

Router Memory Commands

This appendix provides detailed descriptions of the commands used to maintain router memory. This appendix documents standard Cisco IOS router memory commands supported on the Cisco MC3810. These commands were first used on the Cisco MC3810 in the Cisco IOS 11.3(1)MA release.

Note Commands in this chapter that have been replaced by new commands continue to perform their normal functions in the current release, but are no longer documented. Support for these commands will cease in a future release. Table A-1 maps old commands with their replacements, which are explained in more detail in this appendix.

Table A-1 Mapping Old Commands to New Commands

Old Command	New Command
copy erase flash	format (Class A and C Flash file systems only)
copy verify or copy verify flash verify flash	fsck flash:

For configuration information and examples, refer to the “Maintaining Router Memory” chapter in the *Configuration Fundamentals Configuration Guide*.

cd

To change the default directory or filesystem, use the **cd** EXEC command.

cd [**flash:** *directory*]

Syntax Description

flash Specify the flash filesystem.

directory (Optional) Specify the directory.

Default

The initial default filesystem is **flash:**. For platforms that do not have a physical device named **flash:**, the keyword **flash:** is aliased to the default Flash device.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Related Commands

You can use the master indexes or search online to find documentation of related commands.

copy
delete
dir
pwd
show flash
undelete

copy

To copy any file from a source to a destination, use the **copy** EXEC command.

The **copy system:running-config nvram:startup-config** command replaces the **write memory** command. The **copy system:running-config ftp:**, **copy system:running-config rcp:**, or **copy system:running-config tftp:** command replaces the **write network** command. The **copy ftp: system:running-config**, **copy rcp: system:running-config**, or **copy tftp: system:running-config** command replaces the **configure network** command. The **copy ftp: nvram:startup-config**, **copy rcp: nvram:startup-config**, or **copy tftp: nvram:startup-config** command replaces the **configure overwrite-network** command.

copy

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 T.

The router will prompt for any missing pieces of the source and destination files or devices.

The entire copying process might take several minutes and differs from protocol to protocol and from network to network.

This section contains usage guidelines for the following situations:

- Invalid Combinations of Source and Destination
- Copying Character Descriptions
- Using rcp
- Storing Images on Servers
- Copying from a Server to Flash Memory
- Copying a Configuration File from a Server to the Running Configuration
- Copying a Configuration File from a Server to the Startup Configuration
- Storing the Running or Startup Configuration on a Server
- Saving the Running Configuration to the Startup Configuration
- CONFIG_FILE, BOOT, and BOOTLDR Environment Variables

Invalid Combinations of Source and Destination

Some invalid combinations exist. Specifically, you cannot copy the following:

- A running configuration to a running configuration.
- A startup configuration to a startup configuration.
- From a device to the same device (for example, the **copy flash: flash:** command is invalid).

Copying Character Descriptions

Table A-2 describes the characters that you might see during processing of the **copy** command.

Table A-2 Copy Character Descriptions

Character	Description
!	An exclamation point indicates that the copy process is taking place. Each exclamation point indicates that ten packets (512 bytes each) have been successfully transferred.
.	A period indicates the copy process timed out. Many periods in a row typically mean that the copy process might fail.
O	An uppercase O indicates a packet was received out of order and the copy process might fail.
e	A lowercase e indicates a device is being erased.
E	An uppercase E indicates an error and the copy process might fail.
V	A series of uppercase Vs indicates the progress during the verification of the image checksum.

Using rcp

The rcp protocol requires a client to send a remote username on each rcp request to a server. When you copy a configuration file or image between the router and a server using rcp, the Cisco IOS software sends the first valid username in the following list:

- 1 The remote username specified in the *file-url*.
- 2 The username set by the **ip rcmd remote-username** command, if the command is configured.
- 3 The remote username associated with the current TTY (terminal) process. For example, if the user is connected to the router through Telnet and was authenticated through the **username** command, the router software sends the Telnet username as the remote username.
- 4 The router host name.

For the rcp copy request to execute successfully, an account must be defined on the network server for the remote username. If the network administrator of the destination server did not establish an account for the remote username, this command will not execute successfully. If the server has a directory structure, the configuration file or image is written to or copied from the directory associated with the remote username on the server. Use the **ip rcmd remote-username** command to specify which directory on the server to use. For example, if the system image resides in the home directory of a user on the server, you can specify that user's name as the remote username.

If you are writing to the server, the rcp server must be properly configured to accept the rcp write request from the user on the router. For UNIX systems, you must add an entry to the *.rhosts* file for the remote user on the rcp server. Suppose the router contains the following configuration lines:

```
hostname Rtr1
ip rcmd remote-username User0
```

If the router's IP address translates to Router1.company.com, then the *.rhosts* file for User0 on the rcp server should contain the following line:

```
Router1.company.com Rtr1
```

Refer to the documentation for your rcp server for more details. If you are using a personal computer as a file server, the computer must support rsh.

