

File System Commands

This chapter describes the Cisco IOS XR software commands used to manage file systems on your router.



Note

The commands in this module should not be used to access or modify any Cisco IOS XR software or configuration files. Use only the documented commands for installing and configuring the router. Modifying, deleting, or moving configuration or software package files using the manual commands described in this module is not required and can result in router downtime, loss of service, and a corrupted database.

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cd

To change the current working directory, use **cd** command in EXEC mode.

cd filesystem:

Syntax Description

filesystem: (Optional) Location of the new working directory. Include the file system alias for the filesystem argument, followed by a colon and optionally, the name of a directory.

Command Default

The default file directory is disk0:/usr.

Command Modes

EXEC mode.

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

The current working directory is the directory used when EXEC commands that have an optional argument are entered without that argument. Use **cd** command to define the working directory. For example, when the **dir** command is entered without specifying the *filesystem* argument, the files in the current working directory are displayed.

Use cd command without an argument to set the working directory back to the default directory, disk0:/usr.

The following example shows how to change the current working directory to the root directory on the hard disk. In this example, the **pwd** command confirms that the working directory has changed to the root directory on the hard disk.

```
RP/0/RP0/CPU0:router# cd harddisk:
RP/0/RP0/CPU0:router# pwd
harddisk:
```

The following example shows how to change the current working directory to the default file directory by specifying the **cd** command without a location. In this example, the **pwd** command confirms that the working directory has changed to the default file directory.

```
RP/0/RP0/CPU0:router# cd
RP/0/RP0/CPU0:router# pwd
disk0:/usr
```

cfs check

To perform a check on the Configuration File System (CFS), use **cfs check** command in EXEC or administration EXEC mode.

cfs check

Syntax Description

This command has no keywords or arguments.

Command Default

No default behavior or values.

Command Modes

EXEC mode

Admin EXEC mode

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

Use this command to check the sanity of the configuration file system and attempt to recover from internal inconsistencies; one or more rollback points may be lost depending on the severity of the state of the file system.



Note

While this command runs, redundancy of the designated secure domain router shelf controller (DSDRSC) is disabled.

The following example shows how to perform a CFS check:

RP/0/RP0/CPU0:router# cfs check

Creating any missing directories in Configuration File system...OK Initializing Configuration Version Manager...OK Syncing commit database with running configuration...OK Re-initializing cache files...OK Updating Commit Database. Please wait...[OK]

copy

To copy a file from a source (such as a network server) to a destination (such as a flash disk), use **copy** command in EXEC or Admin EXEC mode.

copy source {location node-id destination location {node-id | all} | running-config[atomic]}

Syntax Description

source

Filename including the directory path or network location of the file. The possible sources are:

directory-path —Directory path of the file from which the file is copied.

access-list { **ipv4** | **ipv6** }—Copies an access list (EXEC mode only).

bootflash: —Copies from the bootflash: file system.

compactflash: —Copies from the compactflash: file system.

compactflasha: —Copies from the compactflasha: file system partition.

disk0: —Copies from disk0: file system.

disk0a: —Copies from disk0a: file system partition.

disk1: —Copies from disk1: file system.

disk1a: —Copies from disk1a: file system partition.

flash: —Copies from the flash: file system. The flash: keyword is an alias for bootflash:.

ftp:—Copies from an FTP network server. The syntax is **ftp:**[[[//username [:password]@] location]/directory]/filename.

harddisk: —Copies from the hard disk drive file system (if present).

harddiska: —Copies from the hard disk partition a.

harddiskb: —Copies from the hard disk partition b.

lcdisk0: —Copies from the eUSB flash device.

lcdisk0a: —Copies from the eUSB flash device partition a.

nvram: —Copies from the NVRAM file system.

prefix-list {**ipv4** | **ipv6**}—Copies from a prefix list (EXEC mode only).

rcp: —Copies from a remote copy protocol (rcp) network server. The syntax is **rcp:**[[[//username@]location]/directory]/filename.

running-config —Copies from the current system configuration.

tftp:—Copies from a TFTP network server. The syntax is

tftp:[[//location]/directory]/filename

xml-schema —Copies the XML schema files as a tar ball file (.tar.gz) [EXEC mode only].

destination

Filename including the directory path or network location of the file.

location node-id Specifies a node. The node-id argument is expressed in the rack/slot/module notation.

location all	Copies to all nodes.
running-config	Applies the source configuration file to the running configuration of the system.
atomic	(Optional) Applies the changes to the running configuration only if there are no errors

Command Default

No default behavior or values

Command Modes

EXEC mode.

