

Managing Configuration Files

Creating, loading, and maintaining configuration files enable you to generate a set of user-configured commands to customize the functionality of your Cisco routing device. For a complete description of the configuration file management commands, refer to the *Cisco IOS Configuration Fundamentals Command Reference*.

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Prerequisites for Managing Configuration Files

- You should have at least a basic familiarity with the Cisco IOS environment and the command-line interface.
- You should have at least a minimal configuration running on your system. You can create a basic configuration file using the **setup** command (see Using Setup Mode to Configure a Cisco Networking Device for details).

Restrictions for Managing Configuration Files

- Many of the Cisco IOS commands described in this document are available and function only in certain configuration modes on the router.

Information About Managing Configuration Files

Types of Configuration Files

Configuration files contain the Cisco IOS software commands used to customize the functionality of your Cisco routing device (router, access server, switch, and so on). Commands are parsed (translated and executed) by the Cisco IOS software when the system is booted (from the startup-config file) or when you enter commands at the CLI in a configuration mode.

Startup configuration files (startup-config) are used during system startup to configure the software. Running configuration files (running-config) contain the current configuration of the software. The two configuration files can be different. For example, you may want to change the configuration for a short time period rather than permanently. In this case, you would change the running configuration using the **configure terminal** EXEC command but not save the configuration using the **copy running-config startup-config** EXEC command.

To change the running configuration, use the **configure terminal** command, as described in the "Modifying the Configuration File at the CLI " section. As you use the Cisco IOS configuration modes, commands generally are executed immediately and are saved to the running configuration file either immediately after you enter them or when you exit a configuration mode.

To change the startup configuration file, you can either save the running configuration file to the startup configuration using the **copy running-config startup-config** EXEC command or copy a configuration file from a file server to the startup configuration (see the "Copying a Configuration File from a TFTP Server to the Router " section for more information).

Configuration Mode and Selecting a Configuration Source

To enter configuration mode on the router, enter the **configure**command at the privileged EXEC prompt. The Cisco IOS software responds with the following prompt asking you to specify the terminal, memory, or a file stored on a network server (network) as the source of configuration commands:

```
Configuring from terminal, memory, or network [terminal]?
```

Configuring from the terminal allows you to enter configuration commands at the command line, as described in the following section. Configuring from memory loads the startup configuration file. See the "Reexecuting the Configuration Commands in the Startup Configuration File " section for more information. Configuring from the network allows you to load and execute configuration commands over the network. See the "Copying a Configuration File from a TFTP Server to the Router " section for more information.

Configuration File Changes Using the CLI

The Cisco IOS software accepts one configuration command per line. You can enter as many configuration commands as you want. You can add comments to a configuration file describing the commands you have entered. Precede a comment with an exclamation point (!). Because comments are *not* stored in NVRAM or in the active copy of the configuration file, comments do not appear when you list the active configuration with the**show running-config or more system:running-config** EXEC command. Comments do not display when you list the startup configuration with the **show startup-config** or **more nvram:startup-config** EXEC mode command. Comments are stripped out of the configuration file when it is loaded onto the router. However, you can list the comments in configuration files stored on a File Transfer Protocol (FTP), remote copy protocol (rcp), or Trivial File Transfer Protocol (TFTP) server. When you configure the software using the CLI, the software executes the commands as you enter them.

Location of Configuration Files

Configuration files are stored in the following locations:

- The running configuration is stored in RAM.
- On all platforms except the Class A Flash file system platforms, the startup configuration is stored in nonvolatile random-access memory (NVRAM).

- On Class A Flash file system platforms, the startup configuration is stored in the location specified by the CONFIG_FILE environment variable. The CONFIG_FILE variable defaults to NVRAM and can be a file in the following file systems:
  - **nvram:** (NVRAM)

Copy Configuration Files from a Network Server to the Router

You can copy configuration files from a TFTP, rcp, or FTP server to the running configuration or startup configuration of the router. You may want to perform this function for one of the following reasons:

- To restore a backed-up configuration file.
- To use the configuration file for another router. For example, you may add another router to your network and want it to have a similar configuration to the original router. By copying the file to the new router, you can change the relevant parts rather than re-creating the whole file.
- To load the same configuration commands on to all the routers in your network so that all the routers have similar configurations.

