bootflash:/
```

```
  1  -rw-      1734148   Mar 01 1993 21:01:07  c6msfc2-boot-mz.121-11b.E4

  2  -rw-      1744836   Mar 01 1993 00:25:17  c6msfc2-boot-mz.121-12c.E2
```

```
!--- The new boot image is properly copied in bootflash.
```

```
15204352 bytes total (11725112 bytes free)
Cat6500#
```

•

更改引导变量，以便在重新加载时交换机使用新的软件和引导镜像引导。可使用 show running-config 或 show bootvar 命令验证引导变量。

```
<#root>
```

```
Cat6500#
```

```
show running-config
```

```
Building configuration...
```

```
Current configuration : 4193 bytes
!
version 12.1
```

```
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Cat6500
!
```

*!--- These are the old boot variables.*

```
boot system flash slot0:c6sup22-jsv-mz.121-11b.E4
boot bootldr bootflash:c6msfc2-boot-mz.121-11b.E4
```

```
!
redundancy
  main-cpu
  auto-sync standard
ip subnet-zero
!
```

*!--- Output suppressed.*

```
Cat6500#
Cat6500#
Cat6500#
```

**configure terminal**

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

*!--- Remove the old boot variables.*

```
Cat6500(config)#
```

```
no boot system flash slot0:c6sup22-jsv-mz.121-11b.E4
```

```
Cat6500(config)#
```

```
no boot bootldr bootflash:c6msfc2-boot-mz.121-11b.E4
```

*!--- Configure the new boot variables.*

Cat6500(config)#

```
boot system flash slot0:c6sup22-jsv-mz.121-12c.E2
```

Cat6500(config)#

```
boot bootldr bootflash:c6msfc2-boot-mz.121-12c.E2
```

Cat6500(config)#

^Z

Cat6500#

00:29:00: %SYS-5-CONFIG\_I: Configured from console by console

Cat6500#

```
show running-config
```

Building configuration...

Current configuration : 4193 bytes

```
!  
version 12.1  
service timestamps debug uptime  
service timestamps log uptime  
no service password-encryption  
!  
hostname Cat6500  
!
```

*!--- These are the new boot variables.*

```
boot system flash slot0:c6sup22-jsv-mz.121-12c.E2
```

```
boot bootldr bootflash:c6msfc2-boot-mz.121-12c.E2
```



```
!  
redundancy  
  main-cpu  
    auto-sync standard  
ip subnet-zero  
!
```

*!--- Output suppressed.*

```
Cat6500#
```

*!--- You can verify the boot variables with the*

```
show bootvar
```

*!--- command as well. Make sure to issue the*

```
write memory
```

```
  command before
```

*!--- you verify the changes with this command.*

```
Cat6500#
```

```
show bootvar
```

*!--- The boot variables are changed. But, the  
!---*

```
  show bootvar command
```

output displays the old variable.

```
BOOT variable = slot0:c6sup22-jsv-mz.121-11b.E4,1  
CONFIG_FILE variable does not exist  
BOOTLDR variable = bootflash:c6msfc2-boot-mz.121-11b.E4  
Configuration register is 0x2102
```

```
Cat6500#
```

*!--- Save the changes with the*

`write memory`

`command.`

`Cat6500#`

`write memory`

Building configuration...

[OK]

`Cat6500#`

`Cat6500#`

`show bootvar`

*!--- These are the new boot variables.*

`BOOT variable = slot0:c6sup22-jsv-mz.121-12c.E2,1`

`CONFIG_FILE variable does not exist`

`BOOTLDR variable = bootflash:c6msfc2-boot-mz.121-12c.E2`

*!--- Make sure the config-register is set to 0x2102 so that the  
!--- switch boots with a valid software image. You can change the  
!--- config-register with the*

`sconfig-register 0x2102`

*!--- configuration mode command. If the boot variable  
!--- is not specifed correctly, your switch can reload in ROMMON mode.*

Cat6500#

•

重新加载交换机，以使交换机在重新引导之后使用新的软件映像进行引导。

<#root>

Cat6500#

**reload**

System configuration has been modified. Save? [yes/no]:

**y**

Building configuration...

[OK]

Proceed with reload? [confirm]

00:30:27: %SYS-5-RELOAD: Reload requested

00:30:30: %SYS-SP-3-LOGGER\_FLUSHING: System pausing to ensure console debugging output.

00:30:30: %OIR-SP-6-CONSOLE: Changing console ownership to switch processor

00:30:30: %SYS-SP-3-LOGGER\_FLUSHED: System was paused for 00:00:00 to ensure console debugging output.

00:30:32: %SYS-SP-3-LOGGER\_FLUSHING: System pausing to ensure console debugging output.

\*\*\*

\*\*\* --- SHUTDOWN NOW ---

\*\*\*

00:30:32: %SYS-SP-5-RELOAD: Reload requested



Cat6k-MSFC2 platform with 524288 Kbytes of main memory

Download Start

!!  
!!  
!!  
!!

Download Completed! Booting the image.

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) c6sup2\_rp Software (c6sup2\_rp-JSV-M), Version 12.1(12c)E2,  
EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)  
TAC Support: <http://www.cisco.com/tac>  
Copyright (c) 1986-2002 by cisco Systems, Inc.  
Compiled Fri 23-Aug-02 09:42 by eaarmas  
Image text-base: 0x40008980, data-base: 0x41888000

cisco Catalyst 6000 (R7000) processor with 489472K/34816K bytes of memory.  
Processor board ID SAD044204RE  
R7000 CPU at 300Mhz, Implementation 39, Rev 2.1, 256KB L2, 1024KB L3 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.  
1 Virtual Ethernet/IEEE 802.3 interface(s)  
48 FastEthernet/IEEE 802.3 interface(s)  
18 Gigabit Ethernet/IEEE 802.3 interface(s)  
381K bytes of non-volatile configuration memory.

16384K bytes of Flash internal SIMM (Sector size 512K).

Press RETURN to get started!

00:00:37: RP: Currently running ROMMON from S (Gold) region  
00:00:44: %SYS-5-CONFIG\_I: Configured from memory by console  
00:00:44: %SYS-5-RESTART: System restarted --  
Cisco Internetwork Operating System Software  
IOS (tm) c6sup2\_rp Software (c6sup2\_rp-JSV-M), Version 12.1(12c)E2,  
EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)  
TAC Support: <http://www.cisco.com/tac>

Copyright (c) 1986-2002 by cisco Systems, Inc.  
Compiled Fri 23-Aug-02 09:42 by eaarmas  
00:00:02: %SYS-3-LOGGER\_FLUSHED: System was paused for 00:00:00 to ensure  
console debugging output.

00:00:03: %C6KPWR-4-PSINSERTED: power supply inserted in slot 1.  
00:00:03: %C6KPWR-4-PSOK: power supply 1 turned on.  
00:00:41: SP: Currently running ROMMON from S (Gold) region  
00:00:42: %SYS-SP-5-RESTART: System restarted --  
Cisco Internetwork Operating System Software  
IOS (tm) c6sup2\_sp Software (c6sup2\_sp-SPV-M), Version 12.1(12c)E2,  
EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)  
TAC Support: <http://www.cisco.com/tac>  
Copyright (c) 1986-2002 by cisco Systems, Inc.  
Compiled Fri 23-Aug-02 10:13 by eaarmas  
00:00:45: %SNMP-5-COLDSTART: SNMP agent on host Cat6500 is undergoing a  
cold start  
00:00:46: %SYS-6-BOOTTIME: Time taken to reboot after reload = -1781 seconds  
00:00:46: %SYS-SP-6-BOOTTIME: Time taken to reboot after reload = 730945875  
seconds  
00:00:48: %C6KPWR-SP-4-ENABLED: power to module in slot 3 set on  
00:00:48: %C6KPWR-SP-4-ENABLED: power to module in slot 4 set on  
Cat6500>  
Cat6500>

.

验证交换机是否已加载新的软件映像。

<#root>

Cat6500>

**enable**

Cat6500#

**show version**

Cisco Internetwork Operating System Software

IOS (tm) c6sup2\_rp Software (c6sup2\_rp-JSV-M), Version 12.1(12c)E2,  
EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)

*!--- The switch runs the new software release.*

TAC Support: <http://www.cisco.com/tac>  
Copyright (c) 1986-2002 by cisco Systems, Inc.  
Compiled Fri 23-Aug-02 09:42 by eaarmas  
Image text-base: 0x40008980, data-base: 0x41888000

ROM: System Bootstrap, Version 12.1(3r)E2, RELEASE SOFTWARE (fc1)

BOOTLDR: c6sup2\_rp Software (c6sup2\_rp-JSV-M), Version 12.1(12c)E2,  
EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)

*!--- The switch runs the new boot image.*

Cat6500 uptime is 1 minute  
System returned to ROM by power-on (SP by power-on)  
Running default software

cisco Catalyst 6000 (R7000) processor with 489472K/34816K bytes of memory.  
Processor board ID SAD044204RE  
R7000 CPU at 300Mhz, Implementation 39, Rev 2.1, 256KB L2, 1024KB L3 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.  
1 Virtual Ethernet/IEEE 802.3 interface(s)  
48 FastEthernet/IEEE 802.3 interface(s)  
18 Gigabit Ethernet/IEEE 802.3 interface(s)  
381K bytes of non-volatile configuration memory.

16384K bytes of Flash internal SIMM (Sector size 512K).  
Configuration register is 0x2102

Cat6500#

## Supervisor 引擎 720

在 Supervisor 引擎 720 上，Cisco IOS 软件版本 12.2 SX 之后的版本中没有独立的映像文件，例如，引导加载程序映像和主要 IOS 映像。Supervisor 引擎和 MSFC 都运行单个打包的 Cisco IOS 映像。

Supervisor 引擎 720 常用功能包括：

- 

64 MB Bootflash 设备或采用 512 MB CompactFlash 卡的 CompactFlash 适配器 (WS-CF-UPG=)：

- 

所有版本都支持 64 MB Bootflash 设备 (sup-bootflash:)

- 

在以下版本中支持 WS-CF-UPG= (sup-bootdisk:)：

- 

版本 12.2(18)SXE5 及更高版本

- 

版本 12.2(18)SXF 及更高版本

- 

2个CompactFlash II型插槽 ( disk0 : 和disk1 : )







注意：由于Supervisor引擎720的某些最新软件映像大于bootflash设备，因此建议使用CompactFlash卡。

---

请完成以下步骤以在 Supervisor 模块上升级映像：

1.

您可以在下载新映像的 PC 上查看该文件的大小。Supervisor引擎720使用术语disk0:或 **disk1:** 而不是 **slot0:**。

<#root>

Cat6509-E#

dir disk0:

Directory of disk0:/

