



Working with the Flash File System

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.

Information About the Flash File System

The flash file system is a single flash device on which you can store files. It also provides several commands to help you manage software bundles and configuration files. The default flash file system on the device is named flash:

As viewed from the active device, flash: refers to the local flash device, which is the device attached to the same device on which the file system is being viewed.

Only one user at a time can manage the software bundles and configuration files .

Displaying Available File Systems

To display the available file systems on your device, use the **show file systems** privileged EXEC command as shown in this example for a standalone device:

```
Device# show file systems

File Systems:

      Size(b)      Free(b)      Type  Flags  Prefixes
      -            -            -      -      -
      -            -            opaque rw    system:
      -            -            opaque rw    tmpsys:
*  11250098176    9694093312    disk   rw    bootflash: flash:
    1651314688    1232220160    disk   rw    crashinfo:
  118148280320  112084115456    disk   rw    disk0:
    189628416    145387520     disk   rw    usbflash0:
    7763918848    7696850944    disk   ro    webui:
      -            -            opaque rw    null:
      -            -            opaque ro    tar:
      -            -            network rw    tftp:
    33554432     33532852     nvram  rw    nvram:
      -            -            opaque wo    syslog:
      -            -            network rw    rcp:
      -            -            network rw    http:
      -            -            network rw    ftp:
      -            -            network rw    scp:
      -            -            network rw    https:
      -            -            opaque ro    cns:
```

Table 1: show file systems Field Descriptions

| Field | Value |
|---------|--|
| 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. disk —The file system is for a flash memory device, USB flash, and crashinfo file. network —The file system for network devices; for example, an FTP server or and HTTP server. nvram —The file system is for a NVRAM device. opaque —The file system is a locally generated pseudo file system (for example, the system) or a download interface, such as brimux. unknown —The file system is an unknown type. |
| Flags | Permission for file system. ro —read-only. rw —read/write. wo —write-only. |

| Field | Value |
|----------|---|
| Prefixes | <p>Alias for file system.</p> <p>crashinfo:—Crashinfo file.</p> <p>disk0:—M2 SATA module.</p> <p>flash:—Flash file system.</p> <p>ftp:—FTP server.</p> <p>http:—HTTP server.</p> <p>https:—Secure HTTP server.</p> <p>nvr:—NVRAM.</p> <p>null:—Null destination for copies. You can copy a remote file to null to find its size.</p> <p>rcp:—Remote Copy Protocol (RCP) server.</p> <p>scp:—Session Control Protocol (SCP) server.</p> <p>system:—Contains the system memory, including the running configuration.</p> <p>tftp:—TFTP network server.</p> <p>usbflash0:—USB flash memory.</p> <p>xmodem:—Obtain the file from a network machine by using the Xmodem protocol.</p> <p>ymodem:—Obtain the file from a network machine by using the Ymodem protocol.</p> |

Setting the Default File System

You can specify the file system or directory that the system uses as the default file system by using the **cd** *filesystem:* privileged EXEC command. You can set the default file system to omit the *filesystem:* argument from related commands. For example, for all privileged EXEC commands that have the optional *filesystem:* argument, the system uses the file system specified by the **cd** command.

By default, the default file system is *flash:*.

You can display the current default file system as specified by the **cd** command by using the **pwd** privileged EXEC command.

Displaying Information About Files on a File System

You can view a list of the contents of a file system before manipulating its contents. For example, before copying a new configuration file to flash memory, you might want to verify that the file system does not already contain a configuration file with the same name. Similarly, before copying a flash configuration file

to another location, you might want to verify its filename for use in another command. To display information about files on a file system, use one of the privileged EXEC commands listed in the following table.