The **copy**{**ftp:** | **rcp:** | **tftp:system:running-config**EXECcommand loads the configuration files into the router as if you were typing the commands in at the command line. The router does not erase the existing running configuration before adding the commands. If a command in the copied configuration file replaces a command in the existing configuration file, the existing command will be erased. For example, if the copied configuration file contains a different IP address in a particular command than the existing configuration, the IP address in the copied configuration will be used. However, some commands in the existing configuration may not be replaced or negated. In this case, the resulting configuration file will be a mixture of the existing configuration file and the copied configuration file, with the copied configuration file having precedence.

In order to restore a configuration file to an exact copy of a file stored on a server, you need to copy the configuration file directly to the startup configuration (using the **copyftp:**| **rcp:**| **tftp:**} **nvram:startup-config**command) and reload the router.

To copy configuration files from a server to a router, perform the tasks described in the following sections:

The protocol you use depends on which type of server you are using. The FTP and rcp transport mechanisms provide faster performance and more reliable delivery of data than TFTP. These improvements are possible because the FTP and rcp transport mechanisms are built on and use the TCP/IP stack, which is connection-oriented.

Copy a Configuration File from the Router to a TFTP Server

In some implementations of TFTP, you must create a dummy file on the TFTP server and give it read, write, and execute permissions before copying a file over it. Refer to your TFTP documentation for more information.

Copy a Configuration File from the Router to an FTP Server

You can copy a configuration file from the router to an FTP server.

Understanding the FTP Username and Password

The FTP protocol requires a client to send a remote username and password on each FTP request to a server. When you copy a configuration file from the router to a server using FTP, the Cisco IOS software sends the first valid username it encounters in the following sequence:

1. The username specified in the **copy** EXEC command, if a username is specified.
2. The username set by the **ip ftp username** global configuration command, if the command is configured.
3. Anonymous.

The router sends the first valid password it encounters in the following sequence:

1. The password specified in the **copy** command, if a password is specified.
2. The password set by the **ip ftp password** command, if the command is configured.
3. The router forms a password *username @routername .domain* . The variable *username* is the username associated with the current session, *routername* is the configured host name, and *domain* is the domain of the router.

The username and password must be associated with an account on the FTP server. If you are writing to the server, the FTP server must be properly configured to accept the FTP write request from the user on the router.

If the server has a directory structure, the configuration file or image is written to or copied from the directory associated with the username on the server. For example, if the system image resides in the home directory of a user on the server, specify that user name as the remote username.

Refer to the documentation for your FTP server for more information.

Use the **ip ftp username** and **ip ftp password** global configuration commands to specify a username and password for all copies. Include the username in the **copy** EXEC command if you want to specify a username for that copy operation only.



Note The password must not contain the special characters '@', ':', and '/'. If these special characters are used, the copy fails to parse the IP address of the server.

Copying Files Through a VRF

You can copy files through a VRF interface specified in the **copy** command. Specifying the VRF in the **copy** command is easier and more efficient because you can directly change the source interface without having the need to change the configuration via a change request.

The following example shows how to copy files through a VRF, using the **copy** command:

```
Device# copy scp: slot0: vrf test-vrf
Device# copy scp: slot0: vrf test-vrf
Address or name of remote host [10.1.2.3]?
Source username [ScpUser]?
Source filename [/auto/tftp-server/ScpUser/vrf_test.txt]?
Destination filename [vrf_test.txt]?
Getting the vrf name as test-vrf
Password:
Sending file modes: C0644 10 vrf_test.txt
!
223 bytes copied in 22.740 secs (10 bytes/sec)
```

Configuration Files Larger than NVRAM

To maintain a configuration file that exceeds size of NVRAM, you should be aware of the information in the following sections:

Compressing the Configuration File

The **servicecompress-config** global configuration command specifies that the configuration file be stored compressed in NVRAM. Once the configuration file has been compressed, the router functions normally. When the system is booted, it recognizes that the configuration file is compressed, expands it, and proceeds normally. The **morenvram:startup-config** EXEC command expands the configuration before displaying it.

Before you compress configuration files, refer to the appropriate hardware installation and maintenance publication. Verify that your system's ROMs support file compression. If not, you can install new ROMs that support file compression.

The size of the configuration must not exceed three times the NVRAM size. For a 128-KB size NVRAM, the largest expanded configuration file size is 384 KB.

