



Working With the Flash File System

This chapter describes how to use the Flash file system on the Catalyst 6000 family switches.



Note

For complete syntax and usage information for the commands used in this chapter, refer to the *Catalyst 6000 Family Command Reference* publication.

This chapter consists of these sections:

- [Understanding How the Flash File System Works, page 24-1](#)
- [Working with the Flash File System, page 24-1](#)

Understanding How the Flash File System Works

The Flash file system on a Catalyst 6000 family supervisor engine provides a number of useful commands to help you manage software image and configuration files.

The Flash file system on the supervisor engine consists of two Flash devices on which you can store files:

- bootflash: onboard Flash memory
- slot0: Flash PC card in the PCMCIA slot

Working with the Flash File System

These sections describe how to work with the Flash file system:

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Setting the Default Flash Device

When you set the default Flash device for the switch, the default device is assumed when you enter a Flash file system command without specifying the Flash device.

To set the default Flash device, perform this task:

	Task	Command
Step 1	Set the default Flash device for the switch.	cd <i>[[m/]bootflash: slot0:]</i>
Step 2	Verify the default Flash device for the switch.	pwd <i>[mod]</i>

This example shows how to change the default Flash device to slot0: and verify the default device:

```
Console> (enable) cd slot0:
Console> (enable) pwd
slot0
Console> (enable)
```

Setting the Text File Configuration Mode

When you use text file configuration mode, the switch stores its configuration as a text file in nonvolatile storage, either in NVRAM or Flash memory. This text file consists of commands entered by you to configure various features. For example, if you disable a port, the command to disable that port will be in the text configuration file.

Because the text file only contains commands you have used to configure your switch, it typically uses less NVRAM or Flash memory space than binary configuration mode. Because the text file in most cases requires less space, NVRAM is a good place to store the file. If the text file exceeds NVRAM space, it can also be saved to Flash memory.

When operating in text file configuration mode, most user settings are not immediately saved to NVRAM; configuration changes are only written to DRAM. You will need to enter the **write memory** command to store the configuration in nonvolatile storage.



Note

VLAN commands are not saved as part of the configuration file when the switch is operating in text mode with the VTP mode set to server.

To set the text file configuration mode, perform this task:

	Task	Command
Step 1	Set the file configuration mode for the system to text.	set config mode { binary text } [nvr am <i>device:file-id</i>]
Step 2	Verify the file configuration mode for the system.	show config mode
Step 3	Save the text file configuration.	write memory
Step 4	Display the current runtime configuration.	show running-config all
Step 5	Display the startup configuration that will be used after the next reset.	show config

This example shows how to configure the system to save its configuration as a text file in NVRAM, verify the configuration mode, and display the current runtime configuration:

```

Console> (enable) set config mode text nvram
Binary system configuration has been deleted from NVRAM. Configuration
mode set to text. Use the write memory command to save configuration changes.
System configuration file set to: nvram
The nvram file will be used for configuration during the next bootup.
Console> (enable) show config mode
System configuration mode set to text.
System configuration file set to nvram.
Console> (enable) show running-config all
.....
begin
!
# ***** ALL (DEFAULT and NON-DEFAULT) CONFIGURATION *****
!
!
#time: Wed Jul 18 2001, 06:51:56
!
#version 6.3(0.74)
!
set password $2$FMFQ$HfZR5DUszVHIRhrz4h6V70
set enablepass $2$FMFQ$HfZR5DUszVHIRhrz4h6V70
set prompt Console>
set length 24 default
set logout 20
set config mode text nvram
set banner motd ^C^C
set banner lcd ^C^C
!
#test
set test diaglevel complete
!
#errordetection
set errordetection inband disable
set errordetection memory disable
set errordetection portcounter enable
!
#system
set system baud 9600
set system modem disable
set system name
set system location
----display truncated-----
Console> (enable)

```

Listing the Files on a Flash Device

To list the files on a Flash device, perform one of these tasks:

Task	Command
Display a list of files on a Flash device.	dir <i>[[m/]device:][filename]</i>
Display a list of deleted files on a Flash device.	dir <i>[[m/]device:][filename]</i> deleted
Display a list of all files on a Flash device, including deleted files.	dir <i>[[m/]device:][filename]</i> all
Display a detailed list of files on a Flash device.	dir <i>[[m/]device:][filename]</i> long

This example shows how to list the files on the default Flash device:

```
Console> (enable) dir
-#- -length- ----date/time----- name
  4 3134688 Mar 15 1999 08:27:01 cat6000-sup.5-2-1-CSX.bin
  5 3231989 Jan 24 1999 12:04:40 cat6000-sup.5-1-1-CSX.bin
  6      135 Feb 17 1999 11:30:05 dns_config.cfg

1213952 bytes available (6388224 bytes used)
Console> (enable)
```

This example shows how to list the files on a Flash device other than the default device:

```
Console> (enable) dir slot0:
-#- -length- ----date/time----- name
  1 3209261 Jun 16 1998 13:18:19 cat6000-sup.5-2-1-CSX.bin
  2      135 Jul 17 1998 11:32:53 dns_config.cfg
  3 3231989 Jul 17 1998 16:54:23 cat5000-sup3.4-1-2.bin
  4      8589 Jul 17 1998 17:02:52 6000_config.cfg

9933504 bytes available (6450496 bytes used)
Console> (enable)
```

