



Terminal Operating Characteristics Commands

This chapter describes the commands used to control terminal operating characteristics for Cisco IOS Release 12.1.

For terminal operating characteristics task information and examples, refer to the “Configuring Operating Characteristics for Terminals” chapter in the *Cisco IOS Configuration Fundamentals Configuration Guide, Release 12.1*.

activation-character

To define the character you enter at a vacant terminal to begin a terminal session, use the **activation-character** line configuration command. Use the **no** form of this command to make any character activate a terminal.

activation-character *ascii-number*

no activation-character

Syntax Description

<i>ascii-number</i>	Decimal representation of the activation character.
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Defaults

Return (decimal 13)

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

See the “ASCII Character Set” appendix for a list of ASCII characters.



Note

If you are using the **autoselect** function, set the activation character to the default, Return, and exec-character-bits to 7. If you change these defaults, the application will not recognize the activation request.

Examples

The following example sets the activation character for the console to Delete, which is decimal character 127:

```
Router(config)# line console
Router(config-line)# activation-character 127
```

autobaud

To set the line for automatic baud rate detection (autobaud), use the **autobaud** line configuration command. Use the **no** form of this command to restore the default.

autobaud

no autobaud

Syntax Description

This command has no arguments or keywords.

Defaults

No autobaud detection. Fixed speed of 9600 bps.

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

The autobaud detection supports a range from 300 to 19200 baud. A line set for autobaud cannot be used for outgoing connections, nor can you set autobaud capability on a line using 19200 baud when the parity bit is set (because of hardware limitations).



Note

Automatic baud detection must be disabled by using the **no autobaud** command prior to entering the **rxspeed**, **speed**, or **txspeed** commands.

Examples

The following example sets the auxiliary port for autobaud detection:

```
line 5
 autobaud
```

buffer-length

To specify the maximum length of the data stream to be forwarded, use the **buffer-length** command in line configuration mode. To restore the default setting, use the **no** form of this command.

buffer-length *length*

no buffer-length

Syntax Description	<i>length</i>	Specifies the length of the buffer in bytes. Valid values for the <i>length</i> argument range from 16 to 1536. The default buffer length is 1536 bytes.
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Defaults	1536 bytes
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Command Modes	Line configuration
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Command History	Release	Modification
	12.1	This command was introduced.

Usage Guidelines The **buffer-length** command configures the size of the forwarded data stream. The higher the value used for the *length* argument is, the longer the delay between data transmissions will be. Configuring a smaller buffer length can prevent connections from timing out inappropriately.

Examples The following example configures a buffer length of 500 bytes:

```
buffer-length 500
```

databits

To set the number of data bits per character that are interpreted and generated by the router hardware, use the **databits** line configuration command. Use the **no** form of the command to restore the default value.

databits {5 | 6 | 7 | 8}

no databits

Syntax Description	5	Five data bits per character.
	6	Six data bits per character.
	7	Seven data bits per character.
	8	Eight data bits per character. This is the default.

Defaults Eight data bits per character

Command Modes Line configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines The **databits** line configuration command can be used to mask the high bit on input from devices that generate 7 data bits with parity. If parity is being generated, specify 7 data bits per character. If no parity generation is in effect, specify 8 data bits per character. The other keywords are supplied for compatibility with older devices and generally are not used.

Examples The following example sets the number of data bits per character to seven on line 4:

```
Router(config)# line 4
Router(config-line)# databits 7
```

Related Commands	Command	Description
	data-character-bits	Sets the number of data bits per character that are interpreted and generated by the Cisco IOS software.
	terminal databits	Changes the number of data bits per character for the current terminal line for this session.
	terminal data-character-bits	Sets the number of data bits per character that are interpreted and generated by the Cisco IOS software for the current line and session.

data-character-bits

To set the number of data bits per character that are interpreted and generated by the Cisco IOS software, use the **data-character-bits** line configuration command. Use the **no** form of the command to restore the default value .

data-character-bits {7 | 8}

no data-character-bits

Syntax Description	7	Seven data bits per character.
	8	Eight data bits per character. This is the default.

Defaults Eight data bits per character

Command Modes Line configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines The **data-character-bits** line configuration command is used primarily to strip parity from X.25 connections on routers with the protocol translation software option. The **data-character-bits** line configuration command does not work on hard-wired lines.

Examples The following example sets the number of data bits per character to seven on virtual terminal line 1:

```
Router(config)# line vty 1
Router(config-line)# data-character-bits 7
```

Related Commands	Command	Description
	terminal data-character-bits	Sets the number of data bits per character that are interpreted and generated by the Cisco IOS software for the current line and session.

default-value exec-character-bits

To define the EXEC character width for either 7 bits or 8 bits, use the **default-value exec-character-bits** global configuration command. Use the **no** form of the command to restore the default value.

default-value exec-character-bits {7 | 8}

no default-value exec-character-bits

Syntax Description	7	Selects the 7-bit ASCII character set.
	8	Selects the full 8-bit ASCII character set.

Defaults 7-bit ASCII character set

Command Modes Global configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Configuring the EXEC character width to 8 bits allows you to add graphical and international characters in banners, prompts, and so forth. However, setting the EXEC character width to 8 bits can also cause failures. If a user on a terminal that is sending parity enters the command **help**, an “unrecognized command” message appears because the system is reading all 8 bits, although the eighth bit is not needed for the **help** command.

Examples The following example selects the full 8-bit ASCII character set for EXEC banners and prompts:

```
Router(config)# default-value exec-character-bits 8
```

Related Commands	Command	Description
	default-value special-character-bits	Configures the flow control default value from a 7-bit width to an 8-bit width.
	exec-character-bits	Configures the character widths of EXEC and configuration command characters.
	length	Sets the terminal screen length.
	terminal exec-character-bits	Locally changes the ASCII character set used in EXEC and configuration command characters for the current session.
	terminal special-character-bits	Changes the ASCII character widths to accept special characters for the current terminal line and session.

default-value special-character-bits

To configure the flow control default value from a 7-bit width to an 8-bit width, use the **default-value special-character-bits** global configuration command. Use the **no** form of the command to restore the default value.

default-value special-character-bits {7 | 8}

no default-value special-character-bits

Syntax Description	7	Selects the 7-bit character set.
	8	Selects the full 8-bit character set.

Defaults 7-bit character set

Command Modes Global configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Configuring the special character width to 8 bits allows you to add graphical and international characters in banners, prompts, and so forth.

Examples The following example selects the full 8-bit special character set:

```
Router(config)# default-value special-character-bits 8
```

Related Commands	Command	Description
	default-value exec-character-bits	Defines the EXEC character width for either 7 bits or 8 bits.
	exec-character-bits	Configures the character widths of EXEC and configuration command characters.
	length	Sets the terminal screen length.
	terminal exec-character-bits	Locally changes the ASCII character set used in EXEC and configuration command characters for the current session.
	terminal special-character-bits	Changes the ASCII character widths to accept special characters for the current terminal line and session.

disconnect-character

To define a character to disconnect a session, use the **disconnect-character** line configuration command. Use the **no** form of this command to remove the disconnect character.

disconnect-character *ascii-number*

no disconnect-character

Syntax Description	<i>ascii-number</i>	Decimal representation of the session disconnect character.
Defaults	No disconnect character is defined.	
Command Modes	Line configuration	
Command History	Release	Modification
	10.0	This command was introduced.
Usage Guidelines	<p>The Break character is represented by zero; NULL cannot be represented.</p> <p>To use the session-disconnect character in normal communications, precede it with the escape character. See the “ASCII Character Set” appendix for a list of ASCII characters.</p>	
Examples	<p>The following example sets the disconnect character for virtual terminal line 4 to Escape, which is decimal character 27:</p> <pre>Router(config)# line vty 4 Router(config-Line)# disconnect-character 27</pre>	

dispatch-character

To define a character that causes a packet to be sent, use the **dispatch-character** line configuration command. Use the **no** form of this command to remove the definition of the specified dispatch character.

dispatch-character *ascii-number1* [*ascii-number2* . . . *ascii-number*]

no dispatch-character *ascii-number1* [*ascii-number2* . . . *ascii-number*]

Syntax Description	<i>ascii-number</i>	Decimal representation of the character, such as Return (decimal 13) for line-at-a-time transmissions.
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Defaults	No dispatch character is defined.
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Command Modes	Line configuration
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Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines The **dispatch-character** command defines a dispatch character that causes a packet to be sent even if the dispatch timer has not expired. It causes the Cisco IOS software to attempt to buffer characters into larger-sized packets for transmission to the remote host.

