NAME

telnet — user interface to the TELNET protocol

SYNOPSIS

telnet [**-468ELadr**] [**-S** *tos*] [**-b** *address*] [**-e** *escapechar*] [**-l** *user*]
[**-n** *tracefile*] [*host* [*port*]]

DESCRIPTION

The **telnet** command is used for interactive communication with another host using the TELNET protocol. It begins in command mode, where it prints a telnet prompt ("telnet> "). If **telnet** is invoked with a *host* argument, it performs an **open** command implicitly; see the description below.

Options:

-4 Force IPv4 address resolution.

-6 Force IPv6 address resolution.

-8 Request 8-bit operation. This causes an attempt to negotiate the `TELNET BINARY` option for both input and output. By default telnet is not 8-bit clean.

-E Disables the escape character functionality; that is, sets the escape character to ‘‘no character’’.

-L Specifies an 8-bit data path on output. This causes the `TELNET BINARY` option to be negotiated on just output.

-a Attempt automatic login. Currently, this sends the user name via the `USER` variable of the `NEW-ENVIRON` option if supported by the remote system. The username is retrieved via `getlogin`(3).

-b *address*
Use bind(2) on the local socket to bind it to a specific local address.

-d Sets the initial value of the **debug** toggle to `TRUE`.

-r Emulate `rlogin`(1). In this mode, the default escape character is a tilde. Also, the interpretation of the escape character is changed: an escape character followed by a dot causes **telnet** to disconnect from the remote host. A ^Z instead of a dot suspends **telnet**, and a ^] (the default **telnet** escape character) generates a normal telnet prompt. These codes are accepted only at the beginning of a line.

-S *tos*
Sets the IP type-of-service (TOS) option for the telnet connection to the value *tos*.

-e *escapechar*
Sets the escape character to *escapechar*. If no character is supplied, no escape character will be used. Entering the escape character while connected causes telnet to drop to command mode.

-l *user*
Specify *user* as the user to log in as on the remote system. This is accomplished by sending the specified name as the `USER` environment variable, so it requires that the remote system support the `TELNET NEW-ENVIRON` option. This option implies the **-a** option, and may also be used with the **open** command.

-n *tracefile*
Opens *tracefile* for recording trace information. See the **set tracefile** command below.

host Specifies a host to contact over the network.

port Specifies a port number or service name to contact. If not specified, the **telnet** port (23) is used.

Protocol:

Once a connection has been opened, **telnet** will attempt to enable the TELNET LINEMODE option. If this fails, then **telnet** will revert to one of two input modes: either "character at a time" or "old line by line" depending on what the remote system supports.

When LINEMODE is enabled, character processing is done on the local system, under the control of the remote system. When input editing or character echoing is to be disabled, the remote system will relay that information. The remote system will also relay changes to any special characters that happen on the remote system, so that they can take effect on the local system.

In "character at a time" mode, most text typed is immediately sent to the remote host for processing.

In "old line by line" mode, all text is echoed locally, and (normally) only completed lines are sent to the remote host. The "local echo character" (initially "^E") may be used to turn off and on the local echo (this would mostly be used to enter passwords without the password being echoed).

If the LINEMODE option is enabled, or if the **localchars** toggle is TRUE (the default for "old line by line"; see below), the user's **quit**, **intr**, and **flush** characters are trapped locally, and sent as TELNET protocol sequences to the remote side. If LINEMODE has ever been enabled, then the user's **susp** and **eof** are also sent as TELNET protocol sequences, and **quit** is sent as a TELNET ABORT instead of BREAK There are options (see **toggle autoflush** and **toggle autosynch** below) which cause this action to flush subsequent output to the terminal (until the remote host acknowledges the TELNET sequence) and flush previous terminal input (in the case of **quit** and **intr**).

Commands:

The following **telnet** commands are available. Unique prefixes are understood as abbreviations.

auth *argument ...*
The **auth** command controls the TELNET AUTHENTICATE protocol option. If **telnet** was compiled without authentication, the **auth** command will not be supported. Valid arguments are as follows:

disable *type* Disable the specified type of authentication. To obtain a list of available types, use the **auth disable ?** command.

enable *type* Enable the specified type of authentication. To obtain a list of available types, use the **auth enable ?** command.

status List the current status of the various types of authentication.

