User Interface Commands

The communication server user interface provides several different command modes. Each command mode provides a group of related commands. Entering a question mark (?) at the system prompt allows you to obtain a list of commands available for each command mode.

The command interpreter is called the EXEC. The EXEC interprets the commands you type and carries out the corresponding operations. You must log into the communication server before you can enter an EXEC command. For security purposes, the EXEC has two levels of access to commands: *user* and *privileged*. The EXEC commands available at the user level are a subset of the EXEC commands available at the privileged level. From the privileged level, you can also access global configuration mode and six specific configuration modes: interface, subinterface, line, router, ipx router, and route map configuration.

If your communication server does not find a valid system image, or if its configuration file is corrupted at startup, the system might enter read-only memory (ROM) monitor mode. This command mode is also called bootstrap mode.

This chapter describes the commands specific to the user interface.

For user interface task information and examples, refer to the *Communication Server Configuration Guide*.

b (ROM monitor)

To manually boot the communication server, use the **b** ROM monitor command.

b [*filename* [*address*]]

Syntax Description

filename   (Optional.) Name of the system image from which you want to netboot.

address   (Optional.) IP address of the TFTP server on which the system image resides. If omitted, this value defaults to the IP broadcast address of 255.255.255.255.

Default

If you enter the **b** command and press Return, the communication server boots from ROM by default.

Command Mode

ROM monitor (>)

Usage Guidelines

Use this command only when your communication server cannot find the configuration information needed in NVRAM. To get to the ROM monitor prompt, enter the **reload** EXEC command, and then press the Break key during the first 60 seconds of startup.

Examples

In the following example, the communication server is manually booted from ROM:

```
> b
F3:
(ROM Monitor copyrights)
```

In the following example, the file cstest is netbooted from IP address 131.108.15.112:

```
> b cstest 131.108.15.112
F3:
(ROM Monitor copyrights)
```

C

To exit to user EXEC mode from ROM monitor mode, use the **c** command.

c

Syntax Description

There are no keywords or arguments for this command.

Command Mode

ROM monitor mode

Example

In the following example, the **c** command is useto return to user EXEC mode from ROM monitor mode:

```
> c
cs >
```

configure

To enter global configuration mode, use the **configure** privileged EXEC command. You must be in global configuration mode to enter global configuration commands.

    configure {**terminal** | **memory** | **network**}

Syntax Description

terminal   Executes configuration commands from the terminal.

memory   Executes the configuration commands stored in NVRAM.

network   Retrieves the configuration commands stored in a file on a server.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

If you do not specify **terminal**, **memory**, or **network**, the communication server prompts you for the source of configuration commands. After you enter the **configure** command, the system prompt changes from cs# to cs(config)#, indicating that you are in global configuration mode. To leave global configuration mode and return to the privileged EXEC prompt, press Ctrl-Z.

Examples

In the following example, the communication server is configured from the terminal:

```
cs# configure

Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/Z.
communication server(config)#
```

In the following example, the communication server is configured from the file tokyo-confg at IP address 131.108.2.155:

```
cs1# configure network

Host or network configuration file [host]?
IP address of remote host [255.255.255.255]? 131.108.2.155
Name of configuration file [tokyo-confg]?
Configure using tokyo-confg from 131.108.2.155? [confirm] y
Booting tokyo-confg from 131.108.2.155:!! [OK - 874/16000 bytes]
```

Related Commands

The dagger (†) indicates that the command is documented in another chapter.

show configuration†
write memory†
write terminal†

disable

To exit to user EXEC mode from privileged EXEC mode, use the **disable** command.

disable

Syntax Description

There are no keywords or arguments for this command.

Command Mode

Privileged EXEC

Example

In the following example, the **disable** command is useto return to the user EXEC level from privileged EXEC mode:

```
cs> enable
Password:
cs# disable
cs >
```

editing

To enable enhanced editing mode for a particular line, use the **editing** line configuration command. To disable the enhanced editing mode, use the no form of this command.

editing
no editing

Syntax Description

This command has no arguments or keywords.

Default

Enabled

Command Mode

Line configuration

Usage Guidelines

Table 1-1 provides a description of the keys used to enter and edit commands. Ctrl indicates the Control key. It must be pressed simultaneously with its associated letter key. Esc indicates the Escape key. It must be pressed first, followed by its associated letter key. Keys are not case sensitive.

