



Cisco IOS File System Commands

This chapter describes the commands used to configure the Cisco IOS File System (IFS) in Cisco IOS Release 12.0.

For IFS configuration tasks, refer to the “Configuring the Cisco IOS File System” chapter in the *Cisco IOS Release 12.0 Configuration Fundamentals Configuration Guide*.

cd

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

```
cd [filesystem:]
```

Syntax Description	<i>filesystem</i> : (Optional) URL of the directory or file system followed by a colon.
---------------------------	---

Defaults	The initial default file system is flash: . For platforms that do not have a physical device named flash: , the keyword flash: is aliased to the default Flash device.
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If you do not specify a directory on a file system, the default is the root directory on that file system.

Command Modes	EXEC
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Command History	Release	Modification
	11.0	This command was introduced.

Usage Guidelines	For all EXEC commands that have an optional <i>filesystem</i> argument, the system uses the file system specified by the cd command when you omit the optional <i>filesystem</i> argument. For example, the dir command, which displays a list of files on a file system, contain an optional <i>filesystem</i> argument. When you omit this argument, the system lists the files on the file system specified by the cd command.
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Examples	The following example sets the default file system to the Flash memory card inserted in the slot 0:
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```
Router# pwd
bootflash:/
Router# cd slot0:
Router# pwd
slot0:/
```

Related Commands	Command	Description
	copy	Copies any file from a source to a destination.
	delete	Deletes a file on a Flash memory device.
	dir	Displays a list of files on a file system.
	pwd	Shows the current setting of the cd command.
	show file systems	Lists available file systems.
	undelete	Recovers a file marked “deleted” on a Class A or Class B Flash file system.

delete

To delete a file on a Flash memory device, use the **delete** EXEC command.

```
delete flash-url
```

Syntax Description	<i>flash-url</i>	URL of the file to be deleted.
Command Modes	EXEC	
Command History	Release	Modification
	11.0	This command was introduced.

Usage Guidelines

When you delete a file, the software simply marks the file as deleted, but it 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. To permanently delete all files marked “deleted” on a Flash memory device, use the **squeeze** command.

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.

Examples

The following example deletes the file named test from the Flash card inserted in slot 0:

```
Router# delete slot0:test
Delete slot0:test? [confirm]
```

Related Commands	Command	Description
	cd	Changes the default directory or file system.
	dir	Displays a list of files on a file system.
	show bootvar	Displays the contents of the BOOT environment variable, the name of the configuration file pointed to by the CONFIG_FILE environment variable, the contents of the BOOTLDR environment variable, and the configuration register setting.
	squeeze	Permanently deletes Flash files by squeezing a Class A Flash file system.
	undelete	Recovers a file marked “deleted” on a Class A or Class B Flash file system.

dir

To display a list of files on a file system, use the **dir** EXEC command.

```
dir [/all] [filesystem: |file-url]
```

Syntax Description		
/all	(Optional) Lists deleted files, undeleted files, and files with errors.	
filesystem:	(Optional) File system or directory containing the file(s) to list followed by a colon.	
file-url	(Optional) Name of the file(s) to display on a specified device. The files can be of any type. You can use wildcards in the filename. A wildcard character (*) matches all patterns. Strings after a wildcard are ignored.	

Defaults The default file system is specified by the **cd** command. When you omit the **/all** keyword, the Cisco IOS software displays only undeleted files.

Command Modes EXEC

Command History	Release	Modification
	11.0	This command was introduced.

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

Examples

The following is sample output from the **dir** command:

```
Router# dir slot0:
Directory of slot0:/

 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 rally
 7  -rw-         639   Oct 02 1997 12:37:13 the_time