The **servicecompress-config**global configurationcommand works only if you have Cisco IOS software Release 10 or later release boot ROMs. Installing new ROMs is a one-time operation and is necessary only if you do not already have Cisco IOS Release 10 in ROM. If the boot ROMs do not recognize a compressed configuration, the following message is displayed:

```
Boot ROMs do not support NVRAM compression Config NOT written to NVRAM
```

Loading the Configuration Commands from the Network

You can also store large configurations on FTP or TFTP servers and download them at system startup. To use a network server to store large configura tions, see the "Copying a Configuration File from the Router to a TFTP Server" and "Configure the Router to Download Configuration Files" sections for more information on these commands.

Control of the Parser Cache

The Cisco IOS command-line parser in the Cisco IOS software performs the translation and execution (parsing) of command lines. The Parser Cache feature was developed to rapidly process large configuration files, thereby dramatically improving load time.

The Parser Cache feature allows the rapid recognition and translation of configuration lines in a configuration file that differ slightly from previously used configuration lines (for example, pvc 0/100, pvc 0/101, and so on) by dynamically creating, caching, and reusing simplified parse graphs. This improvement is useful primarily for configuration files that repeat similar commands hundreds or thousands of times, such as cases in which thousands of virtual circuits must be configured for subinterfaces, or hundreds of access lists must be configured. Performance will improve the most for those files in which the same commands are used repeatedly but the numerical arguments change from command to command.

The Parser Cache is enabled by default on all platforms using Cisco IOS Release 12.1(5)T and later releases. However, users with Cisco devices that do not require large configuration files may want to disable the Parser Cache to free the resources used by this feature. (Memory used by this feature depends on the size of the configuration files parsed, but is generally less than 512 KB.)

There are several ways to control the parser cache (these are all optional):

- Clearing the Parser Cache--To free resources or to reset the parser cache memory, you may wish to clear the parse entries and hit/miss statistics stored by the Parser Cache feature
- Disabling the Parser Cache--The Parser Cache feature is enabled by default. To disable the Parser Cache feature, use the no parser cache command in global configuration mode. When the parser cache is disabled, the **noparsercache** command line is written to the running configuration file. If you wish to disable the parser cache to free system resources, you should clear the parser cache before issuing the **noparsercache** command. You will not be able to clear the parser cache after disabling it.
- Reenabling the Parser Cache--To reenable the Parser Cache feature after disabling it, use the **parsercache** command in global configuration mode
- Monitoring the Parser--Statistics about the last configuration file parsed are kept in the system memory, along with hit/miss statistics on the commands parsed by the Parser Cache feature. “Hits” and “misses” refer to the matches that the parser cache was able to make to similar commands used previously in the configuration session. Those commands that are matched (“hits”) be parsed more efficiently. The parser cache cannot improve the parse time for those commands it was unable to match (“misses”).

Configure the Router to Download Configuration Files

You can configure the router to load one or two configuration files at system startup. The configuration files are loaded into memory and read in as if you were typing the commands at the command line. Thus, the configuration for the router will be a mixture of the original startup configuration and the one or two downloaded configuration files.

Network Versus Host Configuration Files

For historical reasons, the first file the router downloads is called the network configuration file. The second file the router downloads is called the host configuration file. Two configuration files can be used when all of the routers on a network use many of the same commands. The network configuration file contains the standard commands used to configure all of the routers. The host configuration files contain the commands specific to one particular host. If you are loading two configuration files, the host configuration file should be the configuration file you want to have precedence over the other file. Both the network and host configuration files must reside on a network server reachable via TFTP, rcp, or FTP, and must be readable.

How to Manage Configuration File Information

Displaying Configuration File Information

To display information about configuration files, complete the tasks in this section:

SUMMARY STEPS

1. **enable**
2. **show boot**
3. **more** *file-url*
4. **show running-config**
5. **show startup-config**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**show boot** **Example:** `Device# show boot`	Lists the contents of the BOOT environment variable, the name of the configuration file pointed to by the CONFIG_FILE environment variable, and the contents of the BOOTLDR environment variable.
Step 3	**more** *file-url* **Example:** `Device# more 10.1.1.1`	Displays the contents of a specified file.
Step 4	**show running-config** **Example:** `Device# show running-config`	Displays the contents of the running configuration file. (Command alias for the **more system:running-config** command.)
Step 5	**show startup-config** **Example:** `Device# show startup-config`	Displays the contents of the startup configuration file. (Command alias for the **more nvram:startup-config** command.) On all platforms except the Class A Flash file system platforms, the default startup-config file usually is stored in NVRAM. On the Class A Flash file system platforms, the CONFIG_FILE environment variable points to the default startup-config file. The CONFIG_FILE variable defaults to NVRAM.