Admin EXEC mode.

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

Source and destination can each be a configuration file, a text file, or a file system. Enter source and destination URL information, usernames, and passwords and issue the **copy** command. The networking device prompts for any missing information.

The exact format of the *source* and *destination* arguments vary according to the file or directory location. Enter the device or network location for the file system type.

Filenames can include the following characters:

!#\$%&'+0123456789;@ABCDEFGHIJKLMNOPQRSTUVWXYZ[]^_abcdefghijklmnopqrstuvwxyz{}~

The following characters can be used with the stated limitations:

- ` needs backslash before this character
- - cannot be the first character
- · . cannot be the last character
- = cannot be the filename without other characters

The following characters cannot be used in filenames:

The maximum length allowed for a filename is 254 characters including the path. If a filename longer than 254 characters is specified, the filename is truncated to 254 characters.

To copy a file from a source on the router to a destination on the router, specify a source **location** *node-id* and a destination **location** *node-id* . To copy the file to all nodes, use the **location all** keywords.

In the alias syntax for the **ftp:**, **rcp:**, and **tftp:** keywords, the location is either an IP address or a hostname. The filename is specified relative to the directory used for file transfers.

When no alias is specified, the networking device looks for a file in the current directory. To view the current directory, enter the **pwd** command.



Note

During processing of the **copy** command, you might see the "C" character. For all files being copied, "C" indicates that the copy process is taking place. The entire copying process might take several minutes and differs from protocol to protocol and from network to network.

Table 1: Network Protocols Supported by Cisco IOS XR Software

Prefix	Name	Description
tftp:	Trivial File Transfer Protocol	TFTP is a simplified version of FTP that allows files to be transferred from one computer to another over a network, usually without the use of client authentication (for example, username and password).
ftp:	File Transfer Protocol	FTP is an application protocol, part of the TCP/IP protocol stack, and is used for transferring files between network nodes. FTP requires a username and password.
rcp:	Remote Copy Protocol	The rcp protocol allows users to copy files to and from a file system residing on a remote host or server on the network. The rcp protocol uses TCP to ensure the reliable delivery of data. The rcp protocol downloads require a username.

Additional usage guidelines are in the following sections.

Invalid Combinations of Source and Destination

Some combinations of source and destination are invalid. Specifically, you cannot copy the following:

- From a running configuration to a running configuration
- From a network device to a network device (for example, **copy ftp: rcp:**)

Using TFTP

TFTP is a simplified version of FTP that allows files to be transferred from one computer to another over a network, usually without the use of client authentication (for example, username and password).

The syntax is as follows:

copy tftp://hostname /ipaddress/directory-path pie name target-device [location {node-id | all}]

Example:

RP/0/RP0/CPU0:router# copy tftp://1.1.1.1/images/software.pie disk1:



Note

Some Cisco IOS XR images may be larger than 32 MB, and the TFTP services provided by some vendors may not support a file this large. If you do not have access to a TFTP server that supports files larger than 32 MB, download the software image using FTP or rcp as described in the following sections.

Using FTP

FTP servers require a username and password for each client request. Cisco IOS XR software sends the first valid username in the following list:

1. The username and password specified in the copy command, if a username is specified.

The syntax is as follows:

copy ftp:// username: password @ hostname or ipaddress/directory-path/pie-name target-device [**location** {node-id | **all**}]

Example:

RP/0/RP0/CPU0:router# copy ftp://john:secret@10.1.1.1/images/software.pie disk1:

- **2.** An "anonymous" username and password. The anonymous password is "root@ip address," where "ip address" is the IP address of the local networking device.
- **3.** A password "username@iosname.domain" formed by the networking device. The variable "username" is the username associated with the current session, "iosname" is the configured hostname, and "domain" is the domain of the networking device.

The username and password must be associated with an account on the FTP server. If you are writing to the network server, the FTP server must be properly configured to accept the FTP write request from the user on the networking device.

If the network server has a directory structure, the configuration file or image is written to or copied from the directory associated with the username on the network server. For example, if the system image resides in the home directory of a user on the network server, specify the name of that user as the remote username.

