



CHAPTER 15

Managing Configuration Files

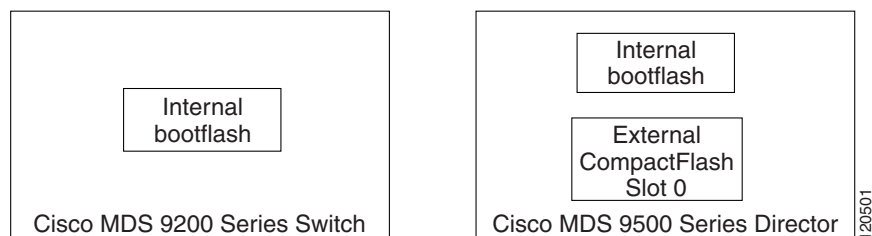
This chapter describes how to initially configure switches using the configuration files so they can be accessed by other devices. This chapter includes the following sections:

- [About Flash Devices, page 15-1](#)
- [Formatting Flash Devices and File Systems, page 15-2](#)
- [Using the File System, page 15-3](#)
- [Downloading Configuration Files to the Switch, page 15-8](#)

About Flash Devices

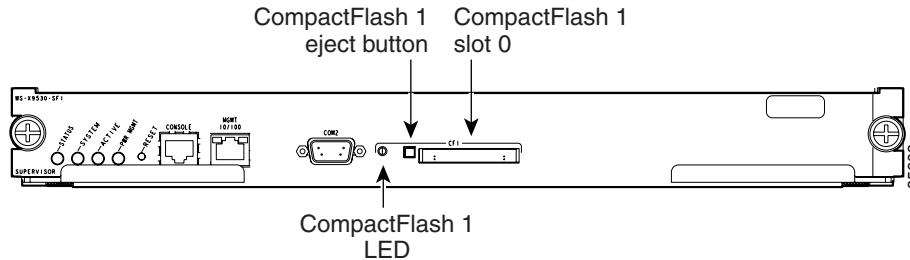
Every switch in the Cisco MDS 9000 Family contains one internal bootflash (see [Figure 15-1](#)). The Cisco MDS 9500 Series additionally contains one external CompactFlash called slot0 (see [Figure 15-1](#) and [Figure 15-2](#)).

Figure 15-1 Flash Devices in the Cisco MDS 9000 Supervisor Module



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Figure 15-2 External CompactFlash in the Cisco MDS 9000 Supervisor Module



Internal bootflash:

All switches in the Cisco MDS 9000 Family have one internal bootflash: that resides in the supervisor or switching module. You have access to two locations within the internal bootflash: file system.

- The volatile: file system provides temporary storage, and it is also the default location for file system commands. Files in temporary storage (volatile:) are erased when the switch reboots.
- The bootflash: (nonvolatile storage) file system provides permanent storage. The files in bootflash: are preserved through reboots and power outages.

Formatting Flash Devices and File Systems

By formatting a Flash devices or a file system, you are clearing out the contents of the device or the file system and restoring it to its factory-shipped state.

See the [“About Flash Devices”](#) section on page 15-1 and the [“Using the File System”](#) section on page 15-3.

Initializing Internal bootflash:

When a switch is shipped, the switch has been initialized and you do not need to initialize it again. Initializing the switch resets the entire internal Flash device and erases all data in the bootflash: file system. The internal Flash device is composed of several file systems with bootflash: being one of them. All files in bootflash: are erased and you must download the system and kickstart images again. After initializing the switch, you do not have to format the bootflash: again because it is automatically formatted.

If the bootflash: is found corrupted during a boot sequence, you will see the following message on the CLI:

```
ERROR:bootflash: has unrecoverable error; please do "format bootflash:"
```

Refer to the *Cisco MDS 9000 Family CLI Configuration Guide* for more information on the format bootflash command.

To initialize the bootflash using Device Manager, follow these steps:

Step 1 Click **Admin > Reset Switch**.

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Step 2 Click **Reset System**.

Using the File System

All switches in the Cisco MDS 9000 Family have one internal bootflash: that resides in the supervisor or switching module. You have access to two directories within the internal bootflash: file system.

- The volatile: directory provides temporary storage, and it is also the default. Files in temporary storage (volatile:) are erased when the switch reboots.
- The bootflash: (nonvolatile storage) directory provides permanent storage. Files in permanent storage (bootflash:) are preserved through reboots and power outages.

