Name

troff – GNU *roff* typesetter and document formatter

Synopsis

troff [**−abcCEiRUz**] [**−d** *ctext*] [**−d** *string*=*text*] [**−f** *font-family*] [**−F** *font-directory*] [**−I** *inclusion-directory*] [**−m** *macro-package*] [**−M** *macro-directory*] [**−n** *page-number*] [**−o** *page-list*] [**−r** *cnumeric-expression*] [**−r** *register*=*numeric-expression*] [**−T** *output-device*] [**−w** *warning-category*] [**−W** *warning-category*] [*file* . . .]

troff −−help

troff −v
troff −−version

Description

GNU *troff* transforms *groff*(7) language input into the device-independent output format described in *groff_out*(5); *troff* is thus the heart of the GNU *roff* document formatting system. If no *file* operands are given on the command line, or if *file* is "**−**", the standard input stream is read.

GNU *troff* is functionally compatible with the AT&T *troff* typesetter and features numerous extensions. Many people prefer to use the *groff*(1) command, a front end which also runs preprocessors and output drivers in the appropriate order and with appropriate options.

Options

−h and **−−help** display a usage message, while **−v** and **−−version** show version information; all exit afterward.

−a Generate a plain text approximation of the typeset output. The read-only register **.A** is set to 1. This option produces a sort of abstract preview of the formatted output.

- Page breaks are marked by a phrase in angle brackets; for example, "<beginning of page>".
- Lines are broken where they would be in the formatted output.
- A horizontal motion of any size is represented as one space. Adjacent horizontal motions are not combined. Inter-sentence space nodes (those arising from the second argument to the **.ss** request) are not represented.
- Vertical motions are not represented.
- Special characters are rendered in angle brackets; for example, the default soft hyphen character appears as "<hy>".

The above description should not be considered a specification; the details of **−a** output are subject to change.

−b Write a backtrace reporting the state of *troff*'s input parser to the standard error stream with each diagnostic message. The line numbers given in the backtrace might not always be correct, because *troff*'s idea of line numbers can be confused by requests that append to macros.

−c Start with color output disabled.

−C Enable AT&T *troff* compatibility mode; implies **−c**. See *groff_diff*(7).

−d *ctext*
−d *string*=*text*
Define *roff* string *c* or *string* as *text*. *c* must be one character; *string* can be of arbitrary length. Such string assignments happen before any macro file is loaded, including the startup file. Due to *getopt_long*(3) limitations, *c* cannot be, and *string* cannot contain, an equals sign, even though that is a valid character in a *roff* identifier.

−E Inhibit *troff* error messages; implies **−Ww**. This option does *not* suppress messages sent to the standard error stream by documents or macro packages using **tm** or related requests.

−f *fam* Use *fam* as the default font family.

−F *dir* Search in directory *dir* for the selected output device's directory of device and font description files. See the description of *GROFF_FONT_PATH* in section "Environment" below for the default search locations and ordering.

−i Read the standard input stream after all named input files have been processed.

−I *dir* Search the directory *dir* for files (those named on the command line; in **psbb**, **so**, and **soquiet** requests; and in "**\X'ps: import'**", " **\X'ps: file'**", and " **\X'pdf: pdfpic'**" device control escape sequences). **−I** may be specified more than once; each *dir* is searched in the given order. To search the current working directory before others, add "**−I .**" at the desired place; it is otherwise searched last. **−I** works similarly to, and is named for, the "include" option of Unix C compilers.

−m *name*
Process the file name.*tmac* prior to any input files. If not found, *tmac.*name is attempted. *name* (in both arrangements) is presumed to be a macro file; see the description of *GROFF_TMAC_PATH* in section "Environment" below for the default search locations and ordering.

−M *dir* Search directory *dir* for macro files. See the description of *GROFF_TMAC_PATH* in section "Environment" below for the default search locations and ordering.

−n *num*
Begin numbering pages at *num.* The default is **1**.

