



CHAPTER 6

Using the Device File Systems, Directories, and Files

This chapter describes how to use the files systems on the Cisco NX-OS device.

This chapter includes the following sections:

- [Information About the Device File Systems, Directories, and Files, page 6-1](#)
- [Licensing Requirements for Configuration Files, page 6-3](#)
- [Using the Tab Key for Completing Filenames, page 6-3](#)
- [Formatting External Flash Devices, page 6-3](#)
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Information About the Device File Systems, Directories, and Files

This section includes the following topics:

- [File Systems, page 6-1](#)
- [Directories, page 6-2](#)
- [Files, page 6-3](#)
- [Virtualization Support, page 6-3](#)

File Systems

The syntax for specifying a local file system is `filesystem:[//module/]`. [Table 6-1](#) describes file systems that you can reference on your device.

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Table 6-1 File System Syntax Components

File System Name	Module	Description
bootflash	sup-active sup-local	Internal CompactFlash memory located on the 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 the standby supervisor module used for storing image files, configuration files, and other miscellaneous files.
slot0		External CompactFlash memory installed in a supervisor module used for storing system images, configuration files, and other miscellaneous files.
volatile	—	Volatile random-access memory (VRAM) located on a supervisor module used for temporary or pending changes.
nvrाम	—	Nonvolatile random-access memory (NVRAM) located on a supervisor module used for storing the startup-configuration file.
log	—	Memory on the active supervisor that stores logging file statistics.
system	—	Memory on a supervisor module used for storing the running-configuration file.
debug	—	Memory on a supervisor module used for debug logs.
usb1	—	External USB flash memory installed in a supervisor module used for storing image files, configuration files, and other miscellaneous files.
usb2	—	External USB flash memory installed in a supervisor module used for storing image files, configuration files, and other miscellaneous files.

Directories

You can create directories on bootflash: and external Flash memory (slot0:, usb1:, and usb2:). You can navigate through these directories and use them for files.

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Files

You create and access files on bootflash:, volatile:, slot0:, usb1:, and usb2: file systems. You can only access files on the system: file systems. You can use the debug: file system for debug log files specified in the **debug logfile** command. You can also download files, such as system image files, from remote servers using FTP, Secure Copy (SCP), Secure Shell FTP (SFTP), and TFTP.

Virtualization Support

Most file system, directory, and file configuration and operations are local to the virtual device context (VDC). One exception is formatting an external Flash device, which must be performed from the default VDC. For more information on VDCs. For more information on VDCs, see the *Cisco Nexus 7000 Series NX-OS Virtual Device Context Configuration Guide, Release 4.0*.

Licensing Requirements for Configuration Files

The following table shows the licensing requirements for this feature:

Product	License Requirement
NX-OS	Using the file systems, directories, and files requires no license. Any feature not included in a license package is bundled with the Cisco NX-OS system images and is provided at no extra charge to you. For a complete explanation of the NX-OS licensing scheme, see the Cisco Nexus 7000 Series NX-OS Licensing Guide, Release 4.0 .

Using the Tab Key for Completing Filenames

You can use the Tab key to complete partial filenames. When you type a partial filename and then press the Tab key, the NX-OS software completes the filename if the characters you typed are unique to a single file. If the partial name is not unique, the NX-OS software lists a selection of filenames that match the characters you typed, as shown in this example:

```
switch# show file bootflash:e<Tab>
bootflash:eem_logs      bootflash:epld.tar.gz
bootflash:epld.scr      bootflash:eth_span.log
switch# show file bootflash:e
```

You can then type enough characters to make the filename unique and NX-OS completes the filename for you.

Formatting External Flash Devices

You can format an external Flash device to erase the contents from the default VDC and restore it to its factory-shipped state.

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**Note**

For information on recovering corrupted bootflash using formatting, see the *Cisco Nexus 7000 Series NX-OS Troubleshooting Guide, Release 4.0*.

BEFORE YOU BEGIN

Ensure you are in the default VDC.

Insert the external Flash device in the active supervisor module.

