



# CHAPTER 2

## Command-Line Interfaces

---

This chapter describes the command-line interface (CLI) that you use to configure the Catalyst 6500 series switch modules. For descriptions of all switch and ROM monitor commands, refer to the *Catalyst 6500 Series Switch Command Reference*



### Note

---

For a description of the ATM Cisco IOS CLI and commands, refer to the *ATM Software Configuration Guide and Command Reference—Catalyst 5000 Family and 6000 Family Switches* publication.

---

This chapter consists of these sections:

- [MSFC Command-Line Interface](#), page 2-1
- [MSFC Command-Line Interface](#), page 2-8

## Catalyst Command-Line Interface

These sections describe the Catalyst CLI:

- [ROM-Monitor Command-Line Interface](#), page 2-1
- [Switch Command-Line Interface](#), page 2-2

## ROM-Monitor Command-Line Interface

The ROM monitor is a ROM-based program that executes upon platform power-up, reset, or when a fatal exception occurs. The system enters ROM-monitor mode if the switch does not find a valid system image, if the NVRAM configuration is corrupted, or if the configuration register is set to enter ROM-monitor mode. From the ROM-monitor mode, you can load a system image manually from Flash memory, from a network server file, or from bootflash.

You can enter ROM-monitor mode by restarting the switch and pressing the **Break** key during the first 60 seconds of startup.



---

The Break key is always enabled for 60 seconds after rebooting the system, regardless of whether the Break key is configured to be off by configuration register settings.

---

**send break**

Once you are in ROM-monitor mode, the prompt changes to rommon>. Use the ? command to see the available ROM-monitor commands.

## Switch Command-Line Interface

The switch CLI is a basic command-line interpreter, similar to the UNIX C shell.

These sections describe how to use the switch CLI:

- [Accessing the Switch CLI, page 2-2](#)
- [Accessing the MSFC from the Switch, page 2-3](#)
- [Working With the Command-Line Interface, page 2-5](#)

### Accessing the Switch CLI

You can access the CLI through the supervisor engine console port or through a Telnet session.

These sections describe how to access the switch CLI:

- [Accessing the CLI through the Console Port, page 2-2](#)
- [Accessing the CLI through Telnet, page 2-3](#)

### Accessing the CLI through the Console Port

To access the switch CLI through the console port, you must connect a console terminal to the console port through an EIA/TIA-232 (RS-232) cable.

**Note**

For complete information on how to connect to the supervisor engine console port, refer to the hardware documentation for your switch.

To access the switch through the console port, perform this task:

	<b>Task</b>	<b>Command</b>
<b>Step 1</b>	Initiate a connection from the terminal to the switch console prompt and press <b>Return</b> .	–
<b>Step 2</b>	At the prompt, enter the system password. The Console> prompt appears, indicating that you have accessed the CLI in normal mode.	–
<b>Step 3</b>	If necessary, enter privileged mode (you must enter privileged mode to change the switch configuration).	<b>enable</b>
<b>Step 4</b>	Enter the necessary commands to complete the desired tasks.	–
<b>Step 5</b>	When finished, exit the session.	<b>exit</b>

After accessing the switch through the console port, you see this display:

```
Cisco Systems Console
Enter password:
Console>
```

## Accessing the CLI through Telnet

Before you can open a Telnet session to the switch, you must first set the IP address for the switch. For information about setting the IP address, see the [“Assigning the In-Band \(sc0 and sc1\) Interface IP Address” section on page 3-7](#). Up to eight simultaneous Telnet sessions are supported. Telnet sessions disconnect automatically after remaining idle for a set time period.