Enable the **dispatch-character** command from the session that initiates the connection, not from the incoming side of a streaming Telnet session.

This command can take multiple arguments, so you can define any number of characters as dispatch characters.

Examples The following example specifies the Return character (decimal 13) as the dispatch character:

```
line vty 4
 dispatch-character 13
```

Related Commands	Command	Description
	dispatch-machine	Specifies an identifier for a TCP packet dispatch state machine on a particular line.
	dispatch-timeout	Sets the character dispatch timer.
	state-machine	Specifies the transition criteria for the state of a particular state machine.
	terminal dispatch-character	Defines a character that causes a packet to be sent for the current session.

dispatch-machine

To specify an identifier for a TCP packet dispatch state machine on a particular line, use the **dispatch-machine** line configuration command. Use the **no** form of the command to disable a state machine on a particular line.

dispatch-machine *name*

no dispatch-machine

Syntax Description	<i>name</i>	Name of the state machine that determines when to send packets on the asynchronous line.
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Defaults	No dispatch state machine identifier is defined.
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Command Modes	Line configuration
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Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines	<p>When the dispatch-timeout command is specified, a packet being built will be sent when the timer expires, and the state will be reset to zero.</p> <p>Any dispatch characters specified using the dispatch-character command are ignored when a state machine is also specified.</p> <p>If a packet becomes full, it will be sent regardless of the current state, but the state is not reset. The packet size depends on the traffic level on the asynchronous line and the dispatch-timeout value. There is always room for 60 data bytes. If the dispatch-timeout value is greater than or equal to 100 ms, a packet size of 536 (data bytes) is allocated.</p>
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Examples	The following example specifies the name linefeed for the state machine:
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```
state-machine linefeed 0 0 9 0
state-machine linefeed 0 11 255 0
state-machine linefeed 0 10 10 transmit

line 1
  dispatch-machine linefeed
```

■ dispatch-machine

Related Commands	Command	Description
	dispatch-character	Defines a character that causes a packet to be sent.
	dispatch-timeout	Sets the character dispatch timer.
	state-machine	Specifies the transition criteria for the state of a particular state machine.

dispatch-timeout

To set the character dispatch timer, use the **dispatch-timeout** line configuration command. Use the **no** form of this command to remove the timeout definition.

dispatch-timeout *milliseconds*

no dispatch-timeout

Syntax Description	<i>milliseconds</i>	Integer that specifies the number of milliseconds that the Cisco IOS software waits after putting the first character into a packet buffer before sending the packet. During this interval, more characters might be added to the packet, which increases the processing efficiency of the remote host.
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Defaults	No dispatch timeout is defined.
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Command Modes	Line configuration
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Command History	<table border="1"> <thead> <tr> <th style="text-align: left;">Release</th> <th style="text-align: left;">Modification</th> </tr> </thead> <tbody> <tr> <td>10.0</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	10.0	This command was introduced.
Release	Modification				
10.0	This command was introduced.				

Usage Guidelines	<p>The dispatch-timeout line configuration command causes the software to buffer characters into packets for transmission to the remote host. The Cisco IOS software sends a packet a specified amount of time after the first character is put into the buffer. You can use the dispatch-timeout and dispatch-character line configuration commands together. In this case, the software dispatches a packet each time the dispatch character is entered, or after the specified dispatch timeout interval, depending on which condition is met first.</p>
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Note

The response of the software might appear intermittent if the timeout interval is greater than 100 ms and remote echoing is used. For lines with a reverse-Telnet connection, use a dispatch-timeout value less than 10 ms.

Examples	<p>The following example sets the dispatch timer to 80 milliseconds:</p>
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```
line vty 0 4
 dispatch-timeout 80
```

■ dispatch-timeout

Related Commands	Command	Description
	dispatch-character	Defines a character that causes a packet to be sent.
	dispatch-machine	Specifies an identifier for a TCP packet dispatch state machine on a particular line.
	state-machine	Specifies the transition criteria for the state of a particular state machine.

escape-character

To define a system escape character, use the **escape-character** line configuration command.

Use the **no** or **default** form of this command to set the escape character to Break.

escape-character { *ascii-number* | *character* | **break** | **default** | **none** } [**soft**]

no escape-character [**soft**]

default escape-character

Syntax Description		
	<i>ascii-number</i>	Specifies the ASCII decimal representation of a character or a control sequence (for example, Ctrl-E). See the "ASCII Character Set" appendix for a list of ASCII characters and their numerical representation.
	<i>character</i>	Specifies a character to be used as the escape character (for example, !).
	break	Sets the escape-character to "Break". Note that the Break key should not be used as an escape character on a console terminal.
	default	Sets the escape key sequence to the default of Ctrl-^, X .
	none	Disables escape entirely.
	soft	Sets an escape character that will wait until pending input is processed before it executes.

Defaults	
	The default escape key sequence is Ctrl-Shift-6 (Cntl-^) or Ctrl-Shift-6, X (^X). The "X" is only required for modem connections.
	The command default escape-character sets the escape character to "Break" (the default setting for "Break" is Ctrl-C).

Command Modes	
	Line configuration

Command History	Release	Modification
	10.0	This command was introduced.
	11.3	The soft keyword was added.

Usage Guidelines	
	The escape character (or key sequence) suspends any actively running processes and returns you to Privileged EXEC Mode or, if using a menu, to the system menu interface. The escape character is used for interrupting or aborting a process started by previously executed command. Examples of processes that you can escape from include Domain-Name lookup, ping , trace , and Telnet sessions initiated from the device to which you connected.

To view the current setting of the escape sequence for a line, use the **show line** command followed by the specific line identifier (for example, **show line 0**, or **show line console**). The default escape sequence for a line is often displayed as `^^X`. The first caret symbol represents the Ctrl key, the second caret symbol is literal (Shift-6), and the x is literal (for most systems, the "x" is not required).

To set the escape key for the active terminal line session, use the **terminal escape-character** command.

The Break key cannot be used as an escape character on a console terminal because the Cisco IOS software interprets Break as an instruction to halt the system. Depending upon the configuration register setting, break commands issued from the console line will either be ignored or cause the server to shut down.

To send an escape sequence over a Telnet connection, press **Ctrl-Shift-6** twice.

The **escape-character soft** form of this command defines a character or character sequence that will cause the system to wait until pending input is processed before suspending the current session. This option allows you to program a key sequence to perform multiple actions, such as using the F1 key to execute a command, then execute the escape function after the first command is executed.

