



Configuration File Commands

This chapter provides detailed descriptions of the commands used to load and copy configuration files in Cisco IOS Release 12.1. Configuration files contain commands entered to customize the function of the Cisco IOS software.

For configuration information and examples, refer to the “Modifying, Downloading, and Maintaining Configuration Files” chapter in the *Cisco IOS Release 12.1 Configuration Fundamentals Configuration Guide*.

Flash Memory File System Types

Cisco platforms use one of three different Flash memory file system types. Some commands are supported on only one or two file system types. This chapter notes commands that are not supported on all file system types.

See Table 23 to determine which Flash memory file system type your platform uses.

Table 23 Flash Memory File System Types

Type	Platforms
Class A	Cisco 7000 family, C12000, LightStream1010
Class B	Cisco 1003, Cisco 1004, Cisco 1005, Cisco 2500 series, Cisco 3600 series, Cisco 4000 series, Cisco AS5200
Class C	Cisco MC3810, disk0 of SC3640

Replaced Commands

Some commands in this chapter have been replaced by new commands. Older commands continue to provide the same functionality in the current release, but are no longer documented. Support for these commands will cease in a future release.

Table 24 maps the old commands to their replacements.

Table 24 Mapping Old Commands to New Commands

Old Command	New Command
configure network	copy ftp:[[/[username[:password]@]location]/directory]/filename] system:running-config
configure overwrite-network	copy ftp:[[/[username[:password]@]location]/directory]/filename] nvram:startup-config
copy rcp running-config	copy rcp:[[/[username@]location]/directory]/filename] system:running-config
copy running-config rcp	copy system:running-config rcp:[[/[username@]location]/directory]/filename]
copy running-config startup-config	copy system:running-config nvram:startup-config
copy running-config tftp	copy system:running-config tftp:[[/location]/directory]/filename]
copy tftp running-config	copy tftp:[[/location]/directory]/filename] system:running-config
copy tftp startup-config	copy tftp:[[/location]/directory]/filename] nvram:startup-config
erase startup-config	erase nvram:
show configuration	more nvram:startup-config
show file	more
show running-config	more system:running-config
write erase	erase nvram:
write memory	copy system:running-config nvram:startup-config
write network	copy system:running-config ftp:[[/[username[:password]@]location]/directory]/filename]
write terminal	more system:running-config

boot buffersize

The **boot buffersize** global configuration command no longer works.

Executing this command has no effect on the system. Using this command will not generate CLI errors; the **boot buffersize** command syntax is still allowed to be entered at the CLI and in configuration files in order to accommodate existing configuration scripts.

boot config

To specify the device and filename of the configuration file from which the router configures itself during initialization (startup), use the **boot config** global configuration command. This command is only available on Class A file system platforms. Use the **no** form of this command to remove the specification.

boot config *file-url*

no boot config

Syntax Description	<i>file-url</i>	URL of the configuration file. The configuration file must be an ASCII file located in either NVRAM or a Flash file system.
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Defaults	NVRAM (nvram:)
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Command Modes	Global configuration
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Command History	Release	Modification
	11.0	This command was introduced.

Usage Guidelines

This command is only available on Class A file system platforms.

You set the CONFIG_FILE environment variable in the current running memory when you use the **boot config** command. This variable specifies the configuration file used for initialization (startup).



Note

When you use this global configuration command, you affect only the running configuration. You must save the environment variable setting to your startup configuration to place the information under ROM monitor control and to have the environment variable function as expected. Use the **copy system:running-config nvram:startup-config** command to save the environment variable from your running configuration to your startup configuration.

The software displays an error message and does not update the CONFIG_FILE environment variable in the following situations:

- You specify **nvram:** as the file system, and it contains only a distilled version of the configuration. (A distilled configuration is one that does not contain access lists.)
- You specify a configuration file in the *filename* argument that does not exist or is not valid.

The router uses the NVRAM configuration during initialization when the CONFIG_FILE environment variable does not exist or when it is null (such as at first-time startup). If the software detects a problem with NVRAM or the configuration it contains, the device enters **setup** mode. See the “Setup Command” chapter in this publication for more information on the **setup** command facility.

When you use the **no** form of this command, the router returns to using the NVRAM configuration as the startup configuration.

