

**NAME**

`ntp_gettime`, `ntp_gettimex` – get time parameters (NTP daemon interface)

**SYNOPSIS**

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

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

```
int ntp_gettimex(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 int maxerror;            /* Maximum error */
    long int esterror;            /* Estimated error */
    long int 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\_gettimex()** 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\_gettimex()** 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\_gettimex()** function is available since glibc 2.12.

**ATTRIBUTES**

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

| Interface                                    | Attribute     | Value   |
|--|---------------|---------|
| <b>ntp_gettime()</b> , <b>ntp_gettimex()</b> | Thread safety | MT-Safe |

**CONFORMING TO**

**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>)

**COLOPHON**

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