Table 2: Commands for Displaying Information About Files

| Command | Description |
|--|---|
| dir [/all] [filesystem:filename] | Displays a list of files on a file system. |
| show file systems | Displays more information about each of the files on a file system. |
| show file information file-url | Displays information about a specific file. |
| show file descriptors | Displays a list of open file descriptors. File descriptors are the internal representations of open files. You can use this command to see if another user has a file open. |

For example, to display a list of all files in a file system, use the **dir** privileged EXEC command:

```
device# dir flash:
Directory of bootflash:/

616513 drwx          4096 Jul 15 2015 07:11:35 +00:00 .installer
608402 -rw-         33818 Sep 25 2015 11:41:35 +00:00 bootloader_evt_handle.log
608403 drwx          4096 Feb 27 2017 13:56:47 +00:00 .ssh
608410 -rw-           0 Jun 5 2015 10:16:17 +00:00 dc_stats.txt
608411 drwx        20480 Sep 23 2015 11:50:13 +00:00 core
624625 drwx          4096 Sep 23 2015 12:29:27 +00:00 .prst_sync
640849 drwx          4096 Feb 27 2017 13:57:30 +00:00 .rollback_timer
608412 drwx          4096 Jun 17 2015 18:12:47 +00:00 orch_test_logs
608413 -rw-       33554432 Sep 25 2015 11:43:15 +00:00 nvram_config
608417 -rw-           35 Sep 25 2015 20:17:42 +00:00 pnp-tech-time
608439 -rw-       214054 Sep 25 2015 20:17:48 +00:00 pnp-tech-discovery-summary
608419 drwx          4096 Jul 23 2015 07:50:25 +00:00 util
616514 drwx          4096 Mar 18 2015 11:09:04 +00:00 onep
608442 -rw-           556 Mar 18 2015 11:19:34 +00:00 vlan.dat
608448 -rw-       1131779 Mar 28 2015 13:13:48 +00:00 log.txt
616516 drwx          4096 Apr 1 2015 09:34:56 +00:00 gs_script
616517 drwx          4096 Apr 6 2015 09:42:38 +00:00 tools
608440 -rw-           252 Sep 25 2015 11:41:52 +00:00 boothelper.log
624626 drwx          4096 Apr 17 2015 06:10:55 +00:00 SD_AVC_AUTO_CONFIG
608488 -rw-       98869 Sep 25 2015 11:42:15 +00:00 memleak.tcl
608437 -rwx         17866 Jul 16 2015 04:01:10 +00:00 ardbeg_x86
632745 drwx          4096 Aug 20 2015 11:35:09 +00:00 CRDU
632746 drwx          4096 Sep 16 2015 08:57:44 +00:00 ardmore
608418 -rw-       1595361 Jul 8 2015 11:18:33 +00:00
system-report_RP_0_20150708-111832-UTC.tar.gz
608491 -rw-       67587176 Aug 12 2015 05:30:35 +00:00 mcln_x86_kernel_20170628.SSA
608492 -rwx       74880100 Aug 12 2015 05:30:57 +00:00 stardust.x86.idprom.0718B

11250098176 bytes total (9128050688 bytes free)
device#
```

Changing Directories and Displaying the Working Directory

Follow these steps to change directories and to display the working directory:

SUMMARY STEPS

1. `enable`
2. `dir filesystem:`
3. `cd directory_name`
4. `pwd`
5. `cd`

DETAILED STEPS

| | Command or Action | Purpose |
|--------|--|---|
| Step 1 | <p><code>enable</code></p> <p>Example:</p> <pre>Device> enable</pre> | <p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> • Enter your password if prompted. |
| Step 2 | <p><code>dir filesystem:</code></p> <p>Example:</p> <pre>Device# dir flash:</pre> | <p>Displays the directories on the specified file system.</p> <p>For <code>filesystem:</code>, use <code>flash:</code> for the system board flash device.</p> |
| Step 3 | <p><code>cd directory_name</code></p> <p>Example:</p> <pre>Device# cd new_configs</pre> | <p>Navigates to the specified directory.</p> <p>The command example shows how to navigate to the directory named <code>new_configs</code>.</p> |
| Step 4 | <p><code>pwd</code></p> <p>Example:</p> <pre>Device# pwd</pre> | <p>Displays the working directory.</p> |
| Step 5 | <p><code>cd</code></p> <p>Example:</p> <pre>Device# cd</pre> | <p>Navigates to the default directory.</p> |

Creating Directories

Beginning in privileged EXEC mode, follow these steps to create a directory:

SUMMARY STEPS

1. **dir** *filesystem*:
2. **mkdir** *directory_name*
3. **dir** *filesystem*:

