



Using the Device File Systems, Directories, and Files

This chapter describes how to use your device file systems, directories, and files.

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Information About Device File Systems, Directories, Files, and External Storage Devices

This section describes the file systems, directories, files, and support provided to the external storage devices on the Cisco NX-OS devices.

File Systems

The syntax for specifying a local file system is `filesystem:[/modules].`)



Note The default `filesystem` parameter is `bootflash:`.

This table describes file systems that you can reference on your device.

Table 1: File System Components

| File System Name | Module | Description |
|------------------|---------------------------|--|
| bootflash | sup-active sup-local | Internal CompactFlash memory located on an active supervisor module. Used for storing image files, configuration files, and other miscellaneous files. The initial default directory is bootflash. |
| | sup-standby sup-remote | Internal CompactFlash memory located on a standby supervisor module. Used for storing image files, configuration files, and other miscellaneous files. |
| volatile | — | Volatile random-access memory (VRAM) located on a supervisor module. Used for temporary or pending changes. |
| log | — | Memory on an active supervisor module. Used for storing file statistics logs. |
| system | — | Memory on a supervisor module. Used for storing the running configuration file. |
| debug | — | Memory on a supervisor module. Used for storing the debug logs. |

Directories

You can create directories on bootflash: and external flash memory (slot0:, usb1:, and usb2:). You can create, store, and access files from directories.

Files

You can create and access files from bootflash:, volatile:, slot0:, usb1:, and usb2: file systems. You can only access files from the system: file system. Use the debug: file system to store the debug log files specified using the **debug logfile** command.

You can download files, such as system image files, from remote servers using FTP, Secure Copy Protocol (SCP), Secure File Transfer Protocol (SFTP), and TFTP. You can also copy files from an external server to your device because your device can act as an SCP server.

Working with Directories

This section describes how to work with directories on a Cisco NX-OS device.

Identifying the Current Directory

You can display the directory name of your current directory.

SUMMARY STEPS

1. `pwd`

DETAILED STEPS

| | Command or Action | Purpose |
|--------|---|--|
| Step 1 | <p><code>pwd</code></p> <p>Example:</p> <pre>switch# pwd</pre> | Displays the name of your current directory. |

Changing the Current Directory

You can change the current directory for file system operations. The initial default directory is bootflash:.

SUMMARY STEPS

1. (Optional) `pwd`
2. `cd {directory | filesystem:[//module/][directory]}`

DETAILED STEPS

| | Command or Action | Purpose |
|--------|--|--|
| Step 1 | <p>(Optional) <code>pwd</code></p> <p>Example:</p> <pre>switch# pwd</pre> | Displays the name of your current default directory. |
| Step 2 | <p><code>cd {directory filesystem:[//module/][directory]}</code></p> <p>Example:</p> <pre>switch# cd slot0:</pre> | Changes to a new current directory. The file system, module, and directory names are case sensitive. |

Creating a Directory

You can create directories in the bootflash: and flash device file systems.

SUMMARY STEPS

1. (Optional) **pwd**
2. (Optional) **cd** {*directory* | *filesystem*:*//module*}[*directory*]
3. **mkdir** [*filesystem*:*//module*]*directory*

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|---|---|
| Step 1 | (Optional) pwd Example: switch# pwd | Displays the name of your current default directory. |
| Step 2 | (Optional) cd { <i>directory</i> <i>filesystem</i> : <i>//module</i> }[<i>directory</i>] Example: switch# cd slot0: | Changes to a new current directory. The file system, module, and directory names are case sensitive. |
| Step 3 | mkdir [<i>filesystem</i> : <i>//module</i>] <i>directory</i> Example: switch# mkdir test | Creates a new directory. The <i>filesystem</i> argument is case sensitive. The <i>directory</i> argument is alphanumeric, case sensitive, and has a maximum of 64 characters. |

Displaying Directory Contents

You can display the contents of a directory.