Examples

In the following example, the first line specifies that the router should use the configuration file named `router-config` located in internal Flash memory to configure itself during initialization. The second line copies the specification to the startup configuration, ensuring that this specification will take effect upon the next reload.

```
Router(config)#boot config flash:router-config
Router(config)#end
Router#copy system:running-config nvram:startup-config
```

The following example instructs a Cisco 7500 series router to use the configuration file named `router-config` located on the Flash memory card inserted in the second PCMCIA slot of the RSP card during initialization. The second line copies the specification to the startup configuration, ensuring that this specification will take effect upon the next reload.

```
Router(config)#boot config slot1:router-config
Router(config)#end
Router#copy system:running-config nvram:startup-config
```

Related Commands

Command	Description
<code>show bootvar</code>	Displays the contents of the BOOT environment variable, the name of the configuration file pointed to by the CONFIG_FILE environment variable, the contents of the BOOTLDR environment variable, and the configuration register setting.

boot host

To change the default name of the host configuration filename from which to load configuration commands, use the **boot host** global configuration command. Use the **no** form of this command to restore the host configuration filename to the default.

boot host *remote-url*

no boot host *remote-url*

Syntax Description

<i>remote-url</i>	Configures the router to boot the configuration file specified by the FTP, rcp, or TFTP URL: <ul style="list-style-type: none"> • ftp:<code>[[[//[username[:password]@]location]/directory]/filename]</code> • rcp:<code>[[[//[username@]location]/directory]/filename]</code> • tftp:<code>[[[//location]/directory]/filename]</code>
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Defaults

The router uses its host name to form a host configuration filename. To form this name, the router converts its name to all lowercase letters, removes all domain information, and appends *-confg*.

Command Modes

Global configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

Use the **service config** command to enable the loading of the specified configuration file at reboot time. Without this command, the router ignores the **boot host** command and uses the configuration information in NVRAM. If the configuration information in NVRAM is invalid or missing, the **service config** command is enabled automatically.

The network server will attempt to load two configuration files from remote hosts. The first is the network configuration file containing commands that apply to all network servers on a network. Use the **boot network** command to identify the network configuration file. The second is the host configuration file containing commands that apply to one network server in particular. Use the **boot host** command to identify the host configuration file.

Loading a Configuration File Using rcp

The rcp software requires that a client send the remote username on each rcp request to the network server. If the server has a directory structure (such as UNIX systems), the rcp implementation searches for the configuration files starting in the directory associated with the remote username.

When you load a configuration file from a server using `rcp`, the Cisco IOS software sends the first valid username in the following list:

1. The username specified in the file-URL, if a username is specified.
2. The username set by the `ip rcmd remote-username` command, if the command is configured.
3. The router host name.

**Note**

An account for the username must be defined on the destination server. If the network administrator of the destination server did not establish an account for the username, this command will not execute successfully.

Load a Configuration File Using FTP

The FTP protocol requires a client to send a remote username and password on each FTP request to a server. The username and password must be associated with an account on the FTP server. If the server has a directory structure, the configuration file or image copied from the directory associated with the username on the server. Refer to the documentation for your FTP server for more details.

When you load a configuration file from a server using FTP, the Cisco IOS software sends the first valid username in the following list:

1. The username specified in the `boot host` command, if a username is specified.
2. The username set by the `ip ftp username` command, if the command is configured.
3. Anonymous.

The router send the first valid password in the following list:

1. The password specified in the `boot host` 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.

Examples

The following example sets the host filename to `wilma-config` at address `192.168.7.19`:

```
Router(config)#boot host tftp://192.168.7.19/usr/local/tftpdire/wilma-config
Router(config)#service config
```

Related Commands

Command	Description
<code>boot network</code>	Changes the default name of the network configuration file from which to load configuration commands.
<code>service config</code>	Enables autoloading of configuration files from a network server, use the <code>service config</code> global configuration command.

boot network

To change the default name of the network configuration file from which to load configuration commands, use the **boot network** global configuration command. Use the **no** form of this command to restore the network configuration filename to the default.

boot network *remote-url*

no boot network *remote-url*

Syntax Description

remote-url

Configures the router to boot the configuration file specified by the FTP, rcp, or TFTP URL:

- **ftp**:[[[//[*username*[:*password*]@]*location*]/*directory*]/*filename*]
- **rcp**:[[[//[*username*@]*location*]/*directory*]/*filename*]
- **tftp**:[[[//[*location*]/*directory*]/*filename*]

Defaults

The default filename is network-config.

Command Modes

Global configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

When booting from a network server, routers ignore routing information, static IP routes, and bridging information. As a result, intermediate routers are responsible for handling FTP, rcp, or TFTP requests. Before booting from a network server, verify that a server is available by using the **ping** command.