Modifying the Configuration File at the CLI

The Cisco IOS software accepts one configuration command per line. You can enter as many configuration commands as you want. You can add comments to a configuration file describing the commands you have entered. Precede a comment with an exclamation point (!). Because comments are *not* stored in NVRAM or in the active copy of the configuration file, comments do not appear when you list the active configuration with the**show running-config or more system:running-config** EXEC command. Comments do not display when you list the startup configuration with the **showstartup-config** or **more nvram:startup-config** EXEC mode command. Comments are stripped out of the configuration file when it is loaded onto the router. However, you can list the comments in configuration files stored on a File Transfer Protocol (FTP), remote copy protocol (rcp), or Trivial File Transfer Protocol (TFTP) server. When you configure the software using the CLI, the software executes the commands as you enter them. To configure the software using the CLI, use the following commands beginning in privileged EXEC mode:

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. Do one of the following:
   - **end**
   - **^Z**
4. **copy system:running-config nvram:startup-config**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode. Enter the necessary configuration commands. The Cisco IOS documentation set describes configuration commands organized by technology.
Step 3	Do one of the following: • **end** • **^Z** **Example:** `Device(config)# end`	Ends the configuration session and exits to EXEC mode. **Note** When you press the Ctrl and Z keys simultaneously, ^Z is displayed to the screen.
Step 4	**copy system:running-config nvram:startup-config** **Example:** `Device# copy system:running-config nvram:startup-config`	Saves the running configuration file as the startup configuration file. You may also use the **copy running-config startup-config** command alias, but you should be aware that this command is less precise. On most platforms, this command saves the configuration to NVRAM. On the Class A Flash file system platforms, this step saves the configuration to the location specified by the CONFIG_FILE environment variable (the default CONFIG_FILE variable specifies that the file should be saved to NVRAM).

Examples

In the following example, the Device prompt name of the Device is configured. The comment line, indicated by the exclamation mark (!), does not execute any command. The **hostname** command is

used to change the Device name from Device to new_name. By pressing Ctrl-Z (^Z) or entering the **end**command, the user quits configuration mode. The **copy system:running-config nvram:startup-config** command saves the current configuration to the startup configuration.

```
Device# configure terminal
Device(config)# !The following command provides the Device host name.
Device(config)# hostname new_name
new_name(config)# end
new_name# copy system:running-config nvram:startup-config
```

When the startup configuration is NVRAM, it stores the current configuration information in text format as configuration commands, recording only nondefault settings. The memory is checksummed to guard against corrupted data.

Note Some specific commands might not get saved to NVRAM. You will need to enter these commands again if you reboot the machine. These commands are noted in the documentation. We recommend that you keep a list of these settings so that you can quickly reconfigure your Device after rebooting.

Copying a Configuration File from the Router to a TFTP Server

To copy configuration information on a TFTP network server, complete the tasks in this section:

SUMMARY STEPS

1. **enable**
2. **copy system:running-config tftp:** [[[*//location*]*/directory*]*/filename*]
3. **copy nvram:startup-config tftp:** [[[*//location*]*/directory*]*/filename*]

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**copy system:running-config tftp:** [[[*//location*]*/directory*]*/filename*] **Example:** `Device# copy system:running-config tftp: //server1/topdir/file10`	Copies the running configuration file to a TFTP server.
Step 3	**copy nvram:startup-config tftp:** [[[*//location*]*/directory*]*/filename*]	Copies the startup configuration file to a TFTP server.

	Command or Action	Purpose
	Example: `Device# copy nvram:startup-config tftp: //server1/1stdir/file10`	

Examples

The following example copies a configuration file from a Device to a TFTP server:

```
Tokyo# copy system:running-config tftp://172.16.2.155/tokyo-confg
Write file tokyo-confg on host 172.16.2.155? [confirm] y
Writing tokyo-confg!!! [OK]
```

What to Do Next

After you have issued the **copy** command, you may be prompted for additional information or for confirmation of the action. The prompting will depend on how much information you provide in the **copy** command and the current setting of the **fileprompt** global configuration command.