Note that the current version of **telnet** does not support authentication.

close Close the connection to the remote host, if any, and return to command mode.

display *argument ...*
Display all, or some, of the **set** and **toggle** values (see below).

encrypt *argument ...*
The encrypt command controls the TELNET ENCRYPT protocol option. If **telnet** was compiled without encryption, the **encrypt** command will not be supported.

Valid arguments are as follows:

disable *type* **[input|output]**
Disable the specified type of encryption. If you do not specify input or output, encryption of both is disabled. To obtain a list of available types, use ‘‘encrypt disable ?’’.

enable *type* **[input|output]**
Enable the specified type of encryption. If you do not specify input or output, encryption of both is enabled. To obtain a list of available types, use ‘‘encrypt enable ?’’.

input This is the same as ‘‘encrypt start input’’.

-input This is the same as ‘‘encrypt stop input’’.

output This is the same as ‘‘encrypt start output’’.

-output This is the same as ‘‘encrypt stop output’’.

start [input|output]
Attempt to begin encrypting. If you do not specify input or output, encryption of both input and output is started.

status Display the current status of the encryption module.

stop [input|output]
Stop encrypting. If you do not specify input or output, encryption of both is stopped.

type *type* Sets the default type of encryption to be used with later ‘‘encrypt start’’ or ‘‘encrypt stop’’ commands.

Note that the current version of **telnet** does not support encryption.

environ *arguments...*
The **environ** command is used to propagate environment variables across the **telnet** link using the TELNET NEW-ENVIRON protocol option. All variables exported from the shell are defined, but only the DISPLAY and PRINTER variables are marked to be sent by default. The USER variable is marked to be sent if the **-a** or **-l** command-line options were used.

Valid arguments for the **environ** command are:

define *variable value*
Define the variable *variable* to have a value of *value.* Any variables defined by this command are automatically marked for propagation (‘‘exported’’). The *value* may be enclosed in single or double quotes so that tabs and spaces may be included.

undefine *variable*
Remove any existing definition of *variable*.

export *variable*
Mark the specified variable for propagation to the remote host.

unexport *variable*
Do not mark the specified variable for propagation to the remote host. The remote host may still ask explicitly for variables that are not exported.

list List the current set of environment variables. Those marked with a * will be propagated to the remote host. The remote host may still ask explicitly for the rest.

? Prints out help information for the **environ** command.

logout Send the TELNET LOGOUT protocol option to the remote host. This command is similar to a **close** command. If the remote host does not support the LOGOUT option, nothing happens. But if it does, this command should cause it to close the connection. If the remote side also supports the concept of suspending a user's session for later reattachment, the logout command indicates that the session should be terminated immediately.

mode *type* *Type* is one of several options, depending on the state of the session. Telnet asks the remote host to go into the requested mode. If the remote host says it can, that mode takes effect.

character Disable the TELNET LINEMODE option, or, if the remote side does not understand the LINEMODE option, then enter "character at a time" mode.

line Enable the TELNET LINEMODE option, or, if the remote side does not understand the LINEMODE option, then attempt to enter "old-line-by-line" mode.

isig (**-isig**)
Attempt to enable (disable) the TRAPSIG mode of the LINEMODE option. This requires that the LINEMODE option be enabled.

edit (**-edit**)
Attempt to enable (disable) the EDIT mode of the LINEMODE option. This requires that the LINEMODE option be enabled.

softtabs (**-softtabs**)
Attempt to enable (disable) the SOFT_TAB mode of the LINEMODE option. This requires that the LINEMODE option be enabled.

litecho (**-litecho**)
Attempt to enable (disable) the LIT_ECHO mode of the LINEMODE option. This requires that the LINEMODE option be enabled.

? Prints out help information for the **mode** command.

open *host* [[**-l**] *user*][**-** *port*]
Open a connection to the named host. If no port number is specified, **telnet** will attempt to contact a telnet daemon at the standard port (23). The host specification may be a host name or IP address. The **-l** option may be used to specify a user name to be passed to the remote system, like the **-l** command-line option.

When connecting to ports other than the **telnet** port, **telnet** does not attempt telnet protocol negotiations. This makes it possible to connect to services that do not support the telnet protocol without making a mess. Protocol negotiation can be forced by placing a dash before the port number.

After establishing a connection, any commands associated with the remote host in /etc/telnetrc and the user's .telnetrc file are executed, in that order.