Cisco MDS 9500 Series directors contain an additional external CompactFlash referred to as the slot0: directory. The external CompactFlash, an optional device for MDS 9500 Series directors, can be used for storing software images, logs, and core dumps.

You can use Device Manager to perform the following functions to help you manage software image files and configuration files:

- [Flash Files, page 15-3](#)
- [Creating a Directory, page 15-4](#)
- [Deleting an Existing File or Directory, page 15-5](#)
- [Copying Files, page 15-6](#)
- [Performing Other File Manipulation Tasks, page 15-7](#)

Flash Files

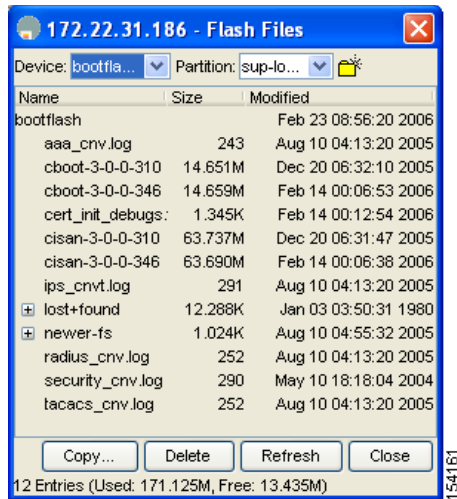
To list the files in a directory using Device Manager, follow these steps:

Step 1 Click **Admin > Flash Files**.

By default, you see the bootflash directory listed for the supervisor's local partition (see [Figure 15-3](#)).

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Figure 15-3 Flash Files Dialog Box



Select the device and partition for the directory you want to view from the drop-down lists.

You see a list of files and directories.

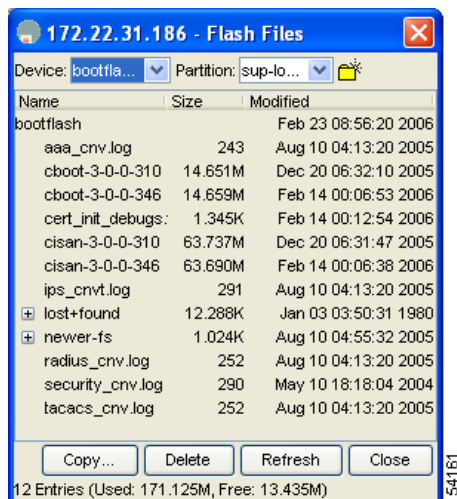
Creating a Directory

To create a directory using Device Manager, follow these steps:

Step 1 Click **Admin > Flash Files**.

By default, you see the bootflash directory listed for the supervisor's local partition (see [Figure 15-4](#)).

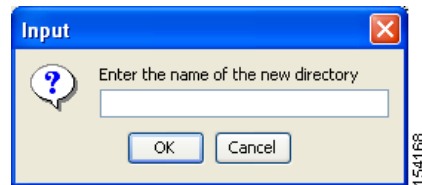
Figure 15-4 Flash Files Dialog Box



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- Step 2** Select the device and partition from the drop-down lists for the directory where you want to create the directory.
- Step 3** Click the **Create Directory** icon to create a directory.
You see the Create New Directory dialog box as shown in [Figure 15-5](#).

Figure 15-5 New Directory Dialog Box



- Step 4** Enter the name of the new directory, and click **OK**.
You see the new directory in the directory listing.



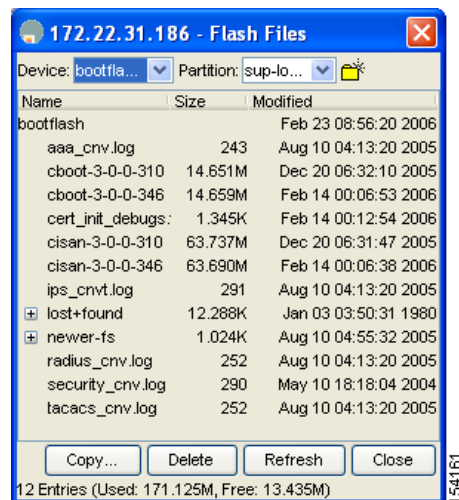
Tip Any directory saved in the volatile: file system is erased when the switch reboots.

Deleting an Existing File or Directory

To delete a file or directory using Device Manager, follow these steps:

- Step 1** Click **Admin > Flash Files**.
By default, you see the bootflash: directory listed for the supervisor's local partition (see [Figure 15-6](#)).

