



Red Hat Enterprise Linux Release 9.2 Manual Pages on 'time.1' command

\$ man time.1

TIME(1) Linux User's Manual TIME(1)

NAME

time - time a simple command or give resource usage

SYNOPSIS

time [options] command [arguments...]

DESCRIPTION

The time command runs the specified program command with the given arguments. When command finishes, time writes a message to standard error giving timing statistics about this program run. These statistics consist of (i) the elapsed real time between invocation and termination, (ii) the user CPU time (the sum of the tms_utime and tms_cutime values in a struct tms as returned by times(2)), and (iii) the system CPU time (the sum of the tms_stime and tms_cstime values in a struct tms as returned by times(2)).

Note: some shells (e.g., bash(1)) have a built-in time command that provides similar information on the usage of time and possibly other resources. To access the real command, you may need to specify its pathname (something like /usr/bin/time).

OPTIONS

-p When in the POSIX locale, use the precise traditional format
 "real %fnuser %fnsys %fn"

(with numbers in seconds) where the number of decimals in the output for %f is unspecified but is sufficient to express the

clock tick accuracy, and at least one.

EXIT STATUS

If command was invoked, the exit status is that of command. Otherwise, it is 127 if command could not be found, 126 if it could be found but could not be invoked, and some other nonzero value (1?125) if something else went wrong.

ENVIRONMENT

The variables LANG, LC_ALL, LC_CTYPE, LC_MESSAGES, LC_NUMERIC, and NLSPATH are used for the text and formatting of the output. PATH is used to search for command. The remaining ones for the text and for? matting of the output.

GNU VERSION

Below a description of the GNU 1.7 version of time. Disregarding the name of the utility, GNU makes it output lots of useful information, not only about time used, but also on other resources like memory, I/O and IPC calls (where available). The output is formatted using a for? mat string that can be specified using the -f option or the TIME envi? ronment variable.

The default format string is:

```
%Uuser %Ssystem %Eelapsed %PCPU (%Xtext+%Ddata %Mmax)k
%linputs+%Ooutputs (%Fmajor+%Rminor)pagefaults %Wswaps
```

When the -p option is given, the (portable) output format is used:

```
real %e
user %U
sys %S
```

The format string

The format is interpreted in the usual printf-like way. Ordinary characters are directly copied, tab, newline and backslash are escaped using \t, \n and \, a percent sign is represented by %, and otherwise % indicates a conversion. The program time will always add a trailing newline itself. The conversions follow. All of those used by tcsh(1) are supported.

Time

%E Elapsed real time (in [hours:]minutes:seconds).

%e (Not in tcsh(1).) Elapsed real time (in seconds).

%S Total number of CPU-seconds that the process spent in kernel mode.

%U Total number of CPU-seconds that the process spent in user mode.

%P Percentage of the CPU that this job got, computed as $(\%U + \%S) / \%E$.

Memory

%M Maximum resident set size of the process during its lifetime, in Kbytes.

%t (Not in tcsh(1).) Average resident set size of the process, in Kbytes.

%K Average total (data+stack+text) memory use of the process, in Kbytes.

%D Average size of the process's unshared data area, in Kbytes.

%p (Not in tcsh(1).) Average size of the process's unshared stack space, in Kbytes.

%X Average size of the process's shared text space, in Kbytes.

%Z (Not in tcsh(1).) System's page size, in bytes. This is a per-system constant, but varies between systems.

%F Number of major page faults that occurred while the process was running. These are faults where the page has to be read in from disk.

%R Number of minor, or recoverable, page faults. These are faults for pages that are not valid but which have not yet been claimed by other virtual pages. Thus the data in the page is still valid but the system tables must be updated.

%W Number of times the process was swapped out of main memory.

%c Number of times the process was context-switched involuntarily (because the time slice expired).

%w Number of waits: times that the program was context-switched voluntarily, for instance while waiting for an I/O operation to complete.

I/O

%I Number of filesystem inputs by the process.

%O Number of filesystem outputs by the process.

%r Number of socket messages received by the process.

%s Number of socket messages sent by the process.

%k Number of signals delivered to the process.

%C (Not in tcsh(1).) Name and command-line arguments of the command being timed.

%x (Not in tcsh(1).) Exit status of the command.

GNU options

-f format, --format=format

Specify output format, possibly overriding the format specified in the environment variable TIME.

-p, --portability

Use the portable output format.

-o file, --output=file

Do not send the results to stderr, but overwrite the specified file.

-a, --append

(Used together with -o.) Do not overwrite but append.

-v, --verbose

Give very verbose output about all the program knows about.

-q, --quiet

Don't report abnormal program termination (where command is terminated by a signal) or nonzero exit status.

GNU standard options

--help Print a usage message on standard output and exit successfully.

-V, --version

Print version information on standard output, then exit successfully.

-- Terminate option list.

BUGS

Not all resources are measured by all versions of UNIX, so some of the

values might be reported as zero. The present selection was mostly inspired by the data provided by 4.2 or 4.3BSD.

GNU time version 1.7 is not yet localized. Thus, it does not implement the POSIX requirements.

The environment variable TIME was badly chosen. It is not unusual for systems like autoconf(1) or make(1) to use environment variables with the name of a utility to override the utility to be used. Uses like MORE or TIME for options to programs (instead of program pathnames) tend to lead to difficulties.

It seems unfortunate that -o overwrites instead of appends. (That is, the -a option should be the default.)

Mail suggestions and bug reports for GNU time to bug-time@gnu.org.

Please include the version of time, which you can get by running

```
time --version
```

and the operating system and C compiler you used.

SEE ALSO

[bash\(1\)](#), [tcsh\(1\)](#), [times\(2\)](#), [wait3\(2\)](#)

COLOPHON

This page is part of release 5.10 of the Linux man-pages project. A description of the project, information about reporting bugs, and the latest version of this page, can be found at <https://www.kernel.org/doc/man-pages/>.

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