

NAME

ntp_gettime, ntp_gettimeex – get time parameters (NTP daemon interface)

LIBRARY

Standard C library (*libc*, *-lc*)

SYNOPSIS

```
#include <sys/timex.h>
```

```
int ntp_gettime(struct ntptimeval *ntv);
```

```
int ntp_gettimeex(struct ntptimeval *ntv);
```

DESCRIPTION

Both of these APIs return information to the caller via the *ntv* argument, a structure of the following type:

```
struct ntptimeval {
    struct timeval time;      /* Current time */
    long maxerror;           /* Maximum error */
    long esterror;           /* Estimated error */
    long tai;                /* TAI offset */

    /* Further padding bytes allowing for future expansion */
};
```

The fields of this structure are as follows:

time The current time, expressed as a *timeval* structure:

```
struct timeval {
    time_t      tv_sec;      /* Seconds since the Epoch */
    suseconds_t tv_usec;     /* Microseconds */
};
```

maxerror

Maximum error, in microseconds. This value can be initialized by **ntp_adjtime(3)**, and is increased periodically (on Linux: each second), but is clamped to an upper limit (the kernel constant **NTP_PHASE_MAX**, with a value of 16,000).

esterror

Estimated error, in microseconds. This value can be set via **ntp_adjtime(3)** to contain an estimate of the difference between the system clock and the true time. This value is not used inside the kernel.

tai TAI (Atomic International Time) offset.

ntp_gettime() returns an *ntptimeval* structure in which the *time*, *maxerror*, and *esterror* fields are filled in.

ntp_gettimeex() performs the same task as **ntp_gettime()**, but also returns information in the *tai* field.

RETURN VALUE

The return values for **ntp_gettime()** and **ntp_gettimeex()** are as for **adjtimex(2)**. Given a correct pointer argument, these functions always succeed.

VERSIONS

The **ntp_gettime()** function is available since glibc 2.1. The **ntp_gettimeex()** function is available since glibc 2.12.

ATTRIBUTES

For an explanation of the terms used in this section, see **attributes(7)**.

Interface	Attribute	Value
ntp_gettime() , ntp_gettimeex()	Thread safety	MT-Safe

STANDARDS

ntp_gettime() is described in the NTP Kernel Application Program Interface. **ntp_gettimex()** is a GNU extension.

SEE ALSO

adjtimex(2), **ntp_adjtime(3)**, **time(7)**

NTP "Kernel Application Program Interface" (<http://www.slac.stanford.edu/comp/unix/package/rtems/src/ssrlApps/ntpNanoclock/api.htm>)