Table 1-1   Command Editing Keys and Functions

Keys	Function
Tab	Completes a partial command name entry. When you enter a unique set of characters and press the Tab key, the system completes the command name. If you enter a set of characters that could indicate more than one command, the system beeps to indicate an error. Enter a question mark (?) immediately following the partial command (no space). The system will provide a list of commands that begin with that set of characters.
Delete or Backspace	Erases the character to the left of the cursor.
Return	At the command line, pressing the Return key performs the function of executing, or carrying out, a command. At the "---more---" prompt on a terminal screen, pressing the Return key scrolls down a line.
Space bar	Scrolls down a page on the terminal screen. Press the space bar when you see the line "---more---" on the screen to display the next screen.
Left arrow key[1]	Moves the cursor one character to the left. When you enter a command that extends beyond a single line, you can continue to press the left arrow key at any time to scroll back towards the system prompt and verify the beginning of the command entry.
Right arrow key[1]	Moves the cursor one character to the right.
Ctrl-A	Moves the cursor to the beginning of the line.
Ctrl-B	Moves the cursor back one character.
Ctrl-D	Deletes the character at the cursor.
Ctrl-E	Moves the cursor to the end of the command line.
Ctrl-F	Moves the cursor forward one character.

Keys	Function
Ctrl-K	Deletes all characters from the cursor to the end of the command line.
Ctrl-L and Ctrl-R	Redisplays the system prompt and command line.
Ctrl-T	Transposes the character to the left of the cursor with the character located at the cursor.
Ctrl-U and Ctrl-X	Deletes all characters from the cursor back to the beginning of the command line.
Ctrl-V and ESC-Q	Inserts a code to indicate to the system that the keystroke immediately following should be treated as a command entry, and not as an editing key.
Ctrl-W	Deletes the word to the left of the cursor.
Ctrl-Y	Recalls the most recent entry in the delete buffer. The delete buffer contains the last ten items you have deleted or cut. Ctrl-Y can be used in conjunction with Esc-Y.
Ctrl-Z	Ends configuration mode and returns you to the privileged EXEC prompt.
Esc-B	Moves the cursor back one word.
Esc-C	Capitalizes the word at the cursor.
Esc-D	Deletes from the cursor to the end of the word.
Esc-F	Moves the cursor forward one word.
Esc-L	Changes the word at the cursor to lowercase.
Esc-U	Capitalizes from the cursor to the end of the word.
Esc-Y	Recalls the next buffer entry. The buffer contains the last ten items you have deleted. Use Ctrl-Y first to recall the most recent entry. Then use Esc-Y up to nine times to recall the remaining entries in the buffer. If you bypass an entry, continue to use Esc-Y to cycle back to it.

1. The arrow keys function only with ANSI-compatible terminals.

You can disable the enhanced editing mode with the **no editing** command. The editing keys and functions of the previous command editing mode are listed in Table 1-2.

Table 1-2   Editing Keys and Functions for Software Release 9.1 and Earlier

Key	Function
Delete or Backspace	Erases the character to the left of the cursor.
Ctrl-W	Erases a word.
Ctrl-U	Erases a line.
Ctrl-R	Redisplays a line.
Ctrl-Z	Ends configuration mode and returns to the privileged EXEC prompt.
Return	Executes single-line commands.

Example

In the following example, the enhanced editing mode is disabled on virtual terminal line 3:

```
line vty 03
no editing
```

Related Command
terminal editing

enable

To enter privileged EXEC mode, use the **enable** EXEC command.

> **enable**

Syntax Description

There are no keywords or arguments for this command.

Command Mode

EXEC

Usage Guidelines

Because many of the privileged EXECcommands set operating parameters, privileged access should be password-protected to prevent unauthorized use. If the system administrator has set a password with the **enable-password** global configuration command, you are prompted to enter it before being allowed access to privileged EXEC mode. The password *is* case sensitive.

Example

In the following example, the user enters the **enable** command and is prompted to enter a password. The password is not displayed on the screen. After entering the password, the system enters privileged command mode as indicated by the # symbol.

```
csr> enable
Password:
cs#
```

Related Commands

A dagger (†) indicates that the command is documented in another chapter.

enable password†

end

To exit global configuration mode, use the **end** global configuration command.

end

Syntax Description

There are no keywords or arguments for this command.

