



# Using the Command-Line Interface

This chapter describes the command-line interface (CLI) and how to use it to configure your Cisco 910 Industrial Router (*hereafter* referred to as the router).

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## Understanding Command Modes

The command line interface of the router is divided into many different modes. The commands available to you depend on which mode you are currently in. Enter a question mark (?) at the system prompt to obtain a list of commands available for each command mode.

When you start a session on the router, you begin in user mode, often called user EXEC mode. Only a limited subset of the commands are available in user EXEC mode. For example, most of the user EXEC commands are one-time commands, such as **show** commands, which show the current configuration status. The user EXEC commands are not saved when the router reboots.

To have access to all commands, you must enter privileged EXEC mode. Normally, you must enter a password to enter privileged EXEC mode. From this mode, you can enter any privileged EXEC command or enter global configuration mode.

Using the configuration modes (global, interface, and line), you can make changes to the running configuration. If you save the configuration, these commands are stored and used when the router reboots. To access the various configuration modes, you must start at global configuration mode. From global configuration mode, you can enter interface configuration mode and line configuration mode.

**Table 1** describes the main command modes, how to access each one, the prompt you see in that mode, and how to exit the mode. The examples in the table use the hostname *router*.

**Table 1 Command Mode Summary**

Mode	Access Method	Prompt	Exit Method	About This Mode
User EXEC	Begin a session with your router.	Router>	Enter <b>exit</b> .	Use this mode to <ul style="list-style-type: none"> <li>■ Change terminal settings.</li> <li>■ Perform basic tests.</li> <li>■ Display system information.</li> </ul>
Privileged EXEC	While in user EXEC mode, enter the <b>enable</b> command.	Router#	Enter <b>disable</b> to exit.	Use this mode to verify commands that you have entered. Use a password to protect access to this mode.
Global configuration	While in privileged EXEC mode, enter the <b>configure</b> command.	Router(config)#	To exit to privileged EXEC mode, enter <b>exit</b> or <b>exit</b> , or press <b>Ctrl-Z</b> .	Use this mode to configure parameters that apply to the entire router.
Interface configuration	While in global configuration mode, enter the <b>interface</b> command (with a specific interface).	Router(config-if)#	To exit to global configuration mode, enter <b>exit</b> .  To return to privileged EXEC mode, press <b>Ctrl-Z</b> or enter <b>exit</b> .	Use this mode to configure parameters for the Ethernet ports.
Line configuration	While in global configuration mode, specify a line with the <b>line console</b> command.	Router(config-line)#	To exit to global configuration mode, enter <b>exit</b> .  To return to privileged EXEC mode, press <b>Ctrl-Z</b> or enter <b>exit</b> .	Use this mode to configure parameters for the terminal line.

## Understanding the Help System

You can enter a question mark (?) at the system prompt to display a list of commands available for each command mode. You can also obtain a list of associated keywords and arguments for any command, as shown in [Table 2](#).

**Table 2 Help Summary**

Command	Purpose
<b>help</b>	Obtain a brief description of the help system in any command mode.
<i>abbreviated-command-entry?</i>	Obtain a list of commands that begin with a particular character string.  For example:  Router# <b>di?</b> dir disable disconnect
<i>abbreviated-command-entry&lt;Tab&gt;</i>	Complete a partial command name.  For example:  Router# <b>sh st</b> <tab> router# <b>show startup-config</b>
<b>?</b>	List all commands available for a particular command mode.  For example:  Router> <b>?</b>
<i>command ?</i>	List the associated keywords for a command.  For example:  Router> <b>show ?</b>
<i>command keyword ?</i>	List the associated arguments for a keyword.  For example:  Router(config)# <b>cdp holdtime ?</b> <10-255> Length of time (in sec) that receiver must keep this packet

## Understanding Abbreviated Commands

You need to enter only enough characters for the router to recognize the command as unique.

This example shows how to enter the **show startup-config** privileged EXEC command in an abbreviated form:

```
Router# show st
```

## Understanding No Forms of Commands

Almost every configuration command also has a **no** form. In general, use the **no** form to disable a feature or function or reverse the action of a command. For example, the **no shutdown** interface configuration command reverses the shutdown of an interface. Use the command without the keyword **no** to re-enable a disabled feature or to enable a feature that is disabled by default.

