Command-Line Interfaces

This chapter describes the CLIs you use to configure the Catalyst 4500 series switch. This chapter includes the following major sections:

- Accessing the Switch CLI, page 2-1
- Performing Command-Line Processing, page 2-3
- Performing History Substitution, page 2-3
- Understanding Cisco IOS Command Modes, page 2-4
- Getting a List of Commands and Syntax, page 2-5
- ROMMOM Command-Line Interface, page 2-6

For complete syntax and usage information for the commands used in this chapter, refer to the Catalyst 4500 Series Switch Cisco IOS Command Reference and related publications at http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122cgcr/index.htm

Accessing the Switch CLI

The following sections describe how to access the switch CLI:

- Accessing the CLI Using the EIA/TIA-232 Console Interface, page 2-1
- Accessing the CLI Through Telnet, page 2-2

Accessing the CLI Using the EIA/TIA-232 Console Interface

EIA/TIA-232 was known as recommended standard 232 (RS-232) before its acceptance as a standard by the Electronic Industries Alliance (EIA) and Telecommunications Industry Association (TIA).

Perform the initial switch configuration over a connection to the EIA/TIA-232 console interface. Refer to the Catalyst 4500 Series Switch Module Installation Guide for console interface cable connection procedures.
To access the switch through the console interface, perform this task:

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>Switch&gt; enable</td>
</tr>
<tr>
<td></td>
<td>From the user EXEC prompt (&gt;), enter <strong>enable</strong> to change to enable mode (also known as privileged mode or privileged EXEC mode).</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>Password: password</td>
</tr>
<tr>
<td></td>
<td>At the password prompt, enter the system password. The prompt (#) appears, indicating that you have accessed the CLI in enabled mode.</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td>Switch# quit</td>
</tr>
<tr>
<td></td>
<td>When you are finished executing the task command, exit the session.</td>
</tr>
</tbody>
</table>

After accessing the switch through the EIA/TIA-232 interface, you see this display:

```
Press Return for Console prompt
Switch> enable
Password:< >
Switch#  
```

### Accessing the CLI Through Telnet

**Note**  
Before you make a Telnet connection to the switch, you must set the IP address for the switch. See the “Configuring Physical Layer 3 Interfaces” section on page 23-4.

The switch supports up to eight simultaneous Telnet sessions. Telnet sessions disconnect automatically after remaining idle for the period specified by the **exec-timeout** command.

To make a Telnet connection to the switch, perform this task:

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>telnet (hostname</td>
</tr>
<tr>
<td></td>
<td>From the remote host, enter the <strong>telnet</strong> command and the name or IP address of the switch you want to access.</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>Password: password</td>
</tr>
<tr>
<td></td>
<td>At the prompt, enter the password for the CLI. If no password has been configured, press <strong>Return</strong>.</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Enter the necessary commands to complete your desired tasks.</td>
</tr>
<tr>
<td><strong>Step 4</strong></td>
<td>Switch# quit</td>
</tr>
<tr>
<td></td>
<td>When finished, exit the Telnet session.</td>
</tr>
</tbody>
</table>
This example shows how to open a Telnet session to the switch:

```
unix_host% telnet Switch_1
Trying 172.20.52.40...
Connected to 172.20.52.40.
Escape character is '^]'.
User Access Verification
Password:< >
Switch_1> enable
Password:
Switch_1#
```

### Performing Command-Line Processing

Switch commands are not case sensitive. You can abbreviate commands and parameters if the abbreviations contain enough letters to be different from any other currently available commands or parameters.

You can scroll through the last 20 commands stored in the history buffer and enter or edit a command at the prompt. Table 2-1 lists the keyboard shortcuts for entering and editing switch commands.

#### Table 2-1 Keyboard Shortcuts

<table>
<thead>
<tr>
<th>Keystrokes</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press Ctrl-B or press the Left Arrow key¹</td>
<td>Moves the cursor back one character.</td>
</tr>
<tr>
<td>Press Ctrl-F or press the Right Arrow key¹</td>
<td>Moves the cursor forward one character.</td>
</tr>
<tr>
<td>Press Ctrl-A</td>
<td>Moves the cursor to the beginning of the command line.</td>
</tr>
<tr>
<td>Press Ctrl-E</td>
<td>Moves the cursor to the end of the command line.</td>
</tr>
<tr>
<td>Press Esc-B</td>
<td>Moves the cursor back one word.</td>
</tr>
<tr>
<td>Press Esc-F</td>
<td>Moves the cursor forward one word.</td>
</tr>
</tbody>
</table>

¹ The Arrow keys function only on ANSI-compatible terminals, such as VT100s.

### Performing History Substitution

The history buffer stores the last 20 command lines you entered. History substitution allows you to access these command lines without retyping them. Table 2-2 lists the history substitution commands.