20578304 bytes total (3104544 bytes free)
```

```
Router# dir /all slot0:
Directory of slot0:/

 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
 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 rally
 6  -rw-         639   Oct 02 1997 12:37:01 [the_time]
 7  -rw-         639   Oct 02 1997 12:37:13 the_time
```

Table 15 described the fields shown in these displays.

Table 15 *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	Filename. Deleted files are indicated by square brackets around the filename.

Related Commands

Command	Description
cd	Changes the default directory or file system.
delete	Deletes a file on a Flash memory device.
undelete	Recovers a file marked “deleted” on a Class A or Class B Flash file system.

erase

To erase a file system, use the **erase EXEC** command. The **erase nvram:** command replaces the **write erase** command and the **erase startup-config** command.

erase filesystem:

Syntax Description	<i>filesystem:</i>	File system name followed by a colon.
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Command Modes	EXEC
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Command History	Release	Modification
	11.0	This command was introduced.

Usage Guidelines

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

The **erase** command can be used on both Class B and Class C Flash file systems only. To reclaim space on Flash 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 file system.

Class A Flash file systems cannot be erased. You can delete individual files using the **delete** command and then reclaim the space using the **squeeze** command. You can also use the **format** command to format the Flash file system.

On Class C Flash file systems, space is dynamically reclaimed when you use the **delete** command. You can also use either the **format** or **erase** command to reinitialize a Class C Flash file system.

The **erase nvram:** command erases NVRAM. On Class A file system platforms, if the CONFIG_FILE variable specifies a file in Flash memory, the specified file will be marked “deleted.”

Examples

The following example erases the NVRAM, including the startup configuration located there:

```
erase nvram:
```

The following example erases all of partition 2 in internal Flash memory:

```
Router# erase flash:2
```

```
System flash directory, partition 2:
File Length Name/status
 1 1711088 dirt/images/c3600-i-mz
[1711152 bytes used, 15066064 available, 16777216 total]
```

```
Erase flash device, partition 2? [confirm]
```

```
Are you sure? [yes/no]: yes
```

```
Erasing device... eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee ...erased
```

The following example erases Flash memory when Flash is partitioned, but no partition is specified in the command:

```
Router# erase 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]
```

The system will prompt only if there are two or more read/write partitions. If the partition entered is not valid or is the read-only partition, 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 directory display of a particular partition. The default is the first read/write partition.

```
System flash directory, partition 2:
File Length Name/status
  1  3459720 master/igs-bfpx.100-4.3
[3459784 bytes used, 734520 available, 4194304 total]

Erase flash device, partition 2? [confirm] <Return>
```

Related Commands

Command	Description
boot config	Specifies the device and filename of the configuration file from which the router configures itself during initialization (startup). This command is only available on Class A file system platforms.
delete	Deletes a file on a Flash memory device.
more nvram:startup-config	Displays the startup configuration file contained in NVRAM or specified by the CONFIG_FILE environment variable. See the more command for details.
show bootvar	Displays the contents of the BOOT environment variable, the name of the configuration file pointed to by the CONFIG_FILE environment variable, the contents of the BOOTLDR environment variable, and the configuration register setting
undelete	Recovers a file marked “deleted” on a Class A or Class B Flash file system.

file prompt

To specify the level of prompting, use the **file prompt** global configuration command.

file prompt [**alert** | **noisy** | **quiet**]

Syntax Description	Parameter	Description
	alert	(Optional) Prompts only for destructive file operations. This is the default.
	noisy	(Optional) Confirms all file operation parameters.
	quiet	(Optional) Seldom prompts for file operations.

Defaults alert

Command Modes Global configuration

Command History	Release	Modification
	11.0	This command was introduced.

Usage Guidelines Use this command to change the amount of confirmation needed for different file operations. This command affects only prompts for confirmation of operations. The router will always prompt for missing information.

Examples The following example configures confirmation prompting for all file operations:

```
file prompt noisy
```

format

To format a Class A or Class C Flash file system, use the **format** EXEC command.

Class C Flash file systems

format *filesystem1*:

Class A Flash file system

format [**spare** *spare-number*] *filesystem1*: [[*filesystem2*:][*monlib-filename*]]



Caution

Reserve a certain number of memory sectors as spares, so that if some sectors fail, most of the flash memory card can still be used. Otherwise, you must reformat the flash card when some of the sectors fail.

Syntax Description

spare	(Optional) Reserves spare sectors as specified by the <i>spare-number</i> argument when formatting Flash memory.
<i>spare-number</i>	(Optional) Number of the spare sectors to reserve on formatted Flash memory. Valid values are 0 to 16. The default value is zero.
<i>filesystem1</i> :	Flash memory to format followed by a colon.
<i>filesystem2</i> :	(Optional) File system containing the monlib file to use for formatting <i>filesystem1</i> followed by a colon.
<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 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.

Defaults

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

The default number of spare sectors is zero (0).

Command Modes

EXEC

Command History

Release	Modification
11.0	This command was introduced.

Usage Guidelines

Use this command to format Class A or C Flash memory file systems.

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.

Sectors in flash memory cards can fail. Reserve certain Flash memory sectors as “spares” by using the optional *spare* argument on the **format** command to specify between 0 and 16 sectors as spares. If you reserve a small number of spare sectors for emergencies, you can still use most of the Flash memory card. If you specify 0 spare sectors and some sectors fail, you must reformat the Flash memory card, thereby erasing all existing data.

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

In the command syntax, *filesystem1*: specifies the device to format and *filesystem2*: specifies the optional device containing the monlib file, used to format *filesystem1*:. If you omit the optional *filesystem2*: and *monlib-filename* arguments, the system formats *filesystem1*:. using the monlib file already bundled with the system software. If you omit only *the optional filesystem2*: argument, the system formats *filesystem1*:. using the monlib file from the device you specified with the **cd** command. If you omit only the optional *monlib-filename* argument, the system formats *filesystem1*: using *filesystem2*:’s monlib file. When you specify both arguments—*filesystem2*: and *monlib-filename*—the system formats *filesystem1*:. using the monlib file from the specified device. You can specify *filesystem1*:’s own monlib file in this argument. If the system cannot find a monlib file, it terminates its formatting.

**Caution**

You can read from or write to Flash memory cards formatted for Cisco 7000 series Route Processor (RP) cards in your Cisco 7200 and 7500 series, but you cannot boot the Cisco 7200 and 7500 series from a Flash memory card formatted for the Cisco 7000 series. Similarly, you can read from or write to Flash memory cards formatted for the Cisco 7200 and 7500 series in your Cisco 7000 series, but you cannot boot the Cisco 7000 series from a Flash memory card formatted for the Cisco 7200 and 7500 series.

Examples

The following example formats a Flash memory card inserted in slot 0:

```
Router# format slot0:
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 console returns to the EXEC prompt, the new Flash memory card is successfully formatted and ready for use.

Related Commands

Command	Description
cd	Changes the default directory or file system.
copy	Copies any file from a source to a destination.
delete	Deletes a file on a Flash memory device.
show file systems (Flash file system)	Lists available file systems.

Command	Description
squeeze	Permanently deletes Flash files by squeezing a Class A Flash file system.
undelete	Recovers a file marked “deleted” on a Class A or Class B Flash file system.

fsck

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

fsck [**/nocrc**] *filesystem*:

Syntax Description	
/nocrc	(Optional) Skips CRC checks.
<i>filesystem</i> :	File system to check.

Command Modes	
	EXEC

Command History	Release	Modification
	11.3 AA	This command was introduced.

Usage Guidelines	
	This command is only valid on Class C Flash file systems.

Examples	
	The following example checks the flash: file system:

```
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 Class C Flash file system, use the **mkdir** EXEC command.

mkdir *directory*

Syntax Description	<i>directory</i> Name of the directory to create.						
Command Modes	EXEC						
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>11.3 AA</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	11.3 AA	This command was introduced.		
Release	Modification						
11.3 AA	This command was introduced.						
Usage Guidelines	<p>This command is only valid on Class C Flash file systems.</p> <p>If you do not specify the directory name in the command line, the router prompts you for it.</p>						
Examples	<p>The following example creates a directory named <i>newdir</i>:</p> <pre>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)</pre>						
Related Commands	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>dir</td> <td>Displays a list of files on a file system.</td> </tr> <tr> <td>rmdir</td> <td>Removes an existing directory in a Class C Flash file system.</td> </tr> </tbody> </table>	Command	Description	dir	Displays a list of files on a file system.	rmdir	Removes an existing directory in a Class C Flash file system.
Command	Description						
dir	Displays a list of files on a file system.						
rmdir	Removes an existing directory in a Class C Flash file system.						

more

To display a file, use the **more** EXEC command.

