



***Rocky Enterprise Linux 9.2 Manual Pages on command 'CMS\_RecipientInfo\_encrypt.3oss1'***

***\$ man CMS\_RecipientInfo\_encrypt.3oss1***

CMS\_GET0\_RECIPIENTINFOS(3oss1) OpenSSL CMS\_GET0\_RECIPIENTINFOS(3oss1)

**NAME**

CMS\_get0\_RecipientInfos, CMS\_RecipientInfo\_type,  
CMS\_RecipientInfo\_ktri\_get0\_signer\_id, CMS\_RecipientInfo\_ktri\_cert\_cmp,  
CMS\_RecipientInfo\_set0\_pkey, CMS\_RecipientInfo\_kekri\_get0\_id,  
CMS\_RecipientInfo\_kari\_set0\_pkey\_and\_peer,  
CMS\_RecipientInfo\_kari\_set0\_pkey, CMS\_RecipientInfo\_kekri\_id\_cmp,  
CMS\_RecipientInfo\_set0\_key, CMS\_RecipientInfo\_decrypt,  
CMS\_RecipientInfo\_encrypt - CMS envelopedData RecipientInfo routines

**SYNOPSIS**

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

```
STACK_OF(CMS_RecipientInfo) *CMS_get0_RecipientInfos(CMS_ContentInfo *cms);
```

```
int CMS_RecipientInfo_type(CMS_RecipientInfo *ri);
```

```
int CMS_RecipientInfo_ktri_get0_signer_id(CMS_RecipientInfo *ri,
```

```

        ASN1_OCTET_STRING **keyid,
        X509_NAME **issuer,
        ASN1_INTEGER **sno);

int CMS_RecipientInfo_ktri_cert_cmp(CMS_RecipientInfo *ri, X509 *cert);
int CMS_RecipientInfo_set0_pkey(CMS_RecipientInfo *ri, EVP_PKEY *pkey);
int CMS_RecipientInfo_kari_set0_pkey_and_peer(CMS_RecipientInfo *ri,
        EVP_PKEY *pk, X509 *peer);
int CMS_RecipientInfo_kari_set0_pkey(CMS_RecipientInfo *ri, EVP_PKEY *pk);
int CMS_RecipientInfo_kekri_get0_id(CMS_RecipientInfo *ri, X509_ALGOR **palg,
        ASN1_OCTET_STRING **pid,
        ASN1_GENERALIZEDTIME **pdate,
        ASN1_OBJECT **pothetid,
        ASN1_TYPE **pothertype);
int CMS_RecipientInfo_kekri_id_cmp(CMS_RecipientInfo *ri,
        const unsigned char *id, size_t idlen);
int CMS_RecipientInfo_set0_key(CMS_RecipientInfo *ri,
        unsigned char *key, size_t keylen);

int CMS_RecipientInfo_decrypt(CMS_ContentInfo *cms, CMS_RecipientInfo *ri);
int CMS_RecipientInfo_encrypt(CMS_ContentInfo *cms, CMS_RecipientInfo *ri);

```

## DESCRIPTION

The function `CMS_get0_RecipientInfos()` returns all the `CMS_RecipientInfo` structures associated with a CMS EnvelopedData structure.

`CMS_RecipientInfo_type()` returns the type of `CMS_RecipientInfo` structure `ri`. It will currently return `CMS_RECIPINFO_TRANS`, `CMS_RECIPINFO_AGREE`, `CMS_RECIPINFO_KEK`, `CMS_RECIPINFO_PASS`, or `CMS_RECIPINFO_OTHER`.

`CMS_RecipientInfo_ktri_get0_signer_id()` retrieves the certificate recipient identifier associated with a specific `CMS_RecipientInfo`

structure `ri`, which must be of type `CMS_RECIPINFO_TRANS`. Either the keyidentifier will be set in `keyid` or both issuer name and serial number in `issuer` and `sno`.

`CMS_RecipientInfo_ktri_cert_cmp()` compares the certificate `cert` against the `CMS_RecipientInfo` structure `ri`, which must be of type `CMS_RECIPINFO_TRANS`. It returns zero if the comparison is successful and non zero if not.

`CMS_RecipientInfo_set0_pkey()` associates the private key `pkey` with the `CMS_RecipientInfo` structure `ri`, which must be of type `CMS_RECIPINFO_TRANS`.

