## **1. Supplemental: man page of man**

$ man man

Check out the red part that is related to the class.

It tells the man pages of the library calls in C language should be found in Section 3.

MAN(1) Manual pager utils MAN(1)

NAME

man - an interface to the on-line reference manuals

SYNOPSIS

man [-C file] [-d] [-D] [--warnings[=warnings]] [-R encoding] [-L

locale] [-m system[,...]] [-M path] [-S list] [-e extension] [-i|-I]

[--regex|--wildcard] [--names-only] [-a] [-u] [--no-subpages] [-P

pager] [-r prompt] [-7] [-E encoding] [--no-hyphenation] [--no-justifi-

cation] [-p string] [-t] [-T[device]] [-H[browser]] [-X[dpi]] [-Z]

[[section] page ...] ...

man -k [apropos options] regexp ...

man -K [-w|-W] [-S list] [-i|-I] [--regex] [section] term ...

man -f [whatis options] page ...

man -l [-C file] [-d] [-D] [--warnings[=warnings]] [-R encoding] [-L

locale] [-P pager] [-r prompt] [-7] [-E encoding] [-p string] [-t]

[-T[device]] [-H[browser]] [-X[dpi]] [-Z] file ...

man -w|-W [-C file] [-d] [-D] page ...

man -c [-C file] [-d] [-D] page ...

man [-hV]

DESCRIPTION

man is the system's manual pager. Each page argument given to man is

normally the name of a program, utility or function. The manual page

associated with each of these arguments is then found and displayed. A

section, if provided, will direct man to look only in that section of

the manual. The default action is to search in all of the available

sections, following a pre-defined order and to show only the first page

found, even if page exists in several sections.

The table below shows the section numbers of the manual followed by the

types of pages they contain.

1 Executable programs or shell commands

2 System calls (functions provided by the kernel)

3 Library calls (functions within program libraries)

4 Special files (usually found in /dev)

5 File formats and conventions eg /etc/passwd

6 Games

7 Miscellaneous (including macro packages and conven-

tions), e.g. man(7), groff(7)

8 System administration commands (usually only for root)

9 Kernel routines [Non standard]

A manual page consists of several sections.

Conventional section names include NAME, SYNOPSIS, CONFIGURATION,

DESCRIPTION, OPTIONS, EXIT STATUS, RETURN VALUE, ERRORS, ENVIRONMENT,

FILES, VERSIONS, CONFORMING TO, NOTES, BUGS, EXAMPLE, AUTHORS, and

SEE ALSO.

The following conventions apply to the SYNOPSIS section and can be used

as a guide in other sections.

bold text type exactly as shown.

italic text replace with appropriate argument.

[-abc] any or all arguments within [ ] are optional.

-a|-b options delimited by | cannot be used together.

argument ... argument is repeatable.

[expression] ... entire expression within [ ] is repeatable.

Exact rendering may vary depending on the output device. For instance,

man will usually not be able to render italics when running in a termi-

nal, and will typically use underlined or coloured text instead.

The command or function illustration is a pattern that should match all

possible invocations. In some cases it is advisable to illustrate sev-

eral exclusive invocations as is shown in the SYNOPSIS section of this

manual page.

EXAMPLES

man ls

Display the manual page for the item (program) ls.

man -a intro

Display, in succession, all of the available intro manual pages

contained within the manual. It is possible to quit between suc-

cessive displays or skip any of them.

man -t alias | lpr -Pps

Format the manual page referenced by `alias', usually a shell man-

ual page, into the default troff or groff format and pipe it to the

printer named ps. The default output for groff is usually Post-

Script. man --help should advise as to which processor is bound to

the -t option.

man -l -Tdvi ./foo.1x.gz > ./foo.1x.dvi

This command will decompress and format the nroff source manual

page ./foo.1x.gz into a device independent (dvi) file. The redi-

rection is necessary as the -T flag causes output to be directed to

stdout with no pager. The output could be viewed with a program

such as xdvi or further processed into PostScript using a program

such as dvips.

man -k printf

Search the short descriptions and manual page names for the keyword

printf as regular expression. Print out any matches. Equivalent

to apropos -r printf.

man -f smail

Lookup the manual pages referenced by smail and print out the short

descriptions of any found. Equivalent to whatis -r smail.

