

**NAME**

**stty** - set the options for a terminal device interface

**SYNOPSIS**

**stty** [-a | -e | -g] [-f *file*] [*arguments*]

**DESCRIPTION**

The **stty** utility sets or reports on terminal characteristics for the device that is its standard input. If no options or arguments are specified, it reports the settings of a subset of characteristics as well as additional ones if they differ from their default values. Otherwise it modifies the terminal state according to the specified arguments. Some combinations of arguments are mutually exclusive on some terminal types.

The following options are available:

- a Display all the current settings for the terminal to standard output as per IEEE Std 1003.2 ("POSIX.2").
- e Display all the current settings for the terminal to standard output in the traditional BSD “all” and “everything” formats.
- f Open and use the terminal named by *file* rather than using standard input. The file is opened using the O\_NONBLOCK flag of **open()**, making it possible to set or display settings on a terminal that might otherwise block on the open.
- g Display all the current settings for the terminal to standard output in a form that may be used as an argument to a subsequent invocation of **stty** to restore the current terminal state as per IEEE Std 1003.2 ("POSIX.2").

The following arguments are available to set the terminal characteristics:

**Control Modes:**

Control mode flags affect hardware characteristics associated with the terminal. This corresponds to the *c\_cflag* in the *termios* structure.

**parenb (-parenb)**

Enable (disable) parity generation and detection.

**parodd (-parodd)**

Select odd (even) parity.

**cs5 cs6 cs7 cs8**

Select character size, if possible.

*number* Set terminal baud rate to the number given, if possible. If the baud rate is set to zero, modem control is no longer asserted.

**ispeed *number***

Set terminal input baud rate to the number given, if possible. If the input baud rate is set to zero, the input baud rate is set to the value of the output baud rate.

**ospeed *number***

Set terminal output baud rate to the number given, if possible. If the output baud rate is set to zero, modem control is no longer asserted.

**speed *number***

This sets both **ispeed** and **ospeed** to *number*.

**hupcl (-hupcl)**

Stop asserting modem control (do not stop asserting modem control) on last close.

**hup (-hup)** Same as hupcl (**-hupcl**).

**cstopb (-cstopb)**

Use two (one) stop bits per character.

**cread (-cread)**

Enable (disable) the receiver.

**clocal (-clocal)**

Assume a line without (with) modem control.

**crtsets (-crtsets)**

Enable (disable) RTS/CTS flow control.

**rtsdtr (-rtsdtr)**

Enable (disable) asserting RTS/DTR on open.

**Input Modes:**

This corresponds to the `c_iflag` in the `termios` structure.

**ignbrk (-ignbrk)**

Ignore (do not ignore) break on input.

**brkint (-brkint)**

Signal (do not signal) INTR on break.

**ignpar (-ignpar)**

Ignore (do not ignore) characters with parity errors.

**parmrk (-parmrk)**

Mark (do not mark) characters with parity errors.

**inpck (-inpck)**

Enable (disable) input parity checking.

**istrip (-istrip)**

Strip (do not strip) input characters to seven bits.

**inlcr (-inlcr)** Map (do not map) NL to CR on input.

**igncr (-igncr)**

Ignore (do not ignore) CR on input.

**icrnl (-icrnl)** Map (do not map) CR to NL on input.

**ixon (-ixon)** Enable (disable) START/STOP output control. Output from the system is stopped when the system receives STOP and started when the system receives START, or if **ixany** is set, any character restarts output.

**ixoff (-ixoff)**

Request that the system send (not send) START/STOP characters when the input queue is nearly empty/full.

**ixany (-ixany)**

Allow any character (allow only START) to restart output.

**imaxbel (-imaxbel)**

The system imposes a limit of MAX\_INPUT (currently 255) characters in the input queue. If **imaxbel** is set and the input queue limit has been reached, subsequent input causes the system to send an ASCII BEL character to the output queue (the terminal beeps at you).

Otherwise, if **imaxbel** is unset and the input queue is full, the next input character causes the entire input and output queues to be discarded.

**iutf8 (-iutf8)**

Assume that input characters are UTF-8 encoded. Setting this flag causes backspace to properly delete multibyte characters in canonical mode.

**Output Modes:**

This corresponds to the `c_oflag` of the `termios` structure.

**opost (-opost)**

Post-process output (do not post-process output; ignore all other output modes).