To access the switch CLI from a remote host using Telnet, perform this task:

	Task	Command
Step 1	From the remote host, enter the <b>telnet</b> command and the name or IP address of the switch that you want to access.	<b>telnet</b> {   <i>ip_addr</i> }
	At the prompt, enter the password for the CLI. If no password has been configured, press <b>Return</b> .	–
	Enter the necessary commands to complete your desired tasks.	–
	When finished, exit the Telnet session.	<b>exit</b>

This example shows how to open a Telnet session to the switch:

```
unix_host% telnet Catalyst_1
Trying 172.16.10.10...
Connected to Catalyst_1.
Escape character is '^]'.

Cisco Systems Console
Enter password:
Catalyst_1>
```

## Accessing the MSFC from the Switch

These sections describe how to access the Multilayer Switch Feature Card (MSFC) from a directly connected console port or from a Telnet session:

- [Accessing the MSFC from the Console Port, page 2-3](#)
- [Accessing the MSFC from a Telnet Session, page 2-4](#)

See the [“MSFC Command-Line Interface” section on page 2-8](#).

## Accessing the MSFC from the Console Port

You can enter the **switch console** command to access the MSFC from the switch CLI that is directly connected to the supervisor engine console port. To exit from the MSFC CLI and return to the switch CLI, press **Ctrl-C** three times at the Router> prompt.

To access the MSFC from the switch CLI, perform this task:

Task	Command
Access the MSFC from the switch CLI.	[ ] <sup>1</sup>

- The *mod* argument specifies the module number of the MSFC. A module number of 15 indicates that the MSFC is installed on the supervisor engine in slot 1. A module number of 16 indicates that the MSFC is installed on the supervisor engine in slot 2. With the Supervisor Engine 720, the *mod* argument specifies the module number of the MSFC3. A module number of 15 indicates that the MSFC3 is installed on the Supervisor Engine 720 in slot 5 (6- or 9-slot switches) or slot 7 (13-slot switches). A module number of 16 indicates that the MSFC3 is installed on the Supervisor Engine 720 in slot 6 (6- or 9-slot switches) or slot 8 (13-slot switches).



If no module number is specified, the console will switch to the MSFC on the active supervisor engine.



To access the Cisco IOS CLI on the standby MSFC, connect to the console port of the standby supervisor engine.

This example shows how to access the active MSFC from the switch CLI of the active supervisor engine and how to exit the MSFC CLI and return to the switch CLI:

```
Console> (enable) switch console 15
Trying Router-15...
Connected to Router-15.
Type ^C^C to switch back...
Router> ^C^C^C
Console> (enable)
```

### in a Telnet Session

**session**

**^] exit**



#### Note

installed on the Supervisor Engine 720 in slot 5 (6- or 9-slot switches) or slot 7 (13-slot switches). A module number of 16 indicates that the MSFC3 is installed on the Supervisor Engine 720 in slot 6 (6- or 9-slot switches) or slot 8 (13-slot switches).

This example shows how to access the MSFC from the switch CLI and how to exit the MSFC CLI and return to the switch CLI:

```
Console> (enable)
Trying Router-15...
Connected to Router-15.
Escape character is '^]'.
Router> exit
Console> (enable)
```

---

## Working With the Command-Line Interface

- 
- [Designating Modules, Ports, and VLANs on the Command Line, page 2-5](#)
- [Designating MAC Addresses, IP Addresses, and IP Aliases, page 2-6](#)
- [Command Line Editing, page 2-6](#)
- [History Substitution, page 2-7](#)
- [Accessing Command Help, page 2-8](#)

For additional information about the CLI, refer to the Command-Line Interfaces chapter in the *Catalyst 6500 Series Switch Command Reference*.

### Switch CLI Command Modes

```
enable
Enter Password: <password>
Console> (enable)
```

### Designating Modules, Ports, and VLANs on the Command Line

```
mod/port.          3/1          set trunk
set port channel
```

**Table 2-1**      *Designating Ports and Port Ranges*

<b>Example</b>	<b>Function</b>
2 / 1	Specifies port 1 on module 2.
3 / 4-8	Specifies ports 4, 5, 6, 7, and 8 on module 3.
5 / 2, 5 / 4, 6 / 10	Specifies ports 2 and 4 on module 5 and port 10 on module 6.
3 / 1-2, 4 / 8	Specifies ports 1 and 2 on module 3 and port 8 on module 4.