−o *list* Output only pages in *list,* which is a comma-separated list of inclusive page ranges; *n* means page *n, m−n* means every page between *m* and *n*, *−n* means every page up to *n*, and *n−* means every page from *n* on. *troff* stops processing and exits after formatting the last page enumerated in *list.*

−r *cnumeric-expression*
−r *register*=*numeric-expression*
Define *roff* register *c* or *register* as *numeric-expression. c* must be a one-character name; *register* can be of arbitrary length. Such register assignments happen before any macro file is loaded, including the startup file. Due to *getopt_long*(3) limitations, *c* cannot be, and *register* cannot contain, an equals sign, even though that is a valid character in a *roff* identifier.

−R Don't load *troffrc* and *troffrc−end*.

−T *dev* Prepare output for device *dev.* The default is **ps**; see *groff* (1).

−U Operate in *unsafe mode,* enabling the **open**, **opena**, **pi**, **pso**, and **sy** requests, which are disabled by default because they allow an untrusted input document to write to arbitrary file names and run arbitrary commands. This option also adds the current directory to the macro package search path; see the **−m** and **−M** options above.

−w *name*
−W *name*
Enable (**−w**) or inhibit (**−W**) warnings in category *name.* See section "Warnings" below.

−z Suppress formatted output.

Warnings

Warning diagnostics emitted by *troff* are divided into named, numbered categories. The name associated with each warning category is used by the **−w** and **−W** options. Each category is also assigned a power of two; the sum of enabled category codes is used by the **warn** request and the **.warn** register. Warnings of each category are produced under the following circumstances.

Bit	Code	Category	Bit	Code	Category
0	*1*	**char**	10	*1024*	**reg**
1	*2*	**number**	11	*2048*	**tab**
2	*4*	**break**	12	*4096*	**right−brace**
3	*8*	**delim**	13	*8192*	**missing**
4	*16*	**el**	14	*16384*	**input**
5	*32*	**scale**	15	*32768*	**escape**
6	*64*	**range**	16	*65536*	**space**
7	*128*	**syntax**	17	*131072*	**font**
8	*256*	**di**	18	*262144*	**ig**
9	*512*	**mac**	19	*524288*	**color**
			20	*1048576*	**file**

break 4 A filled output line could not be broken such that its length was less than the output line length **\n[.l]**. This category is enabled by default.

char 1 No mounted font defines a glyph for the requested character. This category is enabled by default.

color 524288 An undefined color name was selected, an attempt was made to define a color using an unrecognized color space, an invalid component in a color definition was encountered, or an attempt was made to redefine a default color.

delim 8 The closing delimiter in an escape sequence was missing or mismatched.

di 256 A **di**, **da**, **box**, or **boxa** request was invoked without an argument when there was no current diversion.

el 16 The **el** request was encountered with no prior corresponding **ie** request.

escape 32768 An unsupported escape sequence was encountered.

file 1048576 An attempt was made to load a file that does not exist. This category is enabled by default.

font 131072 A non-existent font was selected, or the selection was ignored because a font selection escape sequence was used after the output line continuation escape sequence on an input line. This category is enabled by default.

ig 262144 An invalid escape sequence occurred in input ignored using the **ig** request. This warning category diagnoses a condition that is an error when it occurs in non-ignored input.

input 16384 An invalid character occurred on the input stream.

mac 512 An undefined string, macro, or diversion was used. When such an object is dereferenced, an empty one of that name is automatically created. So, unless it is later deleted, at most one warning is given for each.

This warning is also emitted upon an attempt to move an unplanted trap macro. In such cases, the unplanted macro is *not* dereferenced, so it is not created if it does not exist.

missing 8192 A request was invoked with a mandatory argument absent.

number 2 An invalid numeric expression was encountered. This category is enabled by default.

range 64 A numeric expression was out of range for its context.

reg 1024 An undefined register was used. When an undefined register is dereferenced, it is automatically defined with a value of 0. So, unless it is later deleted, at most one warning is given for each.

right−brace 4096 A right brace escape sequence **\}** was encountered where a number was expected.

scale 32 A scaling unit inappropriate to its context was used in a numeric expression.

space 65536 A space was missing between a request or macro and its argument. This warning is produced when an undefined name longer than two characters is encountered and the first two characters of the name constitute a defined name. No request is invoked, no macro called, and an empty macro is not defined. This category is enabled by default. It never occurs in compatibility mode.

syntax 128 A self-contradictory hyphenation mode was requested; an empty or incomplete numeric expression was encountered; an operand to a numeric operator was missing; an attempt was made to define a recursive, empty, or nonsensical character class; or a *groff* extension conditional expression operator was used while in compatibility mode.

tab 2048 A tab character was encountered where a number was expected, or appeared in an unquoted macro argument.