Refer to the documentation for your FTP server for more details.

Using rcp

The rcp protocol requires a username upon each request. When you copy a configuration file or image between the networking device and an rcp server, the Cisco IOS XR software sends the first valid username in the following list:

- 1. The remote username specified in the **copy** command, if one is specified.
- 2. The username set by the **rcp client username** command, if the command is configured.
- **3.** The networking device hostname.

For the rcp copy request to process 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 does not run successfully. If the network 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 network server. For example, if the system image resides in the home directory of a user on the network server, specify the name of that user as the remote username.

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

hostname Rtr1

```
ip rcp remote-username User0
```

If the IP address of the networking device translates to company.com, then the .rhosts file for User0 on the rcp server should contain the following line:

```
company.com Rtr1
```

See the documentation for your rcp server for more details.

If you are using a personal computer as a file server, the computer must support remote shell (rsh) protocol.

Using xml-schema

Use the **xml-schema** keyword to obtain the most up-to-date XML schemas (.xsd files) from the router. Using this keyword is useful to prevent the use of outdated schemas in the event that router software updates include schema updates. The tar ball file includes all active schema files. It does not include schemas that are activated by specific package installation envelopes (PIEs) if those PIEs are not installed and activated on the router.

Copying to the Running Configuration

When you use the **copy** command to copy a configuration file to the **running-config** destination, the configuration in the file is applied to the running configuration of the system. This is a configuration operation. By default, the copy is carried out in a best-effort manner. This means that if some configuration lines from the file cannot be applied, the remaining configuration is still integrated into the system. In this case, a partial configuration is committed. When the **atomic** keyword is used, partial configurations are not committed. This means that even if one error occurs in the parsing or committing phase, no changes are made to the system. To view any errors when applying the configuration, use the **show configuration failed** command.

Task ID

Task ID Operations

filesystem execute

The following example shows how to copy a file from a FTP server to disk1:

```
RP/0/RP0/CPU0:router# copy ftp://john:secret@10.1.1.1/images/comp-hfr-full.pie disk1:
```

The following example shows how to copy a file from an rcp server to disk1:

```
RP/0/RP0/CPU0:router# copy rcp://john@10.1.1.1/images/comp-hfr-full.pie disk1:
```

The following example shows how to copy a file from a TFTP server to disk1:

```
RP/0/RP0/CPU0:router# copy tftp://10.1.1.1/images/comp-hfr-full.pie disk1:
```

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delete

To delete files, use **delete** command in the appropriate mode.

delete [/noprompt] [/ena] filesystem: filename location {node-id | all}

Syntax Description

/noprompt	(Optional) Causes no prompt for confirmation before deleting the specified files.			
/ena	(Optional) Deletes all files from and below the current working directory.			
filesystem:	(Optional) Location of the file to be deleted. Include the file system alias for the <i>filesystem</i> argument, followed by a colon, and, optionally, the name of a directory.			
filename	Filename of the file to be deleted.			
harddisk	Deletes the harddisk			
location {node-id all}	Deletes a file from a designated node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation. The all keyword specifies to delete the file from all nodes.			

Command Default

A filename must be specified. If a filename is entered without a file system or directory path, the present working directory is used.

Command Modes

EXEC mode.

Admin EXEC mode.

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

When a file is deleted, it is removed from the system and cannot be restored (undeleted).

Use the **dir** command to display the list of files on a storage device.

The following example shows how to delete a file:

RP/0/RP0/CPU0:router# delete rbtest

Delete disk1:/rbtest[confirm]y

dir

To display a list of files on a file system or in a specific directory, use the **dir** command in EXEC mode Admin EXEC mode.

dir [{/all | /ena | /recurse}] [filesystem:] [filename] location {node-id | all}

Syntax Description

/all	(Optional) Lists deleted files, undeleted files, and files with errors.
/ena	(Optional) Recognizes subdirectories.
/recurse	(Optional) Recursively lists subdirectories.
filesystem:	(Optional) Name of the directory containing the files to be displayed. Include the file system alias for the <i>filesystem</i> argument, followed by a colon, and, optionally, the name of a directory.
filename	(Optional) Name of the files to display. The files can be of any type. You can use wildcards in the filename. A wildcard character (*) matches all patterns. Strings following a wildcard are ignored.
location {node-id all}	(Optional) Specifies the node from which to display a list of files. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation. The all keyword specifies to display files on all nodes.

