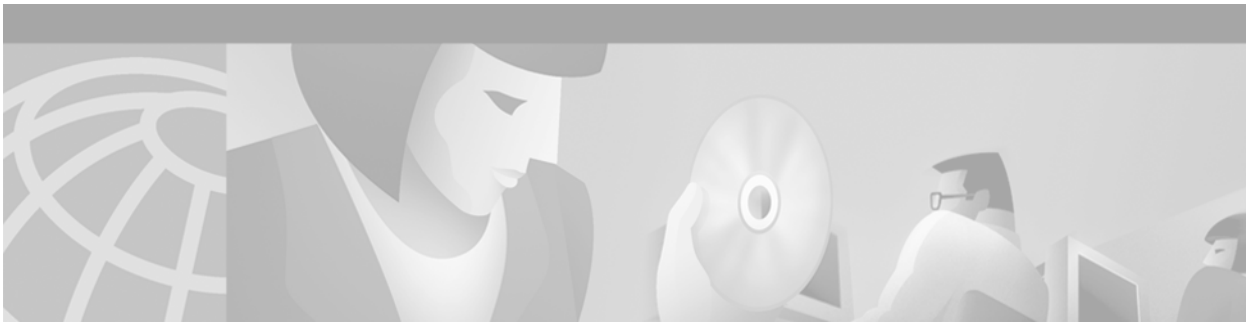

Terminal Operating Characteristics Commands

This chapter describes the commands used to control terminal operating characteristics.

For terminal operating characteristic task information and examples, refer to the "Configuring Operating Characteristics for Terminals" chapter in the Release 12.2 *Cisco IOS Configuration Fundamentals Configuration Guide*.

activation-character

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

activation-character *ascii-number*

no activation-character

Syntax Description

ascii-number	Decimal representation of the activation character.

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 and Hex Values" 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. To disable automatic baud detection, use the **no** form of this command.

autobaud

no autobaud

Syntax Description

This command has no arguments or keywords.

Defaults

Autobaud detection disabled. Fixed line 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 rate detection must be disabled by using the **no autobaud** command prior to entering the **rxspeed**, **speed**, or **txspeed** commands.

Examples

In the following example, the auxiliary port is configured for autobaud detection:

```
Router(config)# line aux
Router(config-line)# 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

length	Specifies the length of the buffer in bytes. Valid values for the *length* argument range from 16 to 1536. The default buffer length is 1536 bytes.

Defaults

1536 bytes

Command Modes

Line configuration

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. To restore the default value, use the **no** form of the command.

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.

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. To restore the default value, use the **no** form of this command.

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. To restore the default value, use the **no** form of this command.

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

no default-value exec-character-bits

Syntax Description

7	Selects the 7-bit ASCII character set. This is the default.
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 on. 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, 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. To restore the default value, use the **no** form of this command.

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

no default-value special-character-bits

Syntax Description

7	Selects the 7-bit character set. This is the default.
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 on.

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. To remove the disconnect character, use the **no** form of this command.

disconnect-character *ascii-number*

no disconnect-character

Syntax Description

ascii-number	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

See the"ASCII Character Set and Hex Values" appendix for a list of ASCII characters.

The Break character is represented by zero; NULL cannot be represented.

To use the session-disconnect character in normal communications, precede it with the escape character.

Examples

The following example defines the disconnect character for virtual terminal line 4 as Escape, which is decimal character 27:

```
Router(config)# line vty 4
Router(config-line)# disconnect-character 27
```

dispatch-character

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

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

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

Syntax Description

ascii-number1	Decimal representation of the desired dispatch character.
ascii-number2 . . . ascii-number	(Optional) Additional decimal representations of characters. This syntax indicates that you can define any number of characters as dispatch characters.

Defaults

No dispatch character is defined.

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

See the"ASCII Character Set and Hex Values" appendix for a list of ASCII characters.

The **dispatch-character** command defines one or more dispatch characters that cause a packet to be sent even if the dispatch timer has not expired. Use of a dispatch character 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 defines the Return character (decimal 13) as the dispatch character for vty line 4:

```
Router(config)# line vty 4
Router(config-line)# 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.

