# 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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## Finding Feature Information

Your software release might not support all the features documented in this module. For the latest caveats and feature information, see the Bug Search Tool at https://bst.cloudapps.cisco.com/bugsearch and the release notes for your 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 "New and Changed Information"chapter or the Feature History table in this chapter.

## 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 Cisco NX-OS devices.

### File Systems

This topic provides information about the file system components supported on a Cisco MDS device. (The syntax for specifying a local file system is *filesystem*:[//*modules*/]. )

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

This table describes the file system components that you can use on a Cisco MDS device.

***Table 1: File System Components***

| File System Name | Module | Description |
|---|---|---|
| bootflash | sup-active<br>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<br>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.

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **pwd**<br>**Example:**<br>`switch# pwd` | 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:.

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | (Optional) **pwd**<br>**Example:**<br>`switch# pwd` | Displays the name of your current default directory. |
| **Step 2** | **cd** {*directory* \| *filesystem*:[*//module/*][*directory*]}<br>**Example:**<br>`switch# cd slot0:` | 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.

### Procedure

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

# Displaying Directory Contents

You can display the contents of a directory.

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **dir** [*directory* \| *filesystem*:[//*module*/][*directory*]]<br>**Example:**<br>`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.

### Procedure

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

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

### Procedure

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

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

### Procedure

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

# Deleting Files

You can delete a file from a directory.

### Procedure

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

### Procedure

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

# Displaying File Checksums

You can display checksums to check the file integrity.

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **show file** [*filesystem*:[//*module*/]][*directory*/]*filename* {**cksum** \| **md5sum**}<br>**Example:** | Displays the checksum or MD5 checksum of the file. |

| | Command or Action | Purpose |
|---|---|---|
| | `switch# show file bootflash:trunks2.cfg cksum` | |

# Compressing and Uncompressing Files

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

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | (Optional) **dir** [*filesystem***:**[*//module/*]*directory*]]<br>**Example:**<br>`switch# dir bootflash:` | Displays the contents of the current directory. The file system and directory name are case sensitive. |
| **Step 2** | **gzip** [*filesystem***:**[*//module/*][*directory/*] \| *directory/*]*filename*<br>**Example:**<br>`switch# gzip show_tech` | Compresses a file. After the file is compressed, it has a .gz suffix. |
| **Step 3** | **gunzip** [*filesystem***:**[*//module/*][*directory/*] \| *directory/*]*filename* **.gz**<br>**Example:**<br>`switch# gunzip show_tech.gz` | Uncompresses a file. The file to uncompress must have the .gz suffix. After the file is uncompressed, it does not have the .gz suffix. |

# Displaying the Last Lines in a File

You can display the last lines of a file.

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **tail** [*filesystem***:**[*//module/*]][*directory/*]*filename* [*lines*]<br>**Example:**<br>`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.

**Procedure**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | *show-command* > [*filesystem*:[//*module*/][*directory*] \| [directory /]]*filename*<br>**Example:**<br>`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.

**Procedure**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | (Optional) **pwd**<br>**Example:**<br>`switch# pwd` | Displays the name of your current default directory. |
| **Step 2** | (Optional) **cd** {*filesystem*:[//*module*/][*directory*] \| *directory*}<br>**Example:**<br>`switch# cd bootflash:test_scripts` | Changes the default directory. |
| **Step 3** | **find** *filename-prefix*<br>**Example:**<br>`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.

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **tar create** {**bootflash:** \| **volatile:**}*archive-filename* [**absolute**] [**bz2-compress**] [**gz-compress**] [**remove**] [**uncompressed**] [**verbose**] *filename-list* | Creates an archive file and adds files to it. The filename is alphanumeric, not case sensitive, and has a maximum length of 240 characters.<br>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.<br>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:<br>• For **bz2-compress**, the extension is .tar.bz2.<br>• For **gz-compress**, the extension is .tar.gz.<br>• For **uncompressed**, the extension is .tar.<br>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.<br>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. |

### 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.

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **tar append** {**bootflash:** \| **volatile:**}*archive-filename* [**absolute**] [**remove**] [**verbose**] *filename-list* | Adds files to an existing archive file. The archive filename is not case sensitive.<br>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.<br>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.<br>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. |

### 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.

### Procedure

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

| | Command or Action | Purpose |
|---|---|---|
| | | The **screen** keyword specifies that the Cisco NX-OS software should display the contents of the extracted files to the terminal screen.<br>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.<br>The **verbose** keyword specifies that the Cisco NX-OS software should display the names of the files as they are extracted. |

### 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-sf1ek9-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-sf1ek9-kickstart-mz.1.3.1.1.bin
```

```
   41574014     Nov 21 16:34:47 2003  m9500-sf1ek9-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.

**Procedure**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | (Optional) **pwd**<br>**Example:**<br>`switch# pwd` | Displays the name of your current default directory. |
| **Step 2** | (Optional) **dir** [*filesystem* **:**[*//module/*][*directory*]]<br>**Example:**<br>`switch# dir bootflash:test` | Displays the contents of the current directory. The file system, module, and directory names are case sensitive.<br>If the directory is not empty, you must delete all the files before you can delete the directory. |
| **Step 3** | **rmdir** [*filesystem* **:**[*//module/*]]*directory*<br>**Example:**<br>`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 | *Cisco NX-OS Licensing Guide* |
| Command reference | *Cisco Nexus 7000 Series NX-OS Fundamentals Command Reference* |