Copying a Configuration File from the Router to the FTP Server

To copy a startup configuration file or a running configuration file from the router to an FTP server, complete the following tasks:

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ip ftp username** *username*
4. **ip ftp password** *password*
5. **end**
6. Do one of the following:
   - **copy system:running-config ftp:** [[[//[*username* [**:***password*]**@**]*location*/*directory*]/*filename*]
   -
   -
   - **copy nvram:sta rtup-config ftp:** [[[//[*username* [**:***password*]**@**]*location*/*directory*]/*filename*]

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:**	Enables privileged EXEC mode. • Enter your password if prompted.

	Command or Action	Purpose
	`Device> enable`	
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**ip ftp username** *username* **Example:** `Device(config)# ip ftp username user1`	(Optional) Specifies the default remote username.
Step 4	**ip ftp password** *password* **Example:** `Device(config)# ip ftp username guessme`	(Optional) Specifies the default password.
Step 5	**end** **Example:** `Device(config)# end`	(Optional) Exits global configuration mode. This step is required only if you override the default remote username or password (see Steps 2 and 3).
Step 6	Do one of the following: • **copy system:running-config ftp:** [[[//[*username* [**:***password*]**@**]*location/directory*]/*filename*] • • • **copy nvram:sta rtup-config ftp:** [[[//[*username* [**:***password*]**@**]*location/directory*]/*filename*] **Example:** `Device# copy system:running-config ftp: //user1:guessme@company.com /dir10/file1`	Copies the running configuration or startup configuration file to an FTP server.

Examples

Storing a Running Configuration File on an FTP Server

The following example copies the running configuration file named rtr2-confg to the netadmin1 directory on the remote host with an IP address of 172.16.101.101:

```
Device# copy system:running-config ftp://netadmin1:mypass@172.16.101.101/Rtr2-confg
Write file rtr2-confg on host 172.16.101.101?[confirm]
Building configuration...[OK]
Connected to 172.16.101.101
Device#
```

Storing a Startup Configuration File on an FTP Server

The following example shows how to store a startup configuration file on a server by using FTP to copy the file:

```
Rtr2# configure terminal

Rtr2(config)# ip ftp username netadmin2

Rtr2(config)# ip ftp password mypass

Rtr2(config)# end

Rtr2# copy nvram:startup-config ftp:

Remote host[]? 172.16.101.101

Name of configuration file to write [rtr2-confg]?
Write file rtr2-confg on host 172.16.101.101?[confirm]
![OK]
```

What to Do Next

After you have issued the **copy** EXEC command, you may be prompted for additional information or for confirmation of the action. The prompting will depend on how much information you provide in the **copy** command and the current setting of the **fileprompt** global configuration command.

Copying a Configuration File from a TFTP Server to the Router

To copy a configuration file from a TFTP server to the Device, complete the tasks in this section:

SUMMARY STEPS

1. **enable**
2. **copy tftp:** [[[*//location*]*/directory*]*/filename*] **system:running-config**
3. **copy tftp:** [[[*//location*]*/directory*]*/filename*] **nvram:startup-config**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**copy tftp:** [[[*//location*]*/directory*]*/filename*] **system:running-config** **Example:**	Copies a configuration file from a TFTP server to the running configuration.

	Command or Action	Purpose
	`Device# copy tftp://server1/dir10/datasource system:running-config`	
Step 3	**copy tftp:** [[[*//location*]*/directory*]*/filename*] **nvram:startup-config** **Example:** `Device# copy tftp://server1/dir10/datasource nvram:startup-config`	Copies a configuration file from a TFTP server to the startup configuration.

Examples

In the following example, the software is configured from the file named tokyo-config at IP address 172.16.2.155:

```
Device1# copy tftp://172.16.2.155/tokyo-confg system:running-config

Configure using tokyo-confg from 172.16.2.155? [confirm] y

Booting tokyo-confg from 172.16.2.155:!!! [OK - 874/16000 bytes]
```

What to Do Next

After you have issued the **copy** EXEC command, you may be prompted for additional information or for confirmation of the action. The prompting will depend on how much information you provide in the **copy** command and the current setting of the **fileprompt** global configuration command.