```
  1  -rw-    41050516   Apr 5 2006 05:39:24 +00:00  s72033-psv-mz.122-17d.SXB11.bin
65536000 bytes total (24485356 bytes free)
Cat6500#
```

*!--- The free space on disk0 is around 24 MB. Delete the current image  
!--- in order to make room for the new image in disk0.*

Cat6509-E#

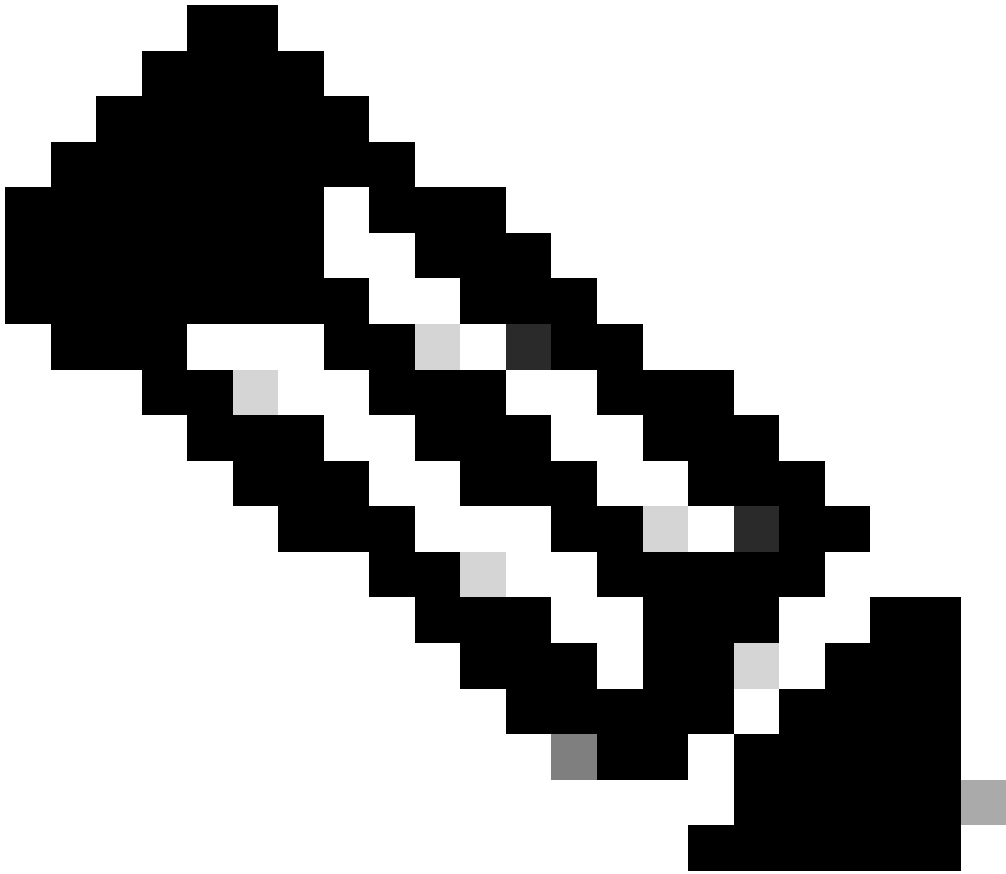
delete disk0:s72033-psv-mz.122-17d.SXB11.bin

Delete filename [s72033-psv-mz.122-17d.SXB11.bin]?

Delete disk0:s72033-psv-mz.122-17d.SXB11.bin? [confirm]

---

---

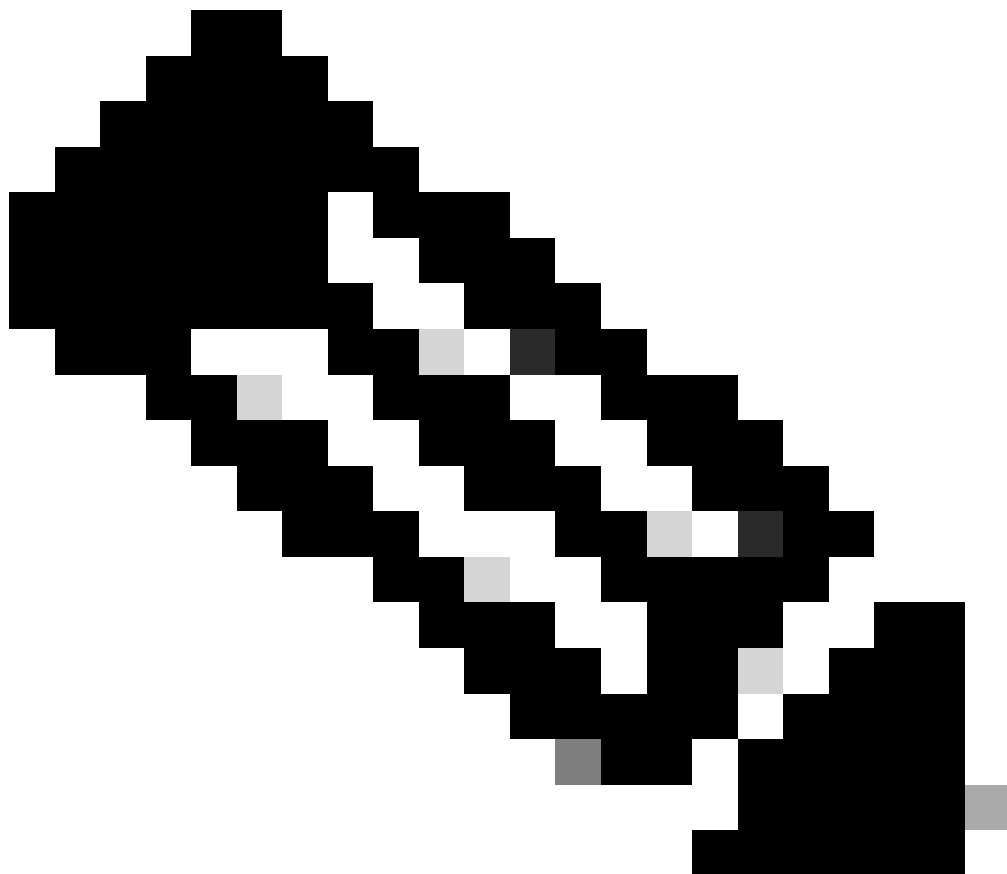


注意：squeeze命令不适用于某些软件版本。

---

---

---



注意：发出以下命令，以查看是否支持squeeze命令：

---