**Table 2-2**      *Designating VLANs and VLAN Ranges*

10	Specifies VLAN 10.
5, 10, 15	Specifies VLANs 5, 10, and 15.
10-50, 500	Specifies VLANs 10 through 50, inclusive, and VLAN 500.

Some commands require a MAC address, IP address, or IP alias, which must be designated in a standard format. The MAC address format must be six hexadecimal numbers separated by hyphens, as shown in the following example:

```
00-00-0c-24-d2-fe
```

The IP address format is 32 bits, written as 4 octets separated by periods (dotted decimal format) that are made up of a network section, an optional subnet section, and a host section, as shown in the following example:

```
126.2.54.1
```

If you have configured IP aliases on the switch, you can use IP aliases in place of the dotted decimal IP address. This is true for most commands that use an IP address, except for commands that define the IP address or IP alias. For information on using IP aliases, see the [“Defining IP Aliases on the Switch” section on page 22-7](#).

If DNS is configured on the switch, you can use DNS host names in place of IP addresses. For information on configuring DNS, see [Chapter 30, “Configuring DNS.”](#)

## Command Line Editing

You can scroll through the last 20 commands that are stored in the history buffer, and enter or edit the command at the prompt. [Table 2-3](#) lists the keyboard shortcuts to use when entering and editing switch commands.

**Table 2-3**      **Command-Line Editing Keyboard Shortcuts**

<b>Keystroke</b>	<b>Function</b>
	Jumps to the first character of the command line.
Ctrl-B or the left arrow key	Moves the cursor back one character.
Ctrl-C	Escapes and terminates prompts and tasks.
Ctrl-D	Deletes the character at the cursor.
Ctrl-E	Jumps to the end of the current command line.
Ctrl-F or the right arrow key <sup>1</sup>	Moves the cursor forward one character.
Ctrl-K	Deletes from the cursor to the end of the command line.
Ctrl-L; Ctrl-R	Repeats the current command line on a new line.
Ctrl-N or the down arrow key <sup>1</sup>	Enters the next command line in the history buffer.
Ctrl-P or the up arrow key <sup>1</sup>	Enters the previous command line in the history buffer.
Ctrl-U; Ctrl-X	Deletes from the cursor to the beginning of the command line.
Ctrl-W	Deletes the last word typed.
Esc B	Moves the cursor back one word.
Esc D	Deletes from the cursor to the end of the word.
Esc F	Moves the cursor forward one word.
Delete key or Backspace key	Erases the mistake when entering a command; reenter the command after using this key.

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

## History Substitution

**Table 2-4**      **History Substitution Commands**

<b>Command</b>	<b>Function</b>
<b>Repeating recent commands:</b>	
!!	Repeat the most recent command.
!-nn	Repeat the <i>n</i> th most recent command.
!n	Repeat the command <i>n</i> .
!aaa	Repeat the command beginning with the string <i>aaa</i> .
!?aaa	Repeat the command containing the string <i>aaa</i> .
<b>To modify and repeat the most recent command:</b>	
^aaa^bbb	Replace the string <i>aaa</i> with the string <i>bbb</i> in the most recent command.
<b>To add a string to the end of a previous command and repeat it:</b>	
!!aaa	Add the string <i>aaa</i> to the end of the most recent command.
!n aaa	Add the string <i>aaa</i> to the end of the command <i>n</i> .

**Table 2-4 History Substitution Commands (continued)**

Command	Function
!aaa bbb	Add the string <i>bbb</i> to the end of the command beginning with the string <i>aaa</i> .
!?aaa bbb	Add the string <i>bbb</i> to the end of the command containing the string <i>aaa</i> .

## Accessing Command Help

Enter `?` or `?` in normal or privileged mode to see the commands that are available in those modes. On selected commands, entering `?` or `?` after a command provides additional information, such as a command usage description. Command usage, the help menu, and when appropriate, parameter ranges are provided if you enter a command using the wrong number of arguments or inappropriate arguments. Additionally, appending `?` or `?` to a command category displays a list of commands in that category.

