

How to Read and Write Manual Pages*

Boris Veytsman

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Why Man Pages?

guru, n: A computer owner who can read the manual

The machine I am writing this on has 1,777 commands. An average command has 10 options. Who can remember *all* of them?

`man` is your friend.

- Condensed and down-to-earth wisdom
- You need to learn to scan them

Example of a Manual Page

Few things are harder to put up with than the annoyance of a good example. *Mark Twain, Pudd'nhead Wilson's Calendar*

NAME

position — print or set the system position

SYNOPSIS

position [-v] [-x *prec*] [-z *prec*]

position [-v] *longitude latitude [height]*

position [-V]

DESCRIPTION

Display the current position of the system CPU or set the CPU position.

When called without arguments, **position** prints the current position of the system as a triplet of longitude, latitude and height. Longitude and latitude are in degrees, height is in meters. Negative numbers are not used; instead the letters N, E, S, W, A, B indicate North, East, South, West, Above Sea Level and Below Sea Level (see EXAMPLES below).

When called with arguments, **position** transports the system to the point set by the longitude, latitude and optional height. Only superuser can set the system position. The format of the coordinates is the same as above, but the letters N, E, A can be omitted, and the letters S, W, B can be substituted by minus signs. In this case the argument -- must be used to indicate the end of options. If the height is omitted, the ground level is assumed.

OPTIONS

-v Be verbose and output debugging information

-V Print version information and exit

-x *prec*

Set precision of the horizontal coordinates in degrees (by default 0.01)

-z *prec*

Set precision of the horizontal coordinates in meters (by default 0.01)

RETURN

0 Successful exit

- 1 Only a superuser can set system position
- 2 Cannot open */usr/share/position/geography.dat*
- 3 Location out of range
- 7 Wrong arguments

FILES

/usr/share/position/geography.dat information about Earth shape

EXAMPLES

```
position -x .001 -z .1  
position 25N 32W
```

```
position 25N 32.43W 5A  
position -- 25 -32 -1
```

SEE ALSO

date(1)

BUGS

No check is performed whether the new location has electric power or network connection. Therefore a badly chosen position can cause a system crash.

The coordinates reported by **position** are in fact the coordinates of the CPU. On multi-CPU systems the reported position may vary from invocation to invocation if high precision is set.

Due to Heisenberg uncertainty principle the command `time position longitude latitude` might lead to unexpected results.

AUTHOR

Unknown.

DATE

1980s

Manual Sections

The first thing to learn when studying Japanese is the skill to find words in the dictionary. It takes about a couple hours to get this skill
Igor Tkachenko

Different command with same name. Example:

```
boris@reston-0491:~$ man -f printf
printf (1)          - format and print data
printf (3)          - formatted output conversion
```

To see printf from section 3:

```
man -a printf
```

To see *all* printf pages (does not work everywhere!)

```
man 3 printf
```

Section 1: Executable programs or shell commands

Section 2: System calls (functions provided by the kernel)

Section 3: Library calls (functions within system libraries)

Section 4: Special files (usually found in /dev)

Section 5: File formats and conventions (e.g. /etc/passwd)

Section 6: Games

Section 7: Macro packages and conventions (e.g. man(7), groff(7)).

Section 8: System administration commands (usually only for root)

If You Do Not Know the Name. . .

You mentioned your name as if I should recognize it, but beyond the obvious facts that you are a bachelor, a solicitor, a freemason, and an asthmatic, I know nothing whatever about you. *Sir Arthur Conan Doyle, The Norwood Builder*

Try books, HOWTOs at <http://www.linux.org/docs/ldp/> (they were written for Linux, but you'll be surprised...) or FAQs at <ftp://rtfm.mit.edu/pub/usenet-by-hierarchy/comp/>

Try `apropos` or `man -k`

```
boris@reston-0491:~$ apropos tiff
pnmtotiff (1)          - convert a a portable anymap into a TIFF file
tifftopnm (1)         - convert a TIFF file into a portable anymap
```

```
boris@reston-0491:~$ man -k 'error function'
erf (3)               - error function and complementary error function
erfc (3)              - error function and complementary error function
```

Note that `apropos error` gives 117 hits on my machine...

How to Write Your Own Manual Page

Many a writer seems to think he is never profound except when he can't understand his own meaning.

