NAME

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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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