OVERVIEW

Many options are available to man in order to give as much flexibility

as possible to the user. Changes can be made to the search path, sec-

tion order, output processor, and other behaviours and operations

detailed below.

If set, various environment variables are interrogated to determine the

operation of man. It is possible to set the `catch all' variable

$MANOPT to any string in command line format with the exception that

any spaces used as part of an option's argument must be escaped (pre-

ceded by a backslash). man will parse $MANOPT prior to parsing its own

command line. Those options requiring an argument will be overridden

by the same options found on the command line. To reset all of the

options set in $MANOPT, -D can be specified as the initial command line

option. This will allow man to `forget' about the options specified in

$MANOPT although they must still have been valid.

The manual pager utilities packaged as man-db make extensive use of

index database caches. These caches contain information such as where

each manual page can be found on the filesystem and what its whatis

(short one line description of the man page) contains, and allow man to

run faster than if it had to search the filesystem each time to find

the appropriate manual page. If requested using the -u option, man

will ensure that the caches remain consistent, which can obviate the

need to manually run software to update traditional whatis text data-

bases.

If man cannot find a mandb initiated index database for a particular

manual page hierarchy, it will still search for the requested manual

pages, although file globbing will be necessary to search within that

hierarchy. If whatis or apropos fails to find an index it will try to

extract information from a traditional whatis database instead.

These utilities support compressed source nroff files having, by

default, the extensions of .Z, .z and .gz. It is possible to deal with

any compression extension, but this information must be known at com-

pile time. Also, by default, any cat pages produced are compressed

using gzip. Each `global' manual page hierarchy such as /usr/share/man

or /usr/X11R6/man may have any directory as its cat page hierarchy.

Traditionally the cat pages are stored under the same hierarchy as the

man pages, but for reasons such as those specified in the File Hierar-

chy Standard (FHS), it may be better to store them elsewhere. For

details on how to do this, please read manpath(5). For details on why

to do this, read the standard.

International support is available with this package. Native language

manual pages are accessible (if available on your system) via use of

locale functions. To activate such support, it is necessary to set

either $LC\_MESSAGES, $LANG or another system dependent environment

variable to your language locale, usually specified in the POSIX 1003.1

based format:

<language>[\_<territory>[.<character-set>[,<version>]]]

If the desired page is available in your locale, it will be displayed

in lieu of the standard (usually American English) page.

Support for international message catalogues is also featured in this

package and can be activated in the same way, again if available. If

you find that the manual pages and message catalogues supplied with

this package are not available in your native language and you would

like to supply them, please contact the maintainer who will be coordi-

nating such activity.

For information regarding other features and extensions available with

this manual pager, please read the documents supplied with the package.

DEFAULTS

man will search for the desired manual pages within the index database

caches. If the -u option is given, a cache consistency check is per-

formed to ensure the databases accurately reflect the filesystem. If

this option is always given, it is not generally necessary to run mandb

after the caches are initially created, unless a cache becomes corrupt.

However, the cache consistency check can be slow on systems with many

manual pages installed, so it is not performed by default, and system

administrators may wish to run mandb every week or so to keep the data-

base caches fresh. To forestall problems caused by outdated caches,

man will fall back to file globbing if a cache lookup fails, just as it

would if no cache was present.

Once a manual page has been located, a check is performed to find out

if a relative preformatted `cat' file already exists and is newer than

the nroff file. If it does and is, this preformatted file is (usually)

decompressed and then displayed, via use of a pager. The pager can be

specified in a number of ways, or else will fall back to a default is

used (see option -P for details). If no cat is found or is older than

the nroff file, the nroff is filtered through various programs and is

shown immediately.

If a cat file can be produced (a relative cat directory exists and has

appropriate permissions), man will compress and store the cat file in

the background.

The filters are deciphered by a number of means. Firstly, the command

line option -p or the environment variable $MANROFFSEQ is interrogated.

If -p was not used and the environment variable was not set, the ini-

tial line of the nroff file is parsed for a preprocessor string. To

contain a valid preprocessor string, the first line must resemble

'\" <string>

where string can be any combination of letters described by option -p

below.

If none of the above methods provide any filter information, a default

set is used.