```
<#root>
```

```
Cat6509-E#
```

```
squeeze ?
```

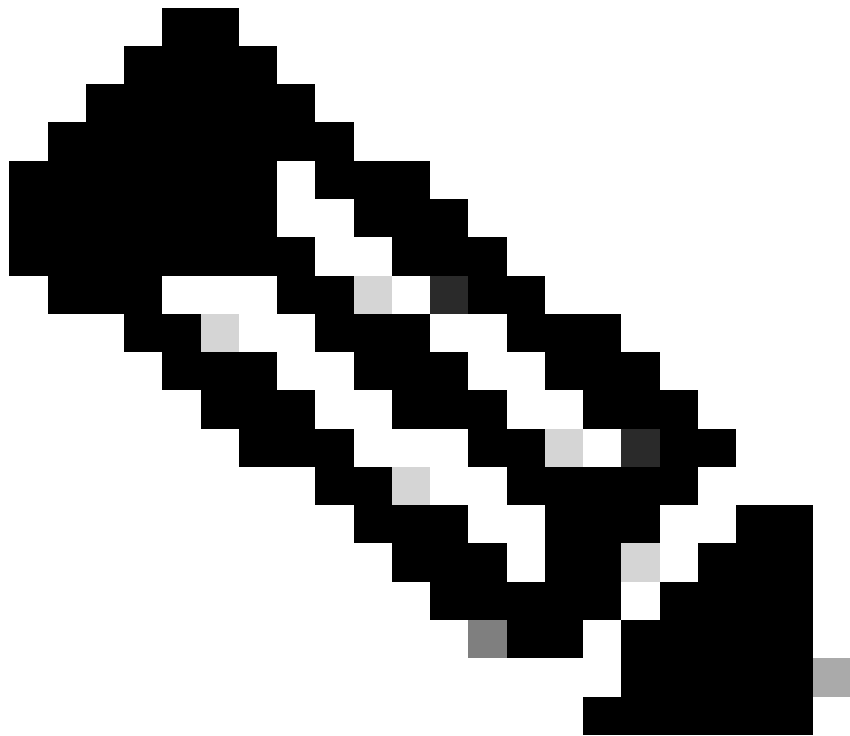
```
/nolog      Squeeze without squeeze logs  
/quiet      Squeeze without progress update
```

```
bootflash:      Filesystem to be squeezed
sup-bootflash: Filesystem to be squeezed
```

•

将新的软件映像从 TFTP 服务器复制到 disk0。

---



注意：许多TFTP实施都无法传输16 MB或更大的文件。Supervisor 引擎 720 的 Cisco IOS 软件映像大于 16 MB。使用FTP或远程复制协议(RCP)传输16 MB或更大的文件。有关使用 FTP 或 RCP 的过程，请参阅加载和维护系统映像与微码。

---

Cat6509-E#

```
copy ftp://cisco:cisco@10.66.64.10//tftpboot/s72033-psv-mz.122-18.SXD7.bin disk0:
```

```
Destination filename [s72033-psv-mz.122-18.SXD7.bin]?
Accessing ftp://cisco:cisco@10.66.64.10//tftpboot/s72033-psv-mz.122-18.SXD7.bin.
..
Loading /tftpboot/s72033-psv-mz.122-18.SXD7.bin !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

!--- Output suppressed.

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 45463592/4096 bytes]
45463592 bytes copied in 139.600 secs (325670 bytes/sec)
```

.

验证是否已正确复制映像。检查新映像的文件大小是否与软件中心上的文件大小相符。如果它们不匹配，有可能镜像在传输期间被毁坏。您需要再次下载映像，以避免交换机在ROMMON模式下重新加载。

<#root>

Cat6509-E#

```
dir disk0:
```

```
Directory of disk0:/
 1  -rw-   45463592   Apr 7 2006 05:45:36 +00:00  s72033-psv-mz.122-18.SXD7.bin
127793152 bytes total (82327552 bytes free)
```

!--- The new software image is properly copied to disk0.

•

更改引导变量，以使交换机在重新加载后使用新的软件映像进行引导。发出**show running-config**或**show bootvar**命令以便验证引导变量。

```
<#root>
```

```
Cat6509-E#
```

```
show running-config
```

```
Building configuration...
```

```
Current configuration : 1129 bytes
```

```
!
```

```
version 12.2
```

```
service timestamps debug uptime
```

```
service timestamps log uptime
```

```
no service password-encryption
```

```
service counters max age 10
```

```
!
```

```
hostname Cat6509-E
```

```
!
```

```
boot system disk0:s72033-psv-mz.122-17d.SXB11.bin
```

```
!
```

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

```
Cat6509-E#
```

```
configure terminal
```

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

```
Cat6509-E(config)#
```

```
no boot system disk0:s72033-psv-mz.122-17d.SXB11.bin
```

*!--- Removes the old boot variable.*

Cat6509-E(config)#

```
boot system disk0:s72033-psv-mz.122-18.SXD7.bin
```

*!--- Configures the new boot variable.*

Cat6509-E#

```
show running-config
```

Building configuration...

Current configuration : 1129 bytes

!

version 12.2

service timestamps debug uptime

service timestamps log uptime

no service password-encryption

service counters max age 10

!

hostname Cat6509-E

!