```
more [/ascii | /binary | /ebcdic] file-url
```

Syntax Description	
/ascii	(Optional) Displays a binary file in ASCII format.
/binary	(Optional) Displays a file in hex/text format.
/ebcdic	(Optional) Displays a binary file in EBCDIC format.
file-url	URL of the file to display.

Command Modes EXEC

Command History	Release	Modification
	11.3 AA	This command was introduced.
	12.0(1)	This command was integrated into the 12.0 mainline release.

Usage Guidelines

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.



Note

The **show startup-config** and **show running-config** commands continue to function, but now act as command aliases for the **more** versions of these commands.

You can use this command to display configuration files:

- The **more nvram:startup-config** command displays the startup configuration file contained in NVRAM or specified by the CONFIG_FILE environment variable. 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.
- The **more system:running-config** command displays the running configuration.

These commands shows the version number of the software used when you last changed the configuration file.

You can also display files on remote systems using the **more** command.

Examples

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

```
Router# more nvram:startup-config
!
! No configuration change since last restart
! NVRAM config last updated at 02:03:26 PDT Thu Oct 2 1997
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
service password-encryption
service udp-small-servers
service tcp-small-servers
...
end
```

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

```
Router# more nvram:startup-config

Using 21542 out of 65536 bytes, uncompressed size = 142085 bytes
!
version 12.0
service compress-config
!
hostname rose
!
...
```

The following partial sample output displays the running configuration:

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

Current configuration:
!
version 12.0
no service udp-small-servers
no service tcp-small-servers
!
hostname Router2
!
...
!
end
```

Related Commands

Command	Description
boot config	Specifies the device and filename of the configuration file from which the router configures itself during initialization (startup). This command is only available on Class A file system platforms.
service compress-config	Compresses startup configuration files.
show bootvar	Displays the contents of the BOOT environment variable, the name of the configuration file pointed to by the CONFIG_FILE environment variable, the contents of the BOOTLDR environment variable, and the configuration register setting.

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 Modes EXEC

Command History	Release	Modification
	11.0	This command was introduced.

Usage Guidelines Use the **pwd** command to show what directory or file system is specified as the default by the **cd** command. For all EXEC commands that have an optional *filesystem* argument, the system uses the file system 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 file system. When you omit this *filesystem* argument, the system shows a list of the files on the file system specified by the **cd** command.

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

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

The following example uses the **cd** command to change the present file system to slot 1: and then uses the **pwd** command to display that present working file system:

```
Router> cd slot1:
Router> pwd
slot1:/
```

Related Commands	Command	Description
	cd	Changes the default directory or file system.
	dir	Displays a list of files on a file system.

rename

To rename a file in a Class C Flash file system, use the **rename** EXEC command.

```
rename url1 url2
```

Syntax Description

<i>url1</i>	Original path name.
<i>url2</i>	New path name.

Command Modes

EXEC

Command History

Release	Modification
11.3 AA	This command was introduced.

Usage Guidelines

This command is valid only on Class C Flash file systems.

Examples

In the following example, the file named Karen.1 is renamed test:

```
Router# dir
Directory of disk0:/Karen.dir/

 0  -rw-          0  Jan 21 1998 09:51:29  Karen.1
 0  -rw-          0  Jan 21 1998 09:51:29  Karen.2
 0  -rw-          0  Jan 21 1998 09:51:29  Karen.3
 0  -rw-          0  Jan 21 1998 09:51:31  Karen.4
243 -rw-          165 Jan 21 1998 09:53:17  Karen.cur

340492288 bytes total (328400896 bytes free)

Router# rename disk0:Karen.dir/Karen.1 disk0:Karen.dir/test
Router# dir
Directory of disk0:/Karen.dir/

 0  -rw-          0  Jan 21 1998 09:51:29  Karen.2
 0  -rw-          0  Jan 21 1998 09:51:29  Karen.3
 0  -rw-          0  Jan 21 1998 09:51:31  Karen.4
243 -rw-          165 Jan 21 1998 09:53:17  Karen.cur
 0  -rw-          0  Apr 24 1998 09:49:19  test

340492288 bytes total (328384512 bytes free)
```

rmdir

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

rmdir *directory*

Syntax Description	<i>directory</i> Directory to delete.
---------------------------	---------------------------------------

Command Modes	EXEC
----------------------	------

Command History	Release	Modification
	11.3 AA	This command was introduced.