A formatting pipeline is formed from the filters and the primary for-

matter (nroff or [tg]roff with -t) and executed. Alternatively, if an

executable program mandb\_nfmt (or mandb\_tfmt with -t) exists in the man

tree root, it is executed instead. It gets passed the manual source

file, the preprocessor string, and optionally the device specified with

-T or -E as arguments.

OPTIONS

Non argument options that are duplicated either on the command line, in

$MANOPT, or both, are not harmful. For options that require an argu-

ment, each duplication will override the previous argument value.

General options

-C file, --config-file=file

Use this user configuration file rather than the default of

~/.manpath.

-d, --debug

Print debugging information.

-D, --default

This option is normally issued as the very first option and

resets man's behaviour to its default. Its use is to reset

those options that may have been set in $MANOPT. Any options

that follow -D will have their usual effect.

--warnings[=warnings]

Enable warnings from groff. This may be used to perform sanity

checks on the source text of manual pages. warnings is a comma-

separated list of warning names; if it is not supplied, the

default is "mac". See the "Warnings" node in info groff for a

list of available warning names.

Main modes of operation

-f, --whatis

Equivalent to whatis. Display a short description from the man-

ual page, if available. See whatis(1) for details.

-k, --apropos

Equivalent to apropos. Search the short manual page descrip-

tions for keywords and display any matches. See apropos(1) for

details.

-K, --global-apropos

Search for text in all manual pages. This is a brute-force

search, and is likely to take some time; if you can, you should

specify a section to reduce the number of pages that need to be

searched. Search terms may be simple strings (the default), or

regular expressions if the --regex option is used.

-l, --local-file

Activate `local' mode. Format and display local manual files

instead of searching through the system's manual collection.

Each manual page argument will be interpreted as an nroff source

file in the correct format. No cat file is produced. If '-' is

listed as one of the arguments, input will be taken from stdin.

When this option is not used, and man fails to find the page

required, before displaying the error message, it attempts to

act as if this option was supplied, using the name as a filename

and looking for an exact match.

-w, --where, --location

Don't actually display the manual pages, but do print the loca-

tion(s) of the source nroff files that would be formatted.

-W, --where-cat, --location-cat

Don't actually display the manual pages, but do print the loca-

tion(s) of the cat files that would be displayed. If -w and -W

are both specified, print both separated by a space.

-c, --catman

This option is not for general use and should only be used by

the catman program.

-R encoding, --recode=encoding

Instead of formatting the manual page in the usual way, output

its source converted to the specified encoding. If you already

know the encoding of the source file, you can also use man-

conv(1) directly. However, this option allows you to convert

several manual pages to a single encoding without having to

explicitly state the encoding of each, provided that they were

already installed in a structure similar to a manual page hier-

archy.

Finding manual pages

-L locale, --locale=locale

man will normally determine your current locale by a call to the

C function setlocale(3) which interrogates various environment

variables, possibly including $LC\_MESSAGES and $LANG. To tempo-

rarily override the determined value, use this option to supply

a locale string directly to man. Note that it will not take

effect until the search for pages actually begins. Output such

as the help message will always be displayed in the initially

determined locale.

-m system[,...], --systems=system[,...]

If this system has access to other operating system's manual

pages, they can be accessed using this option. To search for a

manual page from NewOS's manual page collection, use the option

-m NewOS.

The system specified can be a combination of comma delimited

operating system names. To include a search of the native oper-

ating system's manual pages, include the system name man in the

argument string. This option will override the $SYSTEM environ-

ment variable.

-M path, --manpath=path

Specify an alternate manpath to use. By default, man uses man-

path derived code to determine the path to search. This option

overrides the $MANPATH environment variable and causes option -m

to be ignored.

A path specified as a manpath must be the root of a manual page

hierarchy structured into sections as described in the man-db

manual (under "The manual page system"). To view manual pages

outside such hierarchies, see the -l option.

-S list, -s list, --sections=list

List is a colon- or comma-separated list of `order specific'

manual sections to search. This option overrides the $MANSECT

environment variable. (The -s spelling is for compatibility

with System V.)