```
boot system disk0:s72033-psv-mz.122-18.SXD7.bin
```

!

*!--- Output suppressed.*

Cat6509-E#

```
show bootvar
```



```
BOOT variable = disk0:s72033-psv-mz.122-17d.SXB11.bin,1
CONFIG_FILE variable =
BOOTLDR variable =
Configuration register is 0x2102
```

*!--- The boot variables are changed above. But, the  
!--- show bootvar command output displays the old variable.*

Cat6509-E#

```
write memory
```

```
Building configuration...
[OK]
```

*!--- Saves the changes.*

Cat6509-E#

```
show bootvar
```

```
BOOT variable = disk0:s72033-psv-mz.122-18.SXD7.bin,1
CONFIG_FILE variable =
BOOTLDR variable =
Configuration register is 0x2102
```

*!--- Make sure the config-register is set to 0x2102 so that the  
!--- switch boots a valid software image. You can change the  
!--- configuration register value if you issue the  
!---*

```
config-register 0x2102
```

*!--- configuration mode command. If the boot variable  
!--- is not specified correctly,  
!--- switch may reload in ROMMON mode.*

.

重新引导交换机，以使交换机使用新的软件映像进行引导。

<#root>

Cat6509-E#

reload

System configuration has been modified. Save? [yes/no]: y  
Building configuration...  
[OK]  
Proceed with reload? [confirm]

15:57:58: %SYS-5-RELOAD: Reload requested by console. Reload Reason: Reload Command.

15:58:01: %SYS-SP-3-LOGGER\_FLUSHING: System pausing to ensure console debugging output.

15:58:01: %OIR-SP-6-CONSOLE: Changing console ownership to switch processor

15:58:01: %SYS-SP-3-LOGGER\_FLUSHED: System was paused for 00:00:00 to ensure console debugging output.

15:58:04: %SYS-SP-3-LOGGER\_FLUSHING: System pausing to ensure console debugging output.

\*\*\*  
\*\*\* --- SHUTDOWN NOW ---  
\*\*\*

15:58:04: %SYS-SP-5-RELOAD: Reload requested

15:58:04: %OIR-SP-6-CONSOLE: Changing console ownership to switch processor

15:58:04: %SYS-SP-3-LOGGER\_FLUSHED: System was paused for 00:00:00 to ensure console debugging output.

System Bootstrap, Version 8.1(3)  
Copyright (c) 1994-2004 by Cisco Systems, Inc.  
Cat6k-Sup720/SP processor with 1048576 Kbytes of main memory

Autoboot executing command: "boot disk0:s72033-psv-mz.122-18.SXD7.bin"  
Loading image, please wait ...

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) s72033\_sp Software (s72033\_sp-PSV-M), Version 12.2(18)SXD7, RELEASE SOFTWARE (fc1)  
Technical Support: <http://www.cisco.com/techsupport>  
Copyright (c) 1986-2005 by cisco Systems, Inc.  
Compiled Tue 13-Dec-05 21:47 by kellythw  
Image text-base: 0x4002100C, data-base: 0x40FD8000  
0:00:04: %SYS-3-LOGGER\_FLUSHING: System pausing to ensure console debugging output.  
00:00:04: %PFREDUN-6-ACTIVE: Initializing as ACTIVE processor  
00:00:04: %SYS-3-LOGGER\_FLUSHING: System pausing to ensure console debugging output.  
00:00:04: %SYS-3-LOGGER\_FLUSHED: System was paused for 00:00:00 to ensure console debugging output.  
00:00:04: %OIR-6-CONSOLE: Changing console ownership to route processor

System Bootstrap, Version 12.2(17r)S2, RELEASE SOFTWARE (fc1)  
TAC Support: <http://www.cisco.com/tac>  
Copyright (c) 2004 by cisco Systems, Inc  
Download Start

!!  
!!  
!!  
!!  
!!  
!!  
!!  
!!  
!!  
!!!!!!

Download Completed! Booting the image.  
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) s72033\_rp Software (s72033\_rp-PSV-M), Version 12.2(18)SXD7, RELEASE SOFTWARE (fc1)  
Technical Support: <http://www.cisco.com/techsupport>  
Copyright (c) 1986-2005 by cisco Systems, Inc.  
Compiled Tue 13-Dec-05 22:10 by kellythw  
Image text-base: 0x4002100C, data-base: 0x42040000  
Cisco WS-C6509-E (R7000) processor (revision 1.0) with 983008K/65536K bytes of memory.

Processor board ID SCA080600KT  
SR71000 CPU at 600Mhz, Implementation 0x504, Rev 1.2, 512KB L2 Cache  
Last reset from s/w peripheral  
X.25 software, Version 3.0.0.  
Bridging software.  
1 Virtual Ethernet/IEEE 802.3 interface(s)  
2 Gigabit Ethernet/IEEE 802.3 interface(s)  
1917K bytes of non-volatile configuration memory.  
8192K bytes of packet buffer memory.

65536K bytes of Flash internal SIMM (Sector size 512K).

Press RETURN to get started!

00:00:58: curr is 0x0  
00:00:58: RP: Currently running ROMMON from S (Gold) region  
00:01:18: %SYS-5-CONFIG\_I: Configured from memory by console  
00:01:19: %SYS-5-RESTART: System restarted --  
Cisco Internetwork Operating System Software  
IOS (tm) s72033\_rp Software (s72033\_rp-PSV-M), Version 12.2(18)SXD7, RELEASE SOFTWARE (fc1)  
Technical Support: <http://www.cisco.com/techsupport>  
Copyright (c) 1986-2005 by Cisco Systems, Inc.  
Compiled Tue 13-Dec-05 22:10 by kellythw  
00:01:19: %SYS-6-BOOTTIME: Time taken to reboot after reload = 210 seconds  
00:00:04: %SYS-3-LOGGER\_FLUSHED: System was paused for 00:00:00 to ensure console debugging output.

00:00:05: %SYS-3-LOGGER\_FLUSHED: System was paused for 00:00:00 to ensure console debugging output.

Firmware compiled 18-Apr-05 17:29 by integ Build [100]

00:01:15: SP: SP: Currently running ROMMON from S (Gold) region  
00:01:20: %SYS-SP-5-RESTART: System restarted --  
Cisco Internetwork Operating System Software  
IOS (tm) s72033\_sp Software (s72033\_sp-PSV-M), Version 12.2(18)SXD7, RELEASE SOFTWARE (fc1)  
Technical Support: <http://www.cisco.com/techsupport>  
Copyright (c) 1986-2005 by Cisco Systems, Inc.  
Compiled Tue 13-Dec-05 21:47 by kellythw  
00:01:21: %OIR-SP-6-INSPS: Power supply inserted in slot 1  
00:01:21: %C6KPWR-SP-4-PSOK: power supply 1 turned on.  
00:01:26: %FABRIC-SP-5-CLEAR\_BLOCK: Clear block option is off for the fabric in slot 5.  
00:01:26: %FABRIC-SP-5-FABRIC\_MODULE\_ACTIVE: The Switch Fabric Module in slot 5 became active.  
00:01:28: %DIAG-SP-6-RUN\_MINIMUM: Module 5: Running Minimum Diagnostics...  
00:01:39: %DIAG-SP-6-DIAG\_OK: Module 5: Passed Online Diagnostics  
00:01:40: %OIR-SP-6-INSCARD: Card inserted in slot 5, interfaces are now online

Cat6509-E>

**enable**

•  
验证交换机是否已装载新的软件映像。

<#root>

Cat6509-E#

**show version**

Cisco Internetwork Operating System Software  
IOS (tm) s72033\_rp Software (s72033\_rp-PSV-M), Version 12.2(18)SXD7, RELEASE SOFTWARE (fc1)  
Technical Support: <http://www.cisco.com/techsupport>  
Copyright (c) 1986-2005 by cisco Systems, Inc.  
Compiled Tue 13-Dec-05 22:10 by kellythw  
Image text-base: 0x4002100C, data-base: 0x42040000

ROM: System Bootstrap, Version 12.2(17r)S2, RELEASE SOFTWARE (fc1)  
BOOTLDR: s72033\_rp Software (s72033\_rp-PSV-M), Version 12.2(18)SXD7, RELEASE SOFTWARE (fc1)

Cat6509-E uptime is 3 minutes  
Time since Cat6509-E switched to active is 2 minutes  
System returned to ROM by unknown reload cause - suspect boot\_data[BOOT\_COUNT] 0x0, BOOT\_COUNT 0, BOOTDATA 19 (SP by reload)

System image file is "disk0:s72033-psv-mz.122-18.SXD7.bin"

cisco WS-C6509-E (R7000) processor (revision 1.0) with 983008K/65536K bytes of memory.  
Processor board ID SCA080600KT  
SR71000 CPU at 600Mhz, Implementation 0x504, Rev 1.2, 512KB L2 Cache  
Last reset from s/w peripheral  
X.25 software, Version 3.0.0.  
Bridging software.  
1 Virtual Ethernet/IEEE 802.3 interface(s)  
2 Gigabit Ethernet/IEEE 802.3 interface(s)  
1917K bytes of non-volatile configuration memory.  
8192K bytes of packet buffer memory.

65536K bytes of Flash internal SIMM (Sector size 512K).  
Configuration register is 0x2102

Cat6509-E#

## Supervisor 引擎 32

Supervisor 引擎 32 包括以下各项：

- **disk0:** - 一个外部 CompactFlash II 型插槽 ( 支持 CompactFlash II 型闪存 PC 卡 )
- **sup-bootdisk:** - 256 MB 内部 CompactFlash 闪存 ( 在 ROMMON 下为 bootdisk: )

请完成以下步骤以在 Supervisor 模块上升级映像：

1.

您可以在下载新映像的 PC 上查看该文件的大小。Supervisor引擎32使用术语disk0：而非slot0：