Command	Description
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. To disable a state machine on a particular line, use the **no** form of this command.

dispatch-machine *name*

no dispatch-machine

Syntax Description

name	Name of the state machine that determines when to send packets on the asynchronous line.

Defaults

No dispatch state machine identifier is defined.

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

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.

Any dispatch characters specified using the **dispatch-character** command are ignored when a state machine is also specified.

If a packet becomes full, it will be sent regardless of the current state, but the state will not be 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 milliseconds, a packet size of 536 (data bytes) is allocated.

Examples

The following example specifies the name “linefeed” for the state machine:

```
Router(config)# state-machine linefeed 0 0 9 0
Router(config)# state-machine linefeed 0 11 255 0
Router(config)# state-machine linefeed 0 10 10 transmit
Router(config)# line 1
Router(config-line)# dispatch-machine linefeed
```

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. To remove the timeout definition, use the **no** form of this command.

dispatch-timeout *milliseconds*

no dispatch-timeout

Syntax Description

milliseconds	Integer that specifies the number of milliseconds (ms) that the Cisco IOS software waits after putting the first character into a packet buffer before sending the packet. During this interval, more characters can be added to the packet, which increases the processing efficiency of the remote host.

Defaults

No dispatch timeout is defined.

Command Modes

Line configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

Use this command to increase the processing efficiency for the remote host.

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.

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

Examples

The following example sets the dispatch timer to 80 milliseconds for vty lines 0 through 4:

```
Router(config)# line vty 0 4
Router(config-line)# dispatch-timeout 80
```

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.
terminal dispatch-timeout	Sets the character dispatch timer for the current session.

escape-character

To define a system escape character, use the **escape-character** line configuration command. To set the escape character to Break, use the **no** or **default** form of this command.

escape-character {**break** | *char* | **default** | **none** | **soft**}

no escape-character [**soft**]

default escape-character [**soft**]

Syntax Description

break	Sets the escape character to Break. Note that the Break key should not be used as an escape character on a console terminal.
char	Character (for example, **!**) or its ASCII decimal representation (integer in the range of 0 to 255) to be used as the escape character.
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 (Ctrl-^) or Ctrl-Shift-6, X (^^X). The X is generally only required for modem connections.

The **default escape-character** command 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

See the "ASCII Character Set and Hex Values" appendix for a list of ASCII characters and their numerical representation.

The escape character (or key sequence) suspends any actively running processes and returns you to privileged EXEC mode or, if a menu is being used , to the system menu interface. The escape character is used for interrupting or aborting a process started by previously executed command. Examples of processes from which you can escape include Domain-Name lookup, **ping**, **trace**, and Telnet sessions initiated from the device to which you are 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 Control (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 either will 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 logout sequence must be 14 characters or fewer.
- 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 an ASCII value from 1 to 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. To restore the default value, use the **no** form of this command.

exec-character-bits {**7** | **8**}

no exec-character-bits

Syntax Description

7	Selects the 7-bit character set. This is the default.
8	Selects the full 8-bit character set for use of international and graphical characters in banner messages, prompts, and so on.

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 on. 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 the value for **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.

```
Router(config)# default-value exec-character-bits 8
Router(config)# line 0
Router(config-line)# 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. To restore the default, use the **no** form of this command.

hold-character *ascii-number*

no hold-character

Syntax Description

ascii-number	ASCII decimal representation of a character or control sequence (for example, Ctrl-P).

Defaults

No hold character is defined.

Command Modes

Line configuration

Command History

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

The following example sets the hold character to Ctrl-S, which is ASCII decimal character 19:

```
Router(config)# line 8
Router(config-line)# hold-character 19
```

Related Commands

Command	Description
terminal hold-character	Sets or changes the hold character for the current session.

insecure

To configure a line as insecure, use the **insecure** line configuration command. To disable this feature, use the **no** form of this command.

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.

Usage Guidelines

Use this command to identify a modem line as insecure for DEC local area transport (LAT) classification.

Examples

In the following example, line 10 is configured as an insecure dialup line:

```
Router(config)# line 10
Router(config-line)# insecure
```

length

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

length *screen-length*

no length

Syntax Description

screen-length	The number of lines on the screen. A value of zero disables pausing between screens of output.

Defaults

Screen length of 24 lines

Command Modes

Line configuration

Command History

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

In the following example, the terminal type is specified and the screen pause function is disabled for the terminal connection on line 6:

```
Router(config)# line 6
Router(config-line)# terminal-type VT220
Router(config-line)# length 0
```

Related Commands

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. To remove the description, use the **no** form of this command.

location *text*

no location

Syntax Description

text	Location description.

Defaults

No location description provided.

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

In the following example, the location description for the console line is given as "Building 3, Basement":

```
Router(config)# line console
Router(config-line)# location Building 3, Basement
```

lockable

To enable use of the **lock** EXEC command, use the **lockable** line configuration command. To reinstate the default (the terminal session cannot be locked), use the **no** form of this command.

lockable

no lockable

Syntax Description

This command has no arguments or keywords.

Defaults

Sessions on the line are not lockable (the **lock** EXEC command has no effect).

Command Modes

Line 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 the current session open while preventing access by other users.

Examples

In the following example, the terminal connection is configured as lockable, then the current connection is locked:

```
Router# configure terminal
Router(config)# line console 0
Router(config-line)# lockable
Router(config)# ^Z
Router# lock
Password: <password>
Again: <password>
                      Locked

Password: <password>
Router#
```

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. To restore the default, use the **no** form of this command.

logout-warning [*seconds*]

logout-warning

Syntax Description

seconds	(Optional) Number of seconds that are counted down before session termination. If no number is specified, the default of 20 seconds is used.

Defaults

No warning is sent to the user.

Command Modes

Line configuration

Command History

Release	Modification
10.3	This command was introduced.

Usage Guidelines

This command notifies the user of an impending forced timeout (set using the **absolute-timeout** command).

Examples

In the following example, a logout warning is configured on line 5 with a countdown value of 30 seconds:

```
Router(config)# line 5
Router(config-line)# 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. To disable notifications, use the **no** form of this command.

notify

no notify

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.

Usage Guidelines

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

Examples

In the following example, notification of pending output from connections is enabled on virtual terminal lines 0 to 4:

```
Router(config)# line vty 0 4
Router(config-line)# notify
```

Related Commands

Command	Description
terminal notify	Configures a line to inform a user that 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. To remove padding for the specified output character, use the **no** form of this command.

padding *ascii-number count*

no padding *ascii-number*

Syntax Description

ascii-number	ACII decimal representation of the character.
count	Number of NULL bytes sent after the specified character, up to 255 padding characters in length.

Defaults

No padding

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 and Hex Values" appendix for a list of ASCII characters.

Examples

In the following example, the Return (decimal character 13) is padded with 25 NULL bytes on the console line:

```
Router(config)# line console
Router(config-line)# 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. To specify no parity, use the **no** form of this command.

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

no parity

Syntax Description

none	No parity. This is the default.
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 will sometimes require a specific parity bit setting. Refer to the documentation for your device to determine required parity settings.

Examples

In the following example even parity is configured for line 34:

```
Router(config)# line 34
Router(config-line)# parity even
```

Related Commands

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

printer

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

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

no printer

Syntax Description

printer-name	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" (CR+LF).
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 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 *Release 12.2 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

In the following example a printer named printer1 is configured and output is assigned to tty line 4:

```
Router(config)# 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. To restore the default condition, use the **no** form of this command.

private

no private

Syntax Description

This command has no arguments or keywords.

Defaults

User-set configuration options are cleared with the **exit** EXEC command 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

In the following example, line 15 (in this example, vty 1) is configured to keep all user-supplied settings at system restarts:

```
Router(config)# line 15
Router(config-line)# 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 closes an active terminal session and terminates 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

text	(Optional) Additional data to print to the screen.

Command Modes

EXEC

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

If text is included as an argument in the command, that text is displayed as part of the additional data about the line.

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.

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. To restore the default value, use the **no** form of this command.

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:

```
Router(config)# line 5
Router(config-line)# 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. To remove a particular state machine from the configuration, use the **no** form of this command.

state-machine *name state first-character last-character* [*nextstate* | **transmit**]

no state-machine *name*

Syntax Description

name	Name for the state machine (used in the **dispatch-machine** line configuration command). The user can specify any number of state machines, but each line can have only one state machine associated with it.
state	State 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.
first-character last-character	Specifies a range of characters. Use ASCII numerical values. 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. Ensure 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.
nextstate	(Optional) 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

