

**NAME**

X509\_chain\_up\_ref, X509\_new, X509\_free, X509\_up\_ref - X509 certificate ASN1 allocation functions

**SYNOPSIS**

```
#include <openssl/x509.h>

X509 *X509_new(void);
void X509_free(X509 *a);
int X509_up_ref(X509 *a);
STACK_OF(X509) *X509_chain_up_ref(STACK_OF(X509) *x);
```

**DESCRIPTION**

The X509 ASN1 allocation routines, allocate and free an X509 structure, which represents an X509 certificate.

*X509\_new()* allocates and initializes a X509 structure with reference count **1**.

*X509\_free()* decrements the reference count of **X509** structure **a** and frees it up if the reference count is zero. If **a** is NULL nothing is done.

*X509\_up\_ref()* increments the reference count of **a**.

*X509\_chain\_up\_ref()* increases the reference count of all certificates in chain **x** and returns a copy of the stack.

**NOTES**

The function *X509\_up\_ref()* is useful if a certificate structure is being used by several different operations each of which will free it up after use: this avoids the need to duplicate the entire certificate structure.

The function *X509\_chain\_up\_ref()* doesn't just up the reference count of each certificate it also returns a copy of the stack, using *sk\_X509\_dup()*, but it serves a similar purpose: the returned chain persists after the original has been freed.

**RETURN VALUES**

If the allocation fails, *X509\_new()* returns **NULL** and sets an error code that can be obtained by [ERR\\_get\\_error\(3\)](#). Otherwise it returns a pointer to the newly allocated structure.

*X509\_up\_ref()* returns 1 for success and 0 for failure.

*X509\_chain\_up\_ref()* returns a copy of the stack or **NULL** if an error occurred.

**SEE ALSO**

[d2i\\_X509\(3\)](#), [ERR\\_get\\_error\(3\)](#), [X509\\_CRL\\_get0\\_by\\_serial\(3\)](#), [X509\\_get0\\_signature\(3\)](#), [X509\\_get\\_ext\\_d2i\(3\)](#), [X509\\_get\\_extension\\_flags\(3\)](#), [X509\\_get\\_pubkey\(3\)](#), [X509\\_get\\_subject\\_name\(3\)](#), [X509\\_get\\_version\(3\)](#), [X509\\_NAME\\_add\\_entry\\_by\\_txt\(3\)](#), [X509\\_NAME\\_ENTRY\\_get\\_object\(3\)](#), [X509\\_NAME\\_get\\_index\\_by\\_NID\(3\)](#), [X509\\_NAME\\_print\\_ex\(3\)](#), [X509\\_sign\(3\)](#), [X509V3\\_get\\_d2i\(3\)](#), [X509\\_verify\\_cert\(3\)](#)

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