Command Mode

Global configuration

Usage Guidelines

You can also press Ctrl-Z to exit configuration mode.

Example

In the following example, the communication server name is changed to alibaba using the **hostname** global configuration command. Entering the **end** command causes the system to exit configuration mode and return to EXEC mode.

```
csr(config)# hostname orange
orange(config)# end
orange#
```

exit

To exit any configuration mode, enter the **exit** command at the system prompt.

exit

Syntax Description

There are no keywords or arguments for this command.

Command Mode

Available in all command modes.

Usage Guidelines

When you enter the **exit** command at the EXEC levels, the EXEC is ended. Enter the **exit** command in global configuration mode to return to privileged EXEC mode. Enter the **exit** command in interface, line, communication server, ipx-router, and route-map configuration modes to return to global configuration mode. Enter the **exit** command in subinterface configuration mode to return to interface configuration mode. You can also press Ctrl-Z from any configuration mode return to privileged EXEC mode.

Example

In the following example, the user exits subinterface configuration mode to return to interface configuration mode:

```
cs(config-subif)# exit
cs(config-if)#
```

help

To obtain a list of the commands available in any command mode, enter the **help** command at the system prompt.

> **help**

Syntax Description

This command has no arguments or keywords.

Command Mode

Available in all command modes

Usage Guidelines

The **help** command provides a brief description of the context-sensitive help system. To obtain a list of commands that begin with a particular character set, enter the abbreviated command entry immediately followed by a question mark (?). To list all commands available for a particular command mode, enter a question mark (?) at the system prompt. To list a command's associated keywords, enter the command, a space, and then a question mark (?). To list a keyword's associated arguments, enter the command, the keyword, a space, and then a question mark (?).

Examples

Enter the **help** command at any time for a brief description of the help system:

```
cs1# help
Help may be requested at any point in a command by entering
a question mark '?'. If nothing matches, the help list will
be empty and you must backup until entering a '?' shows the
available options.
Two styles of help are provided:
1. Full help is available when you are ready to enter a
   command argument (e.g. 'show ?') and describes each possible
   argument.
2. Partial help is provided when an abbreviated argument is entered
   and you want to know what arguments match the input
   (e.g. 'show pr?'.)
```

In the following example, the user enters the letters "co" at the system prompt immediately proceeded by a question mark (?) to verify the syntax of the configuration command. The system provides the commands that begin with those letters.

```
cs# co?
configure  connect  copy
```

In the following example, the user selects enters the **access-list** command, access list number, and **deny** argument. To recall the next command argument, the user enters a question mark (?):

```
cs(config)# access-list 99 deny ?
  A.B.C.D  Address to match
```

The user enters the IP address, a space, and a question mark (?) to list further options:

```
cs(config)# access-list 99 deny 131.108.134.234 ?
  A.B.C.D  Mask of bits to ignore
  <cr>
```

The <cr> symbol in the previous example indicates that the mask argument is the final remaining option in the command syntax. The user enters the value for the mask argument and presses the Return key to execute the command.

```
cs(config)# access-list 99 deny 131.108.134.234 255.255.255.255
```

history

To change the command history buffer size for a particular line, use the **history** line configuration command. To disable the command history feature, use the **no** form of this command.

> **history size** *number-of-command-lines*
> **no history**

Syntax Description

number-of-command-lines	Specifies the number of command lines that the system will record in its history buffer. The range is 0 through 256.

Default

10 lines

Command Mode

Line configuration

Usage Guidelines

This feature is particularly useful to recall long or complex commands or entries, including access lists.

Table 1-3 lists the history command keys and functions.

Table 1-3   History Command Keys

Key	Function
Ctrl-P or Up Arrow.	Recall the most recent command in the history buffer.
Ctrl-N or Down Arrow.	Recall remaining commands in the history buffer in a backward sequence.

Example

In the following example, virtual terminal line 4 is configured with a history buffer size of 35 lines:

```
line vty 4
history size 35
```

Related Command

terminal history

interface

To configure an interface type and enter interface configuration mode, use the **interface** global configuration command.

> **interface** *interface-type interface-number*

To configure a subinterface, use the **interface** global configuration command.