In the following example a dispatch machine named “function” is configured to ensure that the function key characters on an ANSI terminal are kept in one packet. Because the default in the example is to remain in state 0 without sending anything, normal key signals are sent immediately.

```
Router(config)# line 1 20
Router(config-line)# dispatch-machine function
Router(config-line)# exit
```

```
Router(config)# 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. To restore the default value, use the **no** form of this command.

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.This is the default.

Defaults

2 stop bits per byte

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

In the following example, the stop bits transmitted per byte are changed from the default of two stop bits to one stop bit as a performance enhancement for line 4:

```
Router(config)# line 4
Router(config-line)# 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.

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	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

8 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

In the following example, the databits per character is changed to seven for the current session:

```
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 parity	Defines the generation of the parity bit for the current terminal line and session.

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 current line:

```
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-number* [*ascii-number2 . . . ascii-number*]

Syntax Description

ascii-number	The ASCII decimal representation of the character, such as Return (ASCII character 13) for line-at-a-time transmissions.
ascii-number2 . . . ascii-number	(Optional) Additional decimal representations of characters. This syntax indicates that you can define any number of characters as dispatch characters.

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

milliseconds	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 the processing efficiency of the remote host.

Command Modes

EXEC

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

Use this command to increase the processing efficiency of the remote host.

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 **terminal dispatch-timeout** and **terminal 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.

Note The router response time might appear intermittent if the timeout interval is greater than 100 milliseconds and remote echoing is used.

Examples

In the following example, the dispatch timeout timer is set to 80 milliseconds:

```
Router# terminal dispatch-timeout 80
```

Related Commands

Command	Description
dispatch-timeout	Sets the character dispatch timer for a specified line or group of lines.

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 configures 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:

```
Router# 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

ascii-number	ASCII decimal representation of the escape character or control sequence (for example, Ctrl-P).

Defaults

Ctrl-^ (Ctrl-Shift-6)

Command Modes

EXEC

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

See the "ASCII Character Set and Hex Values" appendix for a list of ASCII characters and their numerical representation.

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 generally cannot be used as an escape character on the console terminal because the operating software interprets the Break command on a console line as an instruction to halt the system.

Examples

In the following example the escape character to Ctrl-P (ASCII decimal character 16) for the current session:

```
Router# 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. This is the default.
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 view special graphical and international characters in banners, prompts, and so on.

When the user exits the session, the character width is reset to the default value established by the **exec-character-bits** global configuration command. However, setting the EXEC character width to 8 bits can also cause failures. For example, 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 the system to use a full 8-bit user interface for system banners and prompts, allowing the use of additional graphical and international characters:

```
Router# 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 of flow control: **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** EXEC commands.

Examples

In the following example incoming software flow control is set for the current session:

```
Router# 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 define the hold character for the current session, use the **terminal hold-character** EXEC command. To return the hold character definition to the default, use the **terminal no hold-character** command.

terminal hold-character *ascii-number*

terminal no hold-character

Syntax Description

ascii-number	ASCII decimal representation of a character or control sequence (for example, Ctrl-P).

Defaults

The default hold character is defined by the **hold-character** global configuration command.

Command Modes

EXEC

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

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.

You cannot suspend output on the console terminal. To send the hold character to the host, precede it with the escape character.

Examples

In the following example the hold character for the current (local) session is set to Ctrl-P. The **show terminal** output is included to show the verification of the setting (the value for the hold character is shown in the "Special Characters" listing).

```
Router# terminal hold-character 16
"^P" is the local hold character
Router# show terminal
Line 50, Location: "", Type: "VT220"
Length: 24 lines, Width: 80 columns
Baud rate (TX/RX) is 9600/9600
Status: PSI Enabled, Ready, Active, No Exit Banner, Automore On
Capabilities: none
Modem state: Ready
Group codes:    0
Special Chars: Escape  Hold  Stop  Start  Disconnect  Activation
                ^^x     ^P    -     -       none
Timeouts:      Idle EXEC    Idle Session   Modem Answer  Session   Dispatch
               00:10:00        never                        none     not set
                            Idle Session Disconnect Warning
                              never
                            Login-sequence User Response
```

```
                                00:00:30
                               Autoselect Initial Wait
                                 not set
Modem type is unknown.
Session limit is not set.
Time since activation: 00:04:13
Editing is enabled.
History is enabled, history size is 10.
.
.
.
```

Related Commands

Command	Description
hold-character	Defines the local hold character used to pause output to the terminal screen.
show terminal	Displays settings for terminal operating characteristics.

