### NAME

OSSL\_CMP\_MSG\_get0\_header, OSSL\_CMP\_MSG\_get\_bodytype, OSSL\_CMP\_MSG\_update\_transactionID, OSSL\_CMP\_MSG\_update\_recipNonce, OSSL\_CMP\_CTX\_setup\_CRM, OSSL\_CMP\_MSG\_read, OSSL\_CMP\_MSG\_write, d2i\_OSSL\_CMP\_MSG\_bio, i2d\_OSSL\_CMP\_MSG\_bio - function(s) manipulating CMP messages

### SYNOPSIS

#include <openssl/cmp.h>

OSSL\_CMP\_PKIHEADER \*OSSL\_CMP\_MSG\_get0\_header(const OSSL\_CMP\_MSG \*msg); int OSSL\_CMP\_MSG\_get\_bodytype(const OSSL\_CMP\_MSG \*msg); int OSSL\_CMP\_MSG\_update\_transactionID(OSSL\_CMP\_CTX \*ctx, OSSL\_CMP\_MSG \*msg); oSSL\_CMP\_MSG\_update\_recipNonce(OSSL\_CMP\_CTX \*ctx, OSSL\_CMP\_MSG \*msg); OSSL\_CRMF\_MSG \*OSSL\_CMP\_CTX\_setup\_CRM(OSSL\_CMP\_CTX \*ctx, int for\_KUR, int rid); OSSL\_CMP\_MSG \*OSSL\_CMP\_MSG\_read(const char \*file, OSSL\_LIB\_CTX \*libctx, const char \*propq); int OSSL\_CMP\_MSG\_write(const char \*file, const OSSL\_CMP\_MSG \*msg); OSSL\_CMP\_MSG \*d2i\_OSSL\_CMP\_MSG\_bio(BIO \*bio, OSSL\_CMP\_MSG \*msg); int i2d\_OSSL\_CMP\_MSG\_bio(BIO \*bio, const OSSL\_CMP\_MSG \*msg);

# DESCRIPTION

OSSL\_CMP\_MSG\_get0\_header() returns the header of the given CMP message.

OSSL\_CMP\_MSG\_get\_bodytype() returns the body type of the given CMP message.

**OSSL\_CMP\_MSG\_update\_transactionID**() updates the transactionID field in the header of the given message according to the CMP\_CTX. If *ctx* does not contain a transaction ID, a fresh one is created before. The message gets re-protected (if protecting requests is required).

**OSSL\_CMP\_MSG\_update\_recipNonce**() updates the recipNonce field in the header of the given message according to the CMP\_CTX. The message gets re-protected (if protecting requests is required).

**OSSL\_CMP\_CTX\_setup\_CRM()** creates a CRMF certificate request message from various information provided in the CMP context argument *ctx* for inclusion in a CMP request message based on details contained in *ctx*. The *rid* argument defines the request identifier to use, which typically is 0.

The subject DN included in the certificate template is the first available value of these:

any subject name in *ctx* set via **OSSL\_CMP\_CTX\_set1\_subjectName**(3) - if it is the NULL-DN (i.e., any empty sequence of RDNs), no subject is included,

the subject field of any PKCS#10 CSR set in *ctx* via **OSSL\_CMP\_CTX\_set1\_p10CSR**(3), the subject field of any reference certificate given in *ctx* (see **OSSL\_CMP\_CTX\_set1\_oldCert**(3)), but only if *for\_KUR* is nonzero or the *ctx* does not include a Subject Alternative Name.

The public key included is the first available value of these:

the public key derived from any key set via **OSSL\_CMP\_CTX\_set0\_newPkey**(3), the public key of any PKCS#10 CSR given in *ctx*, the public key of any reference certificate given in *ctx* (see **OSSL\_CMP\_CTX\_set1\_oldCert**(3)), the public key derived from any client's private key set via **OSSL\_CMP\_CTX\_set1\_pkey**(3).

The set of X.509 extensions to include is computed as follows. If a PKCS#10 CSR is present in *ctx*, default extensions are taken from there, otherwise the empty set is taken as the initial value. If there is a reference certificate in *ctx* and contains Subject Alternative Names (SANs) and **OSSL\_CMP\_OPT\_SUBJECTALTNAME\_NODEFAULT** is not set, these override any SANs from the PKCS#10 CSR. The extensions are further augmented or overridden by any extensions with the same OIDs included in the *ctx* via **OSSL\_CMP\_CTX\_set0\_reqExtensions**(3). The SANs are further overridden by any SANs included in *ctx* via **OSSL\_CMP\_CTX\_push1\_subjectAltName**(3). Finally, policies are overridden by any policies included in *ctx* via **OSSL\_CMP\_CTX\_push0\_policy**(3).

**OSSL\_CMP\_CTX\_setup\_CRM()** also sets the sets the regToken control **oldCertID** for KUR messages using the issuer name and serial number of the reference certificate, if present.

OSSL\_CMP\_MSG\_read() loads a DER-encoded OSSL\_CMP\_MSG from file.

**OSSL\_CMP\_MSG\_write**() stores the given OSSL\_CMP\_MSG to *file* in DER encoding.

**d2i\_OSSL\_CMP\_MSG\_bio**() parses an ASN.1-encoded OSSL\_CMP\_MSG from the BIO *bio*. It assigns a pointer to the new structure to *\*msg* if *msg* is not NULL.

i2d\_OSSL\_CMP\_MSG\_bio() writes the OSSL\_CMP\_MSG msg in ASN.1 encoding to BIO bio.

### NOTES

CMP is defined in RFC 4210.

# **RETURN VALUES**

**OSSL\_CMP\_MSG\_get0\_header**() returns the intended pointer value as described above or NULL if the respective entry does not exist and on error.

**OSSL\_CMP\_MSG\_get\_bodytype**() returns the body type or -1 on error.

**OSSL\_CMP\_CTX\_setup\_CRM()** returns a pointer to a **OSSL\_CRMF\_MSG** on success, NULL on error.

d2i\_OSSL\_CMP\_MSG\_bio() returns the parsed message or NULL on error.

OSSL\_CMP\_MSG\_read() and d2i\_OSSL\_CMP\_MSG\_bio() return the parsed CMP message or NULL on error.

**OSSL\_CMP\_MSG\_write**() returns the number of bytes successfully encoded or a negative value if an error occurs.

i2d\_OSSL\_CMP\_MSG\_bio(), OSSL\_CMP\_MSG\_update\_transactionID(), and OSSL\_CMP\_MSG\_update\_recipNonce() return 1 on success, 0 on error.

### SEE ALSO

OSSL\_CMP\_CTX\_set1\_subjectName(3), OSSL\_CMP\_CTX\_set1\_p10CSR(3), OSSL\_CMP\_CTX\_set1\_oldCert(3), OSSL\_CMP\_CTX\_set0\_newPkey(3), OSSL\_CMP\_CTX\_set1\_pkey(3), OSSL\_CMP\_CTX\_set0\_reqExtensions(3), OSSL\_CMP\_CTX\_push1\_subjectAltName(3), OSSL\_CMP\_CTX\_push0\_policy(3)

## HISTORY

The OpenSSL CMP support was added in OpenSSL 3.0.

OSSL\_CMP\_MSG\_update\_recipNonce() was added in OpenSSL 3.0.9.

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