



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* publication for your switch.

This chapter consists of these sections:

- Guidelines for Creating and Using Configuration Files, page 34-1
- Creating a Configuration File, page 34-2
- Configuring the Switch Using a File in Flash Memory, page 34-3
- Copying Configuration Files Using TFTP, page 34-4
- Copying Configuration Files Using rcp, page 34-7
- Clearing the Configuration, page 34-10



Note

For more information on working with configuration files on the Flash file system, see Chapter 32, “Using the Flash File System.”

Guidelines for Creating and Using Configuration Files

Creating configuration files can aid in the configuration of 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.

Use the following guidelines when 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.

- Certain 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 thus 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. One method of creating a configuration file is as follows:

-
- 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** Make sure the permissions on the file are set to username.
-

This example shows an example 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.

Catalyst 5000 Family Supervisor Engine III and III F, Catalyst 4000 Family, 2926G Series, 2948G, and 2980G Switches

Use this procedure to configure a Catalyst 5000 family switch with a Supervisor Engine III or III F, or a Catalyst 4000 family, 2926G series, 2948G, or 2980G switch using a configuration file stored on a Flash device in the Flash file system:

-
- Step 1** Log into 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 Chapter 32, “Using the Flash File System”).
 - 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 slot0:dns-config.cfg config

Configure using slot0: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)
```

Catalyst 5000 Family Supervisor Engine II G and III G

Use this procedure to configure a Catalyst 5000 family switch with a Supervisor Engine II G or III G using a configuration file stored on a Flash device in the Flash file system:

-
- Step 1** Log into the switch through the console port or a Telnet session.
 - Step 2** Configure the switch using one of the startup configuration files stored in Flash memory using the **copy config {cfg1 | cfg2}** command.

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

This example shows how to configure the switch using the first startup configuration file on a Supervisor Engine II G or III G:

```

Console> (enable) copy cfg1 config
Configure using flash cfg1 (y/n) [n]? y

Finished network download. (135 bytes)
>>
>> set ip dns server 171.68.10.70 primary
171.68.10.70 added to DNS server table as primary server.
>> set ip dns server 171.68.10.140
171.68.10.140 added to DNS server table as backup server.
>> set ip dns enable
DNS is enabled
>> set ip dns domain cisco.com
Default DNS domain name set to cisco.com
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 34-4
- Uploading Configuration Files to a TFTP Server, page 34-6

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 34-4
- Configuring the Switch Using a File on a TFTP Server, page 34-5

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. Permissions on the file should be world-read.

Configuring the Switch Using a File on a TFTP Server

Use this procedure to configure a Catalyst 5000 family switch with a Supervisor Engine II using a configuration file downloaded from a TFTP server:

-
- Step 1** Copy the configuration file to the appropriate TFTP directory on the workstation.
- Step 2** Log into 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 command appropriate for your switch and supervisor engine:
- **Catalyst 5000 family Supervisor Engine III and III F, and Catalyst 4000 family, 2926G series, 2948G, and 2980G switches**—Use either the **copy tftp config** or **configure network** command. Specify the IP address or host name of the TFTP server and the name of the file to download.
 - **Catalyst 5000 family Supervisor Engine II, II G, and III G**—Use 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 Catalyst 5000 family switch with a Supervisor Engine III or III F, or a Catalyst 4000 family, 2926G series, 2948G, or 2980G switch using a configuration 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)

```

This example shows how to configure a Catalyst 5000 family switch with a Supervisor Engine II, II G, or III G using a configuration file downloaded from a TFTP server:

```

Console> (enable) configure network
IP address or name of remote host? 172.20.52.3
Name of configuration file? dns-config.cfg
Configure using dns-config.cfg from 172.20.52.3 (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

These 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, page 34-6
- Uploading a Configuration File to a TFTP Server, page 34-6

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. Permissions on the file should be world-write.

Uploading a Configuration File to a TFTP Server

Use this procedure to upload a configuration file from a switch to a TFTP server for storage:

-
- Step 1** Log into the switch through the console port or a Telnet session.
- Step 2** Upload the switch configuration to the TFTP server using the command appropriate for your switch and supervisor engine:
- **Catalyst 5000 family Supervisor Engine III and III F, and Catalyst 4000 family, 2926G series, 2948G, and 2980G switches**—Use either the **copy config tftp** or **write network** command. Specify the IP address or host name of the TFTP server and the destination filename.
 - **Catalyst 5000 family Supervisor Engine II, II G, and III G**—Use 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.