```
<#root>
```

```
Cat6509-E#
```

```
dir disk0
```

:

Directory of disk0:/

```
1 -rw- 45266372 Apr 4 2006 22:18:40 +00:00 s3223-ipbase_wan-mz.122-18.SXF2.bin
```

255938560 bytes total (210669568 bytes free)

Cat6509-E#

*!--- The free space on disk0 is around 2 MB. Delete the current image*

*!--- in order to make room for the new image in disk0.*

Cat6509-E#

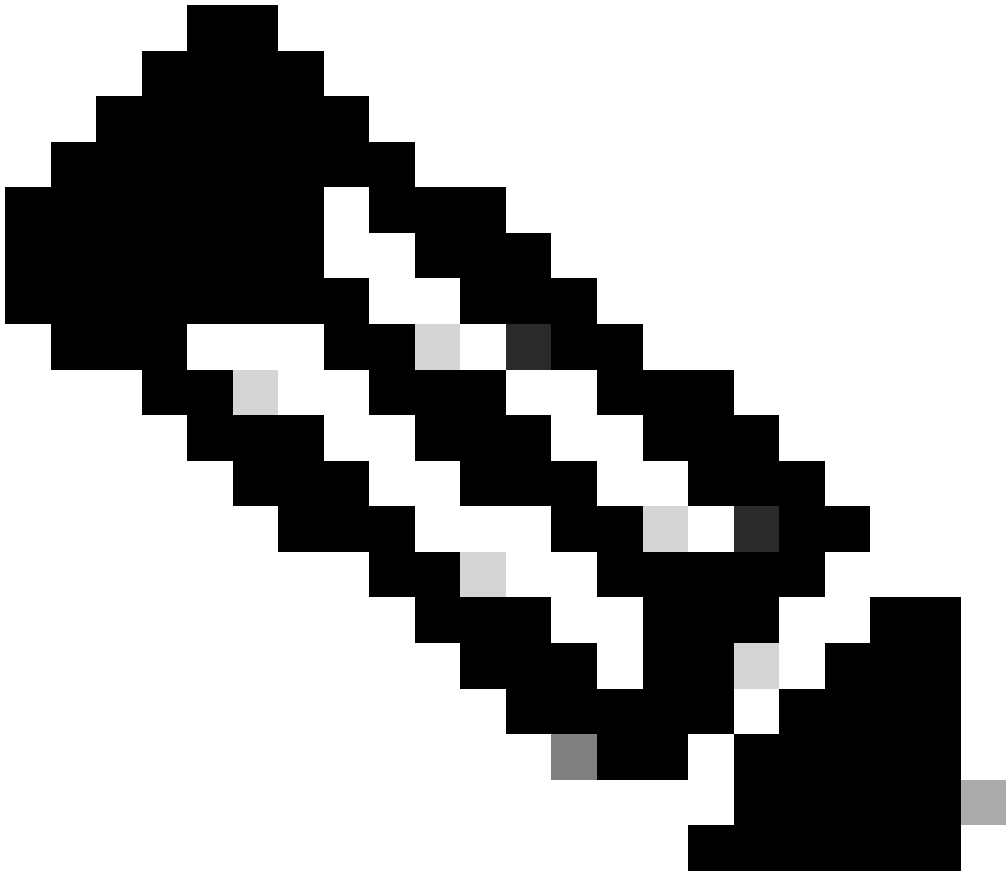
delete disk0:s3223-ipbase\_wan-mz.122-18.SXF2.bin

Delete filename [s3223-ipbase\_wan-mz.122-18.SXF2.bin]?

Delete disk0:s3223-ipbase\_wan-mz.122-18.SXF2.bin? [confirm]

---

---



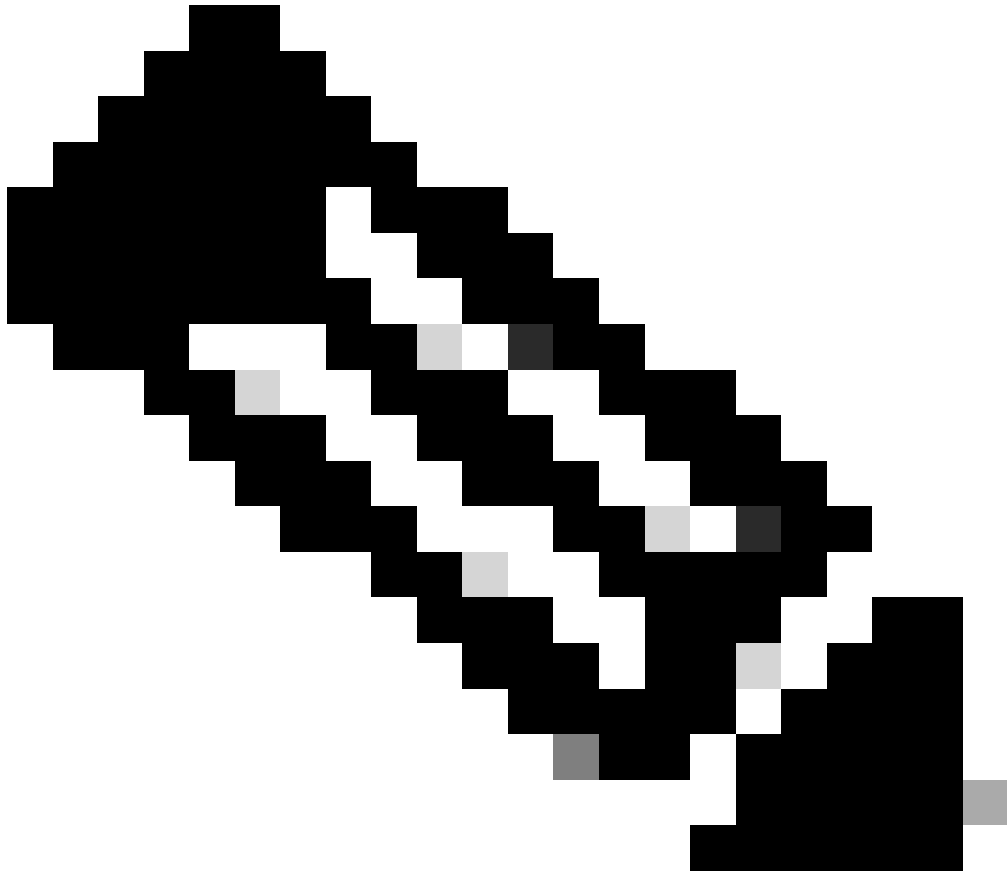
注意：squeeze命令不适用于某些软件版本。

---

---

---





注意：发出以下命令，以查看是否支持squeeze命令：

---