- The following restrictions apply when using the soft keyword:
- The length of the log off sequence must be 14 characters or less.
- The soft escape character cannot be the same as the generic Cisco escape character, Break, or the characters b, d, n, or s.
- The soft escape character should be between the ASCII values of 1 and 127. Do not use the number 30.

Examples

The following example sets the escape character for the console line to the keyboard entry Ctrl-P, which is represented by the ASCII decimal value of 16:

```
Router(config)# line console
Router(config-line)# escape-character 16
```

The following example sets the escape character for line 1 to "!", which is represented in the configuration file as the ASCII number 33:

```
Router(config)# line 1
Router(config-line)# escape-character !
Router(config-line)# end
Router#show running-config
Building configuration...
.
.
line 1
  autoselect during-login
  autoselect ppp
  modem InOut
  transport preferred none
  transport output telnet
  escape-character 33
.
.
```

Related Commands

Command	Description
show line	Displays information about the specified line connection, or all the lines.
terminal escape-character	Sets the escape character for the current terminal line for the current session.

exec-character-bits

To configure the character widths of EXEC and configuration command characters, use the **exec-character-bits** line configuration command. Use the **no** form of the command to restore the default value.

exec-character-bits {7 | 8}

no exec-character-bits

Syntax Description	7	Selects the 7-bit character set.
	8	Selects the full 8-bit character set for use of international and graphical characters in banner messages, prompts, and so forth.

Defaults 7-bit ASCII character set

Command Modes Line configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Setting the EXEC character width to 8 allows you to use special graphical and international characters in banners, prompts, and so forth. However, setting the EXEC character width to 8 bits can cause failures. If a user on a terminal that is sending parity enters the **help** command, an “unrecognized command” message appears because the system is reading all 8 bits, and the eighth bit is not needed for the **help** command.



Note

If you are using the **autoselect** function, set the activation-character to the default, Return, and **exec-character-bits** to 7. If you change these defaults, the application will not recognize the activation request.

Examples

The following example enables full 8-bit international character sets, except for the console, which is an ASCII terminal. It illustrates use of the **default-value exec-character-bits** global configuration command and the **exec-character-bits** line configuration command.

```
default-value exec-character-bits 8
line 0
  exec-character-bits 7
```

Related Commands	Command	Description
	default-value exec-character-bits	Defines the EXEC character width for either 7 bits or 8 bits.
	default-value special-character-bits	Configures the flow control default value from a 7-bit width to an 8-bit width.
	length	Sets the terminal screen length.
	terminal exec-character-bits	Locally changes the ASCII character set used in EXEC and configuration command characters for the current session.
	terminal special-character-bits	Changes the ASCII character widths to accept special characters for the current terminal line and session.

hold-character

To define the local hold character used to pause output to the terminal screen, use the **hold-character** line configuration command. Use the **no** form of this command to restore the default.

hold-character *ascii-number*

no hold-character

Syntax Description	<i>ascii-number</i>	Either the decimal representation of the hold character or a control sequence (for example, Ctrl-P).				
Defaults	No hold character is defined.					
Command Modes	Line configuration					
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>10.0</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	10.0	This command was introduced.	
Release	Modification					
10.0	This command was introduced.					
Usage Guidelines	The Break character is represented by zero; NULL cannot be represented. To continue the output, enter any character after the hold character. To use the hold character in normal communications, precede it with the escape character. See the “ASCII Character Set” appendix for a list of ASCII characters.					
Examples	<p>The following example sets the hold character to Ctrl-S, which is decimal character 19:</p> <pre>line 8 hold-character 19</pre>					
Related Commands	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>terminal hold-character</td> <td>Sets or changes the hold character for the current session.</td> </tr> </tbody> </table>	Command	Description	terminal hold-character	Sets or changes the hold character for the current session.	
Command	Description					
terminal hold-character	Sets or changes the hold character for the current session.					

insecure

To set the line as an insecure location, use the **insecure** line configuration command. Use the **no** form of this command to disable this feature.

insecure

no insecure

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes Line configuration

Command History	Release	Modification
	10.0	This command was introduced.

Examples The following example sets up line 10 as a dialup line that is used by the LAT software to report the line as available to remote hosts:

```
line 10
  insecure
```

length

To set the terminal screen length, use the **length** line configuration command. Use the **no** form of the command to restore the default value.

length *screen-length*

no length

Syntax Description	<i>screen-length</i>	Number of lines on the screen. A value of zero disables pausing between screens of output.				
Defaults	24 lines					
Command Modes	Line configuration					
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>10.0</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	10.0	This command was introduced.	
Release	Modification					
10.0	This command was introduced.					
Usage Guidelines	The Cisco IOS software uses the value of this command to determine when to pause during multiple-screen output. Not all commands recognize the configured screen length. For example, the show terminal command assumes a screen length of 24 lines or more.					
Examples	<p>The following example disables the screen pause function on the terminal connected to line 6:</p> <pre>line 6 terminal-type VT220 length 0</pre>					
Related Commands	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>terminal length</td> <td>Sets the number of lines on the current terminal screen for the current session.</td> </tr> </tbody> </table>	Command	Description	terminal length	Sets the number of lines on the current terminal screen for the current session.	
Command	Description					
terminal length	Sets the number of lines on the current terminal screen for the current session.					

location

To provide a description of the location of a serial device, use the **location** line configuration command. Use the **no** form of this command to remove the description.

location *text*

no location

Syntax Description

text Location description.

Defaults

No default behavior or values

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

The **location** command enters information about the device location and status. Use the **show users all EXEC** command to display the location information.

Examples

The following example identifies the location of the console:

```
line console
location Building 3, Basement
```

lock

To set up a temporary password on a line, use the **lock** EXEC command.

lock

Syntax Description This command has no arguments or keywords.

Defaults Not locked.

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced in a release prior to Cisco IOS Release 10.0.

Usage Guidelines You can prevent access to your session while keeping your connection open by setting up a temporary password. To lock access to the terminal, follow this procedure:

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- Step 1** Issue the **lock** command.
When you issue this command, the system prompts you for a password.
 - Step 2** Enter a password, which can be any arbitrary string.
The screen clears and displays the message “Locked.”
 - Step 3** To regain access to your sessions, reenter the password.
-

The Cisco IOS software honors session timeouts on a locked lines. You must clear the line to remove this feature. The system administrator must set the line up to allow use of the temporary locking feature by using the **lockable** line configuration command.

Examples

The following example shows configuring the router as lockable, saving the configuration, and then locking the current session for the user:

```
router(config-line)# lockable
router(config-line)# Ctrl-z
router# copy system:running-config nvram:startup-config
Building configuration...
```

```
OK
router# lock
Password:
Again:
                                Locked
```

```
Password:
router#
```

Related Commands

Command	Description
lockable	Enables the lock EXEC command.
login (EXEC)	Enables or changes a login username.

lockable

To enable use of the **lock** EXEC command, use the **lockable** global configuration command. Use the **no** form of this command to reinstate the default—the terminal cannot be locked.

lockable

no lockable

Syntax Description This command has no arguments or keywords.

Defaults Not lockable

Command Modes Global configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines This command enables use of temporary terminal locking, which is executed using the **lock** EXEC command. Terminal locking allows a user keep his/her current session open while preventing access to other users.

Examples The following example sets the terminal to the lockable state:

```
lockable
```

Related Commands	Command	Description
	lock	Prevents access to your session by other users by setting a temporary password on your terminal line.

logout-warning

To warn users of an impending forced timeout, use the **logout-warning** line configuration command. Use the **no** form of this command to restore the default.

logout-warning [*number*]

Syntax Description	<i>number</i>	(Optional) Number of seconds that are counted down before session termination. If no number is specified, the default of 20 seconds is used.
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Defaults	No warning is sent to the user.
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Command Modes	Line configuration
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Command History	Release	Modification
	10.3	This command was introduced.