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

keymap-name	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.

Examples

The following example specifies a VT220 keyboard as the current keyboard type:

```
Router# terminal keymap-type vt220
```

Related Commands

Command	Description
show keymap	Displays the current keymap settings.

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

screen-length	Number of lines on the screen. A value of zero disables pausing between screens of output.

Defaults

24 lines

Command Modes

EXEC

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

The system uses the length value to determine when to pause during multiple-screen output. A value of zero prevents the router from pausing between screens of output.

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

In the following example the system is configured to prevent output from pausing if it exceeds the length of the screen:

```
Router# terminal length 0
```

Related Commands

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.

Examples

In the following example the system is configured to display **debug** command output and error messages during the current terminal session:

```
Router# terminal monitor
```

terminal notify

To enable terminal notification about pending output from other Telnet connections for the current session, use the **terminal notify** EXEC command. To disable notifications for the current session, use the **no** form of this command.

terminal notify

terminal no 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

Enabling notifications may be useful if, for example, you want to know when another connection receives mail, or when a process has been completed.

This command enables or disables notifications for only the current session. To globally set these notifications, use the **notify** line configuration command.

Examples

In the following example notifications will be displayed to inform the user when output is pending on another connection:

```
Router# 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

ascii-number	ACII decimal representation of the character.
count	Number of NULL bytes sent after the specified 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.

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 and Hex Values" appendix for a list of ASCII characters.

Examples

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

```
Router# 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 and 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 parity.
mark	Mark parity.

Defaults

No parity.

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 will sometimes require a specific parity bit setting. Refer to the documentation for your device to determine required parity settings.

Examples

In the following example odd parity checking is enabled for the current session:

```
Router# terminal parity odd
```

Related Commands

Command	Description
parity	Defines generation of a parity bit for connections on a specified line or lines.

terminal-queue entry-retry-interval

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

terminal-queue entry-retry-interval *interval*

no terminal-queue entry-retry-interval

Syntax Description

interval	Number of seconds between terminal port retries.

Defaults

60 seconds

Command Modes

Global configuration

Command History

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:

```
Router# terminal-queue entry-retry-interval 10
```

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

bps	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

Set the speed to match the baud 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 system. The system will indicate if the speed you select is not supported.

Examples

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

```
Router# terminal rxspeed 115200
```

Related Commands

Command	Description
rxspeed	Sets the terminal receive speed for a specified line or lines.
terminal rxspeed	Sets the terminal receive speed for the current session.
terminal txspeed	Sets the terminal transmit speed for a specified line or lines.
terminal speed	Sets the transmit and receive speeds for the current session.

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	Selects the 7-bit ASCII character set. This is the default.
8	Selects the full 8-bit ASCII character set.

Defaults

7-bit ASCII character set

Command Modes

EXEC

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

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 on.

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, character width is reset to the width established by the **default-value exec-character-bits** global configuration command.

Note that setting the EXEC character width to eight bits can cause failures. For example, 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.

```
Router# terminal special-character-bits 8
```

Related Commands

Command	Description
default-value exec-character-bits	Globally defines the character width as 7-bit or 8-bit.
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

bps	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

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:

```
Router# terminal speed 9600
```

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

ascii-number	ASCII decimal representation of the start character.

Defaults

Ctrl-Q (ASCII decimal character 17)

Command Modes

EXEC

Command History

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):

```
Router# terminal start-character 15
```

Related Commands

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

2 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

In the following example the setting for stop bits is changed to one for the current session:

```
Router# 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

ascii-number	ASCII decimal representation of the stop character.

Defaults

Ctrl-S (ASCII character decimal 19)

Command Modes

EXEC

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.

See the "ASCII Character Set and Hex Values" appendix for a list of ASCII characters.

Examples

In the following example the stop character is configured as Ctrl-E (ASCII character decimal 5) for the current session:

```
Router# terminal stop-character 5
```

Related Commands

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

terminal telnet break-on-ip

To cause an access server to generate a hardware Break signal when an interrupt-process (ip) command is received, 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 interrupt-process commands into X.25 Break indications.

Note In this command, the acronym "ip" indicates "interrupt-process," not internet protocol (IP).

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.

You can verify if this command is enabled with the **show terminal** EXEC command. If enabled the following line will appear in the output: `Capabilities: Send BREAK on IP`.

Examples

In the following example, a Break signal is generated for the current connection when an interrupt-process command is issued:

```
Router# terminal telnet break-on-ip
```

Related Commands

Command	Description
terminal telnet ip-on-break	Configures the system to send an interrupt-process (ip) signal when the Break command is issued.

terminal telnet refuse-negotiations

To configure the current session to refuse to negotiate full-duplex, remote echo options on incoming connections, 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 access server to refuse full-duplex, remote echo connection requests from the other end. This command suppresses negotiation of the Telnet Remote Echo and Suppress Go Ahead options.

Examples

In the following example the current session is configured to refuse full-duplex, remote echo requests:

```
Router# terminal telnet refuse-negotiations
```

terminal telnet speed

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

terminal telnet speed *default-speed maximum-speed*

Syntax Description

default-speed	Line speed, in bits per second (bps), that the access server will use if the device on the other end of the connection has not specified a speed.
maximum-speed	Maximum line speed in bits per second (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 connected to an access server to access the network, or on a group of console lines connected to the access server when disparate line speeds are in use at the local and remote ends of the connections listed above. 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.

```
Router# 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 configure the session 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:

```
Router# 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 servers. It is not supported on stand-alone routers.

Examples

In the following example the session is configured to send a CR signal as a CR followed by a NULL:

```
Router# 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

terminal-type	Defines the terminal name and type, and permits terminal negotiation by hosts that provide that type of service.

Defaults

VT100

Command Modes

EXEC

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 TN3270s for display management and by Telnet and rlogin to inform the remote host of the terminal type.

Examples

In the following example the terminal type is defined as VT220 for the current session:

```
Router# 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) for the current line and session, use the **terminal txspeed** EXEC command.

terminal txspeed *bps*

Syntax Description

bps	Baud rate in bits per second (bps).

Defaults

9600 bps

Command Modes

EXEC

Command History

Release	Modification
10.0	This command was introduced.

Examples

In the following example the line transmit speed is set to 2400 bps for the current session:

```
Router# terminal txspeed 2400
```

Related Commands

Command	Description
rxspeed	Sets the terminal receive speed for a specified line or lines.
terminal rxspeed	Sets the terminal receive speed for the current line and session.
terminal terminal-type	Specifies the type of terminal connected to the current line for the current session.
txspeed	Sets the terminal transmit speed for a specified line or lines.

terminal-type

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

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

no terminal-type

Syntax Description

terminal-name	Terminal name.
terminal-type	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:

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

characters	Number of character columns displayed on the terminal.

Defaults

80 characters

Command Modes

EXEC

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 for the current session if it does not meet the needs of your terminal.

The rlogin protocol uses the value of the *characters* argument to set up terminal parameters on a remote host.

Examples

The following example sets the terminal character columns to 132:

```
Router# terminal width 132
```

Related Commands

Command	Description
width	Sets the terminal screen width (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

Command History

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 break (Ctrl-Shift-6, 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 the 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.

Related Commands

Command	Description
show line	Displays information about all lines on the system or the specified line.
show sessions	Displays information about open LAT, Telnet, or rlogin connections.

width

To set the terminal screen width, use the **width** line configuration command. To return to the default screen width, use the **no** form of this command.

width *characters*

no width

Syntax Description

characters	Number of character columns displayed on the terminal.

Defaults

80 character columns

Command Modes

Line configuration

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 for the current session if it does not meet the needs of your terminal.

The rlogin protocol uses the value of the *characters* argument to set up terminal parameters on a remote host.

Examples

In the following example the location for line 7 is defined as "console terminal" and the display is set to 132 columns wide:

```
Router(config)# line 7
Router(config-line)# location console terminal
Router(config-line)# width 132
```

Related Commands

Command	Description
terminal width	Sets the number of character columns on the terminal screen for the current session.