Copying a Configuration File from an FTP Server to the Router

To copy a configuration file from an F TP server to the running configuration or startup configuration, complete the tasks in this section:

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ip ftp username** *username*
4. **ip ftp password** *password*
5. **end**
6. **copy ftp:** [[[*//*[*username* [**:***password*]**@**]*location*]*/directory*]*/filename*]**system:running-config**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	(Optional) Allows you to enter global configuration mode. This step is required only if you want to override the default remote username or password (see Steps 2 and 3).
Step 3	**ip ftp username** *username* **Example:** `Device(config)# ip ftp username user1`	(Optional) Specifies the default remote username.
Step 4	**ip ftp password** *password* **Example:** `Device(config)# ip ftp password guessme`	(Optional) Specifies the default password.
Step 5	**end** **Example:** `Device(config)# end`	(Optional) Exits global configuration mode. This step is required only if you override the default remote username or password (see Steps 2 and 3).

Step 6	**copy ftp:** [[[//[*username* [**:***password*]**@**]*location*]*/directory*]*/filename*]**system:running-config**
	Example:
	Example:
	`or`
	Example:
	copy ftp:[[[**//**[*username*
	[**:***password*
	]**@**]*location***/***directory*
	]**/***filename*
	] **nvram:startup-config**
	Example:
	`Device# copy ftp://user1:guessme@company.com /dir10/datasource nvram:startup-config`
		Using FTP, copies the configuration file from a network server to running memory or the startup configuration.

Examples

Copy FTP Running-Config

The following example copies a host configuration file named host1-confg from the netadmin1 directory on the remote server with an IP address of 172.16.101.101, and loads and runs those commands on the Device:

```
Device# copy rcp://netadmin1:mypass@172.16.101.101/host1-confg system:running-config

Configure using host1-confg from 172.16.101.101? [confirm]
Connected to 172.16.101.101
Loading 1112 byte file host1-confg:![OK]
Device#
%SYS-5-CONFIG: Configured from host1-config by ftp from 172.16.101.101
```

Copy FTP Startup-Config

The following example specifies a remote username of netadmin1. Then it copies the configuration file named host2-confg from the netadmin1 directory on the remote server with an IP address of 172.16.101.101 to the startup configuration.

```
Rtr2# configure terminal
Rtr2(config)# ip ftp username
 netadmin1
Rtr2(config)# ip ftp password
 mypass
Rtr2(config)# end
Rtr2# copy ftp: nvram:startup-config
Address of remote host [255.255.255.255]? 172.16.101.101
Name of configuration file[rtr2-confg]? host2-confg
Configure using host2-confg from 172.16.101.101?[confirm]
Connected to 172.16.101.101
Loading 1112 byte file host2-confg:![OK]
[OK]
Rtr2#
%SYS-5-CONFIG_NV:Non-volatile store configured from host2-config by ftp from 172.16.101.101
```

What to Do Next

After you have issued the **copy** EXEC command, you may be prompted for additional information or for confirmation of the action. The prompting will depend on how much information you provide in the **copy** command and the current setting of the **fileprompt** global configuration command.

Maintaining Configuration Files Larger than NVRAM

To maintain a configuration file that exceeds size of NVRAM, perform the tasks described in the following sections:

Compressing the Configuration File

To compress configuration files, complete the tasks in this section:

SUMMARY STEPS

1. **enable**

2. **configure terminal**
3. **service compress-config**
4. **end**
5. Do one of the following:
   - Use FTP, rcp, or TFTP to copy the new configuration.
   - **configure terminal**
6. **copy system:running-config nvram:startup-config**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**service compress-config** **Example:** `Device(config)# service compress-config`	Specifies that the configuration file be compressed.
Step 4	**end** **Example:** `Device(config)# end`	Exits global configuration mode.
Step 5	Do one of the following: • Use FTP, rcp, or TFTP to copy the new configuration. • **configure terminal** **Example:** `Device# configure terminal`	Enters the new configuration: • If you try to load a configuration that is more than three times larger than the NVRAM size, the following error message is displayed: "[buffer overflow - *file-size* /*buffer-size* bytes]."
Step 6	**copy system:running-config nvram:startup-config** **Example:** `Device(config)# copy system:running-config nvram:startup-config`	When you have finished changing the running-configuration, saves the new configuration.

Examples

The following example compresses a 129-KB configuration file to 11 KB:

```
Device# configure terminal

Device(config)# service compress-config

Device(config)# end

Device# copy tftp://172.16.2.15/tokyo-confg system:running-config

Configure using tokyo-confg from 172.16.2.155? [confirm] y

Booting tokyo-confg from 172.16.2.155:!!! [OK - 874/16000 bytes]
Device# copy system:running-config nvram:startup-config

Building configuration...
Compressing configuration from 129648 bytes to 11077 bytes
[OK]
```

Managing the Parser Cache

To control the Parser Cache feature, perform the tasks described in the following sections. All of these tasks are optional:

Clearing the Parser Cache

To clear the information stored by the Parser Cache feature, complete the task in this section:

SUMMARY STEPS

1. **enable**
2. **clear parser cache**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**clear parser cache** **Example:** `Device# clear parser cache`	Clears the parse cache entries and hit/miss statistics stored for the Parser Cache feature.