George D. Prentice

A program without a manual page is *not* a finished work

Manual pages are written in roff with tmac.an macros.

```
.SH "NAME"
position \- print or set the system position
.SH "SYNOPSIS"
\fBposition\fR [\fB-v\fR] [\fB-x\fR \fIprec\fR] [-\fB-z\fR \fIprec\fR]
.PP
\fBposition\fR [\fB-v\fR] \fIlongitude\fR \fIlatitude\fR [\fIheight\fR]
.PP
\fBposition\fR [\fB-V\fR]
.SH "DESCRIPTION"
Display the current position of the system CPU or set the CPU position.
.PP
When called without arguments, \fBposition\fR prints the current position
of the system as a triplet of longitude, latitude and height. Longitude
and latitude are in degrees, height is in meters. Negative numbers are not
used; instead the letters N, E, S, W, A, B indicate North, East, South,
West, Above Sea Level and Below Sea Level (see EXAMPLES below).
```

Your options:

1. Learn roff
2. Write in some other language and use a translator

Perl Pod Language

```
=pod
```

```
=head1 NAME
```

```
position - print or set the system position
```

```
=head1 SYNOPSIS
```

```
B<position> [B<-v>] [B<-x> I<prec>] [-B<-z> I<prec>]
```

```
B<position> [B<-v>] I<longitude> I<latitude> [I<height>]
```

```
B<position> [B<-V>]
```

```
=head1 DESCRIPTION
```

Display the current position of the system CPU or set the CPU position.

When called without arguments, B<position> prints the current position of the system as a triplet of longitude, latitude and height. Longitude and latitude are in degrees, height is in meters. Negative numbers are not

Advantages:

1. Easy language: you can browse `man perlpod` in 10 minutes—and you know 100%
2. Many translators: `pod2man`, `pod2html`, `pod2latex`, `pod2text`. See <http://users.lk.net/~borisv/unix/position.html> for an example.

See the full pod example at <http://users.lk.net/~borisv/unix/position.pod>.

Inserting Man Pages into Comments

1. Start writing a new program by writing its man page—then your program *will* conform to the specs
2. Better to have man page in the same file as the source code it documents: then it will *not* be out of sync.
3. Use `Makefiles` to extract and format your documentation.

Example of a Man Page in a C Program

```
/*  
=pod  
  
=head1 NAME  
  
position - print or set the system position  
  
=head1 SYNOPSIS  
  
...  
  
=cut  
*/
```

Example of a Makefile Fragment

```
position.pod: position.c
    sed -n '/=pod/,/=cut/p' $< > $@

position.1: position.pod
    pod2man $< $@

position.html: position.pod
    pod2html $< $@
```

Where to Put Your Man Page?

All parts should go together without forcing. You must remember that the parts you are reassembling were disassembled by you. Therefore, if you can't get them together again, there must be a reason. By all means, do not use a hammer. *IBM maintenance manual, 1925*

Man pages directories: Could be /usr/share/man, /usr/man, /usr/local/share/man. . . . You can create your own directories—add them to \$MANPATH or use man -M.

Directory Structure:

```
man/man1  
man/man2  
man/man3  
...
```

Cat pages directories: Where preformatted pages are stored; /var/
man/...

Directory structure:

```
man/cat1  
man/cat2  
man/cat3  
...
```

Index: used by `man -k`. Traditional index: text-only `whatis`. Newer approach: a database file

How to Support Local Man Pages

Support your local Search and Rescue unit—get lost.

1. Put them into `/usr/local/share/man/`
2. Regularly run program that updates the database
3. Regularly delete old cached cat files

```
find /var/cache/man -type f -name '*.gz' -atime +6 -print \  
| xargs -r rm -f
```

Are Man Pages Obsolete?

Any program which runs right is obsolete. *Marketing Memo*

FSF supports `info`. Advantages of the `info` system:

- Has common hierarchy and can be globally searched
- Can support different output formats
- Emacs interface

Disadvantages of the `info` system:

- Not many people rewrote their man pages
- Requires `texinfo` format to write new pages
- Emacs interface

Homework

A student who changes the course of history is probably taking an exam.

1. Use `man man` to find out how to print manual pages on your system.
2. Look at manual pages for `head` and `tail`. What does `tail -f` do? How can you use it?
3. Write a man page for your own program.