> **interface** *interface-type interface-number.subinterface-number* [**multipoint** | **point-to-point**]

Syntax Description

interface-type	Specifies the type of interface to be configured. See Table 1-4.
interface-number	Specifies the port, connector, or interface card number. The numbers are assigned at the factory at the time of installation or when added to a system, and can be displayed with the **show interfaces** command.
.subinterface-number	Specifies the subinterface number in the range 1 to 4294967293. The *interface-number* that precedes the period (.) must match the *interface-number* this subinterface belongs to.
multipoint | **point-to-point**	Specifies a multipoint or point-to-point subinterface. Default is **multipoint**.

Table 1-4   Interface Type Keywords

Keyword	Interface Type
async	Line used as an asynchronous interface.
dialer	Dialer interface.
ethernet	Ethernet IEEE 802.3 interface.
loopback	Loopback interface. The interface-number is the number of the loopback interface that you want to create or configure. There is no limit on the number of loopback interfaces you can create.
null	Null interface.
serial	Serial interface.
tokenring	Token Ring interface.
tunnel	Tunnel interface. The *interface-number* is the number of the tunnel interface that you want to create or configure. There is no limit on the number of tunnel interfaces you can create.

Default

The default mode for subinterfaces is **multipoint**.

Command Mode

Global configuration

Usage Guidelines

Subinterfaces can be configured to support partially-meshed frame relay networks and multiple IPX encapsulations on LAN media (refer to the *Communication Server Configuration Guide*.)

Examples

In the following example, serial interface 0 is configured with PPP encapsulation:

```
interface serial 0
encapsulation ppp
```

The following example enables loopback mode and assigns an IP network address and network mask to the interface. The loopback interface established here will always appear to be up:

```
interface loopback 0
ip address 131.108.1.1 255.255.255.0
```

The following example shows how a partially-meshed frame relay network can be configured. In this example, subinterface serial 0.1 is configured as a multipoint subinterface with three frame relay PVCs associated, and subinterface serial 0.2 is configured as a point-to-point subinterface.

```
interface serial 0
encapsulation frame-relay
interface serial 0.1 multipoint
ip address 131.108.10.1 255.255.255.0
frame-relay interface-dlci 42 broadcast
frame-relay interface-dlci 53 broadcast
interface serial 0.2 point-to-point
ip address 131.108.11.1 255.255.0
frame-relay interface-dlci 59 broadcast
```

Related Commands

show interfaces

ipx router rip

To enter IPX router configuration mode, enter the **ipx routing** global configuration command followed by the **ipx router rip** global configuration command:

   router ipx rip

Syntax Description

rip   Routing protocol.

Default

None

Command Mode

Global configuration

Usage Guidelines

The **novell** and **ipx** commands and keywords are interchangeable. See the chapter,"Novell IPX Commands," for more information about Novell IPX commands.

Example

In the following example, the user enters ipx router configuration mode:

```
cs(config)# ipx routing
cs(config)# ipx router rip
cs(config-ipx-router)# ?
Novell router configuration commands:
  exit     Exit from IPX routing protocol configuration mode
  network  Enable routing on an IPX network
  no       Negate or set default values of a command
cs(config-ipx-router)# network ?
  <0-FFFFFFFF>  IPX Network number
```

Related Command

The dagger(†) indicates that the command is documented in another chapter.

ipx routing†

line

To identify a specific line for configuration and start the line command collection mode, use the **line** global configuration command.

line [*type-keyword*] *line-number* [*ending-line-number*]

Syntax Description

type-keyword	Specifies the type of line to be configured, it is one of the keywords listed in Table 1-5.
line-number	Specifies the relative number of the terminal line (or the first line in a contiguous group) you want to configure when the line type is specified. Numbering begins with zero. The communication server displays an error message if you do not specify a line number.
ending-line-number	Specifies the relative number of the last line in a contiguous group you want to configure. If you omit *type-keyword*, then *line-number* and *ending-line-number* are absolute rather than relative line numbers.

Table 1-5   Line Command Mode Keywords

Keywords	Line Command Mode
console	Console terminal line.
aux	Auxiliary line. ASM-CS only.
printer	Parallel printer line.
tty	Standard asynchronous line.
vty	A virtual terminal for remote console access. The communication server host can support five virtual terminals for access by incoming Telnet, LAT, or MOP connections.