This example shows how to list the deleted files on the default Flash device:

```
Console> (enable) dir deleted
-#- ED --type-- --crc--- -seek-- nlen -length- ----date/time----- name
  1 .D ffffffff 81a027ca 41bdc 22 7004 Apr 01 1998 15:27:45 5002.config.
4.1.98.cfg
  2 .D ffffffff ccce97a3 43644 23 6630 Apr 01 1998 15:36:47 5002.default
.config.cfg
  3 .D ffffffff 81a027ca 45220 15 7004 Apr 19 1998 10:05:59 5002_config.
cfg

1213952 bytes available (6388224 bytes used)
Console> (enable)
```

Copying Files

To copy a file, perform one of these tasks in privileged mode:

Task	Command
Copy a Flash file to a TFTP server, rcp server, Flash memory, another Flash device, or to the running configuration.	copy <i>file-id</i> { tftp rcp flash <i>file-id</i> config }
Copy a file from a TFTP server, rcp server to Flash memory, to a Flash device, or to the running configuration.	copy { tftp rcp } { flash <i>file-id</i> config }
Copy a file from Flash memory to a TFTP server, rcp server, to a Flash device, or to the running configuration.	copy flash { tftp rcp <i>file-id</i> config }
Copy the running configuration to Flash memory, another Flash device, to a TFTP server, or rcp server.	copy config { flash <i>file-id</i> tftp rcp }

This example shows how to upload a configuration file on a Flash device to a TFTP server:

```
Console> (enable) copy slot0:6000_config.cfg tftp
IP address or name of remote host []? 172.20.52.3
Name of file to copy to [6000_config.cfg]?
/
File has been copied successfully.
Console> (enable)
```

This example shows how to upload an image from a remote host into Flash using rcp:

```
Console> (enable) copy rcp flash
IP address or name of remote host []? 172.20.52.3
Name of file to copy from []? 6000_config.cfg
Flash device [bootflash]?
Name of file to copy to [6000_config.cfg]?

4369664 bytes available on device bootflash, proceed (y/n) [n]? y
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCC
File has been copied successfully.
Console> (enable)
```

Deleting Files



Caution

If you enter the **squeeze** command on a Flash device, you cannot restore files deleted prior to the **squeeze** command.

To delete files on a Flash device, perform this task in privileged mode:

	Task	Command
Step 1	Delete a file on a Flash device.	delete <i>[[m/]device:]filename</i>
Step 2	If desired, permanently remove all deleted files on the Flash device (this operation can take a number of minutes to complete).	squeeze <i>[m/]device:</i>
Step 3	Verify the files are deleted.	dir <i>[[m/]device:]filename</i>

This example shows how to delete a file from a Flash device:

```
Console> (enable) delete dns_config.cfg
Console> (enable)
```

This example shows how to permanently remove all deleted files from a Flash device:

```
Console> (enable) squeeze slot0:
All deleted files will be removed, proceed (y/n) [n]? y
Squeeze operation may take a while, proceed (y/n) [n]? y
Erasing squeeze log
Console> (enable)
```


Formatting a Flash Device

Before you use a new Flash device, you must format it. You can reserve up to 16 spare sectors for use when other sectors fail (by default, none are reserved). If you do not reserve spare sectors and later some sectors fail, you will have to reformat the entire Flash memory, erasing all existing data.



Note

Flash PC cards formatted on Supervisor Engine 1 or on a route-switch processor (RSP)-based Cisco 7500 series router are interchangeable if the router is running software at least at the same level as the supervisor engine. You cannot use Flash PC cards formatted on a route processor (RP)-based Cisco 7000 series router without reformatting.

When you format a Flash device, you can specify the *monlib* file (the ROM monitor library), which the ROM monitor uses to access files in the Flash file system. The *monlib* file is also compiled into the software image.

In the **format** command syntax, use the *device2* argument to specify the device that contains the *monlib* file to use. If you omit the entire *device2* argument, the switch formats the device using the *monlib* file that is bundled with the software. If you omit just the device name (*device2*) from the `[[device2:][monlib-filename]]` argument, the switch formats the device using the named *monlib* file from the default Flash device. If you omit the *monlib-filename* from the `[[device2:][monlib-filename]]` argument, the switch formats the device using the *monlib* file from *device2*. If you specify the entire `[[device2:][monlib-filename]]` argument, the switch formats the device using the specified *monlib* file from the specified device. If the switch cannot find a *monlib* file, it terminates the formatting process.



Note

If the Flash device has a volume ID, you must provide the volume ID to format the device. The volume ID is displayed using the **show flash m/device: filesys** command.

To format a Flash device, perform this task in privileged mode:

Task	Command
Format a Flash device.	format [spare <i>spare-number</i>] [<i>m</i>]/ <i>device1</i> : [[<i>device2</i> :] [<i>monlib-filename</i>]]

This example shows how to format the Flash device in slot0:

```
Console> (enable) format slot0:
All sectors will be erased, proceed (y/n) [n]?y
Enter volume id (up to 31 characters):
Formatting sector 1
Format device slot0 completed.
Console> (enable)
```



Note

Supervisor Engine 2 and Supervisor Engine 1 do not support the same Flash PC card format. To use a Flash PC card with Supervisor Engine 2, format the card with Supervisor Engine 2. To use a Flash PC card with Supervisor Engine 1, format the card with Supervisor Engine 1.