Command Default

When **dir** command is entered without keywords or arguments, the contents of the present working directory are displayed.

Command Modes

EXEC mode.

Admin EXEC mode.

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

If you enter the **dir** command without specifying a directory, the contents of the present working directory are displayed. The **all** keyword displays all files, including deleted files. The size associated with the directory name is the total size for all files in that directory.

The following example shows how to display the contents of a directory:

RP/0/RP0/CPU0:router# dir harddisk:/log

Directory of harddisk:/log

5527	drwx	4096	Thu Au	g 28	11:21:48	2008	boot 28 Aug 2008 11 21 49
5533	drwx	4096	Thu Au	g 28	11:38:54	2008	boot 28 Aug 2008 11 38 54
5538	drwx	4096	Fri Se	p 5	13:28:54	2008	boot 05 Sep 2008 13 28 54
5543	drwx	4096	Mon Se	p 8	08:55:52	2008	boot 08 Sep 2008 06 59 08

dir

--More--

mkdir

To create a new directory on a file system, use the **mkdir** command in the appropriate mode.

mkdir filesystem:[location {node-id | all}]

Syntax Description

filesystem:	File system on which to create a new directory.
$\mathbf{location} \{ node\text{-}id \mid \mathbf{all} \}$	(Optional) Specifies the node where the file system is located. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation. Use the all keyword to indicate all nodes.

Command Default

No default behavior or values

Command Modes

EXEC

Admin EXEC.

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

After you issue the **mkdir** command, Cisco IOS XR software prompts you to specify the name of the directory to be created. When specifying the name of the new directory, include the directory path where you want the new directory to reside. If you do not specify a directory path, the new directory is created in the /usr directory of the file system specified for the *filesystem*: argument.

The following example shows how to create a directory named newdir. The **dir** command is used to verify that the directory has been added.

RP/0/RP0/CPU0:router# mkdir harddisk:

Create directory filename []?newdir Created dir harddisk:/newdir RP/0/RP0/CPU0:router# dir harddisk:

Directory of harddisk:

11193	drwx	4096	Fri	Feb	13	06:45:05	2009	newdir
37146	drwx	4096	Sun	Dec	14	15:30:48	2008	malloc_dump
43030	drwx	4096	Wed	Dec	24	11:20:52	2008	tracebacks
43035	drwx	4096	Thu	Jan	8	18:59:18	2009	sau
51026	drwx	4096	Sat	Dec	27	02:52:46	2008	tempA
51027	drwx	4096	Sat	Dec	27	02:04:10	2008	dir.not.del
-430307552	-rwx	342	Fri	Jan	16	10:47:38	2009	running-config
-430305504	-rwx	39790	Mon	Jan	26	23:45:56	2009	cf.dat

39929724928 bytes total (39883231232 bytes free)

pwd

To display the present working directory, use the **pwd** command in

EXEC mode

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pwd

Syntax Description

This command has no keywords or arguments.

Command Default

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
Release 6.1.2	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.

The following example shows how to display the present working directory:

RP/0/RP0/CPU0:router# pwd

disk0:/usr

rmdir

To remove an existing directory, use the **rmdir** command in the appropriate mode.

rmdir filesystem: location {node-id | all}

Syntax Description

filesystem	Name of the file system from which to delete a directory, followed by a colon.
location {node-id all}	Specifies the node where the file system is located. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation. Use the all keyword to indicate all nodes.

Command Default

No default behavior or values

Command Modes

EXEC

Administration EXEC

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

Use the **rmdir** command to remove directories (for example, to free up disk space) from a file system. After you issue the **rmdir** command, the Cisco IOS XR software prompts you to specify the name of the directory to be deleted.

When a directory contains files, you must remove the files before deleting the directory. Use the **delete** command to remove files.

The following example shows how to delete a subdirectory from the hard disk. The **dir** command is used to verify that the directory has been deleted.

