

NAME

X509_cmp_time, X509_cmp_current_time, X509_cmp_timeframe, X509_time_adj,
X509_time_adj_ex, X509_gmtime_adj - X509 time functions

SYNOPSIS

```
int X509_cmp_time(const ASN1_TIME *asn1_time, time_t *in_tm);
int X509_cmp_current_time(const ASN1_TIME *asn1_time);
int X509_cmp_timeframe(const X509_VERIFY_PARAM *vpm,
                      const ASN1_TIME *start, const ASN1_TIME *end);
ASN1_TIME *X509_time_adj(ASN1_TIME *asn1_time, long offset_sec, time_t *in_tm);
ASN1_TIME *X509_time_adj_ex(ASN1_TIME *asn1_time, int offset_day, long
                          offset_sec, time_t *in_tm);
ASN1_TIME *X509_gmtime_adj(ASN1_TIME *asn1_time, long offset_sec);
```

DESCRIPTION

X509_cmp_time() compares the ASN1_TIME in *asn1_time* with the time in *<in_tm>*.

X509_cmp_current_time() compares the ASN1_TIME in *asn1_time* with the current time, expressed as *time_t*.

X509_cmp_timeframe() compares the given time period with the reference time included in the verification parameters *vpm* if they are not NULL and contain **X509_V_FLAG_USE_CHECK_TIME**; else the current time is used as reference time.

X509_time_adj_ex() sets the ASN1_TIME structure *asn1_time* to the time *offset_day* and *offset_sec* after *in_tm*.

X509_time_adj() sets the ASN1_TIME structure *asn1_time* to the time *offset_sec* after *in_tm*. This method can only handle second offsets up to the capacity of long, so the newer **X509_time_adj_ex()** API should be preferred.

In both methods, if *asn1_time* is NULL, a new ASN1_TIME structure is allocated and returned.

In all methods, if *in_tm* is NULL, the current time, expressed as *time_t*, is used.

asn1_time must satisfy the ASN1_TIME format mandated by RFC 5280, i.e., its format must be either YYMMDDHHMMSSZ or YYYYMMDDHHMMSSZ.

X509_gmtime_adj() sets the ASN1_TIME structure *asn1_time* to the time *offset_sec* after the current time. It is equivalent to calling **X509_time_adj()** with the last parameter as NULL.

BUGS

Unlike many standard comparison functions, **X509_cmp_time()** and **X509_cmp_current_time()** return 0 on error.

RETURN VALUES

X509_cmp_time() and **X509_cmp_current_time()** return -1 if *asn1_time* is earlier than, or equal to, *in_tm* (resp. current time), and 1 otherwise. These methods return 0 on error.

X509_cmp_timeframe() returns 0 if *vpm* is not NULL and the verification parameters do not contain **X509_V_FLAG_USE_CHECK_TIME** but do contain **X509_V_FLAG_NO_CHECK_TIME**. Otherwise it returns 1 if the end time is not NULL and the reference time (which has determined as stated above) is past the end time, -1 if the start time is not NULL and the reference time is before, else 0 to indicate that the reference time is in range (implying that the end time is not before the start time if both are present).

X509_time_adj(), **X509_time_adj_ex()** and **X509_gmtime_adj()** return a pointer to the updated ASN1_TIME structure, and NULL on error.

HISTORY

X509_cmp_timeframe() was added in OpenSSL 3.0.

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