

**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);
int 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\_get0\_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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