SUMMARY STEPS

1. **dir** [*directory* | *filesystem*:*//module*][*directory*]

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | dir [<i>directory</i> <i>filesystem</i> : <i>//module</i>][<i>directory</i>] Example: switch# dir bootflash:test | Displays the directory contents. The default is the current working directory. The file system and directory names are case sensitive. |

Deleting a Directory

You can remove directories from the file systems on your device.

Before you begin

Ensure that the directory is empty before you try to delete it.

SUMMARY STEPS

1. (Optional) **pwd**

2. (Optional) **dir** [*filesystem* :[//*module*]/][*directory*]
3. **rmdir** [*filesystem* :[//*module*]/]*directory*

DETAILED STEPS

| | Command or Action | Purpose |
|--------|---|---|
| Step 1 | (Optional) pwd Example: switch# pwd | Displays the name of your current default directory. |
| Step 2 | (Optional) dir [<i>filesystem</i> :[// <i>module</i>]/][<i>directory</i>] Example: switch# dir bootflash:test | Displays the contents of the current directory. The file system, module, and directory names are case sensitive. If the directory is not empty, you must delete all the files before you can delete the directory. |
| Step 3 | rmdir [<i>filesystem</i> :[// <i>module</i>]/] <i>directory</i> Example: switch# rmdir test | Deletes a directory. The file system and directory name are case sensitive. |

Accessing the Directories on a Standby Supervisor Module

You can access all the file systems on a standby supervisor module (remote) from a session on an active supervisor module. This feature is useful when copying files to the active supervisor module that requires similar files to exist, as in the standby supervisor module.

To access the file systems on the standby supervisor module from a session on the active supervisor module, specify the standby supervisor module in the path to the file using either the *filesystem://sup-remote/* command, or the *filesystem://sup-standby/* command.

Working with Files

This section describes how to work with files on a Cisco NX-OS device.

Moving Files

You can move a file from one directory to another directory.



Caution If a file with the same name already exists in the destination directory, that file is overwritten by the moved file.

You can use the **move** command to rename a file by moving the file within the same directory.

SUMMARY STEPS

1. (Optional) **pwd**

2. (Optional) **dir** [*filesystem*://*module*]/*directory*]
3. **move** [*filesystem*://*module*]/*directory* | *directory*]/*source-filename* { {*filesystem*://*module*}/*directory* | *directory*}/*target-filename* | *target-filename*}

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | (Optional) pwd Example: switch# pwd | Displays the name of your current default directory. |
| Step 2 | (Optional) dir [<i>filesystem</i> :// <i>module</i>]/ <i>directory</i>] Example: switch# dir bootflash | Displays the contents of the current directory. The file system and directory name are case sensitive. |
| Step 3 | move [<i>filesystem</i> :// <i>module</i>]/ <i>directory</i> <i>directory</i>]/ <i>source-filename</i> { { <i>filesystem</i> :// <i>module</i> }/ <i>directory</i> <i>directory</i> }/ <i>target-filename</i> <i>target-filename</i> } Example: switch# move test old_tests/test1 | Moves a file. The file system, module, and directory names are case sensitive. The <i>target-filename</i> argument is alphanumeric, case sensitive, and has a maximum of 64 characters. If the <i>target-filename</i> argument is not specified, the filename defaults to the <i>source-filename</i> argument value. |

Copying Files

You can make copies of files, either within the same directory or on another directory.



Note Use the **dir** command to ensure that enough space is available in the target file system. If enough space is not available, use the **delete** command to remove unneeded files.

SUMMARY STEPS

1. (Optional) **pwd**
2. (Optional) **dir** [*filesystem*://*module*]/*directory*]
3. **copy** [*filesystem*://*module*]/*directory* | *directory*]/*source-filename* | {*filesystem*://*module*}/*directory* | *directory*}/*target-filename* | *target-filename*}

