



Working with Configuration Files

This chapter describes how to work with switch configuration files on the Catalyst enterprise LAN switches.



Note

For complete syntax and usage information for the commands used in this chapter, refer to the *Command Reference—Catalyst 4000 Family, Catalyst 2948G, and Catalyst 2980G Switches*.

This chapter consists of these major sections:

- [Guidelines for Creating and Using Configuration Files, page 32-1](#)
- [Creating a Configuration File, page 32-2](#)
- [Configuring the Switch Using a File in Flash Memory, page 32-2](#)
- [Copying Configuration Files Using TFTP, page 32-3](#)
- [Copying Configuration Files Using RCP, page 32-5](#)
- [Clearing the Configuration, page 32-8](#)



Note

For more information on working with configuration files on the Flash file system, see [Chapter 31, “Using the Flash File System.”](#)

Guidelines for Creating and Using Configuration Files

Configuration files can help you configure your switch. Configuration files can contain some or all 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 lists the guidelines for creating a configuration file:

- We recommend that you connect through the console port when using configuration files to configure the switch. If you configure the switch from a Telnet session, IP addresses are not changed, and ports and modules are not disabled.
- If no passwords have been set on the switch, you must set them on each switch by entering the **set password** and **set enablepass** commands. Enter a blank line after the **set password** and **set enablepass** commands. The passwords are saved in the configuration file as clear text.

If passwords already exist, you cannot enter the **set password** and **set enablepass** commands because the password verification will fail. If you enter passwords in the configuration file, the switch mistakenly attempts to execute the passwords as commands as it executes the file.

- Some commands must be followed by a blank line in the configuration file. Without the blank line, these commands might disconnect your Telnet session. Before disconnecting a session, the switch prompts you for confirmation. The blank line acts as a carriage return, which indicates a negative response to the prompt, and retains the Telnet session.

Include a blank line after each occurrence of these commands in a configuration file:

- **set interface sc0** *ip_addr netmask*
- **set interface sc0** **disable**
- **set module disable** *mod_num*
- **set port disable** *mod_num/port_num*

Creating a Configuration File

When creating a configuration file, you must list commands in a logical way so that the system can respond appropriately. To create a configuration file, follow these steps:

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- Step 1** Download an existing configuration from a switch.
 - Step 2** Open the configuration file in a text editor, such as vi or emacs on UNIX or Notepad on a PC.
 - Step 3** Extract the portion of the configuration file with the desired commands and save it in a new file. Make sure the file begins with the word **begin** on a line by itself and ends with the word **end** on a line by itself.
 - Step 4** Copy the configuration file to the appropriate TFTP directory on the workstation (usually /tftpboot on a UNIX workstation).
 - Step 5** Ensure that the permissions on the file are set to username.
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This example shows a sample configuration file. This file could be used to set the DNS configuration on multiple switches.

```
begin

!
#dns
set ip dns server 172.16.10.70 primary
set ip dns server 172.16.10.140
set ip dns enable
set ip dns domain corp.com
end
```

Configuring the Switch Using a File in Flash Memory

You can configure the switch using a file stored in Flash memory. The procedure varies depending on your switch platform.

To configure a switch using a configuration file stored on a Flash device in the Flash file system, follow these steps:

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- Step 1** Log in to the switch through the console port or a Telnet session.
 - Step 2** Locate the configuration file using the **cd** and **dir** commands (for more information, see the “[Listing the Files on a Flash Device](#)” section on page 31-3).
 - Step 3** Configure the switch using the configuration file stored on the Flash device using the **copy file-id config** command.

The commands are executed as the file is parsed line-by-line.

This example shows how to configure the switch using a configuration file stored on a Flash device:

```
Console> (enable) copy bootflash:dns-config.cfg config

Configure using bootflash:dns-config.cfg (y/n) [n]? y

Finished network download. (134 bytes)
>>
>> set ip dns server 172.16.10.70 primary
172.16.10.70 added to DNS server table as primary server.
>> set ip dns server 172.16.10.140
172.16.10.140 added to DNS server table as backup server.
>> set ip dns enable
DNS is enabled
>> set ip dns domain corp.com
Default DNS domain name set to corp.com
Console> (enable)
Console> (enable)
```

Copying Configuration Files Using TFTP

You can configure the switch using configuration files you create or download from another switch. In addition, you can store configuration files on Flash devices on hardware that supports the Flash file system, configure the switch using a configuration stored on a Flash device, or upload the configuration to a TFTP server.