**onlcr (-onlcr)**

Map (do not map) NL to CR-NL on output.

**ocrnl (-ocrnl)**

Map (do not map) CR to NL on output.

**tab0 tab3** Select tab expansion policy. **tab0** disables tab expansion, while **tab3** enables it.

**onocr (-onocr)**

Do not (do) output CRs at column zero.

**onlret (-onlret)**

On the terminal NL performs (does not perform) the CR function.

**Local Modes:**

Local mode flags (lflags) affect various and sundry characteristics of terminal processing. Historically the term "local" pertained to new job control features implemented by Jim Kulp on a Pdp 11/70 at IIASA. Later the driver ran on the first VAX at Evans Hall, UC Berkeley, where the job control details were greatly modified but the structure definitions and names remained essentially unchanged. The second interpretation of the 'l' in lflag is "line discipline flag" which corresponds to the `c_lflag` of the `termios` structure.

**isig (-isig)** Enable (disable) the checking of characters against the special control characters INTR, QUIT, and SUSP.

**icanon (-icanon)**

Enable (disable) canonical input (ERASE and KILL processing).

**iexten (-iexten)**

Enable (disable) any implementation defined special control characters not currently controlled by icanon, isig, or ixon.

**echo (-echo)**

Echo back (do not echo back) every character typed.

**echoe (-echoe)**

The ERASE character shall (shall not) visually erase the last character in the current line from the display, if possible.

**echok (-echok)**

Echo (do not echo) NL after KILL character.

**echoke (-echoke)**

The KILL character shall (shall not) visually erase the current line from the display, if possible.

**echonl (-echonl)**

Echo (do not echo) NL, even if echo is disabled.

**echoctl (-echoctl)**

If **echoctl** is set, echo control characters as ^X. Otherwise control characters echo as themselves.

**echoprt (-echoprt)**

For printing terminals. If set, echo erased characters backwards within “\” and “/”. Otherwise, disable this feature.

**noflsh (-noflsh)**

Disable (enable) flush after INTR, QUIT, SUSP.

**tostop (-tostop)**

Send (do not send) SIGTTOU for background output. This causes background jobs to stop if they attempt terminal output.

**altwerase (-altwerase)**

Use (do not use) an alternate word erase algorithm when processing WERASE characters. This alternate algorithm considers sequences of alphanumeric/underscores as words. It also skips the first preceding character in its classification (as a convenience since the one

preceding character could have been erased with simply an ERASE character.)

**mdmbuf (-mdmbuf)**

If set, flow control output based on condition of Carrier Detect. Otherwise writes return an error if Carrier Detect is low (and Carrier is not being ignored with the CLOCAL flag.)

**flusho (-flusho)**

Indicates output is (is not) being discarded.

**pendin (-pendin)**

Indicates input is (is not) pending after a switch from non-canonical to canonical mode and will be re-input when a read becomes pending or more input arrives.

**Control Characters:**

*control-character string*

Set *control-character* to *string*. If *string* is a single character, the control character is set to that character. If *string* is the two character sequence "^-" or the string "undef" the control character is disabled (i.e., set to `{_POSIX_VDISABLE}`.)

Recognized control-characters:

control- character	Subscript	Description
eof	VEOF	EOF character
eol	VEOL	EOL character
eol2	VEOL2	EOL2 character
erase	VERASE	ERASE character
erase2	VERASE2	ERASE2 character
werase	VWERASE	WERASE character
intr	VINTR	INTR character
kill	VKILL	KILL character
quit	VQUIT	QUIT character
susp	VSUSP	SUSP character
start	VSTART	START character
stop	VSTOP	STOP character
dsusp	VDSUSP	DSUSP character

lnext	VLNEXT	LNEXT character
reprint	VREPRINT	REPRINT character
status	VSTATUS	STATUS character

**min** *number*

**time** *number*

Set the value of min or time to number. MIN and TIME are used in Non-Canonical mode input processing (-icanon).

### Combination Modes:

*saved settings*

Set the current terminal characteristics to the saved settings produced by the **-g** option.

**evenp** or **parity**

Enable parenb and cs7; disable parodd.

**oddp**

Enable parenb, cs7, and parodd.

**-parity, -evenp, -oddp**

Disable parenb, and set cs8.