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|---|--|
| Step 1 | (Optional) pwd Example: switch# pwd | Displays the name of your current default directory. |

| | Command or Action | Purpose |
|---------------|--|---|
| Step 2 | (Optional) dir [<i>filesystem</i> : <i>//module</i>][<i>directory</i>] Example: switch# dir bootflash | Displays the contents of the current directory. The file system and directory name are case sensitive. |
| Step 3 | copy [<i>filesystem</i> : <i>//module</i>][<i>directory</i> /] <i>directory</i> /] <i>source-filename</i> { <i>filesystem</i> : <i>//module</i>][<i>directory</i> /] <i>directory</i> }/] <i>target-filename</i> Example: switch# copy test old_tests/test1 | Copies a file. The file system, module, and directory names are case sensitive. The <i>source-filename</i> argument is alphanumeric, case sensitive, and has a maximum of 64 characters. If the <i>target-filename</i> argument is not specified, the filename defaults to the <i>source-filename</i> argument value. The copy command supports ftp, scp, sftp, tftp and http protocols. |

Deleting Files

You can delete a file from a directory.

SUMMARY STEPS

1. (Optional) **dir** [*filesystem*:*//module*][*directory*]
2. **delete** {*filesystem*:*//module*][*directory*/] | *directory*}/]*filename*

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|---|--|
| Step 1 | (Optional) dir [<i>filesystem</i> : <i>//module</i>][<i>directory</i>] Example: switch# dir bootflash | Displays the contents of the current directory. The file system and directory name are case sensitive. |
| Step 2 | delete { <i>filesystem</i> : <i>//module</i>][<i>directory</i> /] <i>directory</i> }/] <i>filename</i> Example: switch# delete test old_tests/test1 | Deletes a file. The file system, module, and directory names are case sensitive. The <i>source-filename</i> argument is case sensitive. Caution If you specify a directory, the delete command deletes the entire directory and all its contents. |

Displaying File Contents

You can display the contents of a file.

SUMMARY STEPS

1. **show file** [*filesystem*:*//module*][*directory*]/]*filename*

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|--|-----------------------------|
| Step 1 | show file [<i>filesystem:[//module/]</i>][<i>directory/</i>] <i>filename</i> Example: switch# show file bootflash:test-results | Displays the file contents. |

Displaying File Checksums

You can display checksums to check the file integrity.

SUMMARY STEPS

1. **show file** [*filesystem:[//module/]*][*directory/*]*filename* {**cksum** | **md5sum**}

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | show file [<i>filesystem:[//module/]</i>][<i>directory/</i>] <i>filename</i> { cksum md5sum } Example: switch# show file bootflash:trunks2.cfg cksum | Displays the checksum or MD5 checksum of the file. |

Compressing and Uncompressing Files

You can compress and uncompress files on your Cisco NX-OS device using Lempel-Ziv 1977 (LZ77) coding.

SUMMARY STEPS

1. (Optional) **dir** [*filesystem:[//module/]*]*directory*]
2. **gzip** [*filesystem:[//module/]*][*directory/*] | *directory/*]*filename*
3. **gunzip** [*filesystem:[//module/]*][*directory/*] | *directory/*]*filename* **.gz**

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|---|--|
| Step 1 | (Optional) dir [<i>filesystem:[//module/]</i>] <i>directory</i>] Example: switch# dir bootflash: | Displays the contents of the current directory. The file system and directory name are case sensitive. |
| Step 2 | gzip [<i>filesystem:[//module/]</i>][<i>directory/</i>] <i>directory/</i>] <i>filename</i> Example: switch# gzip show_tech | Compresses a file. After the file is compressed, it has a .gz suffix. |

| | Command or Action | Purpose |
|--------|---|--|
| Step 3 | gunzip [<i>filesystem:[//module/][directory/]</i> <i>directory/</i>] <i>filename</i> .gz Example: switch# gunzip show_tech.gz | Uncompresses a file. The file to uncompress must have the .gz suffix. After the file is uncompresses, it does not have the .gz suffix. |

Displaying the Last Lines in a File

You can display the last lines of a file.