These sections describe how to configure the switch using configuration files downloaded from a TFTP server or stored on a Flash device, and how to upload a configuration file to a TFTP server:

- [Downloading Configuration Files from a TFTP Server, page 32-3](#)
- [Uploading Configuration Files to a TFTP Server, page 32-4](#)

Downloading Configuration Files from a TFTP Server

These sections describe how to download a configuration file on a TFTP server to the running configuration or to a Flash device:

- [Preparing to Download a Configuration File Using TFTP, page 32-4](#)
- [Configuring the Switch Using a File on a TFTP Server, page 32-4](#)

Preparing to Download a Configuration File Using TFTP

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

- Ensure that the workstation acting as the TFTP server is configured properly.
- Ensure that the switch has a route to the TFTP server. The switch and the server must be in the same subnetwork if you do not have a router to route traffic between subnets. Check connectivity to the TFTP server using the **ping** command.
- Ensure that the configuration file to be downloaded is in the correct directory on the server (for example, /tftpboot on a UNIX workstation).
- Ensure that the permissions on the file are set correctly. Make sure the permissions are world-read.

Configuring the Switch Using a File on a TFTP Server

To configure a switch using a configuration file downloaded from a TFTP server, follow these steps:

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- Step 1** Copy the configuration file to the appropriate TFTP directory on the workstation.
- Step 2** Log in to the switch through the console port or a Telnet session.
- Step 3** Configure the switch using the configuration file downloaded from the TFTP server using the **copy tftp config** or the **configure network** command. Specify the IP address or host name of the TFTP server and the name of the file to download.

The configuration file downloads and the commands are executed as the file is parsed line-by-line.

This example shows how to configure a switch using a config file downloaded from a TFTP server:

```

Console> (enable) copy tftp config
IP address or name of remote host []? 172.20.52.3
Name of file to copy from []? dns-config.cfg

Configure using tftp:dns-config.cfg (y/n) [n]? y
/
Finished network download. (134 bytes)
>>
>> set ip dns server 172.16.10.70 primary
172.16.10.70 added to DNS server table as primary server.
>> set ip dns server 172.16.10.140
172.16.10.140 added to DNS server table as backup server.
>> set ip dns enable
DNS is enabled
>> set ip dns domain corp.com
Default DNS domain name set to corp.com
Console> (enable)

```

Uploading Configuration Files to a TFTP Server

The next two sections describe how to upload the running configuration or a configuration file stored on a Flash device to a TFTP server.

Preparing to Upload a Configuration File to a TFTP Server

Before you attempt to upload a configuration file to a TFTP server, do the following:

- Ensure that the workstation acting as the TFTP server is configured properly.
- Ensure that the switch has a route to the TFTP server. The switch and the TFTP server must be in the same subnetwork if you do not have a router to route traffic between subnets. Check connectivity to the TFTP server using the **ping** command.
- You might need to create an empty file on the TFTP server before uploading the configuration file. On a UNIX workstation, create an empty file by entering the **touch filename** command, where *filename* is the name of the file you will use when uploading the configuration to the server.
- If you are overwriting an existing file (including an empty file, if you had to create one), ensure that the permissions on the file are set correctly. Make sure the permissions on the file are world-write.

Uploading a Configuration File to a TFTP Server

To upload a configuration file from a switch to a TFTP server for storage, follow these steps:

-
- Step 1** Log in to the switch through the console port or a Telnet session.
- Step 2** Upload the switch configuration to the TFTP server using the **copy config tftp** or the **write network** command. Specify the IP address or host name of the TFTP server and the destination filename.
- The file is uploaded to the TFTP server.
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This example shows how to upload the running configuration on a switch, to a TFTP server for storage:

```

Console> (enable) copy config tftp
IP address or name of remote host []? 172.20.52.3
Name of file to copy to []? cat4003_config.cfg

Upload configuration to tftp:cat4003_config.cfg, (y/n) [n]? y
.....
.....
.....

..
/
Configuration has been copied successfully.
Console> (enable)

```

Copying Configuration Files Using RCP

The Remote Copy Protocol (RCP) provides another way to download, upload, and copy config files between remote hosts and the switch. RCP uses the Transmission Control Protocol (TCP), a connection-oriented protocol; TFTP uses the User Datagram Protocol (UDP), which is a connectionless protocol.

To use RCP to copy files, the server from or to which you will be copying files must support RCP. The RCP **copy** commands rely on the remote shell (rsh) server (or daemon) on the remote system. To copy files using **rcp**, you do not need to create a server for file distribution, as you do with TFTP. You need

only to have access to a server that supports rsh. (Most UNIX systems support rsh.) Because you are copying a file from one place to another, you must have read permission on the source file and write permission on the destination file. If the destination file does not exist, RCP creates it for you.