RP/0/RP0/CPU0:router# rmdir harddisk:

Remove directory filename []?newdir Delete harddisk:/newdir[confirm]y RP/0/RP0/CPU0:router# dir harddisk:

Directory of harddisk:

37146	drwx	4096	Sun	Dec	14	15:30:48	2008	malloc_dump
43030	drwx	4096	Wed	Dec	24	11:20:52	2008	tracebacks
43035	drwx	4096	Thu	Jan	8	18:59:18	2009	sau
51026	drwx	4096	Sat	Dec	27	02:52:46	2008	tempA
51027	drwx	4096	Sat	Dec	27	02:04:10	2008	dir.not.del
-430307552	-rwx	342	Fri	Jan	16	10:47:38	2009	running-config
-430305504	-rwx	39790	Mon	Jan	26	23:45:56	2009	cf.dat

39929724928 bytes total (39883235328 bytes free)

show filesystem

To display the layout and contents of file systems, use the **show filesystem** command in EXEC mode

show filesystem: [firmware | stats | verbose | level \} | [location | finde-id | all \}]

Syntax Description

filesystem:	Name of the file system for which to display information, followed by a colon. Possible values are: disk0:, disk1:, harddisk:.
firmware	(Optional) Displays the firmware level.
stats	(Optional) Displays device statistics.
verbose level	(Optional) Changes the device driver verbose level.
location {node-id all}	(Optional) Specifies the node where the file system is located. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation. Use the all keyword to indicate all nodes.

Command Default

The file system for the active RP is displayed.

Command Modes

EXEC mode

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

Use the **show filesystem** command to learn the alias names (prefixes) of the file systems supported by your networking device.

The following example shows sample output from the **show filesystem** command:

RP/0/RP0/CPU0:router# show filesystem

File Systems:

```
Free(b)
                          Type Flags Prefixes
                       network rw qsm/dev/fs/tftp: tftp:
                                  rw qsm/dev/fs/rcp: rcp:
                       network
                        network
                                  rw qsm/dev/fs/ftp: ftp:
39929724928 39852978176
                      harddisk
                                  rw harddisk:
1024606208 863584256 flash-disk
                                   rw disk0:
   2092032
             2059264
                          nvram
                                   rw
                                       nvram:
  62390272
             62381260
                           flash
                                   rw bootflash:
```

The following example shows sample output from the **show filesystem** command using the optional **location** *node-id* keyword and argument:

RP/0/RP0/CPU0:router# show filesystem location 0/rp0/cpu0

File Systems:

```
        Size(b)
        Free(b)
        Type
        Flags
        Prefixes

        -
        -
        network
        rw
        qsm/dev/fs/tftp: tftp:

        -
        -
        network
        rw
        qsm/dev/fs/rcp: rcp:

        -
        -
        network
        rw
        qsm/dev/fs/ftp: ftp:

        39929724928
        39883235328
        harddisk
        rw
        harddisk:

        2092032
        2019328
        nvram
        rw
        nvram:

        1024606208
        847888384
        flash-disk
        rw
        disk0:

        62390272
        62153616
        flash
        rw
        bootflash:
```

Table 2: show filesystem Field Descriptions

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

show media

To display the current state of the disk storage media, use the **show media** command in EXEC or Administration EXEC mode.

show media location {node-id | all}

Syntax Description

location {node-id | all} (Optional) Specifies the node where the file system is located. The node-id argument is expressed in the rack/slot/module notation. Use the **all** keyword to indicate all

Command Default

The disk storage media for the active RP is displayed.

Command Modes

Administration EXEC

EXEC

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

Use the **show media** command to view the status of the storage media on your system.

The following example displays the output of the **show media** command:.

sysadmin-vm:0 RP0 #show media Thu Nov 30 14:57:14.002 WET

Media Information for local node.

Partition	Size	Used	Percent	Avail
rootfs:	2.7G	1.5G	59%	1.1G
apphost:	1.9G	61M	4%	1.7G
/dev/sde	870M	401M	50%	409M
harddisk:	2.4G	966M	43%	1.3G
log:	459M	67M	16%	359M
config:	159M	2.5M	2%	144M
disk0:	1.3G	108M	9%	1.1G

rootfs: = root file system (read-only) log: = system log files (read-only)

config: = configuration storage (read-only)

Table 3: show media Field Descriptions

Field	Description
Partition	Partition on the disk.
Size	Size of the partition.
Used	Partition size used.
Percent	Percentage used.

Field	Description
Avail	Available free partition space.

show media