Use the **service config** command to enable the loading of the specified configuration file at reboot time. Without this command, the router ignores the **boot network** command and uses the configuration information in NVRAM. If the configuration information in NVRAM is invalid or missing, the **service config** command is enabled automatically.

The network server will attempt to load two configuration files from remote hosts. The first is the network configuration file containing commands that apply to all network servers on a network. Use the **boot network** command to identify the network configuration file. The second is the host configuration file containing commands that apply to one network server in particular. Use the **boot host** command to identify the host configuration file.

Loading a Configuration File Using rcp

The rcp software requires that a client send the remote username on each rcp request to the network server. If the server has a directory structure (such as UNIX systems), the rcp implementation searches for the configuration files starting in the directory associated with the remote username.

When you load a configuration file from a server using rcp, the Cisco IOS software sends the first valid username in the following list:

1. The username specified in the file-URL, if a username is specified.
2. The username set by the **ip rcmd remote-username** command, if the command is configured.
3. The router host name.

**Note**

An account for the username must be defined on the destination server. If the network administrator of the destination server did not establish an account for the username, this command will not execute successfully.

Load a Configuration File Using FTP

The FTP protocol requires a client to send a remote username and password on each FTP request to a server. The username and password must be associated with an account on the FTP server. If the server has a directory structure, the configuration file or image copied from the directory associated with the username on the server. Refer to the documentation for your FTP server for more details.

When you load a configuration file from a server using FTP, the Cisco IOS software sends the first valid username in the following list:

1. The username specified in the **boot network** command, if a username is specified.
2. The username set by the **ip ftp username** command, if the command is configured.
3. Anonymous.

The router send the first valid password in the following list:

1. The password specified in the **boot network** 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.

Examples

The following example changes the network configuration filename to bridge_9.1 and uses the default broadcast address:

```
boot network tftp:bridge_9.1
service config
```

The following example changes the network configuration filename to bridge_9.1, specifies that rcp is to be used as the transport mechanism, and gives 172.16.1.111 as the IP address of the server on which the network configuration file resides:

```
boot network rcp://172.16.1.111/bridge_9.1
service config
```

Related Commands

Command	Description
boot host	Changes the default name of the host configuration filename from which to load configuration commands.
service config	Enables autoloading of configuration files from a network server, use the service config global configuration command.

configure

To enter global configuration mode, use the **configure** privileged EXEC command. You must be in global configuration mode to enter global configuration commands.

configure { **terminal** | **memory** }

Syntax Description

terminal	Executes configuration commands from the terminal.
memory	For all platforms except Class A Flash file system platforms, executes the commands stored in NVRAM. For the Class A Flash file system platforms, executes the configuration specified by the CONFIG_FILE environment variable.

Command Modes

Privileged EXEC

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

If you do not specify the **terminal** or **memory** keyword, the Cisco IOS software prompts you for the source of configuration commands. If you specify the **terminal** keyword, the software executes the commands you enter at the system prompts.

On all platforms except Class A Flash file system platforms, if you specify the **memory** keyword, the software executes the commands located in NVRAM.

On Class A Flash file system platforms, if you specify the **memory** keyword, the router executes the commands pointed to by the CONFIG_FILE environment variable. The CONFIG_FILE environment variable specifies the location of the configuration file that the router uses to configure itself during initialization. The file can be located in NVRAM or any of the Flash file systems supported by the platform.

When the CONFIG_FILE environment variable specifies NVRAM, the router executes the NVRAM configuration only if it is an entire configuration, not a distilled version. A distilled configuration is one that does not contain access lists.

To view the contents of the CONFIG_FILE environment variable, use the **show bootvar** command. To modify the CONFIG_FILE environment variable, use the **boot config** command and then save your changes by issuing the **copy system:running-config nvram:startup-config** command.

After you enter the **configure** command, the system prompt changes from <router-name># to <router-name>(config)#, indicating that the router is in global configuration mode. To leave global configuration mode and return to the privileged EXEC prompt, type **end** or press **Ctrl-Z**.