The format of the telnetrc files is as follows: Lines beginning with a #, and blank lines, are ignored. The rest of the file should consist of hostnames and sequences of **telnet** commands to use with that host. Commands should be one per line, indented by whitespace; lines beginning without whitespace are interpreted as hostnames. Lines beginning with the special hostname DEFAULT will apply to all hosts. Hostnames including DEFAULT may be followed immediately by a colon and a port number or string. If a port is specified it must match exactly with what is specified on the command line. If no port was specified on the command line, then the value telnet is used. Upon connecting to a particular host, the commands associ-

ated with that host are executed.

quit Close any open session and exit **telnet**. An end of file condition on input, when in command mode, will trigger this operation as well.

send *arguments*

Send one or more special telnet protocol character sequences to the remote host. The following are the codes which may be specified (more than one may be used in one command):

abort Sends the TELNET ABORT (Abort Processes) sequence.

ao Sends the TELNET AO (Abort Output) sequence, which should cause the remote system to flush all output *from* the remote system *to* the user's terminal.

ayt Sends the TELNET AYT (Are You There?) sequence, to which the remote system may or may not choose to respond.

brk Sends the TELNET BRK (Break) sequence, which may have significance to the remote system.

ec Sends the TELNET EC (Erase Character) sequence, which should cause the remote system to erase the last character entered.

el Sends the TELNET EL (Erase Line) sequence, which should cause the remote system to erase the line currently being entered.

eof Sends the TELNET EOF (End Of File) sequence.

eor Sends the TELNET EOR (End of Record) sequence.

escape Sends the current **telnet** escape character.

ga Sends the TELNET GA (Go Ahead) sequence, which likely has no significance to the remote system.

getstatus
If the remote side supports the TELNET STATUS command, **getstatus** will send the subnegotiation to request that the server send its current option status.

ip Sends the TELNET IP (Interrupt Process) sequence, which should cause the remote system to abort the currently running process.

nop Sends the TELNET NOP (No Operation) sequence.

susp Sends the TELNET SUSP (Suspend Process) sequence.

synch Sends the TELNET SYNCH sequence. This sequence causes the remote system to discard all previously typed (but not yet read) input. This sequence is sent as TCP urgent data (and may not work if the remote system is a 4.2BSD system -- if it doesn't work, a lower case "r" may be echoed on the terminal).

do *cmd*

dont *cmd*

will *cmd*

wont *cmd*
Sends the TELNET DO *cmd* sequence. *cmd* can be either a decimal number between 0 and 255, or a symbolic name for a specific TELNET command. *cmd* can also be either **help** or **?** to print out help information, including a list of known symbolic names.

? Prints out help information for the **send** command.

set *argument value*

unset *argument value*

The **set** command will set any one of a number of **telnet** variables to a specific value or to TRUE. The special value **off** turns off the function associated with the variable. This is equivalent to using the **unset** command. The **unset** command will disable or set to FALSE any of the specified variables. The values of variables may be interrogated with the **display** command. The variables which may be set or unset, but not toggled, are listed here. In addition, any of the variables for the **toggle** command may be explicitly set or unset.

ayt If telnet is in localchars mode, or LINEMODE is enabled, and the status character is typed, a TELNET AYT sequence is sent to the remote host. The initial value for the "Are You There" character is the terminal's status character.

echo This is the value (initially "^E") which, when in "line by line" mode, toggles between doing local echoing of entered characters (for normal processing), and suppressing echoing of entered characters (for entering, say, a password).

eof If **telnet** is operating in LINEMODE or "old line by line" mode, entering this character as the first character on a line will cause this character to be sent to the remote system. The initial value of the eof character is taken to be the terminal's **eof** character.

erase If **telnet** is in **localchars** mode (see **toggle localchars** below), **and** if **telnet** is operating in "character at a time" mode, then when this character is typed, a TELNET EC sequence (see **send ec** above) is sent to the remote system. The initial value for the erase character is taken to be the terminal's **erase** character.

escape This is the **telnet** escape character (initially "^]") which causes entry into **telnet** command mode (when connected to a remote system).

flushoutput
If **telnet** is in **localchars** mode (see **toggle localchars** below) and the **flushoutput** character is typed, a TELNET AO sequence (see **send ao** above) is sent to the remote host. The initial value for the flush character is taken to be the terminal's **flush** character.