Storing Images on Servers

Use the **copy** *local-url remote-url* command to copy a system image or boot image from Flash memory to a network server. You can use the copy of the image as a backup copy. You can also use it to verify that the copy in Flash memory is the same as the original file.

Copying from a Server to Flash Memory

Use the **copy** *remote-url local-url* command to copy an image from a server to Flash memory.

On Class B file system platforms, the system provides an option to erase existing Flash memory before writing onto it.



Caution Verify the image in Flash memory before booting the image.

Copying a Configuration File from a Server to the Running Configuration

Use the **copy:running-config** command to load a configuration file from a network server to the router's running configuration. The configuration will be added to the running configuration as if the commands were typed in the command line interface. Thus, the resulting configuration will be a combination of the previous running configuration and the loaded configuration file, with the loaded configuration file having precedence.

You can copy either a host configuration file or a network configuration file. Accept the default value of *host* to copy and load a host configuration file containing commands that apply to one network server in particular. Enter *network* to copy and load a network configuration file containing commands that apply to all network servers on a network.

Copying a Configuration File from a Server to the Startup Configuration

Use the **copy :startup-config** command to copy a configuration file from a network server to the router's startup configuration. These commands replace the startup configuration file with the copied configuration file.

Storing the Running or Startup Configuration on a Server

Use the **copy running-config remote-url** command to copy the current configuration file to a network server using rcp or TFTP. Use the **copy nvram:startup-config remote-url** command to copy the startup configuration file to a network server using rcp or TFTP. The configuration file copy can serve as a backup copy.

Saving the Running Configuration to the Startup Configuration

Use the **copy running-config startup-config** command to copy the running configuration to the startup configuration.



Caution Some specific commands might not get saved to NVRAM. You will have to enter these commands again if you reboot the machine. These commands are noted in the documentation. We recommend that you keep a listing of these settings so you can quickly reconfigure your router after rebooting.

If you issue the **copy system:running-config nvram:startup-config** command from a bootstrap system image, you receive a warning instructing you to indicate whether you want your previous NVRAM configuration to be overwritten and configuration commands to be lost. This warning does not appear if NVRAM contains an invalid configuration or if the previous configuration in NVRAM was generated by a bootstrap system image.

On all platforms except Class A filesystem platforms, the **copy system:running-config nvram:startup-config** command copies the currently running configuration to NVRAM.

On the Class A Flash file system platforms, the **copy system:running-config nvram:startup-config** command copies the currently running configuration to the location specified by the CONFIG_FILE environment variable. This variable specifies the device and configuration file used for initialization. When the CONFIG_FILE environment variable points to NVRAM or when this variable does not exist (such as at first-time startup), the software writes the current configuration to NVRAM. If the current configuration is too large for NVRAM, the software displays a message and stops executing the command.

CONFIG_FILE, BOOT, and BOOTLDR Environment Variables

The following applies to Class A Flash memory file system platforms:

- The CONFIG_FILE environment variable specifies the configuration file used during router initialization.
- The BOOTLDR environment variable specifies the Flash memory device and filename containing the rxboot image that ROM uses for booting.
- The BOOT environment variable specifies a list of bootable images on various devices.
- There is no CONFIG_FILE environment variable. The startup-configuration is always the configuration in NVRAM.
- The BOOT environment variable specifies a list of bootable images on various devices.

To view the contents of environment variables, use the **show bootenv** command. To modify the CONFIG_FILE environment variable, use the **boot config** command. To modify the BOOTLDR environment variable use the **boot bootldr** command. To modify the BOOT environment variable, use the **boot system** command. To save your modifications, use the **copy system:running-config nvram:startup-config** command.

When the destination is specified by the CONFIG_FILE or BOOTLDR environment variable, the router prompts you for confirmation before proceeding with the copy. When the destination is the only valid image in the BOOT environment variable, the router also prompts you for confirmation before proceeding with the copy.

Examples

The following examples illustrate uses of the copy command. Depending on your platform, the output might be different from the output shown in the example.

- Copying from a Server to Flash Memory Examples
- Saving a Copy of an Image on a Server Examples
- Copying from a Server to the Startup Configuration Example
- Copying from a Server to the Running Configuration Example
- Copying the Running Configuration to a Server Example
- Copying the Startup Configuration to a Server Example

- Saving the Current Running Configuration Example
- Moving Configuration Files to Other Locations Examples

Copying from a Server to Flash Memory Examples

The following examples use a **copy rcp:**, **copy tftp:**, or **copy** command to copy an image from a server to Flash memory.