**nl (-nl)**

Enable (disable) icrnl. In addition -nl unsets inlcr and igncr.

**ek**

Reset ERASE, ERASE2, and KILL characters back to system defaults.

**sane**

Resets all modes to reasonable values for interactive terminal use.

**tty**

Set the line discipline to the standard terminal line discipline TTYDISC.

**crt (-crt)**

Set (disable) all modes suitable for a CRT display device.

**kerninfo (-kerninfo)**

Enable (disable) the system generated status line associated with processing a STATUS character (usually set to ^T). The status line consists of the system load average, the current command name, its process ID, the event the process is waiting on (or the status of the process), the user and system times, percent cpu, and current memory usage.

If the sysctl(8) variable *kern.tty\_info\_kstacks* is set to a non-zero value, the status message

also includes the kernel program stack of the foreground thread.

**columns** *number*

The terminal size is recorded as having *number* columns.

**cols** *number* is an alias for **columns**.

**rows** *number*

The terminal size is recorded as having *number* rows.

**dec** Set modes suitable for users of Digital Equipment Corporation systems (ERASE, KILL, and INTR characters are set to ^?, ^U, and ^C; ixany is disabled, and crt is enabled.)

**extproc** (-**extproc**)

If set, this flag indicates that some amount of terminal processing is being performed by either the terminal hardware or by the remote side connected to a pty.

**raw** (-**raw**) If set, change the modes of the terminal so that no input or output processing is performed. If unset, change the modes of the terminal to some reasonable state that performs input and output processing. Note that since the terminal driver no longer has a single RAW bit, it is not possible to intuit what flags were set prior to setting **raw**. This means that unsetting **raw** may not put back all the setting that were previously in effect. To set the terminal into a raw state and then accurately restore it, the following shell code is recommended:

```
save_state=$(stty -g)
stty raw
...
stty "$save_state"
```

**size** The size of the terminal is printed as two numbers on a single line, first rows, then columns.

**Compatibility Modes:**

These modes remain for compatibility with the previous version of the **stty** command.

**all** Reports all the terminal modes as with **stty -a** except that the control characters are printed in a columnar format.

**everything** Same as **all**.



- cooked** Same as **sane**.
- cbreak** If set, enables **brkint**, **ixon**, **imaxbel**, **opost**, **isig**, **ixten**, and **-icanon**. If unset, same as **sane**.
- new** Same as **tty**.
- old** Same as **tty**.
- newcrt (-newcrt)**  
Same as **crt**.
- pass8** The converse of **parity**.
- tandem (-tandem)**  
Same as **ixoff**.
- decctlq (-decctlq)**  
The converse of **ixany**.
- crterase (-crterase)**  
Same as **echoe**.
- crtbs (-crtbs)**  
Same as **echoe**.
- crtkill (-crtkill)**  
Same as **echoke**.
- ctlecho (-ctlecho)**  
Same as **echoctl**.
- prterase (-prterase)**  
Same as **echoprt**.
- litout (-litout)**  
The converse of **opost**.
- oxtabs (-oxtabs)**  
Expand (do not expand) tabs to spaces on output.

**tabs (-tabs)** The converse of **oxtabs**.

**brk value** Same as the control character **eol**.

**flush value** Same as the control character **discard**.

**rprnt value** Same as the control character **reprint**.

## INTERACTION WITH JOB CONTROL

Modifications to the terminal settings are treated by job control (see `termios(4)`) same as writes. When the **stty** utility is executing in a background process group, such attempts result in the kernel sending the SIGTTOU signal and stopping the process until its group is returned to foreground. The non-blocking open of the terminal device with the **-f** option to **stty** does not affect the behavior. If it is desirable to modify the settings from the background, `sh(1)` users might utilize the following idiom:

```
(trap '' TTOU; stty -f /dev/tty sane)
```

Note that changing terminal settings for a running foreground job that is not prepared for it might cause inconsistencies.

## EXIT STATUS

The **stty** utility exits 0 on success, and >0 if an error occurs.

## SEE ALSO

`resizewin(1)`, `termios(4)`, `pstat(8)`

## STANDARDS

The **stty** utility is expected to be IEEE Std 1003.2 ("POSIX.2") compatible. The flags **-e** and **-f** are extensions to the standard.

## HISTORY

A **stty** command appeared in Version 2 AT&T UNIX.