SUMMARY STEPS

1. **tail** [*filesystem:[//module/][directory/]*]*filename* [*lines*]

DETAILED STEPS

| | Command or Action | Purpose |
|--------|--|--|
| Step 1 | tail [<i>filesystem:[//module/][directory/]</i>] <i>filename</i> [<i>lines</i>] Example: switch# tail ospf-gr.conf | Displays the last lines of a file. The default number of lines is 10. The range is from 0 to 80 lines. |

Redirecting show Command Output to a File

You can redirect **show** command output to a file on bootflash:, slot0:, volatile:, or on a remote server. You can also specify the format for the command output.

SUMMARY STEPS

1. (Optional) **terminal redirection-mode** {*ascii* | *zipped*}
2. *show-command* > [*filesystem:[//module/][directory/]* | [*directory /*]]*filename*

DETAILED STEPS

| | Command or Action | Purpose |
|--------|--|---|
| Step 1 | (Optional) terminal redirection-mode { <i>ascii</i> <i>zipped</i> } Example: switch# terminal redirection-mode zipped | Sets the redirection mode for the show command output for the user session. The default mode is ascii . |
| Step 2 | <i>show-command</i> > [<i>filesystem:[//module/][directory/]</i> [<i>directory /</i>]] <i>filename</i> Example: switch# show tech-support > bootflash:techinfo | Redirects the output from a show command to a file. |

Finding Files

You can find the files in the current working directory and its subdirectories that have names that begin with a specific character string.

SUMMARY STEPS

1. (Optional) **pwd**
2. (Optional) **cd** *{filesystem:[//module/][directory] | directory}*
3. **find** *filename-prefix*

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|---|---|
| Step 1 | (Optional) pwd Example: switch# pwd | Displays the name of your current default directory. |
| Step 2 | (Optional) cd <i>{filesystem:[//module/][directory] directory}</i> Example: switch# cd bootflash:test_scripts | Changes the default directory. |
| Step 3 | find <i>filename-prefix</i> Example: switch# find bgp_script | Finds all filenames in the default directory and in its subdirectories beginning with the filename prefix. The filename prefix is case sensitive. |

Working with Archive Files

The Cisco NX-OS software supports archive files. Besides creating an archive file, you can append files to, extract files from, and list the files in an archive file.

Creating an Archive Files

You can create an archive file and add files to it. You can specify the following compression types:

- bzip2
- gzip
- Uncompressed

The default is gzip.

SUMMARY STEPS

1. **tar create** *{bootflash: | volatile:}archive-filename [absolute] [bz2-compress] [gz-compress] [remove] [uncompressed] [verbose] filename-list*

DETAILED STEPS

| | Command or Action | Purpose |
|--------|--|---|
| Step 1 | <pre>tar create {bootflash: volatile:}archive-filename [absolute] [bz2-compress] [gz-compress] [remove] [uncompressed] [verbose] filename-list</pre> | <p>Creates an archive file and adds files to it. The filename is alphanumeric, not case sensitive, and has a maximum length of 240 characters.</p> <p>The absolute keyword specifies that the leading backslash characters (\) should not be removed from the names of the files added to the archive file. By default, the leading backslash characters are removed.</p> <p>The bz2-compress, gz-compress, and uncompressed keywords determine the compression utility used when files are added, or later appended, to the archive and the decompression utility to use when extracting the files. If you do not specify an extension for the archive file, the defaults are as follows:</p> <ul style="list-style-type: none"> • For bz2-compress, the extension is .tar.bz2. • For gz-compress, the extension is .tar.gz. • For uncompressed, the extension is .tar. <p>The remove keyword specifies that the Cisco NX-OS software should delete the files from the file system after adding them to the archive. By default, the files are not deleted.</p> <p>The verbose keyword specifies that the Cisco NX-OS software should list the files as they are added to the archive. By default, the files are listed as they are added.</p> |

Example

This example shows how to create a gzip compressed archive file:

```
switch# tar create bootflash:config-archive gz-compress bootflash:config-file
```

Appending Files to an Archive File

You can append files to an existing archive file on your Cisco NX-OS device.

Before you begin

You have created an archive file on your Cisco NX-OS device.