- Copy an Image from a Server to Flash Memory

The following example shows how to copy an image from a server to Flash memory using the **copy rcp flash** command.

For a TFTP server, use the **copy tftp: flash:** command. You do not need to specify a remote username with the **ip rcmd remote-username** command.

```
Router# configure terminal

Router# copy rcp flash
Address or name of remote host []? 172.22.124.5
Source file name []? test
Destination file name [test]?

Connected to 172.22.124.5
Loading 16 byte file test: ! [OK]
```

The exclamation point (!) indicates that the copy process is taking place. Each exclamation point (!) indicates that ten packets have been transferred successfully. A series of “V” characters indicates that a checksum verification of the image is occurring after the image is written to Flash memory.

- Copy from a Server to a Flash Memory Using Flash Load Helper Example

The following example copies a system image into a partition of Flash memory. The system will prompt for a partition number only if there are two or more read/write partitions, or one read-only and one read/write partition and dual Flash bank support in boot ROMs. If the partition entered is not valid, the process terminates. You can enter a partition number, a question mark (?) for a directory display of all partitions, or a question mark and a number (?*number*) for a directory display of a particular partition. The default is the first read/write partition. In this case, the partition is read-only and has dual Flash bank support in boot ROM, so the system uses Flash Load Helper.

For an rcp server, first specify a remote username with the **rcmd remote-username** command. Then use the **copy rcp flash** command. The dialogue will be similar.

```
Router# copy tftp flash

System flash partition information:
Partition  Size  Used  Free  Bank-Size  State  Copy-Mode
    1      4096K  2048K  2048K  2048K      Read Only  RXBOOT-FLH
    2      4096K  2048K  2048K  2048K      Read/Write  Direct

[Type ?<no> for partition directory; ? for full directory; q to abort]
Which partition? [default = 2]
```

**** NOTICE ****

```
Flash load helper v1.0
This process will accept the copy options and then terminate
the current system image to use the ROM based image for the copy.
Routing functionality will not be available during that time.
```

If you are logged in via telnet, this connection will terminate.
Users with console access can see the results of the copy operation.

```

----- ***** -----
Proceed? [confirm]
System flash directory, partition 1:
File Length Name/status
  1  3459720 master/igs-bfpx.100-4.3
[3459784 bytes used, 734520 available, 4194304 total]
Address or name of remote host [255.255.255.255]? 172.16.1.1
Source file name? master/igs-bfpx-100.4.3
Destination file name [default = source name]?

Loading master/igs-bfpx.100-4.3 from 172.16.1.111: !
Erase flash device before writing? [confirm]
Flash contains files. Are you sure? [confirm]
Copy 'master/igs-bfpx.100-4.3' from TFTP server
as 'master/igs-bfpx.100-4.3' into Flash WITH erase? [yes/no] yes

```

Saving a Copy of an Image on a Server Examples

The following examples use **copy flash** or **copy file-id** commands to copy images to a server for storage:

- Copy an Image from Flash Memory to an rcp Server Example

The following example illustrates how to copy a system image from Flash Memory to an rcp server. To copy to a TFTP server, use the **copy flash: tftp:** command instead.

```

Router# copy flash rcp
Source file name []? kk
Address or name of remote host []? 172.22.124.5
Destination file name [kk]?
Writing kk !
99 bytes copied in 0.380 secs

```

- Copy an Image from a Flash Memory Device to a Server

The following example copies the file *c3600-i-mz* from partition 1 of the Flash memory card in slot 0 to a TFTP server that has IP address 172.23.1.129. Because the Flash memory card has multiple partitions, and a partition number and filename are not specified in the command line, you must provide this information during the copy operation.

```

Router# copy slot0: tftp:
PCMCIA Slot0 flash

Partition  Size  Used   Free   Bank-Size  State      Copy Mode
  1         4096K  1671K  2424K   4096K      Read/Write Direct
  2         4096K  3068K  1027K   4096K      Read/Write Direct
  3         4096K  1671K  2424K   4096K      Read/Write Direct
  4         4096K  3825K   270K   4096K      Read/Write Direct

[Type ?<no> for partition directory; ? for full directory; q to abort]
Which partition? [default = 1] 1

PCMCIA Slot0 flash directory, partition 1:
File Length Name/status
  1  1711088 /tftpboot/cisco_rules/c3600-i-mz
[1711152 bytes used, 2483152 available, 4194304 total]
Address or name of remote host [172.23.1.129]?
Source file name? /tftpboot/cisco_rules/c3600-i-mz
Destination file name [/tftpboot/cisco_rules/c3600-i-mz]? dirt/cisco_rules/c3700-i-mz
Verifying checksum for '/tftpboot/cisco_rules/c3600-i-mz' (file # 1)... OK
Copy '/tftpboot/cisco_rules/c3600-i-mz' from Flash to server
as 'dirt/cisco_rules/c3700-i-mz'? [yes/no] yes