forw1

forw2 If TELNET is operating in LINEMODE, these are the characters that, when typed, cause partial lines to be forwarded to the remote system. The initial value for the forwarding characters are taken from the terminal's eol and eol2 characters.

interrupt
If **telnet** is in **localchars** mode (see **toggle localchars** below) and the **interrupt** character is typed, a TELNET IP sequence (see **send ip** above) is sent to the remote host. The initial value for the interrupt character is taken to be the terminal's **intr** character.

kill If **telnet** is in **localchars** mode (see **toggle localchars** below), **and** if **telnet** is operating in "character at a time" mode, then when this character is typed, a TELNET EL sequence (see **send el** above) is sent to the remote system. The initial value for the kill character is taken to be the terminal's **kill** character.

lnext If **telnet** is operating in LINEMODE or "old line by line" mode, then this character is taken to be the terminal's **lnext** character. The initial value for the lnext character is taken to be the terminal's **lnext** character.

quit If **telnet** is in **localchars** mode (see **toggle localchars** below) and the **quit** character is typed, a TELNET BRK sequence (see **send brk** above) is sent to the remote host. The initial value for the quit character is taken to be the terminal's **quit** character.

reprint
If **telnet** is operating in LINEMODE or "old line by line" mode, then this character is taken to be the terminal's **reprint** character. The initial value for the reprint character is taken to be the terminal's **reprint** character.

rlogin This is the rlogin mode escape character. Setting it enables rlogin mode, as with the *r* command-line option (q.v.)

start If the TELNET TOGGLE-FLOW-CONTROL option has been enabled, then this character is taken to be the terminal's **start** character. The initial value for the kill character is taken to be the terminal's **start** character.

stop If the TELNET TOGGLE-FLOW-CONTROL option has been enabled, then this character is taken to be the terminal's **stop** character. The initial value for the kill character is taken to be the terminal's **stop** character.

susp If **telnet** is in **localchars** mode, or LINEMODE is enabled, and the **suspend** character is typed, a TELNET SUSP sequence (see **send susp** above) is sent to the remote host. The initial value for the suspend character is taken to be the terminal's **suspend** character.

tracefile
This is the file to which the output, caused by **netdata** or **option** tracing being TRUE, will be written. If it is set to "**-**", then tracing information will be written to standard output (the default).

worderase
If **telnet** is operating in LINEMODE or "old line by line" mode, then this character is taken to be the terminal's **worderase** character. The initial value for the worderase character is taken to be the terminal's **worderase** character.

? Displays the legal **set** (**unset**) commands.

slc *state* The **slc** command (Set Local Characters) is used to set or change the state of the the special characters when the TELNET LINEMODE option has been enabled. Special characters are characters that get mapped to TELNET commands sequences (like **ip** or **quit**) or line editing characters (like **erase** and **kill**). By default, the local special characters are exported.

check Verify the current settings for the current special characters. The remote side is requested to send all the current special character settings, and if there are any discrepancies with the local side, the local side will switch to the remote value.

export Switch to the local defaults for the special characters. The local default characters are those of the local terminal at the time when **telnet** was started.

import Switch to the remote defaults for the special characters. The remote default characters are those of the remote system at the time when the TELNET connection was established.

? Prints out help information for the **slc** command.

status Show the current status of **telnet**. This includes the name of the remote host, if any, as well as the current mode.

toggle *arguments ...*
Toggle (between TRUE and FALSE) various flags that control how **telnet** responds to events. These flags may be set explicitly to TRUE or FALSE using the **set** and **unset** commands. More than one flag may be toggled at once. The state of these flags may be examined with the **display** command. Valid flags are:

authdebug Turns on debugging for the authentication code. This flag only exists if authentication support is enabled.

autoflush If **autoflush** and **localchars** are both TRUE, then when the **ao**, or **quit** characters are recognized (and transformed into TELNET sequences; see **set** above for details), **telnet** refuses to display any data on the user's terminal until the remote system acknowledges (via a TELNET TIMING MARK option) that it has processed those TELNET sequences. The initial value for this toggle is TRUE if the terminal user had not done an "stty noflsh", otherwise FALSE (see stty(1)).

autodecrypt
When the TELNET ENCRYPT option is negotiated, by default the actual encryption (decryption) of the data stream does not start automatically. The autoencrypt (autodecrypt) command states that encryption of the output (input) stream should be enabled as soon as possible.