SUMMARY STEPS

1. **tar append** {bootflash: | volatile:}archive-filename [absolute] [remove] [verbose] filename-list

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|---|--|
| Step 1 | tar append {bootflash: volatile:}archive-filename [absolute] [remove] [verbose] filename-list | <p>Adds files to an existing archive file. The archive filename is not case sensitive.</p> <p>The absolute keyword specifies that the leading backslash characters (\) should not be removed from the names of the files added to the archive file. By default, the leading backslash characters are removed.</p> <p>The remove keyword specifies that the Cisco NX-OS software should delete the files from the filesystem after adding them to the archive. By default, the files are not deleted.</p> <p>The verbose keyword specifies that the Cisco NX-OS software should list the files as they are added to the archive. By default, the files are listed as they are added.</p> |

Example

This example shows how to append a file to an existing archive file:

```
switch# tar append bootflash:config-archive.tar.gz bootflash:new-config
```

Extracting Files from an Archive File

You can extract files to an existing archive file on your Cisco NX-OS device.

Before you begin

You have created an archive file on your Cisco NX-OS device.

SUMMARY STEPS

1. **tar extract** {bootflash: | volatile:}archive-filename [keep-old] [screen] [to {bootflash: | volatile:}[directory-name]] [verbose]

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|--|---|
| Step 1 | tar extract {bootflash: volatile:}archive-filename [keep-old] [screen] [to {bootflash: volatile:}[directory-name]] [verbose] | <p>Extracts files from an existing archive file. The archive filename is not case sensitive.</p> <p>The keep-old keyword indicates that the Cisco NX-OS software should not overwrite files with the same name as the files being extracted.</p> <p>The screen keyword specifies that the Cisco NX-OS software should display the contents of the extracted files to the terminal screen.</p> |

| | Command or Action | Purpose |
|--|-------------------|---|
| | | <p>The to keyword specifies the target file system. You can include a directory name. The directory name is alphanumeric, case sensitive, and has a maximum length of 240 characters.</p> <p>The verbose keyword specifies that the Cisco NX-OS software should display the names of the files as they are extracted.</p> |

Example

This example shows how to extract files from an existing archive file:

```
switch# tar extract bootflash:config-archive.tar.gz
```

Displaying the Filenames in an Archive File



Note The archive filename is not case sensitive.

To display the file names in an archive file, run the following command:

```
tar list {bootflash: | volatile:}archive-filename
```

Example:

```
switch# tar list bootflash:config-archive.tar.gz
config-file
new-config
```

Examples of Using a File System

This section includes examples of using a file system on a Cisco NX-OS device.

Accessing Directories on a Standby Supervisor Module

This example shows how to list the files on a standby supervisor module:

```
switch# dir bootflash://sup-remote
 12198912   Aug 27 16:29:18 2003  m9500-sflek9-kickstart-mzg.1.3.0.39a.bin
  1864931   Apr 29 12:41:59 2003  dplug2
    12288   Apr 18 20:23:11 2003  lost+found/
 12097024   Nov 21 16:34:18 2003  m9500-sflek9-kickstart-mz.1.3.1.1.bin
 41574014   Nov 21 16:34:47 2003  m9500-sflek9-mz.1.3.1.1.bin
```

```
Usage for bootflash://sup-remote
67747169 bytes used
```

```
116812447 bytes free
184559616 bytes total
```

This example shows how to delete a file on a standby supervisor module:

```
switch# delete bootflash://sup-remote/aOldConfig.txt
```

Moving Files

This example shows how to move a file on an external flash device:

```
switch# move slot0:samplefile slot0:mystorage/samplefile
```

This example shows how to move a file in the default file system:

```
switch# move samplefile mystorage/samplefile
```

Copying Files

This example shows how to copy a file called samplefile from the root directory of the slot0: file system to the mystorage directory:

```
switch# copy slot0:samplefile slot0:mystorage/samplefile
```

This example shows how to copy a file from the current directory:

```
switch# copy samplefile mystorage/samplefile
```

This example shows how to copy a file from an active supervisor module bootflash to a standby supervisor module bootflash:

```
switch# copy bootflash:system_image bootflash://sup-2/system_image
```



Note You can also use the **copy** command to upload and download files from the slot0: or bootflash: file system to or from an FTP, TFTP, SFTP, or SCP server.