```

```

!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Upload to server done
Flash device copy took 00:00:23 [hh:mm:ss]

```

Copying from a Server to the Running Configuration Example

The following example shows how to use the **copy rcp: system:running-config** command:

```

Router#copy rcp: system:running-config
Address or name of remote host []? 172.22.124.5
Source file name []? kk
Destination file name [running-config]?

Connected to 172.22.124.5
Loading 99 byte file kk: ! [OK]

```

Copying from a Server to the Startup Configuration Example

The following example shows how to use the **copy rcp:startup-config** command:

```

Router# copy rcp: startup-config
Address or name of remote host []? 172.22.124.5
Source file name []? kk
Destination file name [startup-config]?

Connected to 172.22.124.5
Loading 99 byte file kk: ! [OK]

```

Copying the Running Configuration to a Server Example

The following example shows how to use the **copy system:running-config rcp:** command. This example specifies a remote username of *netadmin1*. Then it copies the running configuration file, named *Rtr2-confg* to the *netadmin1* directory on the remote host with an IP address of 172.16.101.101.

```

Router# configure terminal
Router(config)# ip rcmd remote-username netadmin1
Router(config)# Ctrl-Z
Router# copy system:running-config rcp:
Remote host[]? 172.16.101.101

Name of configuration file to write [Rtr2-confg]?
Write file rtr2-confg on host 172.16.101.101?[confirm]
Building configuration...[OK]
Connected to 172.16.101.101

```

Copying the Startup Configuration to a Server Example

The following example shows how to use the **copy nvram:startup-config rcp:** command:

```

Router# configure terminal
Router(config)# ip rcmd remote-username netadmin2
Router(config)# end
Router# copy nvram:startup-config rcp:
Remote host[]? 172.16.101.101

Name of configuration file to write [rtr2-confg]? <cr>
Write file rtr2-confg on host 172.16.101.101?[confirm] <cr>
! [OK]

```

Saving the Current Running Configuration Example

The following example shows the **copy system:running-config nvram:startup-config** command and the warning the system provides if you are trying to save configuration information from bootstrap into the system:

```
Router(boot)# copy system:running-config nvram:startup-config

Warning: Attempting to overwrite an NVRAM configuration written
by a full system image. This bootstrap software does not support
the full configuration command set. If you perform this command now,
some configuration commands may be lost.
Overwrite the previous NVRAM configuration?[confirm]
```

Enter **no** to escape writing the configuration information to memory.

Moving Configuration Files to Other Locations Examples

On some routers, you can store copies of configuration files on a Flash memory device:

- Copy the Startup Configuration to a Flash Memory Device Example

The following example uses the **copy nvram:startup-config** command to copy the startup configuration file (specified by the CONFIG_FILE environment variable) to a Flash memory card inserted in slot 0. To copy the running configuration file instead, use the **copy system:running-config** command.

```
copy nvram:startup-config slot0:router-config
```

- Copy the Running Configuration to a Flash Memory Device Example

The following example copies the running configuration from the router to the Flash memory PC card in slot 1:

```
Router# copy system:running-config slot1:

PCMCIA Slot1 flash directory:
File Length Name/status
 1 1711088 dirt/images/c3600-i-mz
[1711152 bytes used, 2483152 available, 4194304 total]
Destination file name [running-config]?
Building configuration...

Erase flash device before writing? [confirm] no

Copy 'running-config'
  as 'running-config' into flash device WITHOUT erase? [yes/no] yes
!
[OK - 850/2483152 bytes]

Verifying checksum... OK (0x16)
Flash device copy took 00:00:00 [hh:mm:ss]
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

boot config
boot system flash
cd
copy xmodem flash
copy ymodem flash
delete
dir
erase bootflash
ip rcmd remote-username
reload
show bootvar
show bootflash
slave auto-sync config
write erase

delete

To delete a file, use the **delete** EXEC command:

```
delete file-url
```

Syntax Description

file-url URL of the file to be deleted.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

When you delete a file, the software simply marks the file as deleted, but does not erase the file. This feature allows you to later recover a “deleted” file using the **undelete** command. You can delete and undelete a file up to 15 times.

If you attempt to delete the configuration file or image specified by the CONFIG_FILE or BOOTLDR environment variable, the system prompts you to confirm the deletion. Also, if you attempt to delete the last valid system image specified in the BOOT environment variable, the system prompts you to confirm the deletion.

Example

The following example deletes the *router-backupconfig* file from the Flash memory card inserted in slot 0:

```
delete :router-backupconfig
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

cd

dir

dir

To display a list of files on a filesystem, use the **dir** EXEC command:

dir

Syntax Description

There are no arguments or keywords for this command.