Downloading Configuration Files from an RCP Server

The next two sections describe how to download a configuration file from an RCP server to the running configuration or to a Flash device.

Preparing to Download a Configuration File Using RCP

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

- Ensure that the workstation acting as the RCP server supports the rsh.
- Ensure that the switch has a route to the RCP server. The switch and the server must be in the same subnetwork if you do not have a router to route traffic between subnets. Check connectivity to the RCP server using the **ping** command.
- If you are accessing the switch through the console or a Telnet session without a valid username, make sure that the current RCP username is the one you want to use for the RCP download. You can enter the **show users** command to view the current valid username. If you do not want to use the current username, create a new RCP username using the **set rcp username** command. The new username will be stored in NVRAM. If you are accessing the switch through a Telnet session with a valid username, this username will be used and there is no need to set the RCP username.

Configuring the Switch Using a File on an RCP Server

To configure a switch using a configuration file downloaded from a RCP server, follow these steps:

-
- Step 1** Copy the configuration file to the appropriate RCP directory on the workstation.
 - Step 2** Log in to the switch through the console port or a Telnet session.
 - Step 3** Configure the switch using the configuration file downloaded from the RCP server using the **copy rcp config** or the **configure host file [rcp]** command. Specify the IP address or host name of the RCP server and the name of the file to download.

The configuration file downloads and the commands are executed as the file is parsed line-by-line.

This example shows how to configure a switch using a configuration file downloaded from an RCP server:

```

Console> (enable) copy rcp config
IP address or name of remote host []? 172.20.52.3
Name of file to copy from []? dns-config.cfg

Configure using rcp:dns-config.cfg (y/n) [n]? y
/
Finished network download. (134 bytes)
>>
>> set ip dns server 172.16.10.70 primary
172.16.10.70 added to DNS server table as primary server.
>> set ip dns server 172.16.10.140
172.16.10.140 added to DNS server table as backup server.

```

```
>> set ip dns enable
DNS is enabled
>> set ip dns domain corp.com
Default DNS domain name set to corp.com
Console> (enable)
```

Uploading Configuration Files to an RCP Server

The next two sections describe how to upload the running configuration or a configuration file stored on a Flash device to an RCP server.

Preparing to Upload a Configuration File to an RCP Server

Before you attempt to upload a configuration file to an RCP server, do the following:

- Ensure that the workstation acting as the RCP server is configured properly.
- Ensure that the switch has a route to the RCP server. The switch and the RCP server must be in the same subnetwork if you do not have a router to route traffic between subnets. Check connectivity to the RCP server using the **ping** command.
- If you are overwriting an existing file (including an empty file, if you had to create one), ensure that the permissions on the file are set correctly. Make sure the permissions on the file are user write.

Uploading a Configuration File to an RCP Server

To upload a configuration file from a switch to an RCP server for storage, follow these steps:

-
- Step 1** Log in to the switch through the console port or a Telnet session.
- Step 2** Upload the switch configuration to the RCP server using either the **copy config rcp** or the **write host file [rcp]** command. Specify the IP address or host name of the RCP server and the destination filename. The file is uploaded to the RCP server.
-

This example shows how to upload the running configuration on a switch, to an RCP server for storage:

```
Console> (enable) copy config rcp
IP address or name of remote host []? 172.20.52.3
Name of file to copy to []? cat4000_config.cfg

Upload configuration to rcp:cat4000_config.cfg, (y/n) [n]? y
.....
.....
.....

.....
.....
..
/
Configuration has been copied successfully.
Console> (enable)
Console> (enable)
```

Clearing the Configuration

To clear the configuration on the entire switch, perform this task in privileged mode:

Task	Command
Clear the switch configuration.	clear config all

This example shows how to clear the configuration for the entire switch:

```

Console> (enable) clear config all
This command will clear all configuration in NVRAM.
This command will cause ifIndex to be reassigned on the next system startup.
Do you want to continue (y/n) [n]? y
.....
.....

System configuration cleared.
Console> (enable)

```

To clear the configuration on an individual module, perform this task in privileged mode:

Task	Command
Clear the configuration for a specific module.	clear config mod_num



Note

If you remove a module and replace it with a module of another type (for example, if you remove a Fast Ethernet module and insert a Token Ring module), the module configuration is inconsistent. The output of the **show module** command indicates this problem. To resolve the inconsistency, clear the configuration on the problem module.

This example shows how to clear the configuration on a specific module:

```

Console> (enable) clear config 2
This command will clear module 2 configuration.
Do you want to continue (y/n) [n]? y
Module 2 configuration cleared.
Console> (enable)

```