

**NAME**

X509\_digest, X509\_digest\_sig, X509\_CRL\_digest, X509\_pubkey\_digest, X509\_NAME\_digest, X509\_REQ\_digest, PKCS7\_ISSUER\_AND\_SERIAL\_digest - get digest of various objects

**SYNOPSIS**

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

```
int X509_digest(const X509 *data, const EVP_MD *type, unsigned char *md,
               unsigned int *len);
```

```
ASN1_OCTET_STRING *X509_digest_sig(const X509 *cert,
                                   EVP_MD **md_used, int *md_is_fallback);
```

```
int X509_CRL_digest(const X509_CRL *data, const EVP_MD *type, unsigned char *md,
                   unsigned int *len);
```

```
int X509_pubkey_digest(const X509 *data, const EVP_MD *type,
                      unsigned char *md, unsigned int *len);
```

```
int X509_REQ_digest(const X509_REQ *data, const EVP_MD *type,
                   unsigned char *md, unsigned int *len);
```

```
int X509_NAME_digest(const X509_NAME *data, const EVP_MD *type,
                    unsigned char *md, unsigned int *len);
```

```
#include <openssl/pkcs7.h>
```

```
int PKCS7_ISSUER_AND_SERIAL_digest(PKCS7_ISSUER_AND_SERIAL *data,
                                   const EVP_MD *type, unsigned char *md,
                                   unsigned int *len);
```

**DESCRIPTION**

**X509\_digest\_sig()** calculates a digest of the given certificate *cert* using the same hash algorithm as in its signature, if the digest is an integral part of the certificate signature algorithm identifier. Otherwise, a fallback hash algorithm is determined as follows: SHA512 if the signature algorithm is ED25519, SHAKE256 if it is ED448, otherwise SHA256. The output parameters are assigned as follows. Unless *md\_used* is NULL, the hash algorithm used is provided in *md\_used* and must be freed by the caller (if it is not NULL). Unless *md\_is\_fallback* is NULL, the *md\_is\_fallback* is set to 1 if the hash algorithm used is a fallback, otherwise to 0.

**X509\_pubkey\_digest()** returns a digest of the DER representation of the public key in the specified

X509 *data* object.

All other functions described here return a digest of the DER representation of their entire *data* objects.

The *type* parameter specifies the digest to be used, such as **EVP\_sha1()**. The *md* is a pointer to the buffer where the digest will be copied and is assumed to be large enough; the constant **EVP\_MAX\_MD\_SIZE** is suggested. The *len* parameter, if not NULL, points to a place where the digest size will be stored.

## RETURN VALUES

**X509\_digest\_sig()** returns an ASN1\_OCTET\_STRING pointer on success, else NULL.

All other functions described here return 1 for success and 0 for failure.

## SEE ALSO

**EVP\_sha1(3)**

## HISTORY

The **X509\_digest\_sig()** function was added in OpenSSL 3.0.

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