```
<#root>
```

```
Cat6509-E#
```

```
squeeze ?
```

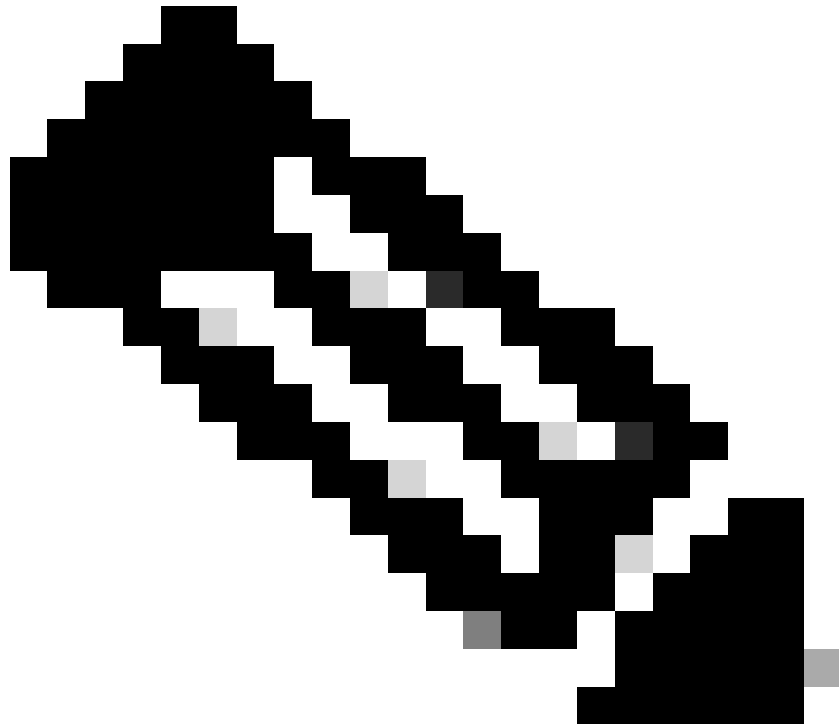
```
/nolog      Squeeze without squeeze logs  
/quiet      Squeeze without progress update
```

bootflash: Filesystem to be squeezed

2.

将新的软件映像从 TFTP 服务器复制到 disk0。

---



**注意：**许多TFTP实施都无法传输16 MB或更大的文件。Supervisor 引擎 32 的 Cisco IOS 软件映像大于 16 MB。使用FTP或远程复制协议(RCP)传输16 MB或更大的文件。有关如何使用 FTP 或 RCP 的过程，请参阅加载和维护系统映像与微码。

---

<#root>



4.

更改引导变量，以使交换机在重新加载后使用新的软件映像进行引导。发出show running-config 或show bootvar命令以便检查引导变量。

```
<#root>
```

```
Cat6509-E#
```

```
show running-config
```

```
Building configuration...
```

```
Current configuration : 1346 bytes
```

```
!  
upgrade fpd auto  
version 12.2  
service timestamps debug uptime  
service timestamps log uptime  
no service password-encryption  
service counters max age 5  
!  
hostname Cat6509-E  
!
```

```
boot system disk0:s3223-ipbase_wan-mz.122-18.SXF2.bin
```

```
!
```

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

```
Cat6509-E#
```

```
configure terminal
```

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

Cat6509-E(config)#

```
no boot system disk0:s3223-ipbase_wan-mz.122-18.SXF2.bin
```

*!--- Remove the old boot variables.*

Cat6509-E(config)#

```
boot system disk0:s3223-ipbase_wan-mz.122-18.SXF4.bin
```

*!--- Configure the new boot variables.*

Cat6509-E#

```
show running-config
```

Building configuration...

Current configuration : 1129 bytes

!

version 12.2

service timestamps debug uptime

service timestamps log uptime

no service password-encryption

service counters max age 10

!

hostname Cat6509-E

!

```
boot system disk0:s3223-ipbase_wan-mz.122-18.SXF4.bin
```

!

*!--- Output suppressed.*

Cat6509-E#

```
show bootvar
```

```
BOOT variable = disk0:s3223-ipbase_wan-mz.122-18.SXF2.bin
```

```
CONFIG_FILE variable =CONFIG_FILE variable does not exist
```

```
BOOTLDR variable =
```

```
Configuration register is 0x2102
```

```
!--- Though the boot variables are previously changed, the  
!---
```

```
show bootvar
```

command output displays the old variable.

