

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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