Usage Guidelines	This command is valid only on Class C Flash file systems.
-------------------------	---

Examples	<p>The following example deletes the directory named newdir:</p> <pre>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)</pre>
-----------------	---

Related Commands	Command	Description
	dir	Displays a list of files on a file system.
	mkdir	Creates a new directory in a Class C Flash file system.

show configuration

The **more nvram:startup-config** command replaces the **show configuration** command. Refer to the **more** command for further details.

show file descriptors

To display a list of open file descriptors, use the **show file descriptors** EXEC command.

show file descriptors

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.3 AA	This command was introduced.

Usage Guidelines File descriptors are the internal representations of open files. You can use this command to see if another user has a file open.

Examples The following is sample output from the **show file descriptors** command:

```
Router# show file descriptors
File Descriptors:

  FD  Position  Open  PID  Path
  ---  ---      ---  ---  ---
   0   187392   0001   2   tftp://dirt/hampton/c4000-i-m.a
   1   184320   030A   2   flash:c4000-i-m.a
```

Table 16 describes the fields show in this display.

Table 16 *show file descriptors Field Descriptions*

Field	Description
FD	File descriptor. The file descriptor is a small integer used to specify the file once it has been opened.
Position	Byte offset from the start of the file.
Open	Flags supplied when opening the file.
PID	Process ID of the process that opened the file.
Path	Location of the file.

show file information

To display information about a file, use the **show file information** EXEC command.

```
show file information file-url
```

Syntax Description	<i>file-url</i>	URL of the file to display.
Command Modes	EXEC	
Command History	Release	Modification
	11.3 AA	This command was introduced.

Examples

The following is sample output from the **show file information** command:

```
Router# show file information tftp://dir/hampton/c2500-j-1.a
tftp://dir/hampton/c2500-j-1.a:
  type is image (a.out) [relocatable, run from flash]
  file size is 8624596 bytes, run size is 9044940 bytes [8512316+112248+420344]
  Foreign image

Router# show file information slot0:c7200-js-mz
slot0:c7200-js-mz:
  type is image (elf) []
  file size is 4770316 bytes, run size is 4935324 bytes
  Runnable image, entry point 0x80008000, run from ram

Router1# show file information nvram:startup-config
nvram:startup-config:
  type is ascii text
```

Table 17 describes the possible file types.

Table 17 Possible File Types

Types	Description
image (a.out)	Runnable image in a.out format.
image (elf)	Runnable image in elf format.
ascii text	Configuration file or other text file.
coff	Runnable image in coff format.
ebedic	Text generated on an IBM mainframe.
lzw compression	Lzw compressed file.
tar	Text archive file used by the CIP.

show file systems

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

show file systems

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.3 AA	This command was introduced.

Usage Guidelines Use this command to learn the names of the file systems your router supports.

Examples The following is sample output 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:
      -          -        opaque   ro     xmodem:
      -          -        opaque   ro     ymodem:
      -          -        network  rw     tftp:
      -          -        network  rw     rcp:
      -          -        network  rw     ftp:
*  4194304      4190616  flash    rw     flash:
      131066      129185   nvram    rw     nvram:
      -          -        opaque   wo     lex:
```

Table 19 describes the possible file systems.

Table 18 *show file systems* Field Descriptions

Type	Description
Size(b)	Amount of memory in the file system, in bytes.
Free(b)	Amount of free memory in the file system, in bytes.
Type	Type of file system.
Flags	Permissions for file system.
Prefixes	Prefix for file system.

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.).
nvrाम	The file system is for an NVRAM device.
opaque	The file system is a locally generated “pseudo” 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 19 describes file system flags.

Table 19 Possible File System Flags

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

squeeze

To permanently delete Flash files by squeezing a Class A Flash file system, use the **squeeze** EXEC command.

squeeze *filesystem:*

Syntax Description

filesystem: Flash file system followed by a colon.

Command Modes

EXEC

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

When Flash memory is full, you might need to rearrange the files so that the space used by the files marked “deleted” can be reclaimed. When you issue the **squeeze** command, the router copies all valid files to the beginning of Flash memory and erases all files marked “deleted.” At this point, you cannot recover “deleted” files and you can write to the reclaimed Flash memory space.

In addition to removing deleted files, the **squeeze** command removes any files that the system has marked as error. An error file is created when a file write fails (for example, the device is full). To remove error files, you must use the **squeeze** command.



Note

The squeeze operation might take as long as several minutes because it can involve erasing and rewriting almost an entire Flash memory space.

Examples

The following example instructs the router to permanently erase the files marked “deleted” from the Flash memory card inserted in slot 1:

```
squeeze slot1:
```

Related Commands

Command	Description
delete	Deletes a file on a Flash memory device.
dir	Displays a list of files on a file system.
undelete	Recovers a file marked “deleted” on a Class A or Class B Flash file system.

undelete

To recover a file marked “deleted” on a Class A or Class B Flash file system, use the **undelete** EXEC command.