Default

The default filesystem is that specified by the **cd** command. When you omit all keywords and arguments, the Cisco IOS software displays only undeleted files for the default filesystem in short format.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Use the **show filesystem** command to display more detail about the files in a particular file system.

Examples

```
tw3-7200-1#dir /long slot0:
Directory of /
```

```
 1 -rw-      4720148   Aug 29 1997 17:49:36 hampton/nitro/c7200-j-mz
 2 -rw-      4767328   Oct 01 1997 18:42:53 c7200-js-mz
 5 -rw-         639    Oct 02 1997 12:09:32 foo
 7 -rw-         639    Oct 02 1997 12:37:13 the_time
```

```
20578304 bytes total (3104544 bytes free)
```

```
tw3-7200-1#dir slot0:
Directory of/
```

```
 1 -rw-      4720148   Aug 29 1997 17:49:36 hampton/nitro/c3810-j-mz
 2 -rw-      4767328   Oct 01 1997 18:42:53 c3810-js-mz
 5 -rw-         639    Oct 02 1997 12:09:32 foo
 7 -rw-         639    Oct 02 1997 12:37:13 the_time
```

```
20578304 bytes total (3104544 bytes free)
```

```
tw3-7200-1#dir /all slot0:
Directory of /
```

```
 1 -rw-      4720148   Aug 29 1997 17:49:36 hampton/nitro/c3810-j-mz
 2 -rw-      4767328   Oct 01 1997 18:42:53 c3810-js-mz
 3 -rw-      7982828   Oct 01 1997 18:48:14 [rsp-jsv-mz]
 4 -rw-         639    Oct 02 1997 12:09:17 [the_time]
 5 -rw-         639    Oct 02 1997 12:09:32 foo
 6 -rw-         639    Oct 02 1997 12:37:01 [the_time]
 7 -rw-         639    Oct 02 1997 12:37:13 the_time
```

Table A-3 described the fields shown in this output.

Table A-3 **dir Field Descriptions**

Field	Description
1	Index number of the file.
-rw-	Permissions. The file can be any or all of the following: <ul style="list-style-type: none">• d—directory• r—readable• w—writable• x—executable
4720148	Size of the file.
Aug 29 1997 17:49:36	Last modification date.
hampton/nitro/c7200-j-mz	File name. Deleted files are indicated by square brackets around the file name.

Related Commands

You can use the master indexes or search online to find documentation of related commands.

- cd**
- delete**
- undelete**

erase

To erase a filesystem, use the **erase** EXEC command:

```
erase [startup-config]
```

Syntax Description

startup-config Specify to erase the startup configuration.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

When a filesystem is erased, none of the files in the filesystem can be recovered.

The **erase** command can be used on Flash memory file systems of Class B file system platforms only. To reclaim space on Flash memory file systems after deleting files using the **delete** command, you must use the **erase** command. This command erases all of the files in the Flash memory file system.

On Class C file system platforms, space is dynamically reclaimed when you use the **delete** command. You can also use the **format** command to format the Flash memory file system.

Related Commands

You can use the master indexes or search online to find documentation of related commands.

```
boot config  
delete  
show bootvar  
show startup-config  
undelete
```

format

To format a filesystem on a Class A or Class C file system platform, use the **format EXEC** command:

format *filesystem1* (Class C file system platforms)



Caution The following formatting procedure erases all information in the Flash memory. To prevent the loss of important data, proceed carefully.

Syntax Description

spare	(Optional) Reserves spare sectors as specified by the <i>spare-number</i> argument when formatting a device.
<i>spare-number</i>	(Optional) Number of spare sectors to reserve on the formatted device. Valid values are 0 to 16. The default value is zero.
<i>filesystem1</i>	Device to format.
<i>filesystem2</i>	(Optional) Device containing the monlib file to use for formatting <i>filesystem1</i> .
<i>monlib-filename</i>	(Optional) Name of the ROM monitor library file (monlib file) to use for formatting <i>filesystem1</i> . The default monlib file is the one bundled with the system software. When it is used with HSA and you do not specify the <i>monlib-filename</i> , the system takes ROM monitor library file from the slave image bundle. If you specify the <i>monlib-filename</i> , the system assumes that the files reside on the slave devices.