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|--|---|
| Step 1 | dir <i>filesystem</i> : Example: Device# dir flash: | Displays the directories on the specified file system. For <i>filesystem</i> :, use flash: for the system board flash device. |
| Step 2 | mkdir <i>directory_name</i> Example: Device# mkdir new_configs | Creates a new directory. Directory names are case sensitive and are limited to 45 characters between the slashes (/); the name cannot contain control characters, spaces, slashes, quotes, semicolons, or colons. |
| Step 3 | dir <i>filesystem</i> : Example: Device# dir flash: | Verifies your entry. |

Removing Directories

To remove a directory with all its files and subdirectories, use the **delete /force /recursive** *filesystem:/file-url* privileged EXEC command.

Use the **/recursive** keyword to delete the named directory and all subdirectories and the files contained in it. Use the **/force** keyword to suppress the prompting that confirms a deletion of each file in the directory. You are prompted only once at the beginning of this deletion process.

For *filesystem*, use **flash:** for the system board flash device. For *file-url*, enter the name of the directory to be deleted. All of the files in the directory and the directory are removed.



Caution When directories are deleted, their contents cannot be recovered.

Copying Files

To copy a file from a source to a destination, use the **copy** *source-url destination-url* privileged EXEC command. For the source and destination URLs, you can use **running-config** and **startup-config** keyword shortcuts. For example, the **copy running-config startup-config** command saves the currently running configuration file to the NVRAM section of flash memory to be used as the configuration during system initialization.

You can also copy from special file systems (**xmodem:**, **ymodem:**) as the source for the file from a network machine that uses the Xmodem or Ymodem protocol.

Network file system URLs include ftp:, rcp:, tftp:, scp:, http:, and https: and have these syntaxes:

- FTP—ftp:[[/username [:password]@location]/directory]/filename
- RCP—rcp:[[/username@location]/directory]/filename
- TFTP—tftp:[[/location]/directory]/filename
- SCP—scp:[[/username [:password]@location]/directory]/filename
- HTTP—http:[[/username [:password]@location]/directory]/filename
- HTTPS—https:[[/username [:password]@location]/directory]/filename



Note The password must not contain the special character '@'. If the character '@' is used, the copy fails to parse the IP address of the server.

Local writable file systems include flash:

Some invalid combinations of source and destination exist. Specifically, you cannot copy these combinations:

- From a running configuration to a running configuration
- From a startup configuration to a startup configuration

Deleting Files

When you no longer need a file on a flash memory device, you can permanently delete it. To delete a file or directory from a specified flash device, use the **delete** [**/force**] [**/recursive**] [*filesystem:*]/*file-url* privileged EXEC command.

Use the **/recursive** keyword for deleting a directory and all subdirectories and the files contained in it. Use the **/force** keyword to suppress the prompting that confirms a deletion of each file in the directory. You are prompted only once at the beginning of this deletion process. Use the **/force** and **/recursive** keywords for deleting old software images that were installed by using the **archive download-sw** command but are no longer needed.

If you omit the *filesystem:* option, the device uses the default device specified by the **cd** command. For *file-url*, you specify the path (directory) and the name of the file to be deleted.

When you attempt to delete any files, the system prompts you to confirm the deletion.



Caution When files are deleted, their contents cannot be recovered.

This example shows how to delete the file *myconfig* from the default flash memory device:

```
Device# delete myconfig
```

Creating, Displaying and Extracting Files

You can create a file and write files into it, list the files in a file, and extract the files from a file as described in the next sections.

Beginning in privileged EXEC mode, follow these steps to create a file, display the contents, and extract it:

SUMMARY STEPS

1. **archive tar /create** *destination-url* **flash:** */file-url*
2. **archive tar /table** *source-url*
3. **archive tar /xtract** *source-url* **flash:***/file-url* [*dir/file...*]
4. **more** [*/ascii* | */binary* | */ebcdic*] */file-url*