Disabling the Parser Cache

The Parser Cache feature is enabled by default. To disable the Parser Cache feature, complete the task in this section:

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **no parser cache**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**no parser cache** **Example:** `Device(config)# no parser cache`	Disables the Parser Cache feature: • When the parser cache is disabled, the **noparsercache** command line is written to the running configuration file. • If you wish to disable the parser cache to free system resources, you should clear the parser cache before issuing the **noparsercache** command. You will not be able to clear the parser cache after disabling it.

Reenabling the Parser Cache

To reenable the Parser Cache feature after disabling it, complete the task in this section:

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **parser cache**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**parser cache** **Example:** `Device(config)# parser cache`	Enables the Parser Cache feature.

What to Do Next

The**showparserstatistics** command displays two sets of data, as follows:

- The number of commands in the configuration file that was last copied into the running configuration, and the time it took for the system to parse them (a configuration file can be loaded into the running configuration at system startup, or by issuing commands such as the **copy***source***running-config** EXEC command).
- The status of the parser cache (enabled or disabled) and the number of command matches (hits or misses) since the system was started or since the parser cache was cleared.

Copying Configuration Files from Flash Memory to the Startup or Running Configuration

To copy a configuration file from Flash memory directly to your startup configuration in NVRAM or your running configuration, enter one of the commands in Step 2:

SUMMARY STEPS

1. **enable**
2. Do one of the following:
   - **copy** *filesystem* **:** [*partition-number***:**][*filename*] **nvram:startup-config**
   - **copy** *filesystem* **:** [*partition-number***:**][*filename*] **system:running-config**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	Do one of the following: • **copy** *filesystem* **:** [*partition-number***:**][*filename*] **nvram:startup-config** • **copy** *filesystem* **:** [*partition-number***:**][*filename*] **system:running-config** **Example:** `Device# copy slot0:4:ios-upgrade-1 nvram:startup-config`	Loads a configuration file directly into NVRAM. or Copies a configuration file to your running configuration.

Examples

The following example copies the file named ios-upgrade-1 from partition 4 of the Flash memory PC Card in slot 0 to the router startup configurations:

```
Device# copy slot0:4:ios-upgrade-1 nvram:startup-config

Copy '
ios-upgrade-1
' from flash device
  as 'startup-config' ? [yes/no] yes

[OK]
```

Copying a Configuration File from an FTP Server to Flash Memory Devices

To copy a configuration file from an FTP server to a Flash memory device, complete the task in this section:

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ip ftp username** *username*
4. **ip ftp password** *password*
5. **end**
6. **copy ftp:** [[[//[*username***:***password***@**]*location*]/*directory*]/*filename*] *flash-filesystem***:**[*partition-number***:**][*filename*]

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	(Optional) Enters global configuration mode. This step is required only if you override the default remote username or password (see Steps 3 and 4).
Step 3	**ip ftp username** *username* **Example:** `Device(config)# ip ftp username user1`	(Optional) Specifies the remote username.
Step 4	**ip ftp password** *password* **Example:** `Device(config)# ip ftp password guessme`	(Optional) Specifies the remote password.
Step 5	**end** **Example:** `Device(config)# end`	(Optional) Exits configuration mode. This step is required only if you override the default remote username (see Steps 3 and 4).
Step 6	**copy ftp:** [[[//[*username*:*password*@]*location*]/*directory*]/*filename*] *flash-filesystem*:[*partition-number*:][*filename*] **Example:** `Device> copy ftp:router-config slot0:new-config`	Copies the configuration file from a network server to the Flash memory device using FTP.

What to Do Next

After you have issued the **copy** EXEC command, you may be prompted for additional information or for confirmation of the action. The prompting will depend on how much information you provide in the **copy** command and the current setting of the **fileprompt** global configuration command.

