



Linux Ubuntu 26.04 Manual Pages on command 'grotty.1'

\$ man grotty.1

grotty(1) General Commands Manual grotty(1)

Name

grotty - groff output driver for typewriter-like (terminal) devices

Synopsis

grotty [-dfho] [-i|-r] [-F dir] [file ...]

grotty -c [-bBdfhouU] [-F dir] [file ...]

grotty --help

grotty -v

grotty --version

Description

The GNU roff TTY (?Teletype?) output driver translates the output of troff(1) into a form suitable for typewriter-like devices, including terminal emulators. Normally, grotty is invoked by groff(1) when the latter is given one of the `?-T ascii?`, `?-T latin1?`, `-Tlatin1`, or `?-T utf8?` options on systems using ISO character encoding standards, or with `?-T cp1047?` or `?-T utf8?` on EBCDIC-based hosts. (In this installation, ps is the default output device.) Use groff's `-P` option to pass any options shown above to grotty. If no file arguments are given, or if file is `?-?`, grotty reads the standard input stream. Output is written to the standard output stream.

By default, grotty emits SGR escape sequences (from ISO 6429, popularly called ?ANSI escapes?) to change text attributes (bold, italic, underline, reverse video [?negative image?] and colors). Devices supporting the appropriate sequences can view roff documents using eight different background and foreground colors. Following ISO 6429, the following colors are defined in tty.tmac: black, white, red, green, blue, yellow, magenta, and cyan. Unrec?

ognized colors are mapped to the default color, which is dependent on the settings of the terminal. OSC 8 hyperlinks are produced for these devices.

In keeping with long-standing practice and the rarity of terminals (and emulators) that support oblique or italic fonts, italicized text is represented with underlining by default?but see the -i option below.

SGR and OSC support in pagers

When paging grotty's output with less(1), the latter program must be instructed to pass SGR and OSC sequences through to the device; its -R option is one way to achieve this (less version 566 or later is required for OSC 8 support). Consequently, programs like man(1) that page roff documents with less must call it with an appropriate option.

Legacy output format

The -c option tells grotty to use an output format compatible with paper terminals, like the Teletype machines for which roff and nroff were first developed but which are no longer in wide use. SGR escape sequences are not emitted; bold, italic, and underlining character attributes are thus not manipulated. Instead, grotty overstrikes, representing a bold character c with the sequence ?c BACKSPACE c?, an italic character c with the sequence ?_ BACKSPACE c?, and bold italics with ?_ BACKSPACE c BACKSPACE c?. This rendering is inherently ambiguous when the character c is itself the underscore.

The legacy output format can be rendered on a video terminal (or emulator) by piping grotty's output through ul(1), which may render bold italics as reverse video. Some implementations of more(1) are also able to display these sequences; you may wish to experiment with that command's -b option. less renders legacy bold and italics without requiring options. In contrast to the terminal output drivers of some other roff implementations, grotty never outputs reverse line feeds. There is therefore no need to filter its output through col(1).

Device control commands

grotty understands one device control function produced by the roff \X escape sequence in a document.

\X'tty: link [uri [key=value] ...]'

Embed a hyperlink using the OSC 8 terminal escape sequence. Specifying uri starts hyperlinked text, and omitting it ends the hyperlink. When uri is present, any number of additional key/value pairs can be specified; their interpretation is the responsibility of the pager or terminal. Spaces or tabs cannot appear literally in

uri, key, or value; they must be represented in an alternate form.

Device description files

If the DESC file for the character encoding contains the `?unicode?` directive, `grotty` emits Unicode characters in UTF-8 encoding. Otherwise, it emits characters in a single-byte encoding depending on the data in the font description files. See `groff_font(5)`.

A font description file may contain a directive `?internalname n?` where `n` is a decimal integer. If the 01 bit in `n` is set, then the font is treated as an italic font; if the 02 bit is set, then it is treated as a bold font.

Typefaces

`grotty` supports the standard four styles: R (roman), I (italic), B (bold), and BI (bold-italic). Because the output driver operates in `nroff` mode, attempts to set or change the font family or type size are ignored.