#### Table 2-2 History Substitution Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ctrl-P or the Up Arrow key¹</td>
<td>Recalls commands in the history buffer, beginning with the most recent command. Repeat the key sequence to recall older commands successively.</td>
</tr>
</tbody>
</table>
Understanding Cisco IOS Command Modes


The Cisco IOS user interface has many different modes: user EXEC, privileged EXEC (enable), global configuration, interface, subinterface, and protocol-specific. The commands available to you depend on which mode you are in. To get a list of the commands in a given mode, enter a question mark (?) at the system prompt. See the “Getting a List of Commands and Syntax” section on page 2-5 for more information.

When you start a session on the switch, you begin in user mode, also called user EXEC mode. Only a small subset of commands are available in EXEC mode. To have access to all commands, you must enter privileged EXEC mode, also called enable mode. To access the privileged EXEC mode, you must enter a password. When you are in the privileged EXEC mode, you can enter any EXEC command or access global configuration mode. Most EXEC commands are one-time commands, such as show commands, which display the current configuration status, and clear commands, which reset counters or interfaces. The EXEC commands are not saved when the switch is rebooted.

The configuration modes allow you to make changes to the running configuration. If you save the configuration, these commands are stored when you reboot the switch. You must start in global configuration mode. From global configuration mode, you can enter interface configuration mode, subinterface configuration mode, and a variety of protocol-specific modes.

You would use a separate mode called ROMMON when the switch cannot boot up properly. For example, the switch might enter ROMMON mode if it does not find a valid system image when it is booting, or if its configuration file is corrupted. For more information, see the “ROMMOM Command-Line Interface” section on page 2-6.

Table 2-3 lists and describes frequently used Cisco IOS modes.
Chapter 2      Command-Line Interfaces

Getting a List of Commands and Syntax

The Cisco IOS command interpreter, called the EXEC, interprets and runs 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 \texttt{sh} and the configure command to \texttt{config t}.

When you type \texttt{exit}, the switch backs out one level. To exit configuration mode completely and return to privileged EXEC mode, press \texttt{Ctrl-Z}.

### Getting a List of Commands and Syntax

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

\texttt{Switch> ?}

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

---

**Table 2-3  Frequently Used Cisco IOS Command Modes**

<table>
<thead>
<tr>
<th>Mode</th>
<th>What You Use It For</th>
<th>How to Access</th>
<th>Prompt</th>
</tr>
</thead>
<tbody>
<tr>
<td>User EXEC</td>
<td>To connect to remote devices, change terminal settings on a temporary basis, perform basic tests, and display system information.</td>
<td>Log in.</td>
<td>Switch&gt;</td>
</tr>
<tr>
<td>Privileged EXEC (enable)</td>
<td>To set operating parameters. The privileged command set includes the commands in user EXEC mode, as well as the \texttt{configure} command. Use the \texttt{configure} command to access the other command modes.</td>
<td>From user EXEC mode, enter the \texttt{enable} command and the enable password (if a password has been configured).</td>
<td>Switch#</td>
</tr>
<tr>
<td>Global configuration</td>
<td>To configure features that affect the system as a whole, such as the system time or switch name.</td>
<td>From privileged EXEC mode, enter the \texttt{configure terminal} command.</td>
<td>Switch(config)#</td>
</tr>
<tr>
<td>Interface configuration</td>
<td>To enable or modify the operation of a 10-Gigabit Ethernet, Gigabit Ethernet, or Fast Ethernet interface with \texttt{interface} commands.</td>
<td>From global configuration mode, enter the \texttt{interface type location} command.</td>
<td>Switch(config-if)#</td>
</tr>
<tr>
<td>Console configuration</td>
<td>To configure the console interface; from the directly connected console or the virtual terminal; used with Telnet.</td>
<td>From global configuration mode, enter the \texttt{line console 0} command.</td>
<td>Switch(config-line)#</td>
</tr>
</tbody>
</table>
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.

Switch# configure ?
  memory             Configure from NV memory
  network            Configure from a TFTP network host
  overwrite-network  Overwrite NV memory from TFTP network host
  terminal           Configure from the terminal
  <cr>

To redisplay a command you previously entered, press the Up Arrow key or Ctrl-P. You can continue to press the Up Arrow key to see the last 20 commands you entered.

Tip
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.

Type exit to return to the previous mode. Press Ctrl-Z or enter the end command in any mode to immediately return to privileged EXEC mode.

**ROMMOM Command-Line Interface**

ROMMON is a ROM-based program that is involved at power-up or reset, or when a fatal exception error occurs. The switch enters ROMMON mode if the switch does not find a valid software image, if the NVRAM configuration is corrupted, or if the configuration register is set to enter ROMMON mode.

From the ROMMON mode, you can load a software image manually from Flash memory, from a network server file, or from bootflash.

You can also enter ROMMON mode by restarting the switch and pressing Ctrl-C during the first five seconds of startup.

Note
Ctrl-C is always enabled for 60 seconds after you reboot the switch, even if Ctrl-C is configured to be off in the configuration register settings.

When you enter ROMMON mode, the prompt changes to rommon 1>. Use the ? command to see the available ROMMON commands.

For more information about the ROMMON commands, refer to the *Catalyst 4500 Series Switch Cisco IOS Command Reference*. 