Copying a Configuration File from an rcp Server to Flash Memory Devices

To copy a configuration file from an rcp server to a Flash memory device, complete the tasks in this section:

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ip rcmd remote-username** *username*
4. **end**
5. **copy rcp:** [[[//[*username***@**]*location*]/*directory*]/*filename*] *flash-filesystem***:**[*partition-number***:**][*filename*]

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	(Optional) Enters global configuration mode.This step is required only if you override the default remote username or password (see Steps 3 and 4).
Step 3	**ip rcmd remote-username** *username* **Example:** `Device(config)# ip rcmd remote-username user1`	(Optional) Specifies the remote username.
Step 4	**end** **Example:** `Device(config)# end`	(Optional) Exits configuration mode.This step is required only if you override the default remote username or password (see Steps 3 and 4).
Step 5	**copy rcp:** [[[//[*username***@**]*location*]/*directory*]/*filename*] *flash-filesystem***:**[*partition-number***:**][*filename*] **Example:** `Device# copy rcp:router-config slot0:new-config`	Copies the configuration file from a network server to the Flash memory device using rcp. Reply to any router prompts for additional information or confirmation. The prompting will depending on how much information you provide in the **copy** command and the current setting of the **fileprompt** command.

Copying a Configuration File from a TFTP Server to Flash Memory Devices

To copy a configuration file from a TFTP server to a Flash memory device, complete the task in this section:

SUMMARY STEPS

1. **enable**

2. **copy tftp:** [[[*//location*]*/directory*]*/filename*] *flash-filesystem***:**[*partition-number***:**][*filename*]

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**copy tftp:** [[[*//location*]*/directory*]*/filename*] *flash-filesystem***:**[*partition-number***:**][*filename*] **Example:** `Device# copy tftp:router-config slot0:new-config`	Copies the file from a TFTP server to the Flash memory device. Reply to any Device prompts for additional information or confirmation. The prompting will depending on how much information you provide in the **copy** command and the current setting of the **fileprompt** command.

Examples

The following example shows the copying of the configuration file named Device-config from a TFTP server to the Flash memory card inserted in slot 0 of the Network Processing Engine (NPE) or Route Switch Processor (RSP) card of a Cisco 7500 series Device. The copied file is renamed new-config.

```
Device# copy tftp:router-config slot0:new-config
```

Reexecuting the Configuration Commands in the Startup Configuration File

To reexecute the commands located in the startup configuration file, complete the task in this section:

SUMMARY STEPS

1. **enable**
2. **configure memory**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:**	Enables privileged EXEC mode. • Enter your password if prompted.

	Command or Action	Purpose
	`Device> enable`	
Step 2	**configure memory** **Example:** `Device# configure memory`	Reexecutes the configuration commands located in the startup configuration file .

Clearing the Startup Configuration

You can clear the configuration information from the startup configuration. If you reboot the router with no startup configuration, the router will enter the Setup command facility so that you can configure the router from scratch.To clear the contents of your startup configuration, complete the task in this section:

SUMMARY STEPS

1. **enable**
2. **erase nvram**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**erase nvram** **Example:** `Device# erase nvram`	Clears the contents of your startup configuration. **Note** For all platforms except the Class A Flash file system platforms, this command erases NVRAM. The startup configuration file cannot be restored once it has been deleted. On Class A Flash file system platforms, when you use the **erasestartup-config**EXECcommand, the Device erases or deletes the configuration pointed to by CONFIG_FILE environment variable. If this variable points to NVRAM, the Device erases NVRAM. If the CONFIG_FILE environment variable specifies a Flash memory device and configuration filename, the Device deletes the configuration file. That is, the Device marks the file as “deleted,” rather than erasing it. This feature allows you to recover a deleted file.

Deleting a Specified Configuration File

To delete a specifi ed configuration on a specific Flash device, complete the task in this section:

SUMMARY STEPS

1. **enable**
2. **delete** *flash-filesystem* **:** *filename*

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**delete** *flash-filesystem* **:** *filename* **Example:** `Device# delete slot0:myconfig`	Deletes a specified configuration file on a specified Flash device. **Note** On Class A and B Flash file systems, when you delete a specific file in Flash memory, the system marks the file as deleted, allowing you to later recover a deleted file using the **undelete** EXEC command. Erased files cannot be recovered. To permanently erase the configuration file, use the **squeeze** EXEC command. On Class C Flash file systems, you cannot recover a file that has been deleted. If you attempt to erase or delete the configuration file specified by the CONFIG_FILE environment variable, the system prompts you to confirm the deletion.