Figure 15-6 Flash Files Dialog Box



- Step 2** Select a device and partition from the drop-down lists.

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- Step 3** Click the file or directory you want to delete.
- Step 4** Click **Delete** to delete the file or directory.



Caution If you specify a directory, the delete removes the entire directory and all of its contents.

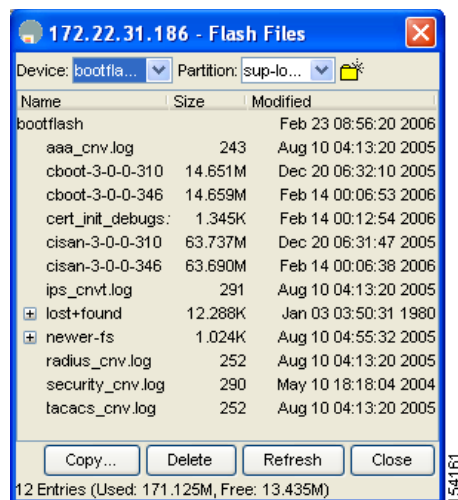
Copying Files

To copy a file using Device Manager, follow these steps:

- Step 1** Select **Admin > Flash Files**.

By default, you see the bootflash: directory listed for the supervisor's local partition (see [Figure 15-7](#)).

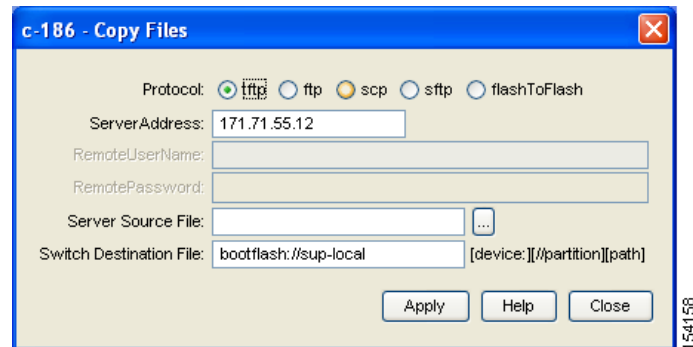
Figure 15-7 Flash Files Dialog Box



- Step 2** Select the device and partition from the drop-down lists for the directory containing the file you want to copy.
- Step 3** Click **Copy**.
- You see the Copy dialog box shown in [Figure 15-8](#).

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Figure 15-8 Copy Flash Files in Device Manager



- Step 4** Choose the protocol you want to use for the copy, **tftp**, **ftp**, **scp**, or **flashToFlash**.
- Step 5** Enter the address of the source server for a Flash to Flash copy only.
- Step 6** Click the ... button to browse for the source file on your local PC or on the server, depending on the type of copy.



Note If you are copying from Flash, the file name must be in the format:
`[device>:][<partition>:]<file>`

where *device* is a value obtained from FlashDeviceName,
partition is a value obtained from FlashPartitionName and
file is the name of a file in Flash.

- Step 7** Enter the Switch Destination File name. (See the note in Step 6.)
- Step 8** Click **Apply**.

Performing Other File Manipulation Tasks

To perform the following CLI-specific tasks, refer to the *Cisco MDS 9000 Family CLI Configuration Guide*:

- Displaying file contents
- Displaying the last line in a file
- Saving output to a file
- Moving files
- Compressing and uncompressing files
- Executing commands specified in a script
- Setting the delay time

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Working with Configuration Files

Configuration files can contain some or all of the commands needed to configure one or more switches. For example, you might want to download the same configuration file to several switches that have the same hardware configuration so that they have identical module and port configurations.

This section describes how to work with configuration files and has the following topics:

- [Downloading Configuration Files to the Switch, page 15-8](#)
- [Saving the Configuration, page 15-8](#)
- [Backing Up the Current Configuration, page 15-9](#)

Downloading Configuration Files to the Switch

You can configure a switch in the Cisco MDS 9000 Family by using configuration files you create or download from another switch. In addition, you can store configuration files on a bootflash device on the supervisor module and you can configure the switch using a configuration stored on an external CompactFlash disk.

Before you begin downloading a configuration file using a remote server, do the following:

- Ensure the configuration file to be downloaded is in the correct directory on the remote server.
- Ensure that the permissions on the file are set correctly. Permissions on the file should be set to world-read.
- Ensure the switch has a route to the remote server. The switch and the remote server must be in the same subnetwork if you do not have a router or default gateway to route traffic between subnets.