Default

None

Command Mode

Global

Usage Guidelines

You can display the absolute and relative line numbers by using the EXEC command **show users all**.

Note Line numbers are in octal on the ASM-CS communication servers, but they are in decimal form on the 500-CS communication server.

See the "Line Configuration and Terminal Settings Commands" chapter for more information about line configuration commands.

Example

The following example starts configuration for the first five asynchronous terminal lines, 0 through 4.

```
line tty 0 4
```

Related Commands

The dagger (†) indicates that this command is documented in another chapter.

show users all†

reload

To reload the operating system, use the **reload** EXEC command.

reload

Syntax Description

This command has no arguments or keywords.

Command Mode

EXEC

Usage Guidelines

The **reload** command halts the system. If the system is set to restart on error, it reboots itself. The **reload** command is used after configuration information is entered into a file and saved into NVRAM.

Example

The following example illustrates how to enter the **reload** command at the privileged EXEC prompt:

```
cs# reload
```

Related Command

The dagger(†) indicates that the command is documented in another chapter.

write memory†

route-map

To enter route map configuration mode, use the **route-map** command:

> **route-map** *map-tag* {**permit** | **deny**} *sequence-number*
> **no route-map** *map-tag* {**permit** | **deny**} *sequence-number*

Syntax Description

map-tag	Defines a meaningful name for the route map. The **redistribute** router configuration command uses this name to reference this route map. Multiple route maps may share the same map tag name.
permit	If the match criteria are met for this route map, and **permit** is specified, the route is redistributed as controlled by the set actions. If the match criteria are not met, and **permit** is specified, the next route map with the same map-tag is tested. If a route passes none of the match criteria for the set of route maps sharing the same name, it is not redistributed by that set.
deny	If the match criteria are met for the route map, and **deny** is specified, the route is not redistributed, and no further route maps sharing the same map tag name will be examined.
sequence-number	Number that indicates the position a new route map is to have in the list of route maps already configured with the same name. If given with the **no** form of this command, it specifies the position of the route map that should be deleted.

See the"IPRouting Protocol Commands" chapter for more information about the route-map command.

Example

In the following example, a route map named arizona1 is configured at the global configuration prompt. The new prompt is (config-route-map)#. Enter a question mark (?) to list route-map configuration commands.

```
cs(config-ipx-router)# exit
cs(config)# route-map ?
  WORD  Route map tag
cs(config)# route-map arizona1
cs(config-route-map)# ?
Route Map configuration commands:
  exit   Exit from route-map configuration mode
  help   Description of the interactive help system
  match  Match values from routing table
  no     Negate or set default values of a command
  set    Set values in destination routing protocol
```

router

To configure IP routing protocols, use the **router** command:

    router *protocol autonomous system*

See the"IP Routing Protocols" chapter for more information about using this command to configure IP routing protocols.

Example

This command takes you into router configuration mode, as shown in the following example:

```
cs(config)# router bgp 4
cs(config-router)#
```

show history

To list the commands you have entered in the current EXEC session, use the **show history** EXEC command.

show history

Syntax Description

There are no keywords or arguments for this command.

Command Mode

EXEC

Usage Guidelines

The number of commands the history buffer will record is determined by the **terminal history** EXEC command.

Example

In the following example, the **show history** command lists the commands the user has entered in EXEC mode for this session:

```
cs# show history
  help
  where
  show hosts
  show history
cs#
```

Related Command

terminal history

terminal editing

To enable the enhanced editing mode for the current terminal session, use the **terminal editing** command. To disable the enhanced editing mode for this session, use the **no** form of this command.

> **terminal editing**
> **no terminal editing**

Syntax

This command has no arguments or keywords.

Default

Enabled

Command Mode

EXEC

Usage Guidelines

Table 1-6 provides a description of the keys used to enter and edit commands. Ctrl indicates the Control key. It must be pressed simultaneously with its associated letter key. Esc indicates the Escape key. It must be pressed first, followed by its associated letter key. Keys are not case sensitive.

