CHAPTER 2

Before You Begin

This chapter gives you a process to follow in configuring the Layer 3 switch routers, lists the information you need to have available before you begin, and describes Cisco IOS command modes. This chapter contains the following sections:

Suggested Process for Configuring the Layer 3 Switch Routers

The following procedure describes how to configure Layer 3 switch routers.

Step 1 Set up the hardware as described in either the *Catalyst 2948G-L3 Hardware Installation Guide* or the *Catalyst 4908G-L3 Hardware Installation Guide.*

Step 2 Perform initial configuration tasks; see Chapter 3, “Initial Layer 3 Switch Router Configurations.”

Step 3 Configure the interfaces; see Chapter 4, “Configuring Interfaces.”

Step 4 Configure VLAN encapsulation; see Chapter 5, “Configuring Virtual LAN Encapsulation.”

Step 5 Configure networking and routing protocols; see Chapter 6, “Configuring Networking Protocols.”

Step 6 Configure bridging; see Chapter 7, “Configuring Bridging.”

Step 7 Configure EtherChannel; see Chapter 8, “Configuring EtherChannel.”

Step 8 Configure optional Quality of Service (QoS) and Switching Database Manger (SDM) functionality; see Chapter 9, “Configuring Quality of Service” and Chapter 10, “Configuring Switching Database Manager.”

Step 9 Perform optional system management and performance tasks; refer to the *Cisco IOS Command Reference* release12.0 publication.

Preparing to Configure the Layer 3 Switch Routers

Before configuring your switch router, have the following information available:

- A map of your network topology
- The network protocol(s) you are supporting (IP or IPX)
- The routing protocol you will use for each network protocol
- The IP or IPX addresses and the IP subnet masks for each network interface
- The IP addressing plan for each network protocol

Understanding the Command-Line Interface

You can configure the switch router from the command-line interface (CLI) that runs on the router console or terminal, or by using remote access.

To use the CLI, your terminal must be connected to the switch router through the console port. By default, the terminal is configured to a basic configuration, which should work for most terminal sessions.

Understanding Cisco IOS Command Modes

The Cisco IOS user interface is divided into many different modes. The commands available to you depend on which mode you are currently in. To get a list of the commands available in a given mode, type a question mark (?) at the system prompt.

When you start a session on the switch router, you begin in user mode, often called EXEC mode. Only a limited subset of the commands are available in EXEC mode. To have access to all commands, you must enter privileged EXEC mode. Normally, you must type in a password to access privileged EXEC mode. From privileged mode, you can type in any EXEC command or access global configuration mode. Most of the EXEC commands are one-time commands, such as **show** commands, which show the current configuration status, and **clear** commands, which clear counters or interfaces. The EXEC commands are not saved across reboots of the Layer 3 switch router.

The configuration modes allow you to make changes to the running configuration. If you later save the configuration, these commands are stored across Layer 3 switch router reboots. You must start at global configuration mode. From global configuration mode, you can enter interface configuration mode, subinterface configuration mode, and a variety of protocol-specific modes.

Read-only memory (ROM) monitor mode is a separate mode used when the Layer 3 switch router cannot boot properly. For example, your Layer 3 switch router or access server might enter ROM monitor mode if it does not find a valid system image when it is booting, or if its configuration file is corrupted at startup.

Table 2-1 describes the most commonly used modes, how to enter the modes, and the resulting system prompts. The system prompt helps you identify which mode you are in and, therefore, which commands are available to you.

Table 2-1 Frequently Used IOS Command Modes

Mode	Description of Use	How to Access	Prompt
User EXEC	Connect to remote devices, change terminal settings on a temporary basis, perform basic tests, and display system information.	Log in.	`Router>`
Privileged EXEC (Enable)	Set operating parameters. The privileged command set includes the commands in user EXEC mode, as well as the **configure** command. Use this command to access the other command modes.	From the user EXEC mode, enter the **enable** command and the enable password.	`Router#`
Global configuration	Configure features that affect the system as a whole.	From the privileged EXEC mode, enter the **configure terminal** command.	`Router(config)#`
Interface configuration	Enable features for a particular interface. Interface commands enable or modify the operation of a Fast Ethernet or Gigabit Ethernet port.	From global configuration mode, enter the **interface** *type number* command. For example, enter **interface fastethernet 1** for Fast Ethernet or **interface gigabitethernet 49** for Gigabit Ethernet interfaces.	`Router(config-if)#`
Line configuration	Configure the console port or VTY line from the directly connected console or the virtual terminal used with Telnet.	From global configuration mode, enter the **line console 0** command to configure the console port or the **line vty** *line-number* command to configure a VTY line.	`Router(config-line)#`

The Cisco IOS command interpreter, called the EXEC, interprets and executes the commands you enter. You can abbreviate commands and keywords by entering just enough characters to make the command unique from other commands. For example, you can abbreviate the **show** command to **sh** and the **configure terminal** command to **config t**.

When you type **exit**, the switch router backs out one level. In general, typing **exit** returns you to global configuration mode. Enter **end** to exit configuration mode completely and return to privileged EXEC mode.

In any command mode, you can get a list of available commands by entering a question mark (?).

```
Router> ?
```

To obtain a list of commands that begin with a particular character sequence, type in those characters followed immediately by the question mark (?). Do not include a space. This form of help is called word help, because it completes a word for you.

```
Router# co?
configure
```

To list keywords or arguments, enter a question mark in place of a keyword or argument. Include a space before the question mark. This form of help is called command syntax help, because it reminds you which keywords or arguments are applicable based on the command, keywords, and arguments you have already entered.

```
Router# configure ?
memoryConfigure from NV memory
networkConfigure from a TFTP network host
overwrite-networkOverwrite NV memory from TFTP network host
terminalConfigure from the terminal
```

To redisplay a command you previously entered, press the Up-arrow key. You can continue to press the Up-arrow key to see more previously issued commands.

Tips If you are having trouble entering a command, check the system prompt, and enter the question mark (?) for a list of available commands. You might be in the wrong command mode or using incorrect syntax.

You can press **Ctrl-Z** or **end** in any mode to immediately return to privileged EXEC (enable) mode, instead of entering **exit**, which returns you to the previous mode.

More Configuration Documentation

After you have installed the hardware, checked all external connections, turned on the system power, allowed the system to boot up, and minimally configured the system, you might need to perform more complete and complex configurations, which are beyond the scope of this document.

The Cisco IOS software running your switch router contains extensive features and functionality. The effective use of many of these features is easier if you have more reference information.