SUMMARY STEPS

1. **dir** {slot0: | usb1: | usb2:}
1. **format** {slot0: | usb1: | usb2:}

DETAILED STEPS

	Command	Purpose
Step 1	dir {slot0: usb1: usb2:} Example: switch# dir slot0:	(Optional) Displays the contents of an external Flash device.
Step 2	format {slot0: usb1: usb2:} Example: switch# format slot0:	Formats an external Flash device.

Working with Directories

This section includes the following topics:

- [Identifying the Current Directory, page 6-4](#)
- [Changing the Current Directory, page 6-5](#)
- [Creating a Directory, page 6-5](#)
- [Displaying Directory Contents, page 6-6](#)
- [Deleting a Directory, page 6-6](#)
- [Accessing Directories on the Standby Supervisor Module, page 6-7](#)

Identifying the Current Directory

You can display the directory name of your current directory.

SUMMARY STEPS

1. **pwd**

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DETAILED STEPS

	Command	Purpose
Step 1	<p><code>pwd</code></p> <p>Example: switch# <code>pwd</code></p>	Displays the name of your current default directory.

Changing the Current Directory

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

SUMMARY STEPS

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

DETAILED STEPS

	Command	Purpose
Step 1	<p><code>pwd</code></p> <p>Example: switch# <code>pwd</code></p>	(Optional) Displays the name of your current default directory.
Step 2	<p><code>cd {directory filesystem:[//module/][directory]}</code></p> <p>Example: switch# <code>cd slot0:</code></p>	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. `pwd`
2. `cd {directory | filesystem:[//module/][directory]}`
3. `mkdir [filesystem:[//module/]]directory`

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DETAILED STEPS

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

DETAILED STEPS

	Command	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 (see the “[Deleting Files](#)” section on page 6-10).

SUMMARY STEPS

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

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DETAILED STEPS

	Command	Purpose
Step 1	<code>pwd</code> Example: switch# pwd	(Optional) Displays the name of your current default directory.
Step 2	<code>dir [filesystem:[//module/]][directory]</code> Example: switch# dir bootflash:test	(Optional) 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 (see the “Deleting Files” section on page 6-10).
Step 3	<code>rmdir [filesystem:[//module/]]directory</code> Example: switch# mkdir test	Deletes a directory. The file system and directory name are case sensitive.

Accessing Directories on the Standby Supervisor Module

You can access all file systems on the standby supervisor module (remote) from a session on the active supervisor module. This feature is useful when copying files to the active supervisor modules requires similar files to exist on the standby supervisor module. To access the file systems on the standby supervisor module from a session on the active supervisor module, you specify the standby supervisor module in the path to the file using either `filesystem://sup-remote/` or `filesystem://sup-standby/`.

Working with Files

This section includes the following topics:

- [Moving Files, page 6-8](#)
- [Copying Files, page 6-9](#)
- [Deleting Files, page 6-10](#)
- [Displaying File Contents, page 6-10](#)
- [Displaying File Checksums, page 6-11](#)
- [Compressing and Uncompressing Files, page 6-11](#)
- [Displaying the Last Lines in a File, page 6-12](#)
- [Redirecting show Command Output to a File, page 6-12](#)
- [Finding Files, page 6-12](#)

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Moving Files

You can move a files 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.



Tip

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

SUMMARY STEPS

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

DETAILED STEPS

	Command	Purpose
Step 1	pwd Example: switch# pwd	(Optional) Displays the name of your current default directory.
Step 2	dir [<i>filesystem:[//module/][directory]</i>] Example: switch# dir bootflash	(Optional) Displays the contents of the current directory. The file system and directory name are case sensitive.
Step 3	move [<i>filesystem:[//module/][directory/]</i> <i>directory/</i>] <i>source-filename</i> { [<i>filesystem:[//module/][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.

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

DETAILED STEPS

	Command	Purpose
Step 1	pwd Example: switch# pwd	(Optional) Displays the name of your current default directory.
Step 2	dir [<i>filesystem://module/</i>][<i>directory</i>] Example: switch# dir bootflash	(Optional) Displays the contents of the current directory. The file system and directory name are case sensitive.
Step 3	copy [<i>filesystem://module/</i>][<i>directory/</i>] <i>directory/</i>] <i>source-filename</i> { [<i>filesystem://module/</i>][<i>directory/</i>] <i>directory/</i> } [<i>target-filename</i>] Example: switch# move 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.