Check connectivity to the remote server using `ping`.

Saving the Configuration

To save the configuration file using Device Manager, follow these steps:

Step 1 Click **Admin > Save Configuration**.

You see the message `Really save running to startup configuration?`

Step 2 Click **Yes** to save the configuration. Click **No** to close the pop-up window without saving the configuration.

Saving the Running Configuration

After you have created a running configuration in system memory, you can save it to the startup configuration in NVRAM.

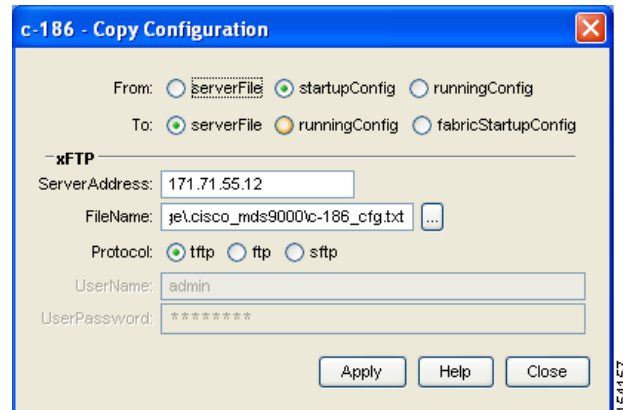
To save the configuration file using Device Manager, follow these steps:

Step 1 Click **Admin > Copy Configuration**.

You see the Copy Configuration dialog box shown in [Figure 15-9](#).

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Figure 15-9 Copy Configuration Dialog Box



- Step 2** Select the location of the file you will copy from (**serverFile**, **startupConfig**, **runningConfig**).
- Step 3** Select the location of the file you will copy to (**serverFile**, **runningConfig**, **fabricStartupConfig**).



Note You can copy a file fabric-wide using the **fabricStartupConfig** option, available in Cisco MDS SAN-OS Release 2.1(1a) or later.

- Step 4** Enter the server address of the source server.
- Step 5** Click the ... button to browse for the source file on the switch or the server, depending on the type of copy.
- Step 6** Select the protocol you want to use to perform the copy procedure, **tftp**, **ftp**, or **sftp**.
- Step 7** Enter the user name and password you use to access the switch or server.
- Step 8** Click **Apply**.

Saving Startup Configurations in the Fabric

You can use Cisco Fabric Services (CFS) to instruct the other switches in the fabric to save their configurations to their local NVRAM. You can copy the running configuration to the startup configuration across the entire fabric by using the **fabricStartupConfig** option. This triggers every switch in the fabric to copy its running configuration to its startup configuration.



Note If any switch fails during this fabric-wide copy, that switch and the switch that you used to initiate this process will keep the existing startup configuration. This does not affect the other switches in the fabric.

Backing Up the Current Configuration

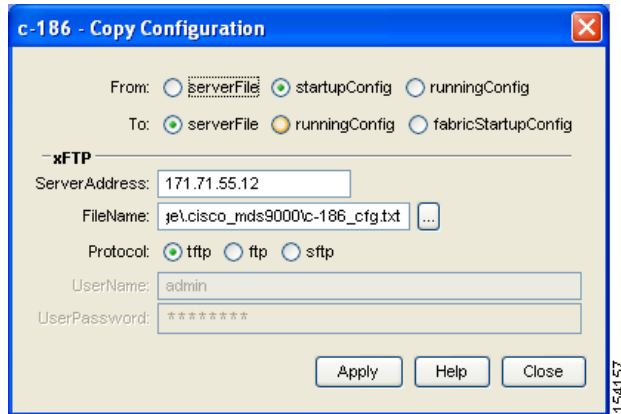
Before installing or migrating to any software configuration, back up the startup configuration. To back up the startup configuration using Device Manager, follow these steps:

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Step 1 Select **Admin > Copy Configuration**.

You see the Copy Configuration dialog box as shown in [Figure 15-10](#).

Figure 15-10 Copy Configuration Dialog Box



Step 2 Select the location of the file you want to back up (**server file**, **startup configuration**, or **running configuration**).

Step 3 Select the destination of the file (**server file**, **running configuration**, **fabric startup configuration**).

Step 4 Enter the server address.

Step 5 Click the ... button to select the file name.

Step 6 Choose the file transfer protocol (**tftp**, **ftp**, or **sftp**).

Step 7 Enter the user name and password for the server you specified in Step 4.

Step 8 Click **Apply** to copy the file.