Usage Guidelines	This command notifies the user of an impending forced timeout, set by using the absolute-timeout command, or another method such as ARAP.
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Examples	The following example sets a countdown value of 30 seconds:
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```
line 5
  logout-warning 30
```

Related Commands	Command	Description
	absolute-timeout	Sets the interval for closing user connections on a specific line or port.
	session-timeout	Sets the interval for closing the connection when there is no input or output traffic.

notify

To enable terminal notification about pending output from other Telnet connections, use the **notify** line configuration command. Use the **no** form of this command to end notification.

notify

no notify

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes Line configuration

Release	Modification
10.0	This command was introduced.

Usage Guidelines This command sets a line to inform a user who has multiple, concurrent Telnet connections when output is pending on a connection other than the current one.

Examples The following example sets up notification of pending output from connections on virtual terminal lines 0 to 4:

```
line vty 0 4
notify
```

Command	Description
terminal notify	Configures a line to inform a user who has multiple concurrent Telnet connections when output is pending on a connection other than the current one.

padding

To set the padding on a specific output character, use the **padding** line configuration command. Use the **no** form of this command to remove padding for the specified output character.

padding *ascii-number count*

no padding *ascii-number*

Syntax Description		
	<i>ascii-number</i>	Decimal representation of the character.
	<i>count</i>	Number of NULL bytes sent after that character, up to 255 padding characters in length.

Defaults No default behavior or values

Command Modes Line configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Use this command when the attached device is an old terminal that requires padding after certain characters (such as ones that scrolled or moved the carriage). See the “ASCII Character Set” appendix for a list of ASCII characters.

Examples The following example pads a Return (decimal character 13) with 25 NULL bytes:

```
line console
padding 13 25
```

Related Commands	Command	Description
	terminal padding	Changes the character padding on a specific output character for the current session.

parity

To define generation of a parity bit, use the **parity** line configuration command. Use the **no** form of the command to specify no parity.

parity { **none** | **even** | **odd** | **space** | **mark** }

no parity

Syntax Description		
	none	No parity.
	even	Even parity.
	odd	Odd parity.
	space	Space parity.
	mark	Mark parity.

Defaults No parity

Command Modes Line configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Communication protocols provided by devices such as terminals and modems often require a specific parity bit setting.

Examples The following example changes the default of no parity to even parity:

```
line 34
parity even
```

Related Commands	Command	Description
	terminal parity	Defines the generation of the parity bit for the current terminal line for the current session.

printer (LPD)

To configure a printer and assign a server TTY line (or lines) to it, use the **printer** global configuration command. Use the **no** form of the command to disable printing on a TTY line.

printer *printer-name* {**line number** | **rotary number**} [**newline-convert** | **formfeed**]

no printer

Syntax Description	
<i>printer-name</i>	Printer name.
line number	Assigns a TTY line to the printer.
rotary number	Assigns a rotary group of TTY lines to the printer.
newline-convert	(Optional) Converts newline (linefeed) characters to a two-character sequence “carriage-return, linefeed.”
formfeed	(Optional) Causes the Cisco IOS software to send a form-feed character (ASCII 0x0C) to the printer TTY line immediately following each print job received from the network.

Defaults No printers are defined by default.

Command Modes Global configuration

Command History	Release	Modification
	10.3	This command was introduced.

Usage Guidelines This command enables you to configure a printer for operations and assign either a single TTY line or a group of TTY lines to it. To make multiple printers available through the same printer name, specify the number of a rotary group.

In addition to configuring the printer with the **printer** command, you must also modify the file `/etc/printcap` on your UNIX system to include the definition of the remote printer in the Cisco IOS software. Refer to the *Cisco IOS Configuration Fundamentals Configuration Guide* for additional information.

Use the optional **newline-convert** keyword in UNIX environments that cannot handle single-character line terminators. This converts newline characters to a carriage-return, linefeed sequence. Use the **formfeed** keyword when using the line printer daemon (lpd) protocol to print and your system is unable to separate individual output jobs with a form feed (page eject). You can enter the **newline-convert** and **formfeed** keywords together and in any order.

Examples The following example configures a printer named `printer1` and assigns its output to the single TTY line 4:

```
printer printer1 line 4
```

Related Commands	Command	Description
	clear line	Returns a terminal line to idle state.

private

To save user EXEC command changes between terminal sessions, use the **private** line configuration command. Use the **no** form of this command to restore the default condition.

private

no private

Syntax Description This command has no arguments or keywords.

Defaults User-set configuration options are cleared with the EXEC command **exit** or when the interval set with the **exec-timeout** line configuration command has passed.

Command Modes Line configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines This command ensures that the terminal parameters set by the user remain in effect between terminal sessions. This behavior is desirable for terminals in private offices.

Examples The following example sets up virtual terminal line 1 to keep all user-supplied settings at system restarts:

```
line 15
 private
```

Related Commands	Command	Description
	exec-timeout	Sets the interval that the EXEC command interpreter waits until user input is detected.
	exit	Exits any configuration mode or close an active terminal session and terminate the EXEC.

show whoami

To display information about the terminal line of the current user, including host name, line number, line speed, and location, use the **show whoami** EXEC command.

show whoami [*text*]

Syntax Description	<i>text</i> (Optional) Additional data to print to the screen.
---------------------------	--

Command Modes	EXEC
----------------------	------

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines	<p>If text is included as an argument in the command, that text is displayed as part of the additional data about the line.</p> <p>To prevent the information from being lost if the menu display clears the screen, this command always displays a More prompt before returning. Press the space bar to return to the prompt.</p>
-------------------------	--

Examples	The following example is sample output from the show whoami command:
-----------------	---

```
Router> show whoami

Comm Server "Router", Line 0 at 0bps. Location "Second floor, West"

--More--
Router>
```

special-character-bits

To configure the number of data bits per character for special characters such as software flow control characters and escape characters, use the **special-character-bits** line configuration command. Use the **no** form of the command to restore the default value.

special-character-bits {7 | 8}

no special-character-bits

Syntax Description	7	Selects the 7-bit ASCII character set. This is the default.
	8	Selects the full 8-bit character set for special characters.

Defaults 7-bit ASCII character set

Command Modes Line configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Setting the special character bits to 8 allows you to use twice as many special characters as with the 7-bit ASCII character set. The special characters affected by this setting are the escape, hold, stop, start, disconnect, and activation characters.

Examples The following example allows the full 8-bit international character set for special characters on line 5:

```
line 5
 special-character-bits 8
```

Related Commands	Command	Description
	default-value exec-character-bits	Defines the EXEC character width for either 7 bits or 8 bits.
	default-value special-character-bits	Configures the flow control default value from a 7-bit width to an 8-bit width.
	exec-character-bits	Configures the character widths of EXEC and configuration command characters.
	terminal exec-character-bits	Locally changes the ASCII character set used in EXEC and configuration command characters for the current session.
	terminal special-character-bits	Changes the ASCII character widths to accept special characters for the current terminal line and session.

state-machine

To specify the transition criteria for the state of a particular state machine, use the **state-machine** global configuration command. Use the **no** form of the command to delete a particular state machine.

state-machine *name state firstchar... lastchar [nextstate | transmit]*

no state-machine *name*

Syntax Description		
<i>name</i>	Specifies the name for the state machine (used in the dispatch-machine line command). The user can specify any number of state machines, but each line can have only one state machine associated with it.	
<i>state</i>	Defines which state is being modified. There are a maximum of eight states per state machine. Lines are initialized to state 0 and return to state 0 after a packet is transmitted.	
<i>firstchar... lastchar</i>	Specify a range of characters. If the state machine is in the indicated state, and the next character input is within this range, the process goes to the specified next state. Full 8-bit character comparisons are done, so the maximum value is 255. Take care that the line is configured to strip parity bits (or not generate them), or duplicate the low characters in the upper half of the space.	
<i>nextstate</i>	(Optional) Defines the state to enter if the character is in the specified range.	
transmit	(Optional) Causes the packet to be transmitted and the state machine to be reset to state 0. Recurring characters that have not been explicitly defined to have a particular action return the state machine to state 0.	

Defaults No transition criteria are specified.

Command Modes Global configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines This command is paired with the **dispatch-machine** line configuration command, which defines the line on which the state machine is effective.

Examples The following example uses a dispatch machine named function to ensure that the function key characters on an ANSI terminal are lumped together in one packet. Because the default in the example is to remain in state 0 without sending anything, normal key signals are sent immediately.