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Deleting Files

You can delete a file or a directory and all its contents.

SUMMARY STEPS

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

DETAILED STEPS

	Command	Purpose
Step 1	dir [<i>filesystem</i> : <i>//module/</i>][<i>directory</i>] Example: switch# dir bootflash	(Optional) 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# move 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	Purpose
Step 1	show file [<i>filesystem</i> : <i>//module/</i>][<i>directory/</i>] <i>filename</i> Example: switch# show file bootflash:test-results	Displays the file contents.

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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	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 NX-OS device using Lempel-Ziv 1977 (LZ77) coding.

SUMMARY STEPS

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

DETAILED STEPS

	Command	Purpose
Step 1	dir [<i>filesystem://module/</i>][<i>directory</i>] Example: switch# dir bootflash	(Optional) 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 prefix.
	gunzip [<i>filesystem://module/</i>][<i>directory/</i>] <i>directory/</i>] <i>filename.gz</i> Example: switch# gunzip show_tech.gz	Uncompresses a file. The file to uncompress must have the .gz prefix. After the file is uncompresses, it does not have the .gz prefix.

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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

Step	Command	Purpose
Step 1	<pre>tail [filesystem://module/][directory/]filename [lines] Example: switch# tail ospf-gr.conf</pre>	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.

For information about saving configuration files, see [Chapter 7, “Working with Configuration Files”](#).

SUMMARY STEPS

1. `show-command > [filesystem://module/][directory/] | directory/]filename`

DETAILED STEPS

	Command	Purpose
Step 1	<pre>show-command > [filesystem://module/][directory/] directory/]filename Example: switch# show tech-support > bootflash:techinfo</pre>	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. `pwd`
2. `cd {filesystem://module/}[directory/] | directory}`
3. `find filename-prefix`

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DETAILED STEPS

	Command	Purpose
Step 1	pwd Example: switch# pwd	(Optional) Displays the name of your current default directory.
Step 2	cd { <i>filesystem</i> : [// <i>module</i> /] [<i>directory</i>] } <i>directory</i> } Example: switch# cd bootflash:test_scripts	(Optional) 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.

Examples of Using the File System

This section includes the following topics:

- [Accessing Directories on Standby Supervisor Modules, page 6-13](#)
- [Moving Files, page 6-14](#)
- [Copying Files, page 6-14](#)
- [Deleting Files, page 6-14](#)
- [Displaying File Contents, page 6-15](#)
- [Displaying File Contents, page 6-15](#)
- [Displaying File Checksums, page 6-15](#)
- [Compressing and Uncompressing Files, page 6-15](#)

Accessing Directories on Standby Supervisor Modules

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

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

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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 the 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 level:

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

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

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

This example shows how to overwrite the contents of an existing configuration in NVRAM:

```
switch# copy nvram:snapshot-config nvram:startup-config
Warning: this command is going to overwrite your current startup-config:
Do you wish to continue? {y/n} [y] y
```

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

Deleting Files

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

```
switch# delete dns_config.cfg
```

This example shows how to delete a file from an external CompactFlash (slot0):

```
switch# delete slot0:dns_config.cfg
```

This example shows how to delete an entire directory and all its contents:

```
switch# delete bootflash:my-dir
This is a directory. Do you want to continue (y/n)? [y] y
```

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Displaying File Contents

This example displays the contents of a file on an external Flash device:

```
switch# show file slot0:test
config t
Int fc1/1
no shut
end
show int fc1/1
```

This example displays the contents of a file residing 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
```

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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 directs 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

[Table 6-2](#) lists the default settings for the file system parameters.

Table 6-2 Default File System Settings

Parameters	Default
Default filesystem	bootflash:

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Additional References

For additional information related to the file systems, see the following sections:

- [Related Documents, page 6-17](#)

Related Documents

Related Topic	Document Title
Licensing	<i>Cisco Nexus 7000 Series NX-OS Licensing Guide, Release 4.0</i>
Command reference	<i>Cisco Nexus 7000 Series NX-OS Fundamentals Command Reference, Release 4.0</i>

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