This example shows how to upload the running configuration on a Catalyst 5000 family switch with a Supervisor Engine III or III F, or on a Catalyst 4000 family, 2926G series, 2948G, or 2980G 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 []? cat5000_config.cfg
```

```

Upload configuration to tftp:cat5000_config.cfg, (y/n) [n]? y
.....
.....
.....
.....
.....
..
/
Configuration has been copied successfully.
Console> (enable)
Console> (enable)

```

This example shows how to upload the running configuration on a Catalyst 5000 family switch with a Supervisor Engine II, II G, or III G to a TFTP server:

```

Console> (enable) write network
IP address or name of remote host? 172.20.52.3
Name of configuration file? cat5002_config.cfg
Upload configuration to cat5002_config.cfg on 172.20.52.3 (y/n) [n]? y
.....
.....
.....
..
/
Finished network upload. (8534 bytes)
Console> (enable)

```

Copying Configuration Files Using rcp

Remote copy protocol (rcp) provides another method of downloading, uploading, and copying configuration files between remote hosts and the switch. Unlike TFTP which uses User Datagram Protocol (UDP), a connectionless protocol, rcp uses Transmission Control Protocol (TCP), which is connection-oriented.

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 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 the remote shell (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

These 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](#), page 34-8
- [Configuring the Switch Using a File on an rcp Server](#), page 34-8

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 remote shell (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

Use this procedure to configure a Catalyst 5000 family switch with a Supervisor Engine II using a configuration file downloaded from a rcp server:

-
- Step 1** Copy the configuration file to the appropriate rcp directory on the workstation.
- Step 2** Log into 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 command appropriate for your switch and supervisor engine:
- **Catalyst 5000 family Supervisor Engine III and III F, and Catalyst 4000 family, 2926G series, 2948G, and 2980G switches**—Use either the **copy rcp config** or **configure host file [rcp]** command. Specify the IP address or host name of the rcp server and the name of the file to download.
 - **Catalyst 5000 family Supervisor Engine II, II G, and III G**—Use the **configure host file [rcp]** command. Specify the IP address or host name of the rcp server, the name of the file to download, and rcp as download method.

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

This example shows how to configure a Catalyst 5000 family switch with a Supervisor Engine III or III F, or a Catalyst 4000 family, 2926G series, 2948G, or 2980G 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)

```

This example shows how to configure a Catalyst 5000 family switch with a Supervisor Engine II, II G, or III G using a configuration file downloaded from a rcp server:

```

Console> (enable) configure 172.20.52.3 dns-config.cfg rcp
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

These 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, page 34-9](#)
- [Uploading a Configuration File to an rcp Server, page 34-9](#)

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. Permissions on the file should be user write.

Uploading a Configuration File to an rcp Server

Use this procedure to upload a configuration file from a switch to an rcp server for storage:

-
- Step 1** Log into the switch through the console port or a Telnet session.
- Step 2** Upload the switch configuration to the rcp server using the command appropriate for your switch and supervisor engine:
- **Catalyst 5000 family Supervisor Engine III and III F, and Catalyst 4000 family, 2926G series, 2948G, and 2980G switches**—Use either the **copy config rcp** or **write host file [rcp]** command. Specify the IP address or host name of the rcp server and the destination filename.

- **Catalyst 5000 family Supervisor Engine II, II G, and III G**—Use 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 Catalyst 5000 family switch with a Supervisor Engine III or III F, or on a Catalyst 4000 family, 2926G series, 2948G, or 2980G 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 []? cat5000_config.cfg

Upload configuration to rcp:cat5000_config.cfg, (y/n) [n]? y
.....
.....
.....

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

```

This example shows how to upload the running configuration on a Catalyst 5000 family switch with a Supervisor Engine II, II G, or III G to an rcp server:

```

Console> (enable) write 172.20.52.3 cat5002_config.cfg
Upload configuration to cat5002_config.cfg on 172.20.52.3 (y/n) [n]? y
.....
.....
.....

..
/
Finished network upload. (8534 bytes)
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 <i>mod_num</i>



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)

```