Examples

In the following example, a router is configured from the terminal:

```
Router# configure

Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
```

In the following example, Class A Flash file system router executes the commands pointed to by the CONFIG_FILE environment variable:

```
configure memory
```

Related Commands

Command	Description
boot config	Specifies the device and filename of the configuration file from which the router configures itself during initialization (startup). This command is only available on Class A file system platforms.
copy system:running-config nvram:startup-config	Replaces the write memory command.
partition system:running-config	Separates Flash memory into partitions on Class B file system platforms.
partition nvram:startup-config	
show bootvar	Displays the contents of the BOOT environment variable, the name of the configuration file pointed to by the CONFIG_FILE environment variable, the contents of the BOOTLDR environment variable, and the configuration register setting.

configure overwrite-network

The **copy** *{ftp-url | rcp-url | tftp-url}* **nvrn:startup-config** command replaces the **configure overwrite-network** command. See the **copy** command in the “Router Memory Commands” chapter for more information.

service compress-config

To compress startup configuration files, use the **service compress-config** global configuration command. To disable compression, use the **no** form of this command.

service compress-config

no service compress-config

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes Global configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines After you configure the **service compress-config** command, the router will compress configuration files every time you save a configuration to the startup configuration. For example, when you enter the **copy system:running-config nvram:startup-config** command, the running configuration will be compressed before storage in NVRAM.

If the file compression completes successfully, the following message is displayed:

```
Compressing configuration from configuration-size to compressed-size
[OK]
```

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
```

If the file compression fails, the following message is displayed:

```
Error trying to compress nvram
```

One way to determine whether a configuration file will compress enough to fit into NVRAM is to use a text editor to enter the configuration, then use the UNIX **compress** command to check the compressed size. To get a closer approximation of the compression ratio, use the UNIX **compress -b12** command.

Once the configuration file has been compressed, the router functions normally. At boot time, the system recognizes that the configuration file is compressed, uncompresses it, and proceeds normally. A **partition nvram:startup-config** command uncompresses the configuration before displaying it.

To disable compression of the configuration file, enter configuration mode and specify the **no service compress-config** command. Then, exit global configuration mode and enter the **copy system:running-config nvram:startup-config** command. The router displays an OK message if it is

able to successfully write the uncompressed configuration to NVRAM. Otherwise, the router displays an error message indicating that the configuration is too large to store. If the configuration file is larger than the physical NVRAM, the following message is displayed:

```
##Configuration too large to fit uncompressed in NVRAM Truncate configuration? [confirm]
```

When the file is truncated, commands at the end of the file are erased. Therefore, you will lose part of your configuration. To truncate and save the configuration, type **Y**. To not truncate and not save the configuration, type **N**.

Examples

In the following example, the configuration file is compressed:

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# service compress-config
Router(config)# end
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router# copy system:running-config nvram:startup-config
Building configuration...
Compressing configuration from 1179 bytes to 674 bytes
[OK]
```

Related Commands

Command	Description
partition	Separates Flash memory into partitions on Class B file system platforms.
nvram:startup-config	

service config

To enable autoloading of configuration files from a network server, use the **service config** global configuration command. Use the **no** form of this command to restore the default.

service config

no service config

Syntax Description This command has no arguments or keywords.

Defaults Disabled, except on systems without NVRAM or with invalid or incomplete information in NVRAM. In these cases, autoloading of configuration files from a network server is enabled automatically.

Command Modes Global configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Usually, the **service config** command is used in conjunction with the **boot host** or **boot network** command. You must enter the **service config** command to enable the router to automatically configure the system from the file specified by the **boot host** or **boot network** command.

The **service config** command can also be used without the **boot host** or **boot network** command. If you do not specify host or network configuration filenames, the router uses the default configuration files. The default network configuration file is network-config. The default host configuration file is host-config, where host is the host name of the router. If the Cisco IOS software cannot resolve its host name, the default host configuration file is router-config.

Examples In the following example, a router is configured to autoloading the default network and host configuration files. Because no **boot host** or **boot network** commands are specified, the router uses the broadcast address to request the files from a TFTP server.

```
service config
```

The following example changes the network configuration filename to bridge_9.1, specifies that rcp is to be used as the transport mechanism, and gives 172.16.1.111 as the IP address of the server on which the network configuration file resides:

```
boot network rcp://172.16.1.111/bridge_9.1
service config
```

Related Commands

Command	Description
boot host	Changes the default name of the host configuration filename from which to load configuration commands.
boot network	Changes the default name of the network configuration file from which to load configuration commands.

show derived-config

To display the composite results of all the configuration commands that apply to an interface, including commands that come from sources such as static templates, dynamic templates, dialer interfaces, and authentication, authorization, and accounting (AAA) per-user attributes, use the **show derived-config** command in privileged EXEC mode.

```
show derived-config [interface type number]
```

Syntax Description

interface *type number* (Optional) Displays the derived configuration for a specific interface. If you use the **interface** keyword, you must specify the interface type and the interface number (for example, interface ethernet 0).