-e sub-extension, --extension=sub-extension

Some systems incorporate large packages of manual pages, such as

those that accompany the Tcl package, into the main manual page

hierarchy. To get around the problem of having two manual pages

with the same name such as exit(3), the Tcl pages were usually

all assigned to section l. As this is unfortunate, it is now

possible to put the pages in the correct section, and to assign

a specific `extension' to them, in this case, exit(3tcl). Under

normal operation, man will display exit(3) in preference to

exit(3tcl). To negotiate this situation and to avoid having to

know which section the page you require resides in, it is now

possible to give man a sub-extension string indicating which

package the page must belong to. Using the above example, sup-

plying the option -e tcl to man will restrict the search to

pages having an extension of \*tcl.

-i, --ignore-case

Ignore case when searching for manual pages. This is the

default.

-I, --match-case

Search for manual pages case-sensitively.

--regex

Show all pages with any part of either their names or their

descriptions matching each page argument as a regular expres-

sion, as with apropos(1). Since there is usually no reasonable

way to pick a "best" page when searching for a regular expres-

sion, this option implies -a.

--wildcard

Show all pages with any part of either their names or their

descriptions matching each page argument using shell-style wild-

cards, as with apropos(1) --wildcard. The page argument must

match the entire name or description, or match on word bound-

aries in the description. Since there is usually no reasonable

way to pick a "best" page when searching for a wildcard, this

option implies -a.

--names-only

If the --regex or --wildcard option is used, match only page

names, not page descriptions, as with whatis(1). Otherwise, no

effect.

-a, --all

By default, man will exit after displaying the most suitable

manual page it finds. Using this option forces man to display

all the manual pages with names that match the search criteria.

-u, --update

This option causes man to perform an `inode level' consistency

check on its database caches to ensure that they are an accurate

representation of the filesystem. It will only have a useful

effect if man is installed with the setuid bit set.

--no-subpages

By default, man will try to interpret pairs of manual page names

given on the command line as equivalent to a single manual page

name containing a hyphen. This supports the common pattern of

programs that implement a number of subcommands, allowing them

to provide manual pages for each that can be accessed using sim-

ilar syntax as would be used to invoke the subcommands them-

selves. For example:

$ man -aw git diff

/usr/share/man/man1/git-diff.1.gz

To disable this behaviour, use the --no-subpages option.

$ man -aw --no-subpages git diff

/usr/share/man/man1/git.1.gz

/usr/share/man/man3/Git.3pm.gz

/usr/share/man/man1/diff.1.gz

Controlling formatted output

-P pager, --pager=pager

Specify which output pager to use. By default, man uses pager

-s. This option overrides the $MANPAGER environment variable,

which in turn overrides the $PAGER environment variable. It is

not used in conjunction with -f or -k.

The value may be a simple command name or a command with argu-

ments, and may use shell quoting (backslashes, single quotes, or

double quotes). It may not use pipes to connect multiple com-

mands; if you need that, use a wrapper script, which may take

the file to display either as an argument or on standard input.

-r prompt, --prompt=prompt

If a recent version of less is used as the pager, man will

attempt to set its prompt and some sensible options. The

default prompt looks like

Manual page name(sec) line x

where name denotes the manual page name, sec denotes the section

it was found under and x the current line number. This is

achieved by using the $LESS environment variable.

Supplying -r with a string will override this default. The

string may contain the text $MAN\_PN which will be expanded to

the name of the current manual page and its section name sur-

rounded by `(' and `)'. The string used to produce the default

could be expressed as

\ Manual\ page\ \$MAN\_PN\ ?ltline\ %lt?L/%L.:

byte\ %bB?s/%s..?\ (END):?pB\ %pB\\%..

It is broken into two lines here for the sake of readability

only. For its meaning see the less(1) manual page. The prompt

string is first evaluated by the shell. All double quotes,

back-quotes and backslashes in the prompt must be escaped by a

preceding backslash. The prompt string may end in an escaped $

which may be followed by further options for less. By default

man sets the -ix8 options.

If you want to override man's prompt string processing com-

pletely, use the $MANLESS environment variable described below.

-7, --ascii

When viewing a pure ascii(7) manual page on a 7 bit terminal or

terminal emulator, some characters may not display correctly

when using the latin1(7) device description with GNU nroff.

This option allows pure ascii manual pages to be displayed in

ascii with the latin1 device. It will not translate any latin1

text. The following table shows the translations performed:

some parts of it may only be displayed properly when using GNU

nroff's latin1(7) device.