```
Cat6509-E#
```

```
write memory
```

```
Building configuration...
```

```
[OK]
```

```
!--- Saves the changes.
```

```
Cat6509-E#
```

```
show bootvar
```

```
BOOT variable = disk0:s3223-ipbase_wan-mz.122-18.SXF4.bin
```

```
CONFIG_FILE variable =CONFIG_FILE variable does not exist
```

```
BOOTLDR variable =
```

```
Configuration register is 0x2102
```

```
!--- Make sure the config-register is set to 0x2102 so that the  
!--- switch boots a valid software image. You can change the
```

*!--- configuration register value if you issue the  
!--- config-register 0x2102  
!--- configuration mode command. If the boot variable  
!--- is not specifed correctly,  
!--- switch may reload in ROMMON mode.*

•

重新加载交换机，以使交换机使用新的软件映像进行引导。

<#root>

Cat6509-E#

**reload**

Proceed with reload? [confirm]

21:51:24: %SYS-5-RELOAD: Reload requested by console. Reload Reason: Reload Command.

21:51:27: %SYS-SP-3-LOGGER\_FLUSHING: System pausing to ensure console debugging output.

21:51:27: %OIR-SP-6-CONSOLE: Changing console ownership to switch processor

21:51:27: %SYS-SP-3-LOGGER\_FLUSHED: System was paus

21:51:30: %SYS-SP-3-LOGGER\_FLUSHING: System pausing to ensure console debugging output.

\*\*\*

\*\*\* --- SHUTDOWN NOW ---

\*\*\*

21:51:30: %SYS-SP-5-RELOAD: Reload requested

21:51:30: %OIR-SP-6-CONSOLE: Changing console ownership to switch processor

ed for 00:00:00 to ensure console debugging output.

21:51:30: %SYS-SP-3-LOGGER\_FLUSHED: System was paused for 00:00:00 to ensure console debugging out

Resetting .....

System Bootstrap, Version 12.2(18r)SX2, RELEASE SOFTWARE (fc1)

Technical Support: <http://www.cisco.com/techsupport>

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#####  
##### [OK]

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

Cisco Internetwork Operating System Software  
IOS (tm) s3223\_rp Software (s3223\_rp-IPBASE\_WAN-M), Version 12.2(18)SXF4, RELEASE SOFTWARE (fc1)  
Technical Support: <http://www.cisco.com/techsupport>  
Copyright (c) 1986-2006 by cisco Systems, Inc.  
Compiled Thu 23-Mar-06 17:28 by tinhuang  
Image text-base: 0x40101040, data-base: 0x429E0000

cisco WS-C6509 (R7000) processor (revision 2.0) with 458752K/65536K bytes of memory.  
Processor board ID SCA044903GE  
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.  
1 Virtual Ethernet/IEEE 802.3 interface  
1 Gigabit Ethernet/IEEE 802.3 interface  
2 Ten Gigabit Ethernet/IEEE 802.3 interfaces  
1915K bytes of non-volatile configuration memory.

65536K bytes of Flash internal SIMM (Sector size 512K).

Press RETURN to get started!

00:01:18: %MFIB\_CONST\_RP-6-REPLICATION\_MODE\_CHANGE: Replication Mode Change Detected. Current system replication mode is Ingress

00:00:05: %SYS-3-LOGGER\_FLUSHED: System was paused for 00:00:00 to ensure console debugging output

00:00:06: %OIR-SP-6-CONSOLE: Changing console ownership to route processor

00:00:06: %SYS-SP-3-LOGGER\_FLUSHED: System was paused for 00:00:00 to ensure console debugging output

Firmware compiled 06-Mar-06 22:47 by integ Build [100]

00:01:18: %SYS-SP-5-RESTART: System restarted --  
Cisco Internetwork Operating System Software  
IOS (tm) s3223\_sp Software (s3223\_sp-IPBASE\_WAN-M), Version 12.2(18)SXF4, RELEASE SOFTWARE (fc1)  
Technical Support: <http://www.cisco.com/techsupport>  
Copyright (c) 1986-2006 by cisco Systems, Inc.

Compiled Thu 23-Mar-06 17:25 by tinhuang  
00:01:18: SP: Currently running ROMMON from S (Gold) region  
00:01:18: %SYS-SP-6-BOOTTIME: Time taken to reboot after reload = 225 seconds  
00:01:19: %OIR-SP-6-INSPS: Power supply inserted in slot 1  
00:01:20: %C6KPWR-SP-4-PSOK: power supply 1 turned on.  
00:01:21: %C6KENV-SP-4-FANHIOUTPUT: Version 2 high-output fan-tray is in effect  
00:01:24: %DIAG-SP-6-RUN\_MINIMUM: Module 5: Running Minimal Diagnostics...  
00:01:37: %C6KENV-SP-4-USE\_RED\_CLOCK: system is using the redundant clock (clock B).  
00:01:38: %OIR-SP-6-INSCARD: Card inserted in slot 5, interfaces are now online

Cat6509-E>

.

验证交换机是否已装载新的软件映像。

<#root>

Cat6509-E#

show version

Cisco Internetwork Operating System Software  
IOS (tm) s3223\_rp Software (s3223\_rp-IPBASE\_WAN-M), Version 12.2(18)SXF4, RELEASE SOFTWARE (fc1)  
Technical Support: <http://www.cisco.com/techsupport>  
Copyright (c) 1986-2006 by cisco Systems, Inc.  
Compiled Thu 23-Mar-06 17:28 by tinhuang  
Image text-base: 0x40101040, data-base: 0x429E0000

ROM: System Bootstrap, Version 12.2(17r)SX3, RELEASE SOFTWARE (fc1)  
BOOTLDR: s3223\_rp Software (s3223\_rp-IPBASE\_WAN-M), Version 12.2(18)SXF4, RELEASE SOFTWARE (fc1)

Cat6509-E uptime is 28 minutes  
Time since Cat6509-E switched to active is 27 minutes  
System returned to ROM by power-on (SP by power-on)

System image file is "disk0:s3223-ipbase\_wan-mz.122-18.SXF4.bin"

cisco WS-C6509 (R7000) processor (revision 2.0) with 458752K/65536K bytes of memory.  
Processor board ID SCA044903GE  
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.  
1 Virtual Ethernet/IEEE 802.3 interface  
1 Gigabit Ethernet/IEEE 802.3 interface  
2 Ten Gigabit Ethernet/IEEE 802.3 interfaces  
1915K bytes of non-volatile configuration memory.

65536K bytes of Flash internal SIMM (Sector size 512K).  
Configuration register is 0x2102

Cat6509-E#

## 带有冗余 Supervisor 模块时的软件升级

Catalyst 6000/6500 系列交换机允许在主 Supervisor 引擎发生故障时由冗余 Supervisor 引擎进行接管，以便提供故障防御支持。冗余 Supervisor 引擎必须采用相同型号的相同模型功能卡，以便提供冗余支持。如果您安装有两台 Supervisor 引擎，第一台联机的引擎即成为活动模块。第二台 Supervisor 引擎则进入备用模式。所有管理和网络管理功能（例如，简单网络管理协议 (SNMP)、命令行界面 (CLI) 控制台、Telnet、生成树协议 (STP)、Cisco 设备发现协议 (CDP) 和 VLAN 中继协议 (VTP)）均在活动 Supervisor 引擎上处理。在备用 Supervisor 引擎上，控制台端口处于非活动状态。冗余 Supervisor 引擎不可交换。在切换到冗余 Supervisor 引擎之后，系统将继续使用相同配置运行。

无法对具有冗余 Supervisor 模块的 Catalyst 6000/6500 系列交换机使用正常软件升级过程。请参阅[带有冗余 Supervisor 引擎的 Catalyst 6000/6500 系列交换机的软件映像升级配置示例](#)，以便在冗余模式下升级 Catalyst 6000/6500 系列交换机。

## 验证

当前没有可用于此配置的验证过程。

## 排除配置故障

本部分提供的信息可用于对配置进行故障排除。

## 错误= -21和-45：**Bootflash**已满

当CatOS交换机尝试将映像复制到Bootflash或squeeze 格式不兼容的Bootflash时，会出现此错误。即使 Bootflash 为空，也仍会出现此错误：

```
<#root>
```

```
Console> (enable)
```

```
copy tftp flash
```

```
error = -21  
Can not open destination file bootflash:[x] (file system full),  
where 'x' is the image name.
```