Options

- `--help` displays a usage message, while `-v` and `--version` show version information; all exit afterward.
- `-b` Suppress the use of overstriking for bold characters in legacy output format.
- `-B` Use only overstriking for bold-italic characters in legacy output format.
- `-c` Use `grotty`'s legacy output format (see subsection `?Legacy output format?` above). SGR and OSC escape sequences are not emitted.
- `-d` Ignore all `\D` drawing escape sequences in the input. By default, `grotty` renders `\D'l...` escape sequences that have at least one zero argument (and so are either horizontal or vertical) using Unicode box drawing characters (for the `utf8` device) or the `-`, `|`, and `+` characters (for all other devices). `grotty` handles `\D'p...` escape sequences that consist entirely of horizontal and vertical lines similarly.
- `-f` Emit a form feed at the end of each page having no output on its last line.
- `-F dir` Prepend directory `dir/devname` to the search path for font and device description files; `name` describes the output device's character encoding, one of `ascii`, `latin1`, `utf8`, or `cp1047`.
- `-h` Use literal horizontal tab characters in the output. Tabs are assumed to be set every 8 columns.
- `-i` Render oblique-styled fonts (I and BI) with the SGR attribute for italic text rather than underlined text. Many terminals don't support this attribute; however, `xterm(1)`, since patch #314 (2014-12-28), does. Ignored if `-c` is also specified.

- o Suppress overstriking (other than for bold and/or underlined characters when the legacy output format is in use).
- r Render oblique-styled fonts (I and BI) with the SGR attribute for reverse video text rather than underlined text. Ignored if -c or -i is also specified.
- u Suppress the use of underlining for italic characters in legacy output format.
- U Use only underlining for bold-italic characters in legacy output format.

Environment

GROFF_FONT_PATH

A list of directories in which to seek the selected output device's directory of device and font description files. See `troff(1)` and `groff_font(5)`.

GROFF_NO_SGR

If set, grotty's legacy output format is used just as if the -c option were specified; see subsection "Legacy output format" above.

Files

`/usr/share/groff/1.23.0/font/devascii/DESC`

describes the ascii output device.

`/usr/share/groff/1.23.0/font/devascii/F`

describes the font known as F on device ascii.

`/usr/share/groff/1.23.0/font/devcp1047/DESC`

describes the cp1047 output device.

`/usr/share/groff/1.23.0/font/devcp1047/F`

describes the font known as F on device cp1047.

`/usr/share/groff/1.23.0/font/devlatin1/DESC`

describes the latin1 output device.

`/usr/share/groff/1.23.0/font/devlatin1/F`

describes the font known as F on device latin1.

`/usr/share/groff/1.23.0/font/devutf8/DESC`

describes the utf8 output device.

`/usr/share/groff/1.23.0/font/devutf8/F`

describes the font known as F on device utf8.

`/usr/share/groff/1.23.0/tmac/tty.tmac`

defines macros for use with the ascii, cp1047, latin1, and utf8 output devices. It is automatically loaded by `troffrc` when any of those output devices is selected.

/usr/share/groff/1.23.0/tmac/tty-char.tmac

defines fallback characters for use with grotty. See `nroff(1)`.

Limitations

`grotty` is intended only for simple documents.

? There is no support for fractional horizontal or vertical motions.

? `roff \D` escape sequences producing anything other than horizontal and vertical lines are not supported.

? Characters above the first line (that is, with a vertical drawing position of 0) cannot be rendered.

? Color handling differs from other output drivers. The `groff` requests and escape sequences that set the stroke and fill colors instead set the foreground and background character cell colors, respectively.

Examples

The following `groff` document exercises several features for which output device support varies: (1) bold style; (2) italic (underline) style; (3) bold-italic style; (4) character composition by overstriking (`?co?perate?`); (5) foreground color; (6) background color; and (7) horizontal and vertical line-drawing.

You might see `\f[B]bold\f[]` and `\f[I]italic\f[]`.

Some people see `\f[B]both\f[]`.

If the output device does (not) `colz\ad]operate`,
you might see `\m[red]red\m[]`.

Black on cyan can have a `\M[cyan]\m[black]prominent\m[]\M[]`

`\D'I 1i 0\D'I 0 2i\D'I 1i 0'` look.

`.\'` If in `nroff` mode, end page now.

`.if n .pl \n[nl]u`

Given the foregoing input, compare and contrast the output of the following.

```
$ groff -T ascii file
```

```
$ groff -T utf8 -P -i file
```

```
$ groff -T utf8 -P -c file | ul
```

See also

?Control Functions for Coded Character Sets? (ECMA-48) 5th edition, Ecma International, June 1991. A gratis version of ISO 6429, this document includes a normative description of SGR escape sequences. Available at <http://www.ecma-international.org/publications/files/>

ECMA-ST/Ecma-048.pdf.

?Hyperlinks in Terminal Emulators?, Egmont Koblinger.

groff(1), troff(1), groff_out(5), groff_font(5), groff_char(7), ul(1), more(1), less(1),
man(1)

groff 1.23.0

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