Two warning names group other warning categories for convenience.

all All warning categories except **di**, **mac**, and **reg**. This shorthand is intended to produce all warnings that are useful with macro packages and documents written for AT&T *troff* and its descendants, which have less fastidious diagnostics than GNU *troff*.

w All warning categories. Authors of documents and macro packages targeting *groff* are encouraged to use this setting.

Environment

GROFF_FONT_PATH and *GROFF_TMAC_PATH* each accept a search path of directories; that is, a list of directory names separated by the system's path component separator character. On Unix systems, this character is a colon (:); on Windows systems, it is a semicolon (;).

GROFF_FONT_PATH
A list of directories in which to seek the selected output device's directory of device and font description files. *troff* will scan directories given as arguments to any specified **−F** options before these, then in a site-specific directory (*/usr/share/groff/site−font*), a standard location (*/usr/share/groff/1.23.0/font*), and a compatibility directory (*/usr/lib/font*) after them.

GROFF_TMAC_PATH
A list of directories in which to search for macro files. *troff* will scan directories given as arguments to any specified **−M** options before these, then the current directory (only if in unsafe mode), the user's home directory, a site-specific directory (*/usr/share/groff/site−tmac*), and a standard location (*/usr/share/groff/1.23.0/tmac*) after them.

GROFF_TYPESETTER
Set the default output device. If empty or not set, **ps** is used. The **−T** option overrides *GROFF_TYPESETTER*.

SOURCE_DATE_EPOCH
A timestamp (expressed as seconds since the Unix epoch) to use as the output creation timestamp in place of the current time. The time is converted to human-readable form using *gmtime*(3) and *asctime*(3) when the formatter starts up and stored in registers usable by documents and macro packages.

TZ The time zone to use when converting the current time to human-readable form; see *tzset*(3). If *SOURCE_DATE_EPOCH* is used, it is always converted to human-readable form using UTC.

Files

/usr/share/groff/1.23.0/tmac/troffrc
is an initialization macro file loaded before any macro packages specified with **−m** options.

/usr/share/groff/1.23.0/tmac/troffrc−end
: is an initialization macro file loaded after all macro packages specified with **−m** options.

*/usr/share/groff/1.23.0/tmac/*name.*tmac*
: are macro files distributed with *groff*.

*/usr/share/groff/1.23.0/font/dev*name*/DESC*
: describes the output device *name*.

*/usr/share/groff/1.23.0/font/dev*name/F
: describes the font *F* of device *name.*

troffrc and *troffrc−end* are sought neither in the current nor the home directory by default for security reasons, even if the **−U** option is specified. Use the **−M** command-line option or the *GROFF_TMAC_PATH* environment variable to add these directories to the search path if necessary.

Authors

The GNU version of *troff* was originally written by James Clark; he also wrote the original version of this document, which was updated by Werner Lemberg, Bernd Warken, and GBranden Robinson.

See also

Groff: The GNU Implementation of troff, by Trent A. Fisher and Werner Lemberg, is the primary *groff* manual. You can browse it interactively with "info groff".

groff (1)
: offers an overview of the GNU *roff* system and describes its front end executable.

groff (7)
: details the *groff* language, including a short but complete reference of all predefined requests, registers, and escape sequences.

groff_char(7)
: explains the syntax of *groff* special character escape sequences, and lists all special characters predefined by the language.

groff_diff (7)
: enumerates the differences between AT&T device-independent *troff* and *groff*.

groff_font(5)
: covers the format of *groff* device and font description files.

groff_out(5)
: describes the format of *troff*'s output.

groff_tmac(5)
: includes information about macro files that ship with *groff*.

roff (7) supplies background on *roff* systems in general, including pointers to further related documentation.