Default

The default monlib file is the one bundled with the system software.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

In some cases, you might need to insert a new PCMCIA Flash memory card and load images or backup configuration files onto it. Before you can use a new Flash memory card, you must format it.

Flash memory cards have sectors that can fail. You can reserve certain Flash memory sectors as “spares” for use when other sectors fail. Use the **format** command to specify between 0 and 16 sectors as spares. If you reserve a small number of spare sectors for emergencies, you do not waste space because you can use most of the Flash memory card. If you specify zero spare sectors and some sectors fail, you must reformat the Flash memory card and all existing data will be erased.

The monlib file is the ROM monitor library. The ROM monitor uses the monlib file to access files in the Flash memory file system. The Cisco IOS system software contains a monlib file.

In the command syntax, *filesystem1* is the device to format and *filesystem2* contains the monlib file to use. When you omit the `[[filesystem2][monlib-filename]]` argument, the system formats *filesystem1* using the monlib that is bundled with the system software. When you omit *filesystem2* from the `[[filesystem2][monlib-filename]]` argument, the system formats *filesystem1* using the named monlib file from the device specified by the **cd** command. When you omit *monlib-filename* from the `[[filesystem2][monlib-filename]]` argument, the system formats *filesystem1* using *filesystem2*'s monlib file. When you specify the whole `[[filesystem2:][monlib-filename]]` argument, the system formats *filesystem1* using the specified monlib file from the specified device. Note that you can specify *filesystem1*'s own monlib file in this argument. When the system cannot find a monlib file, the system terminates the formatting process.

Example

The following example shows the **format** command that formats a Flash memory card inserted in slot 0:

```
Router# format
Running config file on this device, proceed? [confirm]y
All sectors will be erased, proceed? [confirm]y
Enter volume id (up to 31 characters): <Return>
Formatting sector 1 (erasing)
Format device slot0 completed
```

When the Cisco IOS software returns you to the EXEC prompt, the new Flash memory card is successfully formatted and ready for use.

Related Commands

You can use the master indexes or search online to find documentation of related commands.

copy
delete
dir
show file
show flash
squeeze
undelete

fsck

To check a file system for damage and repair any problems on a Class C file system platform, use the **fsck EXEC** command:

```
fsck flash[:]
```

Syntax Description

flash Specify to check the flash file system.

: (Optional) Use the colon to specify a filename.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 T.

This command is only valid on Class C file system platforms.

Example

The following example checks the flash: filesystem:

```
Router# fsck flash:  
Fsk operation may take a while. Continue? [confirm]  
flashfs[4]: 0 files, 2 directories  
flashfs[4]: 0 orphaned files, 0 orphaned directories  
flashfs[4]: Total bytes: 8128000  
flashfs[4]: Bytes used: 1024  
flashfs[4]: Bytes available: 8126976  
flashfs[4]: flashfs fsck took 23 seconds.  
Fsk of flash: complete
```

mkdir

To create a new directory in a filesystem on Class C file system platforms, use the **mkdir** EXEC command.

```
mkdir [directory]
```

Syntax Description

directory (Optional) Name of the directory to create.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 T.

This command is only valid on Class C file system platforms.

If you do not specify the directory name in the command line, the router prompts you for it.

Examples

The following example creates a directory called *newdir*:

```
Router# mkdir newdir
Mkdir file name [newdir]?
Created dir flash:newdir
Router# dir
Directory of flash:

  2  drwx          0   Mar 13 1993 13:16:21  newdir

8128000 bytes total (8126976 bytes free)
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

dir
rmdir

more

To display a file, use the **more EXEC** command. The **more nvram:startup-config** command replaces the **show startup-config** command and the **show configuration** command. The **more system:running-config** command replaces the **show running-config** command and the **write terminal** command.

more

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 T.

You can use this command to display configuration files. The **more nvram:startup-config** command displays the startup configuration file. The **more system:running-config** command displays the running configuration.

To display the contents of NVRAM (if present and valid), or to show the configuration file pointed to by the CONFIG_FILE environment variable, use the **more nvram:startup-config EXEC** command. NVRAM stores the configuration information on the network server in text form as configuration commands. The **more nvram:startup-config** command shows the version number of the software used when you last executed the **copy system:running-config nvram:startup-config** command.

For Class A Flash memory file systems, the **more nvram:startup-config** command shows the configuration file specified by the CONFIG_FILE environment variable. This variable specifies the configuration file used for initialization (startup). The Cisco IOS software informs you whether the displayed configuration is a complete configuration or a distilled version. A distilled configuration is one that does not contain access lists. If the CONFIG_FILE environment variable does not exist or is not valid, the software displays the NVRAM configuration (if it is a valid, complete configuration). Use the **boot config** command in conjunction with the **copy system:running-config nvram:startup-config** command to set the CONFIG_FILE environment variable.

Use the **more system:running-config** command in conjunction with the **more nvram:startup-config** command to compare the information in running memory to the information stored in NVRAM or in a location specified by the CONFIG_FILE environment variable.

Sample Displays

The following partial sample output displays the configuration file *startup-config* in NVRAM:

```
tw3-7200-1# more nvram:startup-config
!
! No configuration change since last restart
! NVRAM config last updated at 02:03:26 PDT Thu Oct 2 1997
!
version 11.3
service timestamps debug uptime
service timestamps log uptime
service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname tw3-7200-1
!
```

```
boot system flash bootflash:
...
end
```

The following is partial sample output from the **more nvram:startup-config** command when the configuration file has been compressed:

```
rose# more nvram:startup-config

Using 21542 out of 65536 bytes, uncompressed size = 142085 bytes
!
version 9.22
service compress-config
!
hostname rose
!
boot system flash gs7-k.sthormod_clean
boot system rom
(***** update output to recent release *****)
```

The following partial sample output displays the running configuration:

```
Router2# show system:running-config
Building configuration...

Current configuration:
!
version 11.2
no service udp-small-servers
no service tcp-small-servers
!
hostname Router2
!
...
!
end
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

boot config
configure
copy system:running-config nvram:startup-config
service compress-config
show bootvar

pwd

To show the current setting of the **cd** command, use the **pwd** EXEC command:

```
pwd
```

Syntax Description

This command has no arguments or keywords.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Use the **pwd** command to show what directory or filesystem is specified as the default by the **cd** command. For all EXEC commands that have an optional *filesystem* argument, the system uses the filesystem specified by the **cd** command when you omit the optional *filesystem* argument.

For example, the **dir** command contains an optional *filesystem* argument and displays a list of files on a particular filesystem. When you omit this *filesystem* argument, the system shows a list of the files on the filesystem specified by the **cd** command.

Example

The following example shows that the present working filesystem specified by the **cd** command is slot 0:

```
Router> pwd  
slot0:/
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

cd
dir

rename

To rename a file on a Class C file system platform, use the rename EXEC command:

```
rename url1 url2
```

Syntax Description

url1 Original path name.

url2 New path name.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 T.

This command is only valid on Class C file system platforms.

rmdir

To remove an existing directory in a filesystem on a Class C file system platform, use the **rmdir** EXEC command.

```
rmdir [directory]
```

Syntax Description

directory (Optional) Directory to delete.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 T.

This command is only valid on Class C file system platforms.

If you do not specify the directory in the command line, the router prompts you for it.

Examples

The following example deletes the directory *newdir*:

```
Router# dir
Directory of flash:

 2  drwx          0  Mar 13 1993 13:16:21  newdir

8128000 bytes total (8126976 bytes free)
Router# rmdir newdir
Rmdir file name [newdir]?
Delete flash:newdir? [confirm]
Removed dir flash:newdir
Router# dir
Directory of flash:

No files in directory

8128000 bytes total (8126976 bytes free)
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

dir
mkdir

show

To display the layout and contents of a Flash memory filesystem, use the **show EXEC** command:

```
show filesystem [fileys]
```

Syntax Description

<i>filesystem</i>	Flash memory filesystem.
fileys	(Optional) Shows the Device Info Block, the Status Info, and the Usage Info.

Command Mode

EXEC

Usage Guidelines

The **show flash all** command first appeared in Cisco IOS Release 10.0. The remaining commands, such as **chips** and **detailed**, first appeared in Cisco IOS Release 10.3.

The **show flash** command displays the type of Flash memory present, any files that currently exist in Flash memory, and the amounts of Flash memory used and remaining.

Sample Displays

The output of the **show flash** command depends on the type of Flash file system.

Example for a Class A Flash Memory Filesystem

The following example shows sample output from the **show flash** command.

```
tw3-7200-1# show flash

-#- ED --type-- --crc--- -seek-- nlen -length- ----date/time----- name
1  .. unknown 317FBA1B 4A0694 24 4720148 Aug 29 1997 17:49:36 hampton/nitro/c7200-j-mz
2  .. unknown 9237F3FF 92C574 11 4767328 Oct 01 1997 18:42:53 c7200-js-mz
3  .D unknown 71AB01F1 10C94E0 10 7982828 Oct 01 1997 18:48:14 rsp-jsv-mz
4  .D unknown 96DACD45 10C97E0 8 639 Oct 02 1997 12:09:17 the_time
5  .. unknown 96DACD45 10C9AE0 3 639 Oct 02 1997 12:09:32 foo
6  .D unknown 96DACD45 10C9DE0 8 639 Oct 02 1997 12:37:01 the_time
7  .. unknown 96DACD45 10CA0E0 8 639 Oct 02 1997 12:37:13 the_time

3104544 bytes available (17473760 bytes used)
```

Table A-4 describes the fields shown in the output.