Table 1-6   Command Editing Keys and Functions

Keys	Function
Tab	Completes a partial command name entry. When you enter a unique set of characters and press the Tab key, the system completes the command name. If you enter a set of characters that could indicate more than one command, the system beeps to indicate an error. Enter a question mark (?) immediately following the partial command (no space). The system will provide a list of commands that begin with that set of characters.
Delete or Backspace	Erases the character to the left of the cursor.
Return	At the command line, pressing the Return key performs the function of executing, or carrying out, a command. At the "---more---" prompt on a terminal screen, pressing the Return key scrolls down a line.
Space Bar	Scrolls down a page on the terminal screen. Press the space bar when you see the line "---more---" on the screen to display the next screen.
Left Arrow key[1]	Moves the cursor one character to the left. When you enter a command that extends beyond a single line, you can continue to press the left arrow key at any time to scroll back towards the system prompt and verify the beginning of the command entry.
Right Arrow key[1]	Moves the cursor one character to the right.
Ctrl-A	Moves the cursor to the beginning of the line.
Ctrl-B	Moves the cursor back one character.
Ctrl-D	Deletes the character at the cursor.
Ctrl-E	Moves the cursor to the end of the command line.
Ctrl-F	Moves the cursor forward one character.

Keys	Function
Ctrl-K	Deletes all characters from the cursor to the end of the command line.
Ctrl-L and Ctrl-R	Redisplays the system prompt and command line.
Ctrl-T	Transposes the character to the left of the cursor with the character located at the cursor.
Ctrl-U and Ctrl-X	Deletes all characters from the cursor back to the beginning of the command line.
Ctrl-V and Esc-Q	Inserts a code to indicate to the system that the keystroke immediately following should be treated as a command entry, and not as an editing key.
Ctrl-W	Deletes the word to the left of the cursor.
Ctrl-Y	Recalls the most recent entry in the delete buffer. The delete buffer contains the last ten items you have deleted or cut. Ctrl-Y can be used in conjunction with Esc-Y.
Ctrl-Z	Ends configuration mode and returns you to the privileged EXEC prompt.
Esc-B	Moves the cursor back one word.
Esc-C	Capitalizes the word at the cursor.
Esc-D	Deletes from the cursor to the end of the word.
Esc-F	Moves the cursor forward one word.
Esc-L	Changes the word at the cursor to lowercase.
Esc-U	Capitalizes from the cursor to the end of the word.
Esc-Y	Recalls the next buffer entry. The buffer contains the last ten items you have deleted. Use Ctrl-Y first to recall the most recent entry. Then use Esc-Y up to nine times to recall the remaining entries in the buffer. If you bypass an entry, continue to use Esc-Y to cycle back to it.

1. The arrow keys function only with ANSI-compatible terminals.

You can disable the enhanced editing mode with the **no terminal editing** command. The editing keys and functions of the previous command editing mode are listed in Table 1-7.

Table 1-7   Editing Keys and Functions for Software Release 9.1 and Earlier

Key	Function
Delete or Backspace	Erases the character to the left of the cursor.
Ctrl-W	Erases a word.
Ctrl-U	Erases a line.
Ctrl-R	Redisplays a line.
Ctrl-Z	Ends configuration mode and returns to the privileged EXEC prompt.
Return	Executes single-line commands.

Example
In the following example, enhanced mode editing is enabled for the current terminal session:

```
terminal editing
```

Related Command
editing

terminal history

To change the command history buffer size for the current terminal session, use the **terminal history** EXEC command. To disable the enhanced editing mode, use the **no** form of this command.

> **terminal history size** *number-of-command-lines*
> **no terminal history**

Syntax DescriptionDefault

number-of-command-lines	Specifies the number of command lines that the system will record in its history buffer. The range is 0 through 256.

Default

10 lines

Command Mode

EXEC

Usage Guidelines

The command history feature provides a record of EXEC commands you have entered. This feature is particularly useful to recall long or complex commands or entries, including access lists. You can configure the number of commands, or lines, the system will record (the minimum is 1 line; the maximum is 255 lines).Table 1-8 lists the history command keys and functions.

Table 1-8   History Command Keys

Key	Function
Ctrl-P or Up Arrow.	Recall the most recent command in the history buffer.
Ctrl-N or Down Arrow.	Recall remaining commands in the history buffer in a backward sequence.

Example

In the following example, the number of command lines recorded is set to 15 for the current terminal session:

```
terminal history 15
```

Related Command

history
show history