Note that this flag exists only if encryption support is enabled.

autologin If the remote side supports the TELNET AUTHENTICATION option, telnet attempts to use it to perform automatic authentication. If the TELNET AUTHENTICATION option is not supported, the user's login name is propagated using the TELNET NEW-ENVIRON option. Setting this flag is the same as specifying the *a* option to the **open** command or on the command line.

autosynch If **autosynch** and **localchars** are both TRUE, then when either the **intr** or **quit** characters is typed (see **set** above for descriptions of the **intr** and **quit** characters), the resulting telnet sequence sent is followed by the TELNET SYNCH sequence. This procedure **should** cause the remote system to begin throwing away all previously typed input until both of the telnet sequences have been read and acted upon. The initial value of this toggle is FALSE.

binary Enable or disable the TELNET BINARY option on both input and output.

inbinary Enable or disable the TELNET BINARY option on input.

outbinary Enable or disable the TELNET BINARY option on output.

crlf If this is TRUE, then carriage returns will be sent as <CR><LF>. If this is FALSE, then carriage returns will be send as <CR><NUL>. The initial value for this toggle is FALSE.

crmod Toggle carriage return mode. When this mode is enabled, most carriage return characters received from the remote host will be mapped into a carriage return followed by a line feed. This mode does not affect those characters

typed by the user, only those received from the remote host. This mode is not very useful unless the remote host only sends carriage return, but never line feed. The initial value for this toggle is FALSE.

debug Toggles socket level debugging (useful only to the **super user**). The initial value for this toggle is FALSE.

encdebug Turns on debugging information for the encryption code. Note that this flag only exists if encryption support is available.

localchars If this is TRUE, then the **flush**, **interrupt**, **quit**, **erase**, and **kill** characters (see **set** above) are recognized locally, and transformed into (hopefully) appropriate TELNET control sequences (respectively **ao**, **ip**, **brk**, **ec**, and **el**; see **send** above). The initial value for this toggle is TRUE in "old line by line" mode, and FALSE in "character at a time" mode. When the LINEMODE option is enabled, the value of **localchars** is ignored, and assumed to always be TRUE. If LINEMODE has ever been enabled, then **quit** is sent as **abort**, and **eof** and **suspend** are sent as **eof** and **susp**, see **send** above).

netdata Toggles the display of all network data (in hexadecimal format). The initial value for this toggle is FALSE.

options Toggles the display of some internal **telnet** protocol processing (having to do with telnet options). The initial value for this toggle is FALSE.

prettydump When the **netdata** toggle is enabled, if **prettydump** is enabled the output from the **netdata** command will be formatted in a more user-readable format. Spaces are put between each character in the output, and the beginning of telnet escape sequences are preceded by a '*' to aid in locating them.

skiprc When the skiprc toggle is TRUE, telnet does not read the telnetrc files. The initial value for this toggle is FALSE.

termdata Toggles the display of all terminal data (in hexadecimal format). The initial value for this toggle is FALSE.

verbose_encrypt
When the **verbose_encrypt** toggle is TRUE, TELNET prints out a message each time encryption is enabled or disabled. The initial value for this toggle is FALSE. This flag only exists if encryption support is available.

? Displays the legal **toggle** commands.

z Suspend **telnet**. This command only works when the user is using the csh(1).

! [*command*]
Execute a single command in a subshell on the local system. If **command** is omitted, then an interactive subshell is invoked.

? [*command*]
Get help. With no arguments, **telnet** prints a help summary. If a command is specified, **telnet** will print the help information for just that command.

ENVIRONMENT

Telnet uses at least the HOME, SHELL, DISPLAY, and TERM environment variables. Other environment variables may be propagated to the other side via the TELNET NEW-ENVIRON option.

FILES

`/etc/telnetrc` global telnet startup values
`~/.telnetrc` user customized telnet startup values

HISTORY

The **`Telnet`** command appeared in 4.2BSD.

NOTES

On some remote systems, echo has to be turned off manually when in "old line by line" mode.

In "old line by line" mode or `LINEMODE` the terminal's **`eof`** character is only recognized (and sent to the remote system) when it is the first character on a line.

BUGS

The source code is not comprehensible.