

NAME

time - get time of day

LIBRARY

Standard C Library (libc, -lc)

SYNOPSIS

```
#include <time.h>
```

```
time_t
```

```
time(time_t *tloc);
```

DESCRIPTION

The **time()** function returns the value of time in seconds since 0 hours, 0 minutes, 0 seconds, January 1, 1970, Coordinated Universal Time (UTC). If an error occurs, **time()** returns the value $(time_t)-1$.

The return value is also stored in **tloc*, provided that *tloc* is non-null.

ERRORS

The **time()** function may fail for any of the reasons described in `clock_gettime(2)`.

SEE ALSO

`clock_gettime(2)`, `gettimeofday(2)`, `ctime(3)`

STANDARDS

The **time** function conforms to IEEE Std 1003.1-2008 ("POSIX.1").

HISTORY

The **time()** system call first appeared in Version 1 AT&T UNIX. Through the Version 3 AT&T UNIX, it returned 60 Hz ticks since an epoch that changed occasionally, because it was a 32-bit value that overflowed in a little over 2 years.

In Version 4 AT&T UNIX the granularity of the return value was reduced to whole seconds, delaying the aforementioned overflow until 2038.

Version 7 AT&T UNIX introduced the **ftime()** system call, which returned time at a millisecond level, though retained the **gtime()** system call (exposed as **time()** in userland). **time()** could have been implemented as a wrapper around **ftime()**, but that wasn't done.

4.1cBSD implemented a higher-precision time function **gettimeofday()** to replace **time()** and

reimplemented **time()** in terms of that.

Since FreeBSD 9 the implementation of **time()** uses **clock_gettime(CLOCK_SECOND)** instead of **gettimeofday()** for performance reasons.

BUGS

Neither ISO/IEC 9899:1999 ("ISO C99") nor IEEE Std 1003.1-2001 ("POSIX.1") requires **time()** to set *errno* on failure; thus, it is impossible for an application to distinguish the valid time value -1 (representing the last UTC second of 1969) from the error return value.

Systems conforming to earlier versions of the C and POSIX standards (including older versions of FreeBSD) did not set **tloc* in the error case.