Deleting a Directory

You can remove directories from the file systems on your device.

Before you begin

Ensure that the directory is empty before you try to delete it.

SUMMARY STEPS

1. (Optional) **pwd**
2. (Optional) **dir** [*filesystem* :[*//module*]/[*directory*]]
3. **rmdir** [*filesystem* :[*//module*]/]*directory*

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|---|---|
| Step 1 | (Optional) pwd Example: switch# pwd | Displays the name of your current default directory. |
| Step 2 | (Optional) dir [<i>filesystem</i> :[<i>//module</i>]/[<i>directory</i>]] Example: switch# dir bootflash:test | Displays the contents of the current directory. The file system, module, and directory names are case sensitive. If the directory is not empty, you must delete all the files before you can delete the directory. |
| Step 3 | rmdir [<i>filesystem</i> :[<i>//module</i>]/] <i>directory</i> Example: switch# rmdir test | Deletes a directory. The file system and directory name are case sensitive. |

Displaying File Contents

This example shows how to display the contents of a file on an external flash device:

```
switch# show file slot0:test
configure terminal
interface ethernet 1/1
no shutdown
end
show interface ethernet 1/1
```

This example shows how to display the contents of a file that resides in the current directory:

```
switch# show file myfile
```

Displaying File Checksums

This example shows how to display the checksum of a file:

```
switch# show file bootflash:trunks2.cfg cksum
583547619
```

This example shows how to display the MD5 checksum of a file:

```
switch# show file bootflash:trunks2.cfg md5sum
3b94707198aabefcf46459de10c9281c
```

Compressing and Uncompressing Files

This example shows how to compress a file:

```
switch# dir
 1525859      Jul 04 00:51:03 2003 Samplefile
...
switch# gzip volatile:Samplefile
switch# dir
 266069      Jul 04 00:51:03 2003 Samplefile.gz
...

```

This example shows how to uncompress a compressed file:

```
switch# dir
 266069      Jul 04 00:51:03 2003 Samplefile.gz
...
switch# gunzip samplefile
switch# dir
 1525859      Jul 04 00:51:03 2003 Samplefile
...

```

Redirecting show Command Output

This example shows how to direct the output to a file on the bootflash: file system:

```
switch# show interface > bootflash:switch1-intf.cfg
```

This example shows how to direct the output to a file on external flash memory:

```
switch# show interface > slot0:switch-intf.cfg
```

This example shows how to direct the output to a file on a TFTP server:

```
switch# show interface > tftp://10.10.1.1/home/configs/switch-intf.cfg
Preparing to copy...done
```

This example shows how to direct the output of the **show tech-support** command to a file:

```
switch# show tech-support > Samplefile
Building Configuration ...
switch# dir
 1525859      Jul 04 00:51:03 2003 Samplefile
Usage for volatile://
 1527808 bytes used
 19443712 bytes free
 20971520 bytes total
```


Finding Files

This example shows how to find a file in the current default directory:

```
switch# find smm_shm.cfg
/usr/bin/find: ./lost+found: Permission denied
./smm_shm.cfg
./newer-fs/isan/etc/routing-sw/smm_shm.cfg
./newer-fs/isan/etc/smm_shm.cfg
```

Default Settings for File System Parameters

This table lists the default settings for the file system parameters.

Table 2: Default File System Settings

| Parameter | Default |
|--------------------|------------|
| Default filesystem | bootflash: |

Additional References for File Systems

This section includes additional information related to the file systems.

Related Documents for File Systems

| Related Topic | Document Title |
|-------------------|--|
| Licensing | <i>Cisco NX-OS Licensing Guide</i> |
| Command reference | <i>Cisco Nexus 3000 Series NX-OS Command Reference</i> |