Description Octal latin1 ascii

---------------------------------------------

continuation hyphen 255 - -

bullet (middle dot) 267 o o

acute accent 264 ' '

multiplication sign 327 x x

If the latin1 column displays correctly, your terminal may be

set up for latin1 characters and this option is not necessary.

If the latin1 and ascii columns are identical, you are reading

this page using this option or man did not format this page

using the latin1 device description. If the latin1 column is

missing or corrupt, you may need to view manual pages with this

option.

This option is ignored when using options -t, -H, -T, or -Z and

may be useless for nroff other than GNU's.

-E encoding, --encoding=encoding

Generate output for a character encoding other than the default.

For backward compatibility, encoding may be an nroff device such

as ascii, latin1, or utf8 as well as a true character encoding

such as UTF-8.

--no-hyphenation, --nh

Normally, nroff will automatically hyphenate text at line breaks

even in words that do not contain hyphens, if it is necessary to

do so to lay out words on a line without excessive spacing.

This option disables automatic hyphenation, so words will only

be hyphenated if they already contain hyphens.

If you are writing a manual page and simply want to prevent

nroff from hyphenating a word at an inappropriate point, do not

use this option, but consult the nroff documentation instead;

for instance, you can put "\%" inside a word to indicate that it

may be hyphenated at that point, or put "\%" at the start of a

word to prevent it from being hyphenated.

--no-justification, --nj

Normally, nroff will automatically justify text to both margins.

This option disables full justification, leaving justified only

to the left margin, sometimes called "ragged-right" text.

If you are writing a manual page and simply want to prevent

nroff from justifying certain paragraphs, do not use this

option, but consult the nroff documentation instead; for

instance, you can use the ".na", ".nf", ".fi", and ".ad"

requests to temporarily disable adjusting and filling.

-p string, --preprocessor=string

Specify the sequence of preprocessors to run before nroff or

troff/groff. Not all installations will have a full set of pre-

processors. Some of the preprocessors and the letters used to

designate them are: eqn (e), grap (g), pic (p), tbl (t), vgrind

(v), refer (r). This option overrides the $MANROFFSEQ environ-

ment variable. zsoelim is always run as the very first pre-

processor.

-t, --troff

Use groff -mandoc to format the manual page to stdout. This

option is not required in conjunction with -H, -T, or -Z.

-T[device], --troff-device[=device]

This option is used to change groff (or possibly troff's) output

to be suitable for a device other than the default. It implies

-t. Examples (provided with Groff-1.17) include dvi, latin1,

ps, utf8, X75 and X100.

-H[browser], --html[=browser]

This option will cause groff to produce HTML output, and will

display that output in a web browser. The choice of browser is

determined by the optional browser argument if one is provided,

by the $BROWSER environment variable, or by a compile-time

default if that is unset (usually lynx). This option implies

-t, and will only work with GNU troff.

-X[dpi], --gxditview[=dpi]

This option displays the output of groff in a graphical window

using the gxditview program. The dpi (dots per inch) may be 75,

75-12, 100, or 100-12, defaulting to 75; the -12 variants use a

12-point base font. This option implies -T with the X75,

X75-12, X100, or X100-12 device respectively.

-Z, --ditroff

groff will run troff and then use an appropriate post-processor

to produce output suitable for the chosen device. If groff

-mandoc is groff, this option is passed to groff and will sup-

press the use of a post-processor. It implies -t.

Getting help

-h, --help

Print a help message and exit.

-V, --version

Display version information.

EXIT STATUS

0 Successful program execution.

1 Usage, syntax or configuration file error.

2 Operational error.

3 A child process returned a non-zero exit status.

16 At least one of the pages/files/keywords didn't exist or wasn't

matched.

ENVIRONMENT

MANPATH

If $MANPATH is set, its value is used as the path to search for

manual pages.

MANROFFOPT

The contents of $MANROFFOPT are added to the command line every

time man invokes the formatter (nroff, troff, or groff).

MANROFFSEQ

If $MANROFFSEQ is set, its value is used to determine the set of

preprocessors to pass each manual page through. The default

preprocessor list is system dependent.

MANSECT

If $MANSECT is set, its value is a colon-delimited list of sec-

tions and it is used to determine which manual sections to

search and in what order.