```
<#root>
```

```
Console> (enable)
```

```
squeeze bootflash:
```

```
error = -45  
Squeeze device bootflash failed (error reading squeeze log)
```

解决方法是格式化 Bootflash，然后重新尝试此操作。

<#root>

Console> (enable)

**format bootflash:**

## 软件升级故障 / 交换机在 ROMmon 模式

软件升级可能因以下原因而失败：交换机和 TFTP 服务器之间的 IP 连接问题、错误设置引导变量，或者在将软件映像复制到交换机时电源关闭。这些问题可能导致您的交换机在 ROMMON 下进行引导。如果交换机处于 ROMMON 模式，并且 Bootflash 或 PCMCIA 闪存卡上没有有效映像，您可以采用软件恢复过程将您的交换机恢复到正常模式。请参阅以下文档以了解软件恢复过程：

- 

[从启动失败中恢复运行 CatOS 的 Catalyst 交换机](#)

- 

[从损坏的引导加载程序映像恢复 Catalyst 6500/6000](#)

## 已知问题：因软件降级导致交换机配置丢失

运行 CatOS 的交换机的软件降级始终导致配置丢失。发出 **copy config tftp** 命令，以便将您的配置备份到 TFTP 服务器。或者，请发出 **copy config flash** 命令，以便将配置备份到闪存设备。

发出 **copy tftp config** 或 **copy flash config** 命令以从 TFTP 服务器或闪存设备获取配置文件，以便在成功降级之后恢复配置。

有关这些命令的命令语法和使用，请参阅[Catalyst 6000命令参考指南](#)。

## 收到“Invalid or Unknown device slot0”错误

当您尝试将映像从 TFTP 复制到 slot0 时，将收到以下错误消息：

```
Invalid or Unknown device slot0  
Failed to copy from tftp to slot0:
```

当您尝试格式化闪存文件系统时，可能会显示类似如下的错误消息：

```
<#root>
```

```
SW1 (enable)
```

```
format slot0:
```

```
All sectors will be erased, proceed (y/n) [n]? y  
Enter volume id (up to 31 characters): test  
error = -85  
Format device slot0 failed (cannot find flash algorithm)
```

这些错误消息表明闪存系统 slot0: 在设备上不可用。根据 Supervisor 引擎和闪存系统大小，采用不同名称来表示闪存设备。如果闪存文件大小超过20 MB，则将其视为disk，而不是slot。

为了查看设备中的可用文件系统列表，请使用show file system 命令，并使用适当的闪存设备名称发出copy 或format 命令。

## 收到“Device does not Contain a Valid Magic Number”错误

当在升级之后或在转换期间重新载入 Cisco Catalyst 6500 系列交换机时，该交换机将显示“device does not contain a valid magic number”错误消息。

如果提示此错误消息，交换机则无法加载 Cisco IOS 软件映像。导致此问题的原因在于：尝试加载 Cisco IOS 软件映像的 CPU 所在的设备上的文件系统已被损坏。

此外，当您输入 `dir disk0:` 或 `dir slot0:` 命令时，未格式化的闪存PC卡会返回“bad device block info”或“invalid magic number”错误消息。

要解决此问题，请执行以下步骤：

1.

转至 ROM Monitor (ROMmon) 模式。

2.

使用 Bootflash 手动引导映像。

3.

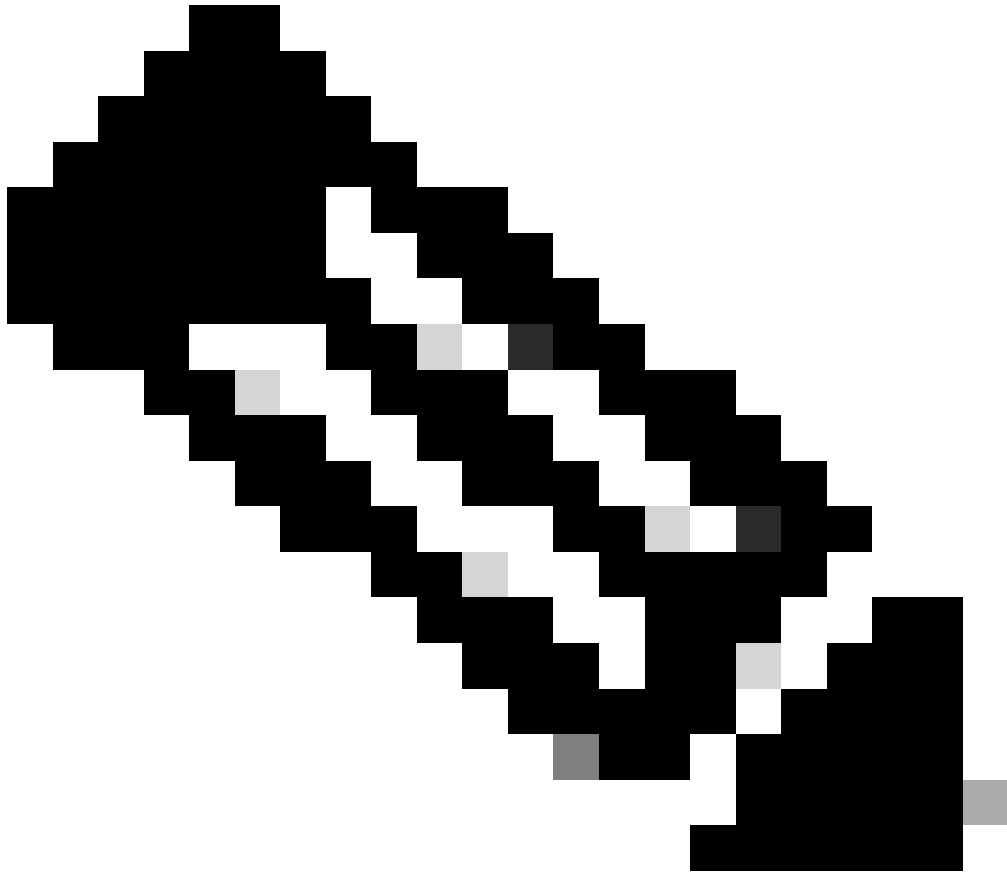
查看 slot0 中的映像大小是否与从 TFTP 服务器下载的映像大小相同。

4.

如果映像大小相同，format 为 slot0 或 disk0，然后使用 copy 命令从 TFTP 服务器下载新映像。

---

---



注意：无法在一个命令中复制多个文件。

---

•

请查看映像是从 TFTP 直接下载到 slot0，还是先下载到 ATA 卡，然后再从 ATA 卡复制到 slot0。如果映像直接下载到 ATA 卡，请格式化 ATA 卡，然后再从 TFTP 服务器下载映像。



## 升级后路由器重新加载

Supervisor上SP的config-register值设置为0x2142。“4”表示忽略系统配置。RP ROMMON的值为0x2102。

由于此设置，最大路由代码会忽略来自非默认最大路由配置的值。一旦忽略，配置的值与加载的值之间就会出现不匹配，这将导致路由器重新加载。

解决方法是，在SP上使用以下命令将config-register值配置为0x2102：

```
<#root>
```

```
Switch#
```

```
configure terminal
```

```
Switch(config)#
```

```
config-register 0x2102
```

```
Switch#
```

```
write memory
```

```
!--- To save the configuration.
```

配置后，检查RP和SP的config-register值是否相同。值必须是0x2102。

•

若要检查RP配置寄存器值，请使用show boot 命令。

•

若要检查SP配置寄存器值，请使用remote command switch show version命令。

## 相关信息

- [升级Catalyst交换机第3层模块上的软件映像](#)
- [从启动失败中恢复运行 CatOS 的 Catalyst 交换机](#)
- [从损坏或丢失的启动加载程序映像或 ROMmon 模式中恢复运行 Native IOS 的 Catalyst 6000](#)
- [带有冗余 Supervisor 引擎的 Catalyst 6000/6500 系列交换机的软件映像升级配置示例](#)
- [在 Catalyst 交换机上管理软件映像和使用配置文件](#)
- [思科技术支持和下载](#)



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