```
line 1 20
  dispatch-machine function
!
state-machine function 0 0 255 transmit
```

Related Commands

Command	Description
dispatch-character	Defines a character that causes a packet to be sent.
dispatch-machine	Specifies an identifier for a TCP packet dispatch state machine on a particular line.
dispatch-timeout	Sets the character dispatch timer.

stopbits

To set the number of the stop bits transmitted per byte, use the **stopbits** line configuration command. Use the **no** form of the command to restore the default value.

stopbits { **1** | **1.5** | **2** }

no stopbits

Syntax Description	1	One stop bit.
	1.5	One and one-half stop bits.
	2	Two stop bits.

Defaults Two stop bits

Command Modes Line configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Communication protocols provided by devices such as terminals and modems often require a specific stop-bit setting.

Examples The following example changes the default from two stop bits to one as a performance enhancement:

```
line 4
 stopbits 1
```

Related Commands	Command	Description
	terminal stopbits	Changes the number of stop bits sent per byte by the current terminal line during an active session, use the terminal stopbits EXEC command.

terminal databits

To change the number of data bits per character for the current terminal line for this session, use the **terminal databits** EXEC command.

terminal databits {5 | 6 | 7 | 8}

Syntax Description	5	Six data bits per character.
	6	Seven data bits per character.
	7	Eight data bits per character. This is the default.
	8	

Defaults Eight data bits per character

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Communication protocols provided by devices such as terminals and modems often require a specific data bit setting. The **terminal databits** command can be used to mask the high bit on input from devices that generate 7 data bits with parity. If parity is being generated, specify 7 data bits per character. If no parity generation is in effect, specify 8 data bits per character. The other keywords (**5** and **6**) are supplied for compatibility with older devices and are generally not used.

Examples The following example changes the databits per character to seven:

```
Router> terminal databits 7
```

Related Commands	Command	Description
	databits	Sets the number of data bits per character that are interpreted and generated by the router hardware.

terminal data-character-bits

To set the number of data bits per character that are interpreted and generated by the Cisco IOS software for the current line and session, use the **terminal data-character-bits EXEC** command.

terminal data-character-bits {7 | 8}

Syntax Description	7	Seven data bits per character.
	8	Eight data bits. This is the default.

Defaults 8 data bits per character

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines This command is used primarily to strip parity from X.25 connections on routers with the protocol translation software option. The **terminal data-character-bits** command does not work on hard-wired lines.

Examples The following example sets the data bits per character to seven on the currentline :

```
Router> terminal data-character-bits 7
```

Related Commands	Command	Description
	data-character-bits	Sets the number of data bits per character that are interpreted and generated by the Cisco IOS software.

terminal dispatch-character

To define a character that causes a packet to be sent for the current session, use the **terminal dispatch-character EXEC** command.

```
terminal dispatch-character ascii-number1 [ascii-number2 . . . ascii-number]
```

Syntax Description	<i>ascii-number</i>	The ASCII decimal representation of the character, such as Return (ASCII character 13) for line-at-a-time transmissions. The command can take multiple arguments, so you can define any number of characters as the dispatch character.
---------------------------	---------------------	---

Command Modes	EXEC
----------------------	------

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines	At times, you might want to queue up a string of characters until they fill a complete packet and then transmit the packet to a remote host. This can make more efficient use of a line, because the access server or router normally dispatches each character as it is entered.
-------------------------	---

Examples	The following example defines the characters Ctrl-D (ASCII decimal character 4) and Ctrl-Y (ASCII decimal character 25) as the dispatch characters:
-----------------	---


```
Router> terminal dispatch-character 4 25
```

Related Commands	Command	Description
	dispatch-character	Defines a character that causes a packet to be sent.

terminal dispatch-timeout

To set the character dispatch timer for the current terminal line for the current session, use the **terminal dispatch-timeout** EXEC command.

terminal dispatch-timeout *milliseconds*

Syntax Description	<i>milliseconds</i> An integer that specifies the number of milliseconds that the router waits after it puts the first character into a packet buffer before sending the packet. During this interval, more characters can be added to the packet, which increases processing efficiency of the remote host.				
Command Modes	EXEC				
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>10.0</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	10.0	This command was introduced.
Release	Modification				
10.0	This command was introduced.				
Usage Guidelines	Use this command to increase the processing efficiency of the remote host.				
 Note	The router's response might appear intermittent if the timeout interval is greater than 100 milliseconds and remote echoing is used.				
Examples	<p>The following example sets the dispatch timer to 80 milliseconds:</p> <pre>terminal dispatch-timeout 80</pre>				
Related Commands	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>dispatch-timeout</td> <td>Sets the character dispatch timer.</td> </tr> </tbody> </table>	Command	Description	dispatch-timeout	Sets the character dispatch timer.
Command	Description				
dispatch-timeout	Sets the character dispatch timer.				

terminal download

To temporarily set the ability of a line to act as a transparent pipe for file transfers for the current session, use the **terminal download EXEC** command.

terminal download

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines You can use this feature to run a program such as KERMIT, XMODEM, or CrossTalk that downloads a file across an access server or router line. This command sets up the terminal line to send data and is equivalent to entering all the following commands:

- **terminal telnet transparent**
- **terminal no escape-character** (see **terminal escape-character**)
- **terminal no hold-character** (see **terminal hold-character**)
- **terminal no padding 0** (see **terminal padding**)
- **terminal no padding 128** (see **terminal padding**)
- **terminal parity none**
- **terminal databits 8**

Examples The following example configures a line to act as a transparent pipe:

```
terminal download
```

terminal escape-character

To set the escape character for the current terminal line for the current session, use the **terminal escape-character EXEC** command.

terminal escape-character *ascii-number*

Syntax Description	<i>ascii-number</i>	Either the ASCII decimal representation of the escape character or a control sequence (Ctrl-P, for example). Entering the escape character followed by X returns you to the EXEC when you are connected to another computer. See the “ASCII Character Set” appendix in this document for a list of ASCII characters.
---------------------------	---------------------	--

Defaults	Ctrl-^ (which is Ctrl-Shift-6)
-----------------	--------------------------------

Command Modes	EXEC
----------------------	------

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines This command is useful, for example, if you have the default escape character defined for a different purpose in your keyboard file. Entering the escape character followed by the X key returns you to EXEC mode when you are connected to another computer.



Note

The Break key cannot be used as an escape character on the console terminal because the operating software interprets BREAK as an instruction to halt the system.

Examples The following example sets the escape character to Ctrl-P (ASCII decimal character 16):