`CMS_RecipientInfo_kari_set0_pkey_and_peer()` associates the private key `pkey` and peer certificate `peer` with the `CMS_RecipientInfo` structure `ri`, which must be of type `CMS_RECIPINFO_AGREE`.

`CMS_RecipientInfo_kari_set0_pkey()` associates the private key `pkey` with the `CMS_RecipientInfo` structure `ri`, which must be of type `CMS_RECIPINFO_AGREE`.

`CMS_RecipientInfo_kekri_get0_id()` retrieves the key information from the `CMS_RecipientInfo` structure `ri` which must be of type `CMS_RECIPINFO_KEK`. Any of the remaining parameters can be `NULL` if the application is not interested in the value of a field. Where a field is optional and absent `NULL` will be written to the corresponding parameter. The `keyEncryptionAlgorithm` field is written to `palg`, the `keyIdentifier` field is written to `pid`, the `date` field if present is written to `pdate`, if the other field is present the components `keyAttrId` and `keyAttr` are written to parameters `pothetid` and `pothertype`.

`CMS_RecipientInfo_kekri_id_cmp()` compares the ID in the `id` and `idlen`

parameters against the keyIdentifier CMS\_RecipientInfo structure ri, which must be of type CMS\_RECIPINFO\_KEK. It returns zero if the comparison is successful and non zero if not.

CMS\_RecipientInfo\_set0\_key() associates the symmetric key key of length keylen with the CMS\_RecipientInfo structure ri, which must be of type CMS\_RECIPINFO\_KEK.

CMS\_RecipientInfo\_decrypt() attempts to decrypt CMS\_RecipientInfo structure ri in structure cms. A key must have been associated with the structure first.

CMS\_RecipientInfo\_encrypt() attempts to encrypt CMS\_RecipientInfo structure ri in structure cms. A key must have been associated with the structure first and the content encryption key must be available: for example by a previous call to CMS\_RecipientInfo\_decrypt().

## NOTES

The main purpose of these functions is to enable an application to lookup recipient keys using any appropriate technique when the simpler method of CMS\_decrypt() is not appropriate.

In typical usage and application will retrieve all CMS\_RecipientInfo structures using CMS\_get0\_RecipientInfos() and check the type of each using CMS\_RecipientInfo\_type(). Depending on the type the CMS\_RecipientInfo structure can be ignored or its key identifier data retrieved using an appropriate function. Then if the corresponding secret or private key can be obtained by any appropriate means it can then associated with the structure and CMS\_RecipientInfo\_decrypt() called. If successful CMS\_decrypt() can be called with a NULL key to decrypt the enveloped content.

The CMS\_RecipientInfo\_encrypt() can be used to add a new recipient to

an existing enveloped data structure. Typically an application will first decrypt an appropriate CMS\_RecipientInfo structure to make the content encryption key available, it will then add a new recipient using a function such as CMS\_add1\_recipient\_cert() and finally encrypt the content encryption key using CMS\_RecipientInfo\_encrypt().

## RETURN VALUES

CMS\_get0\_RecipientInfos() returns all CMS\_RecipientInfo structures, or NULL if an error occurs.

CMS\_RecipientInfo\_ktri\_get0\_signer\_id(), CMS\_RecipientInfo\_set0\_pkey(), CMS\_RecipientInfo\_kekri\_get0\_id(), CMS\_RecipientInfo\_set0\_key() and CMS\_RecipientInfo\_decrypt() return 1 for success or 0 if an error occurs. CMS\_RecipientInfo\_encrypt() return 1 for success or 0 if an error occurs.

CMS\_RecipientInfo\_ktri\_cert\_cmp() and CMS\_RecipientInfo\_kekri\_cmp() return 0 for a successful comparison and non zero otherwise.

Any error can be obtained from ERR\_get\_error(3).

## SEE ALSO

ERR\_get\_error(3), CMS\_decrypt(3)

## HISTORY

CMS\_RecipientInfo\_kari\_set0\_pkey\_and\_peer and CMS\_RecipientInfo\_kari\_set0\_pkey were added in OpenSSL 3.0.

## COPYRIGHT

Copyright 2008-2021 The OpenSSL Project Authors. All Rights Reserved.

Licensed under the Apache License 2.0 (the "License"). You may not use this file except in compliance with the License. You can obtain a copy

in the file LICENSE in the source distribution or at  
<<https://www.openssl.org/source/license.html>>.

3.0.7                    2023-07-13   CMS\_GET0\_RECIPIENTINFOS(3openssl)