```
undelete index [filesystem:]
```

Syntax Description

<i>index</i>	Number that indexes the file in the dir command output.
<i>filesystem:</i>	(Optional) File system containing the file to undelete.

Defaults

The default file system is the one specified by the **cd** command.

Command Modes

EXEC

Command History

Release	Modification
11.0	This command was introduced.

Usage Guidelines

For Class A and B Flash file systems, when you delete a file, the Cisco IOS software simply marks the file as deleted, but it 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 learn 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 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.

On Class A Flash file systems, if you try to recover the configuration file pointed to by the CONFIG_FILE environment variable, the system prompts you to confirm recovery of the file. This prompt reminds you that the CONFIG_FILE environment variable points to an undeleted file. To permanently delete all files marked “deleted” on a Flash memory device, use the **squeeze** command.

On Class B Flash file systems, you must use the **erase** command to recover any space taken up by deleted files.

Examples

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

Command	Description
delete	Deletes a file on a Flash memory device.
dir	Displays a list of files on a file system.
squeeze	Permanently deletes Flash files by squeezing a Class A Flash file system.

verify

To verify the checksum of a file on a Flash memory file system, use the **verify EXEC** command.

```
verify filesystem:[file-url]
```

Syntax Description	<i>filesystem:</i>	Flash memory filesystem. For example flash: or slot0: .
	<i>file-url</i>	URL of the file to verify. Generally this consists only of the filename, but you may also specify directories, separated by forward-slashes (/).
Defaults	The current working device is the default device.	
Command Modes	EXEC	
Command History	Release	Modification
	11.0	This command was introduced.

Usage Guidelines

This command replaces the **copy verify** and **copy verify flash** commands.

Use the **verify** command to verify the checksum of a file before using it.

Each software image that is distributed on disk uses a single checksum for the entire image. This checksum is displayed only when the image is copied into Flash memory; it is not displayed when the image file is copied from one disk to another.

To display the contents of Flash memory, use the **show flash** command. The Flash contents listing does not include the checksum of individual files. To recompute and verify the image checksum after the image has been copied into Flash memory, use the **verify** command.



Note

The **verify** command only performs a check on the integrity of the file after it has been saved in the file system. It is possible for a corrupt image to be transferred to the router and saved in the file system without detection.

To verify that a Cisco IOS software image was not corrupted while it was transferred to the router, copy the image from where it is stored on your router to a Unix server. Also copy the same image from CCO (Cisco.com) to the same Unix server. (The name may need to be modified if you try to save the IOS image in the same directory as the image that you copied from the router.) Now run a Unix **diff** command on the two Cisco IOS software images. If there is no difference then the IOS image stored on the router has not been corrupted.

Examples

The following example verifies that the file named c7200-js-mz is on the Flash memory card inserted in slot 0:

```
Router# dir slot0:
Directory of slot0:/

 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  rally
 7 -rw-         639   Oct 02 1997 12:37:13  the_time

20578304 bytes total (3104544 bytes free)
tw3-7200-1# verify slot0:
Verify filename []? c7200-js-mz
Verified slot0:
```

The following example also verifies that the file named c7200-js-mz is on the Flash memory card inserted in slot 0:

```
Router# verify slot0:?
slot0:c7200-js-mz  slot0:rally slot0:hampton/nitro/c7200-j-mz  slot0:the_time

Router# verify slot0:c7200-js-mz
Verified slot0:c7200-js-mz
```

Related Commands

Command	Description
cd	Changes the default directory or file system.
copy	Copies any file from a source to a destination, use the copy EXEC command.
dir	Displays a list of files on a file system.
pwd	Shows the current setting of the cd command.
show file systems	Lists available file systems.

write erase

The **write erase** command has been replaced by the **erase nvram:** command. Refer to the **erase** command in this chapter.

write terminal

The **more system:running-config** command replaces the **write terminal** command. Refer to the **more** command for further details.