```
terminal escape-character 16
```

Related Commands	Command	Description
	escape-character	Defines a system escape character.

terminal exec-character-bits

To locally change the ASCII character set used in EXEC and configuration command characters for the current session, use the **terminal exec-character-bits** EXEC command.

terminal exec-character-bits {7 | 8}

Syntax Description	7	Selects the 7-bit ASCII character set.
	8	Selects the full 8-bit character set.

Defaults 7-bit ASCII character set (unless set otherwise in global configuration mode)

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines This EXEC command overrides the **default-value exec-character-bits** global configuration command. Configuring the EXEC character width to 8 bits enables you to add special graphical and international characters in banners, prompts, and so forth.

When the user exits the session, the character width is reset to the default value established by the default value EXEC-character-bits global configuration command. However, setting the EXEC character width to 8 bits can also cause failures. If a user on a terminal that is sending parity enters the **help** command, an “unrecognized command” message appears because the system is reading all 8 bits, and the eighth bit is not needed for the **help** command.

Examples The following example temporarily configures a router to use a full 8-bit user interface for system banners and prompts, allowing the use of additional graphical and international characters:

```
terminal exec-character-bits 8
```

Related Commands	Command	Description
	exec-character-bits	Configures the character widths of EXEC and configuration command characters.

terminal flowcontrol

To set flow control for the current terminal line for the current session, use the **terminal flowcontrol EXEC** command.

terminal flowcontrol { **none** | **software** [**in** | **out**] | **hardware** }

Syntax Description	none	Prevents flow control.
	software	Sets software flow control.
	in out	(Optional) Specifies the direction: in causes the router to listen to flow control from the attached device, and out causes the router to send flow control information to the attached device. If you do not specify a direction, both directions are assumed.
	hardware	Sets hardware flow control. For information about setting up the EIA/TIA-232 line, see the manual that was shipped with your product.

Command Modes	EXEC
---------------	------

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines

Flow control enables you to regulate the rate at which data can be transmitted from one point so that it is equal to the rate at which it can be received at another point. Flow control protects against loss of data because the terminal is not capable of receiving data at the rate it is being sent. You can set up data flow control for the current terminal line in one of two ways: software flow control, which you do with control key sequences, and hardware flow control, which you do at the device level.

For software flow control, the default stop and start characters are Ctrl-S and Ctrl-Q (XOFF and XON). You can change them with the **terminal stop-character** and **terminal start-character** commands.

Examples

The following example sets incoming software flow control:

```
terminal flowcontrol software in
```

Related Commands	Command	Description
	flowcontrol	Sets the method of data flow control between the terminal or other serial device and the router.

terminal hold-character

To set or change the hold character for the current session, use the **terminal hold-character** EXEC command. Use the **terminal no hold-character** command to delete the hold character.

terminal hold-character *ascii-number*

terminal no hold-character

Syntax Description	<i>ascii-number</i>	Either the ASCII decimal representation of the hold character or a control sequence (for example, Ctrl-P). By default, no local hold character is set. The Break character is represented by zero; NULL cannot be represented.
---------------------------	---------------------	--

Command Modes	EXEC
----------------------	------

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines	<p>You can define a local hold character that temporarily suspends the flow of output on the terminal. When information is scrolling too quickly, you can enter the hold character to pause the screen output, then enter any other character to resume the flow of output.</p> <p>You cannot suspend output on the console terminal. To send the hold character to the host, precede it with the escape character.</p>
-------------------------	---

Examples	The following example removes the previously set hold character:
-----------------	--

```
terminal no hold-character
```

Related Commands	Command	Description
	hold-character	Defines the local hold character used to pause output to the terminal screen.

terminal keymap-type

To specify the current keyboard type for the current session, use the **terminal keymap-type** EXEC command.

terminal keymap-type *keymap-name*

Syntax Description	<i>keymap-name</i> Name defining the current keyboard type.
---------------------------	---

Defaults	VT100
-----------------	-------

Command Modes	EXEC
----------------------	------

Command History	Release	Modification
	11.2	This command was introduced.

Usage Guidelines	You must use this command when you are using a keyboard other than the default of VT100. The system administrator can define other keyboard types and give you their names.
-------------------------	---

Examples	The following example specifies a VT220 keyboard as the current keyboard type: <pre>terminal keymap-type vt220</pre>
-----------------	---

terminal length

To set the number of lines on the current terminal screen for the current session, use the **terminal length** EXEC command.

terminal length *screen-length*

Syntax Description	<i>screen-length</i>	Your desired number of lines on the screen. The router uses this value to determine when to pause during multiple-screen output. A value of zero prevents the router from pausing between screens of output. When the output exceeds the screen length, it scrolls past.				
Defaults	24 lines					
Command Modes	EXEC					
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>10.0</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	10.0	This command was introduced.	
Release	Modification					
10.0	This command was introduced.					
Usage Guidelines	Some types of terminal sessions do not require you to specify the screen length because the screen length specified can be learned by some remote hosts. For example, the rlogin protocol uses the screen length to set up terminal parameters on a remote UNIX host.					
Examples	The following example prevents the router from pausing between multiple screens of output: <code>terminal length 0</code>					
Related Commands	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>length</td> <td>Sets the terminal screen length.</td> </tr> </tbody> </table>	Command	Description	length	Sets the terminal screen length.	
Command	Description					
length	Sets the terminal screen length.					

terminal monitor

To display **debug** command output and system error messages for the current terminal and session, use the **terminal monitor** EXEC command.

terminal monitor

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Remember that all terminal parameter-setting commands are set locally and do not remain in effect after a session is ended. You must perform this task at the privileged-level EXEC prompt at each session to see the debugging messages.

For more information about privileged-level EXEC mode, refer to the chapter “Using the Command-Line Interface” in the *Cisco IOS Configuration Fundamentals Configuration Guide*.

Examples The following example displays **debug** command output and error messages during the current terminal session:

```
terminal monitor
```

terminal notify

To configure a line to inform a user that has multiple concurrent Telnet connections when output is pending on a connection other than the current one, use the **terminal notify** EXEC command.

terminal notify

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines You might want to know, for example, when another connection receives mail or a message.

Examples The following example configures a line to inform a user with multiple connections when output is pending on a noncurrent connection:

```
terminal notify
```

Related Commands	Command	Description
	notify	Enables terminal notification about pending output from other Telnet connections.

terminal padding

To change the character padding on a specific output character for the current session, use the **terminal padding** EXEC command.

terminal padding *ascii-number count*

Syntax Description	<i>ascii-number</i>	The ASCII decimal representation of the character.
	<i>count</i>	The number of NULL bytes sent after that character, up to 255 padding characters in length.

Defaults No padding

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Character padding adds a number of null bytes to the end of the string and can be used to make a string an expected length for conformity.

Examples The following example pads Ctrl-D (ASCII decimal character 4) with 164 NULL bytes:

```
terminal padding 4 164
```

Related Commands	Command	Description
	padding	Sets the padding on a specific output character.

terminal parity

To define the generation of the parity bit for the current terminal line for the current session, use the **terminal parity** EXEC command.

```
terminal parity { none | even | odd | space | mark }
```

Syntax Description

none	No parity. This is the default.
even	Even parity.
odd	Odd parity.
space	Space.
mark	Mark.

Command Modes

EXEC

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

Communication protocols provided by devices such as terminals and modems often require a specific parity bit setting.

Examples

The following example sets the parity bit to odd:

```
terminal parity odd
```

Related Commands

Command	Description
parity	Defines generation of a parity bit.

terminal-queue entry-retry-interval

To change the retry interval for a terminal port queue, use the **terminal-queue** global configuration command. Use the **no** form of this command to restore the default terminal port queue interval.