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1	This command was introduced.

Usage Guidelines

Configuration commands can be applied to an interface from sources such as static templates, dynamic templates bound by resource pooling, dialer interfaces, AAA per-user attributes and the configuration of the physical interface. The **show derived-config** command displays all the commands that apply to an interface.

The output for the **show derived-config** command is nearly identical to that of the **show running-config** command. It differs when the configuration for an interface is derived from a template, a dialer interface, or some per-user configuration. In those cases, the commands derived from the template, dialer interface, and so on, will be displayed for the affected interface.

If the same command is configured differently in two different sources that apply to the same interface, the command coming from the source that has the highest precedence will appear in the display.

Examples

The following examples show sample output for the **show running-config** and **show derived-config** commands for serial interface 0:23 and dialer interface 0. The output of the **show running-config** and **show derived-config** commands is the same for dialer interface 0 because none of the commands that apply to that interface are derived from any sources other than the configuration of the dialer interface. The output for the **show running-config** and **show derived-config** commands for serial interface 0:23 differs because some of the commands that apply to serial interface 0:23 come from dialer interface 0.

```
Router# show running-config interface Serial0:23

Building configuration...

Current configuration :296 bytes
!
interface Serial0:23
 description PRI to ADTRAN (#4444150)
 ip unnumbered Loopback0
 encapsulation ppp
```

■ show derived-config

```
dialer rotary-group 0
isdn switch-type primary-dms100
isdn incoming-voice modem
isdn calling-number 4444150
peer default ip address pool old_pool
end
```

Router# **show running-config interface Dialer0**

Building configuration...

```
Current configuration :257 bytes
!
interface Dialer0
  description Dialin Users
  ip unnumbered Loopback0
  no ip proxy-arp
  encapsulation ppp
  dialer in-band
  dialer idle-timeout 30
  dialer-group 1
  peer default ip address pool new_pool
  ppp authentication pap chap callin
end
```

Router# **show derived-config interface Serial0:23**

Building configuration...

```
Derived configuration :332 bytes
!
interface Serial0:23
  description PRI to ADTRAN (#4444150)
  ip unnumbered Loopback0
  encapsulation ppp
  dialer rotary-group 0
  isdn switch-type primary-dms100
  isdn incoming-voice modem
  isdn calling-number 4444150
  peer default ip address pool new_pool
  ppp authentication pap chap callin
end
```

Router# **show derived-config interface Dialer0**

Building configuration...

```
Derived configuration :257 bytes
!
interface Dialer0
  description Dialin Users
  ip unnumbered Loopback0
  no ip proxy-arp
  encapsulation ppp
  dialer in-band
  dialer idle-timeout 30
  dialer-group 1
  peer default ip address pool new_pool
  ppp authentication pap chap callin
end
```

Related Commands	Command	Description
	show running-config	Displays the contents of the currently running configuration file or the configuration for a specific interface.

show file

The **more** command replaces the **show file** command. See the description of the **more** command for more information.

show running-config

To display the configuration information currently running on the router, the configuration for a specific interface, or map class information, use the **show running-config** EXEC command.

show running-config [interface | map-class]

Syntax Description

interface	Displays interface specific configuration information.
map-class	Displays dialer or Frame Relay map class information.

Defaults

The **show running-config** command without any arguments or keywords displays all of the configuration information for the terminal.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.0	This command was introduced.

Usage Guidelines

The **show running-config interface** command is useful when there are multiple interfaces and you want to look at the configuration of a specific interface. The **show running-config map-class** command is useful to display dialer or Frame Relay map class information.

Examples

The following example shows the configuration for serial interface 1:

```
router#show running-config interface serial 1
Building configuration...
```

```
Current configuration:
!
interface Serial1
 no ip address
 no ip directed-broadcast
 no ip route-cache
 no ip mroute-cache
 shutdown
end
```

Related Commands

Command	Description
boot config	Specifies the device and filename of the configuration file from which the router configures itself during initialization (startup).
configure	Enters global configuration mode.
copy running-config	Copies the running configuration to the startup configuration.

Command	Description
copy startup-config	Copies the startup configuration file (specified by the CONFIG_FILE environment variable) to a Flash memory card.
show startup-config	Displays the contents of NVRAM (if present and valid) or shows the configuration file pointed to by the CONFIG_FILE environment variable.

show startup-config

The **more nvram:startup-config** command replaces the **show startup-config** command. See the description of the **more** command for more information.

■ show startup-config