# MSFC Command-Line Interface

These sections describe the MSFC CLI:

- [Cisco IOS Command Modes, page 2-8](#)
- [Cisco IOS Command-Line Interface, page 2-10](#)



### Note

In addition to the methods that are described in the “[Accessing the MSFC from the Switch](#)” section on [page 2-3](#), you can configure Cisco IOS software to support direct Telnet access to the MSFC. Refer to “Configuring Authentication” in the *Cisco IOS Security Configuration Guide* at this URL: [http://www.cisco.com/en/US/docs/ios/12\\_1/security/configuration/guide/scdathen.html](http://www.cisco.com/en/US/docs/ios/12_1/security/configuration/guide/scdathen.html)

## Cisco IOS Command Modes

The Cisco IOS user interface is divided into many different modes. The commands that are available to you depend on which mode you are currently in. To get a list of the commands in a given mode, type a question mark (?) at the system prompt. For more information, see the “Getting a List of Cisco IOS Commands and Syntax” section on [page 2-10](#).

When you start a session on the switch, you begin in user mode, which is often called user 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 EXEC 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 switch.

The configuration modes allow you to make changes to the running configuration. If you later save the configuration, these commands are stored across switch 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.

ROM-monitor mode is a separate mode that is used when the switch cannot boot properly. For example, the switch 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. For more information, see the “[ROM-Monitor Command-Line Interface](#)” section on page 2-1.

Table 2-5 lists and describes the most commonly used Cisco IOS modes.

**Table 2-5** Frequently Used Cisco 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.	
Privileged EXEC (enable)	Set operating parameters. The privileged command set includes the commands in user EXEC mode as well as the <b>configure</b> command. Use this command to access the other command modes.	From the user EXEC mode, enter the <b>enable</b> command and the enable password.	Router#
Global configuration	Configure features that affect the system as a whole.	From the privileged EXEC mode, enter the command.	Router(config)#
Interface configuration	Many features are enabled for a particular interface. Interface commands enable or modify the operation of a Gigabit Ethernet or Fast Ethernet interface.	From global configuration mode, enter the <i>type location</i> command.	Router(config-if)#
Console configuration	From the directly connected console or the virtual terminal used with Telnet, use this configuration mode to configure the console interface.	From global configuration mode, enter the <b>line console 0</b> command.	Router(config-line)#

The Cisco IOS command interpreter, called the EXEC, interprets and executes the commands that 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 **conf t**.

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

## Getting a List of Cisco IOS Commands and Syntax

```
Router> ?
```

```
Router# co?  
configure
```

```
Router# 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
```

**Ctrl-P**



---

**Ctrl-Z**

**exit**

## Cisco IOS Command-Line Interface

- 
- 
- 

## Accessing Cisco IOS Configuration Mode



---

**switch console**

---

	Task	Command
Step 1		<b>switch console</b>
Step 2		<b>enable</b>
Step 3		Router# <b>configure terminal</b>
Step 4	Enter the commands to configure routing.	(Refer to the appropriate configuration tasks later in this chapter.)
Step 5	Exit configuration mode.	Router(config)# <b>Ctrl-Z</b>

## Viewing and Saving the Cisco IOS Configuration

	Task	Command
Step 1	View the current operating configuration at the privileged EXEC prompt.	Router# <b>show running-config</b>
Step 2	View the configuration in NVRAM.	Router# <b>show startup-config</b>
Step 3	Save the current configuration to NVRAM.	Router# <b>copy running-config startup-config</b>

## Bringing Up an MSFC Interface

**show interface**



**Note**

	Task	Command
Step 1	Specify the interface to bring up.	Router(config)# <b>interface</b>
Step 2	Bring the interface up.	Router(config-if)# <b>no shutdown</b>
Step 3	Exit configuration mode.	Router(config-if)# <b>Ctrl-Z</b>