```
terminal-queue entry-retry-interval interval
```

```
no terminal-queue
```

Syntax Description	<i>interval</i>	Number of seconds between terminal port retries.				
Defaults	60 seconds					
Command Modes	Global configuration					
Command History	<table><thead><tr><th>Release</th><th>Modification</th></tr></thead><tbody><tr><td>11.1</td><td>This command was introduced.</td></tr></tbody></table>	Release	Modification	11.1	This command was introduced.	
Release	Modification					
11.1	This command was introduced.					
Usage Guidelines	If a remote device (such as a printer) is busy, the connection attempt is placed in a terminal port queue. If you want to decrease the waiting period between subsequent connection attempts, decrease the default of 60 to an interval of 10 seconds. Decrease the time between subsequent connection attempts when, for example, a printer queue stalls for long periods.					
Examples	The following example changes the terminal port queue retry interval from the default of 60 seconds to 10 seconds: <pre>terminal-queue entry-retry-interval 10</pre>					

terminal rxspeed

To set the terminal receive speed (how fast information is sent to the terminal) for the current line and session, use the **terminal rxspeed EXEC** command.

terminal rxspeed *bps*

Syntax Description	<i>bps</i> Baud rate in bits per second (bps).
---------------------------	--

Defaults	9600 bps
-----------------	----------

Command Modes	EXEC
----------------------	------

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines	The following example sets the current auxiliary line receive speed to 115200 bps:
-------------------------	--

```
terminal rxspeed 115200
```

Related Commands	Command	Description
	rxspeed	Sets the terminal receive speed (how fast the terminal receives information from the modem).

terminal special-character-bits

To change the ASCII character widths to accept special characters for the current terminal line and session, use the **terminal special-character-bits EXEC** command.

terminal special-character-bits {7 | 8}

Syntax Description	7	8
	Selects the 7-bit ASCII character set. This is the default.	Selects the full 8-bit ASCII character set. Configuring the width to 8 bits enables you to use twice as many special characters as with the 7-bit setting. This selection enables you to add special graphical and international characters in banners, prompts, and so forth.

Defaults 7-bit ASCII character set

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines This command is useful, for example, if you want the router to provide temporary support for international character sets. It overrides the **default-value special-character-bits** global configuration command and is used to compare character sets typed by the user with the special character available during a data connection, which includes software flow control and escape characters.

When you exit the session, the character width is reset to the default value established by the global configuration command. However, setting the EXEC character width to eight bits can cause failures. If a user on a terminal that is sending parity enters the **help** command, an “unrecognized command” message appears because the Cisco IOS software is reading all eight bits, and the eighth bit is not needed for the **help** command.

Examples The following example temporarily configures a router to use a full 8-bit user interface for system banners and prompts. When you exit the system, character width is reset to the width established by the **default-value exec-character-bits** global configuration command.

```
terminal special-character-bits 8
```

Related Commands	Command	Description
	special-character-bits	Configures the number of data bits per character for special characters such as software flow control characters and escape characters.

terminal speed

To set the transmit and receive speeds of the current terminal line for the current session, use the **terminal speed EXEC** command.

terminal speed *bps*

Syntax Description	<i>bps</i>	The baud rate in bits per second (bps). The default is 9600 bps.
Defaults	9600 bps	
Command Modes	EXEC	
Command History	Release	Modification
	10.0	This command was introduced.
Usage Guidelines	Set the speed to match the transmission rate of whatever device you have connected to the port. Some baud rates available on devices connected to the port might not be supported on the router. The router indicates whether the speed you selected is not supported.	
Examples	The following example restores the transmit and receive speed on the current line to 9600 bps: <pre>terminal speed 9600</pre>	
Related Commands	Command	Description
	speed	Sets the terminal baud rate.

terminal start-character

To change the flow control start character for the current session, use the **terminal start-character EXEC** command.

terminal start-character *ascii-number*

Syntax Description	<i>ascii-number</i> The ASCII decimal representation of the start character.				
Defaults	Ctrl-Q (ASCII decimal character 17)				
Command Modes	EXEC				
Command History	<table border="1"><thead><tr><th>Release</th><th>Modification</th></tr></thead><tbody><tr><td>10.0</td><td>This command was introduced.</td></tr></tbody></table>	Release	Modification	10.0	This command was introduced.
Release	Modification				
10.0	This command was introduced.				
Usage Guidelines	The flow control start character signals the start of data transmission when software flow control is in effect.				
Examples	The following example changes the start character to Ctrl-O (ASCII decimal character 15): <pre>terminal start-character 15</pre>				
Related Commands	<table border="1"><thead><tr><th>Command</th><th>Description</th></tr></thead><tbody><tr><td>start-character</td><td>Sets the flow control start character.</td></tr></tbody></table>	Command	Description	start-character	Sets the flow control start character.
Command	Description				
start-character	Sets the flow control start character.				

terminal stopbits

To change the number of stop bits sent per byte by the current terminal line during an active session, use the **terminal stopbits** EXEC command.

terminal stopbits {1 | 1.5 | 2}

Syntax Description	1	One stop bit.
	1.5	One and one-half stop bits.
	2	Two stop bits. This is the default.

Defaults Two stop bits

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Communication protocols provided by devices such as terminals and modems often require a specific stop-bit setting.

Examples The following example changes the stop bits to one:

```
terminal stopbits 1
```

Related Commands	Command	Description
	stopbits	Sets the number of the stop bits sent per byte.

terminal stop-character

To change the flow control stop character for the current session, use the **terminal stop-character EXEC** command.

terminal stop-character *ascii-number*

Syntax Description	<i>ascii-number</i>	The ASCII decimal representation of the stop character.
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Defaults	Ctrl-S (ASCII character decimal 19)
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Command Modes	EXEC
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Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines	The flow control stop character signals the end of data transmission when software flow control is in effect.
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Examples	The following example changes the stop character to Ctrl-E (ASCII character decimal 5): <pre>terminal stop-character 5</pre>
-----------------	---

Related Commands	Command	Description
	stop-character	Sets the flow control stop character.

terminal telnet break-on-ip

To cause the access server to generate a hardware Break signal on the EIA/TIA-232 line, which is associated with a reverse Telnet connection, for the current line and sessions, use the **terminal telnet break-on-ip** EXEC command.

terminal telnet break-on-ip

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines The hardware Break signal occurs when a Telnet Interrupt-Process (IP) command is received on that connection. The **terminal telnet break-on-ip** command can be used to control the translation of Telnet IP commands into X.25 Break indications.

This command is also a useful workaround in the following situations:

- Several user Telnet programs send an IP command, but cannot send a Telnet break signal.
- Some Telnet programs implement a Break signal that sends an IP command.

Some EIA/TIA-232 hardware devices use a hardware Break signal for various purposes. A hardware Break signal is generated when a Telnet Break command is received.



Note

This command applies only to access servers. It is not supported on standalone routers.

Examples The following example generates a Break signal on the asynchronous TTY line 4:

```
line tty 4
  terminal telnet break-on-ip
```

terminal telnet refuse-negotiations

To set the current line to refuse to negotiate full-duplex, remote echo options on incoming connections for current sessions, use the **terminal telnet refuse-negotiations** EXEC command.

terminal telnet refuse-negotiations

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines You can set the line to allow the access server to refuse full-duplex, remote echo connection requests from the other end. This task suppresses negotiation of the Telnet Remote Echo and Suppress Go Ahead options.



Note This command applies only to access servers. It is not supported on standalone routers.

Examples The following example set san asynchronous interface to refuse full-duplex, remote echo requests:

```
line async 1
  terminal telnet refuse-negotiations
```

terminal telnet speed

To allow the access server to negotiate transmission speed for the current line and session, use the **terminal telnet speed** EXEC command.

terminal telnet speed *default-speed maximum-speed*

Syntax Description		
<i>default-speed</i>	Line speed (in bps) that the access server will use if the device on the other end of the connection has not specified a speed.	
<i>maximum-speed</i>	Maximum line speed (in bps) that the device on the other end of the connection can use.	

Defaults 9600 bps (unless otherwise set using the **speed**, **txspeed** or **rxspeed** line configuration commands)

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines You can match line speeds on remote systems in reverse Telnet, on host machines hooked up to an access server to access the network, or on a group of console lines hooked up to the access server, when disparate line speeds are in use at the local and remote ends of the connection. Line speed negotiation adheres to the Remote Flow Control option, defined in RFC 1080.



Note This command applies only to access servers. It is not supported on standalone routers.

Examples The following example enables the access server to negotiate a bit rate on the line using the Telnet option. If no speed is negotiated, the line will run at 2400 bps. If the remote host requests a speed greater than 9600 bps, then 9600 bps will be used.

```
line async 7
  terminal telnet speed 2400 9600
```

terminal telnet sync-on-break

To cause the access server to send a Telnet Synchronize signal when it receives a Telnet Break signal on the current line and session, use the **terminal telnet sync-on-break** EXEC command.

terminal telnet sync-on-break

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines You can set the line to cause a reverse Telnet line to send a Telnet Synchronize signal when it receives a Telnet Break signal. The TCP Synchronize signal clears the data path, but still interprets incoming commands.



Note This command applies only to access servers. It is not supported on standalone routers.

Examples The following example sets an asynchronous line to cause the access server to send a Telnet Synchronize signal:

```
line async 15
  terminal telnet sync-on-break
```

terminal telnet transparent

To cause the current terminal line to send a Return character (CR) as a CR followed by a NULL instead of a CR followed by a Line Feed (LF) for the current session, use the **terminal telnet transparent EXEC** command.

terminal telnet transparent

Syntax Description This command has no arguments or keywords.

Defaults CR followed by an LF

Command Modes EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines The end of each line typed at the terminal is ended with a Return (CR). This command permits interoperability with different interpretations of end-of-line demarcation in the Telnet protocol specification.



Note This command applies only to access server products. It is not supported on stand-alone routers.

Examples The following example configures a line to send a CR as a CR followed by a NULL:

```
terminal telnet transparent
```

terminal terminal-type

To specify the type of terminal connected to the current line for the current session, use the **terminal terminal-type EXEC** command.

terminal terminal-type *terminal-type*

Syntax Description	<i>terminal-type</i>	Defines the terminal name and type and permits terminal negotiation by hosts that provide that type of service.
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Defaults	VT100
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Command Modes	EXEC
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Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines	Indicate the terminal type if it is different from the default of VT100. The terminal type name is used by TN3270 for display management and by Telnet and rlogin to inform the remote host of the terminal type.
-------------------------	---

Examples	The following example defines the terminal on line 7 as a VT220:
-----------------	--

```
terminal terminal-type VT220
```

Related Commands	Command	Description
	terminal keymap-type	Specifies the current keyboard type for the current session.
	terminal-type	Specifies the type of terminal connected to a line.

terminal txspeed

To set the terminal transmit speed (how fast the terminal can send information) on the current line and session, use the **terminal txspeed** EXEC command.

terminal txspeed *bps*

Syntax Description	<i>bps</i> Baud rate in bits per second (bps). The default is 9600 bps.
---------------------------	---

Defaults	9600 bps
-----------------	----------

Command Modes	EXEC
----------------------	------

Command History	Release	Modification
	10.0	This command was introduced.

Examples The following example sets the current auxiliary line transmit speed to 2400 bps:

```
terminal txspeed 2400
```

Related Commands	Command	Description
	terminal keymap-type	Specifies the current keyboard type for the current session.
	terminal terminal-type	Specifies the type of terminal connected to the current line for the current session.
	txspeed	Sets the terminal transmit speed (how fast the terminal sends information to the modem).

terminal-type

To specify the type of terminal connected to a line, use the **terminal-type** line configuration command. Use the **no** form of this command to remove any information about the type of terminal and reset the line to the default terminal emulation.

terminal-type { *terminal-name* | *terminal-type* }

no terminal-type

Syntax Description	<i>terminal-name</i>	Terminal name.
	<i>terminal-type</i>	Terminal type.

Defaults VT100

Command Modes Line configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines This command records the type of terminal connected to the line. The *terminal-name* argument provides a record of the terminal type and allows terminal negotiation of display management by hosts that provide that type of service.

For TN3270 applications, this command must follow the corresponding ttycap entry in the configuration file.

Examples The following example defines the terminal on line 7 as a VT220:

```
line 7
 terminal-type VT220
```

terminal width

To set the number of character columns on the terminal screen for the current line for a session, use the **terminal width** EXEC command.

terminal width *characters*

Syntax Description	<i>characters</i>	Number of character columns displayed on the terminal. The default is 80.
---------------------------	-------------------	---

Defaults	80 characters
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Command Modes	EXEC
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Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines	By default, the route provides a screen display width of 80 characters. You can reset this value if it does not meet the needs of your terminal. The width specified can be learned by remote hosts.
-------------------------	--

Examples	The following example sets the terminal character columns to 132:
-----------------	---

```
terminal width 132
```

Related Commands	Command	Description
	width	Sets the terminal screen width. This command sets the number of character columns displayed on the attached terminal.

where

To list the open sessions, use the **where** EXEC command.

where

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Release	Modification
10.0	This command first appeared in a release prior to Cisco IOS Release 10.0.

Usage Guidelines The **where** command displays all open sessions associated with the current terminal line. The **Ctrl^x**, **where**, and **resume** commands are available with all supported connection protocols.

Examples The following is sample output from the **where** command:

```
router# where
Conn Host          Address           Byte   Idle  Conn Name
  1 MATHOM          192.31.7.21      0      0    MATHOM
* 2 CHAFF           131.108.12.19   0      0    CHAFF
```

The asterisk (*) indicates the current terminal session.

Table 8 describes significant fields shown in the display.

Table 8 *where* Field Descriptions

Field	Description
Conn	Name or address of the remote host to which the connection is made.
Host	Remote host to which the router is connected through a Telnet session.
Address	IP address of the remote host.
Byte	Number of unread bytes for the user to see on the connection.
Idle	Interval (in minutes) since data was last sent on the line.
Conn Name	Assigned name of the connection.

Command	Description
show sessions	Displays information about open LAT, Telnet, or rlogin connections.

width

To set the terminal screen width, use the **width** line configuration command. This command sets the number of character columns displayed on the attached terminal. Use the **no** form of this command to return to the default screen width.

width *characters*

no width

Syntax Description	<i>characters</i>	Number of character columns displayed on the terminal. The default is 80.
Defaults	80 character columns	
Command Modes	Line configuration	
Command History	Release	Modification
	10.0	This command was introduced.
Usage Guidelines	The rlogin protocol uses the <i>characters</i> argument to set up terminal parameters on a remote host. Some hosts can learn the values for both length and width specified with the line and width commands.	
Examples	The following example changes the character columns to 132 for the terminal on line 7: <pre>line 7 location console terminal width 132</pre>	
Related Commands	Command	Description
	terminal width	Sets the number of character columns on the terminal screen for only the current session on a line.

width