

**NAME**

**X509\_sign**, **X509\_sign\_ctx**, **X509\_REQ\_sign**, **X509\_REQ\_sign\_ctx**, **X509\_CRL\_sign**,  
**X509\_CRL\_sign\_ctx** - sign certificate, certificate request, or CRL signature

**SYNOPSIS**

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

```
int X509_sign(X509 *x, EVP_PKEY *pkey, const EVP_MD *md);  
int X509_sign_ctx(X509 *x, EVP_MD_CTX *ctx);
```

```
int X509_REQ_sign(X509_REQ *x, EVP_PKEY *pkey, const EVP_MD *md);  
int X509_REQ_sign_ctx(X509_REQ *x, EVP_MD_CTX *ctx);
```

```
int X509_CRL_sign(X509_CRL *x, EVP_PKEY *pkey, const EVP_MD *md);  
int X509_CRL_sign_ctx(X509_CRL *x, EVP_MD_CTX *ctx);
```

**DESCRIPTION**

**X509\_sign()** signs certificate *x* using private key *pkey* and message digest *md* and sets the signature in *x*. **X509\_sign\_ctx()** also signs certificate *x* but uses the parameters contained in digest context *ctx*.

**X509\_REQ\_sign()**, **X509\_REQ\_sign\_ctx()**, **X509\_CRL\_sign()**, and **X509\_CRL\_sign\_ctx()** sign certificate requests and CRLs, respectively.

**NOTES**

**X509\_sign\_ctx()** is used where the default parameters for the corresponding public key and digest are not suitable. It can be used to sign keys using RSA-PSS for example.

For efficiency reasons and to work around ASN.1 encoding issues the encoding of the signed portion of a certificate, certificate request and CRL is cached internally. If the signed portion of the structure is modified the encoding is not always updated meaning a stale version is sometimes used. This is not normally a problem because modifying the signed portion will invalidate the signature and signing will always update the encoding.

**RETURN VALUES**

All functions return the size of the signature in bytes for success and zero for failure.

**SEE ALSO**

**ERR\_get\_error(3)**, **X509\_NAME\_add\_entry\_by\_txt(3)**, **X509\_new(3)**, **X509\_verify\_cert(3)**,  
**X509\_verify(3)**, **X509\_REQ\_verify\_ex(3)**, **X509\_REQ\_verify(3)**, **X509\_CRL\_verify(3)**

## HISTORY

The **X509\_sign()**, **X509\_REQ\_sign()** and **X509\_CRL\_sign()** functions are available in all versions of OpenSSL.

The **X509\_sign\_ctx()**, **X509\_REQ\_sign\_ctx()** and **X509\_CRL\_sign\_ctx()** functions were added in OpenSSL 1.0.1.

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