Table A-4 show flash Field Descriptions (Class A Flash Filesystem)

Field	Description
#	File's index number.
ED	Whether the file contains an error (<i>E</i>) or is deleted (<i>D</i>).

Table A-4 show flash Field Descriptions (Class A Flash Filesystem) (Continued)

Field	Description
type	File's <i>type</i> (1 = configuration file, 2 = image file). The software displays these values only when the file's type is certain. When the file's type is unknown, the system displays unknown in this field.
crc	File's cyclic redundant check.
seek	Offset into the file system of the next file.
nlen	Length of the file's name.
length	Length of the file itself.
date/time	Date and time the file was created.
name	File's name.

As the display shows, Flash memory can store and display multiple, independent software images for booting itself or for TFTP server software for other products. This feature is useful for storing default system software. These images can be stored in compressed format (but cannot be compressed by the router).

Show Flash on Cisco MC3810

The following example shows the flash memory filesystem on the Cisco MC3810.

```
benchuut#show flash ?
<cr>

benchuut#show flash
Directory of flash:

 2  drwx          0  Mar 13 1993 13:23:01  thisone

8128000 bytes total (8126976 bytes free)
```

show file systems

To list available filesystems, use the **show file systems** EXEC command.

show file systems

Syntax Description

This command has no arguments or keywords.

Command Mode

EXEC

Sample Display

The following shows a sample display from the **show file systems** command:

```
Router# show file systems
File Systems:

      Size(b)      Free(b)      Type  Flags  Prefixes
      -          -          opaque  rw  null:
      -          -          opaque  rw  system:
      -          -          tftp    rw  tftp:
      -          -          rcp     rw  rcp:
* 8128000      4686336      flash  rw  flash:
```

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 T.

Use this command to display the names of the file systems your router supports.

Table A-5 Possible Filesystem Types

Type	Description
disk	The file system is for a rotating medium.
flash	The file system is for a Flash memory device.
network	The file system is a network file system (TFTP, rcp, FTP, etc.)
nvrn	The file system is for an NVRAM device.
opaque	The file system is a locally generated "psuedo" file system (e.g. the "system") or a download interface, such as brimux.
rom	The file system is for a ROM or EPROM device.
tty	The file system is for a collection of terminal devices.
unknown	The file system is of unknown type.

Table A-6 **Possible Filesystem Flags**

Flag	Description
ro	The file system is Read Only.
rw	The file system is Write Only.
wo	The file system is Read/Write.

show flash

To display the layout and contents of Flash memory on the Cisco MC3810, use the following **show flash** EXEC command:

```
show flash [ filesystem]
```

Syntax Description

filesystem	(Optional) Shows the Device Info Block, the Status Info, and the Usage Info.
-------------------	--

Command Mode

EXEC

Usage Guidelines

The **show flash** command displays the type of Flash memory present, any files that currently exist in Flash memory, and the amounts of Flash memory used and remaining.

The following is a sample output from the **show flash** command:

```
Router# show flash
Directory of flash:

 3  -rwx      3440436   Mar 01 1993 00:16:01  mc3810-a2inr3v2-mz-1112

8128000 bytes total (4686336 bytes free)
```

undelete

To recover a deleted file on a Class A or Class C file system platform, use the **undelete** EXEC command:

```
undelete [filesystem]
```

Syntax Description

filesystem (Optional) Filesystem containing the file to undelete.

Default

The default filesystem is the one specified by the **cd** command.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

When you delete a file, the Cisco IOS software simply marks the file as deleted, but does not erase the file. This command allows you to recover a “deleted” file on a specified Flash memory device. You must undelete a file by its index because you could have multiple deleted files with the same name. For example, the “deleted” list could contain multiple configuration files with the name *router-config*. You undelete by index to indicate which of the many *router-config* files from the list to undelete. Use the **dir** command to determine the index number of the file you want to undelete.

You cannot undelete a file if a valid (undeleted) one with the same name exists. Instead, you must first delete the existing file and then undelete the file you want. For example, if you had an undeleted version of the *router-config* file and you wanted to use a previous, deleted version instead, you could not simply undelete the previous version by index. You would first delete the existing *router-config* file and then undelete the previous *router-config* file by index. You can delete and undelete a file up to 15 times.

Example

The following example recovers the deleted file whose index number is 1 to the Flash memory card inserted in slot 0:

```
undelete 1 slot0:
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

delete

dir