## Understanding CLI Error Messages

Table 3 lists some error messages that you might encounter while using the CLI to configure your router.

**Table 3 Common CLI Error Messages**

Error Message	Meaning	How to Get Help
% The command is not completed.	You did not enter all the keywords or values required by this command.	Re-enter the command followed by a question mark (?) with a space between the command and the question mark.  The possible keywords that you can enter with the command appear.
% Illegal parameter.	You entered the command incorrectly.	Enter a question mark (?) to display all the commands that are available in this command mode.  The possible keywords that you can enter with the command appear.

## Using Command History

The software provides a record of commands that you have entered. The command history feature is particularly useful for recalling long or complex commands or entries.

### Recalling Commands

To recall commands from the history buffer, perform one of the actions listed in Table 4. These actions are optional.

**Table 4 Recalling Commands**

Action <sup>1</sup>	Result
Press the up arrow key.	Recall commands in the history buffer, beginning with the most recent command. Repeat the key sequence to recall successively older commands.
Press the down arrow key.	Return to more recent commands in the history buffer after recalling commands with the up arrow key. Repeat the key sequence to recall successively more recent commands.

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

## Editing Commands through Keystrokes

Table 5 shows the keystrokes that you need to edit command lines. These keystrokes are optional.

**Table 5** Editing Commands through Keystrokes

Capability	Keystroke <sup>1</sup>	Purpose
Move around the command line to make changes or corrections.	Press the left arrow key.	Move the cursor back one character.
	Press the right arrow key.	Move the cursor forward one character.
	Press <b>Ctrl-A</b> .	Move the cursor to the beginning of the command line.
	Press <b>Ctrl-E</b> .	Move the cursor to the exit of the command line.
Delete entries if you make a mistake or change your mind.	Press the <b>Delete</b> or <b>Backspace</b> key.	Erase the character to the left of the cursor.
	Press <b>Ctrl-D</b> .	Delete the character at the cursor.
	Press <b>Ctrl-K</b> .	Delete all characters from the cursor to the exit of the command line.
	Press <b>Ctrl-U</b> .	Delete all characters from the cursor to the beginning of the command line.
	Press <b>Ctrl-W</b> .	Delete the word to the left of the cursor.
Scroll down a line or screen on displays that are longer than the terminal screen can display.  <b>Note:</b> The More prompt is used for any output that has more lines than can be displayed on the terminal screen, including <b>show</b> command output. You can use the <b>Return</b> and <b>Space</b> bar keystrokes whenever you see the More prompt.	Press the <b>Return</b> key or <b>Space</b> bar.	Scroll down one screen.

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

## Searching and Filtering Output of show logging Commands

You can search and filter the output for **show logging** commands. This is useful when you need to sort through large amounts of output or if you want to exclude output that you do not need to see. Using these commands is optional.

To use this functionality, enter a **show logging** command followed by the *pipe* character (`|`), one of the keywords **begin**, **include**, or **exclude**, and an expression that you want to search for or filter out:

```
show logging | {begin | include | exclude} regular-expression
```

Expressions are case sensitive. For example, if you enter **| exclude output**, the lines that contain *output* are not displayed, but the lines that contain *Output* appear.

This example shows how to include in the output display only lines where the expression *protocol* appears:

```
Router# show logging | include protocol
```

## Accessing the CLI

You can access the CLI through a console connection, through SSH, or by using the browser.

### Accessing the CLI through a Console Connection or through Telnet

Before you can access the CLI, you must connect a terminal or PC to the router console port and power on the router, as described in the getting started guide that shipped with your router. Then, to understand the boot process and the options available for assigning IP information, see [Chapter 4, “Assigning IP Address and Domain Name Server.”](#)

You can use one of these methods to establish a connection with the router:

- Connect the router console port to a management station or dial-up modem. For information about connecting to the console port, see the router quick start guide or hardware installation guide.
- Use any encrypted Secure Shell (SSH) package from a remote management station. The router must have network connectivity with the SSH client, and the router must have an enable secret password configured.

For information about configuring the router for SSH, see the [“Configuring the Router for Secure Shell” section on page -7.](#)

After you connect through the console port or through an SSH session, the user EXEC prompt appears on the management station.