MANPAGER, PAGER

If $MANPAGER or $PAGER is set ($MANPAGER is used in preference),

its value is used as the name of the program used to display the

manual page. By default, pager -s is used.

The value may be a simple command name or a command with argu-

ments, and may use shell quoting (backslashes, single quotes, or

double quotes). It may not use pipes to connect multiple com-

mands; if you need that, use a wrapper script, which may take

the file to display either as an argument or on standard input.

MANLESS

If $MANLESS is set, man will not perform any of its usual pro-

cessing to set up a prompt string for the less pager. Instead,

the value of $MANLESS will be copied verbatim into $LESS. For

example, if you want to set the prompt string unconditionally to

"my prompt string", set $MANLESS to '-Psmy prompt string'.

BROWSER

If $BROWSER is set, its value is a colon-delimited list of com-

mands, each of which in turn is used to try to start a web

browser for man --html. In each command, %s is replaced by a

filename containing the HTML output from groff, %% is replaced

by a single percent sign (%), and %c is replaced by a colon (:).

SYSTEM If $SYSTEM is set, it will have the same effect as if it had

been specified as the argument to the -m option.

MANOPT If $MANOPT is set, it will be parsed prior to man's command line

and is expected to be in a similar format. As all of the other

man specific environment variables can be expressed as command

line options, and are thus candidates for being included in

$MANOPT it is expected that they will become obsolete. N.B. All

spaces that should be interpreted as part of an option's argu-

ment must be escaped.

MANWIDTH

If $MANWIDTH is set, its value is used as the line length for

which manual pages should be formatted. If it is not set, man-

ual pages will be formatted with a line length appropriate to

the current terminal (using an ioctl(2) if available, the value

of $COLUMNS, or falling back to 80 characters if neither is

available). Cat pages will only be saved when the default for-

matting can be used, that is when the terminal line length is

between 66 and 80 characters.

MAN\_KEEP\_FORMATTING

Normally, when output is not being directed to a terminal (such

as to a file or a pipe), formatting characters are discarded to

make it easier to read the result without special tools. How-

ever, if $MAN\_KEEP\_FORMATTING is set to any non-empty value,

these formatting characters are retained. This may be useful

for wrappers around man that can interpret formatting charac-

ters.

MAN\_KEEP\_STDERR

Normally, when output is being directed to a terminal (usually

to a pager), any error output from the command used to produce

formatted versions of manual pages is discarded to avoid inter-

fering with the pager's display. Programs such as groff often

produce relatively minor error messages about typographical

problems such as poor alignment, which are unsightly and gener-

ally confusing when displayed along with the manual page. How-

ever, some users want to see them anyway, so, if

$MAN\_KEEP\_STDERR is set to any non-empty value, error output

will be displayed as usual.

LANG, LC\_MESSAGES

Depending on system and implementation, either or both of $LANG

and $LC\_MESSAGES will be interrogated for the current message

locale. man will display its messages in that locale (if avail-

able). See setlocale(3) for precise details.

FILES

/etc/manpath.config

man-db configuration file.

/usr/share/man

A global manual page hierarchy.

/usr/share/man/index.(bt|db|dir|pag)

A traditional global index database cache.

/var/cache/man/index.(bt|db|dir|pag)

An FHS compliant global index database cache.

SEE ALSO

mandb(8), manpath(1), manpath(5), apropos(1), whatis(1), catman(8),

less(1), nroff(1), troff(1), groff(1), zsoelim(1), setlocale(3),

man(7), ascii(7), latin1(7), the man-db package manual, FSSTND.

HISTORY

1990, 1991 - Originally written by John W. Eaton (jwe@che.utexas.edu).

Dec 23 1992: Rik Faith (faith@cs.unc.edu) applied bug fixes supplied by

Willem Kasdorp (wkasdo@nikhefk.nikef.nl).

30th April 1994 - 23rd February 2000: Wilf. (G.Wilford@ee.surrey.ac.uk)

has been developing and maintaining this package with the help of a few

dedicated people.

30th October 1996 - 30th March 2001: Fabrizio Polacco <fpo-

lacco@debian.org> maintained and enhanced this package for the Debian

project, with the help of all the community.

31st March 2001 - present day: Colin Watson <cjwatson@debian.org> is

now developing and maintaining man-db.

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