DETAILED STEPS

| | Command or Action | Purpose |
|--------|---|--|
| Step 1 | <p>archive tar /create <i>destination-url</i> flash: <i>/file-url</i></p> <p>Example:</p> <pre>device# archive tar /create tftp:172.20.10.30/saved. flash:/new-configs</pre> | <p>Creates a file and adds files to it.</p> <p>For <i>destination-url</i>, specify the destination URL alias for the local or network file system and the name of the file to create:</p> <ul style="list-style-type: none"> • Local flash file system syntax: <p>flash:</p> • FTP syntax: <p>ftp:[[<i>/username[:password]</i>@<i>location</i>]/<i>directory</i>]/-<i>filename</i>.</p> • RCP syntax: <p>rcp:[[<i>/username</i>@<i>location</i>]/<i>directory</i>]/-<i>filename</i>.</p> • TFTP syntax: <p>tftp:[[<i>/location</i>]/<i>directory</i>]/-<i>filename</i>.</p> <p>For flash:<i>/file-url</i>, specify the location on the local flash file system in which the new file is created. You can also specify an optional list of files or directories within the source directory to add to the new file. If none are specified, all files and directories at this level are written to the newly created file.</p> |
| Step 2 | <p>archive tar /table <i>source-url</i></p> <p>Example:</p> <pre>device# archive tar /table flash: /new_configs</pre> | <p>Displays the contents of a file.</p> <p>For <i>source-url</i>, specify the source URL alias for the local or network file system. The <i>-filename</i>. is the file to display. These options are supported:</p> <ul style="list-style-type: none"> • Local flash file system syntax: <p>flash:</p> • FTP syntax: <p>ftp:[[<i>/username[:password]</i>@<i>location</i>]/<i>directory</i>]/-<i>filename</i>.</p> |

| | Command or Action | Purpose |
|---------------|--|---|
| | | <ul style="list-style-type: none"> RCP syntax: rcp:<i>[[//username@location]/directory]/-filename.</i> TFTP syntax: tftp:<i>[[//location]/directory]/-filename.</i> <p>You can also limit the file displays by specifying a list of files or directories after the file. Only those files appear. If none are specified, all files and directories appear.</p> |
| Step 3 | <p>archive tar /xtract <i>source-url flash:/file-url [dir/file...]</i></p> <p>Example:</p> <pre>device# archive tar /xtract tftp:/172.20.10.30/saved. flash:/new-configs</pre> | <p>Extracts a file into a directory on the flash file system.</p> <p>For <i>source-url</i>, specify the source URL alias for the local file system. The <i>-filename.</i> is the file from which to extract files. These options are supported:</p> <ul style="list-style-type: none"> Local flash file system syntax: flash: FTP syntax: ftp:<i>[[//username[:password]@location]/directory]/-filename.</i> RCP syntax: rcp:<i>[[//username@location]/directory]/-filename.</i> TFTP syntax: tftp:<i>[[//location]/directory]/-filename.</i> <p>For flash:/file-url [dir/file...], specify the location on the local flash file system from which the file is extracted. Use the <i>dir/file...</i> option to specify a list of files or directories within the file to be extracted. If none are specified, all files and directories are extracted.</p> |
| Step 4 | <p>more [<i>/ascii /binary /ebcdic</i>] <i>/file-url</i></p> <p>Example:</p> <pre>device# more flash:/new-configs</pre> | <p>Displays the contents of any readable file, including a file on a remote file system.</p> |

Additional References for Flash File System

Related Documents

| Related Topic | Document Title |
|---|---|
| Commands for managing flash: file systems | <i>Cisco IOS Configuration Fundamentals Command Reference</i> |

Standards

| Standards | Title |
|---|-------|
| No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature. | -- |

MIBs

| MIBs | MIBs Link |
|---|--|
| No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature. | To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs |

RFCs

| RFCs | Title |
|---|-------|
| No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature. | -- |

Technical Assistance

| Description | Link |
|---|---|
| <p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p> | http://www.cisco.com/cisco/web/support/index.html |

Feature History for Flash File System

This table provides release and related information for features explained in this module.

These features are available on all releases subsequent to the one they were introduced in, unless noted otherwise.

| Release | Feature | Feature Information |
|-----------------------------|-------------------|---|
| Cisco IOS XE Everest 16.6.1 | Flash File System | The flash file system is a single flash device on which you can store files. It also provides several commands to help you manage software bundles and configuration files. |

Use Cisco Feature Navigator to find information about platform and software image support. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>.

