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## **Red Hat Enterprise Linux Release 9.2 Manual Pages on 'EVP\_PKEY\_encrypt.3ossl' command**

**\$ man EVP\_PKEY\_encrypt.3ossl**

EVP\_PKEY\_ENCRYPT(3ossl)      OpenSSL      EVP\_PKEY\_ENCRYPT(3ossl)

### NAME

EVP\_PKEY\_encrypt\_init\_ex, EVP\_PKEY\_encrypt\_init, EVP\_PKEY\_encrypt -  
encrypt using a public key algorithm

### SYNOPSIS

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

```
int EVP_PKEY_encrypt_init(EVP_PKEY_CTX *ctx);
```

```
int EVP_PKEY_encrypt_init_ex(EVP_PKEY_CTX *ctx, const OSSL_PARAM params[]);
```

```
int EVP_PKEY_encrypt(EVP_PKEY_CTX *ctx,  
                  unsigned char *out, size_t *outlen,  
                  const unsigned char *in, size_t inlen);
```

### DESCRIPTION

The EVP\_PKEY\_encrypt\_init() function initializes a public key algorithm context using key pkey for an encryption operation.

The EVP\_PKEY\_encrypt\_init\_ex() function initializes a public key algorithm context using key pkey for an encryption operation and sets the algorithm specific params.

The `EVP_PKEY_encrypt()` function performs a public key encryption operation using `ctx`. The data to be encrypted is specified using the `in` and `inlen` parameters. If `out` is `NULL` then the maximum size of the output buffer is written to the `outlen` parameter. If `out` is not `NULL` then before the call the `outlen` parameter should contain the length of the `out` buffer, if the call is successful the encrypted data is written to `out` and the amount of data written to `outlen`.

## NOTES

After the call to `EVP_PKEY_encrypt_init()` algorithm specific control operations can be performed to set any appropriate parameters for the operation. These operations can be included in the `EVP_PKEY_encrypt_init_ex()` call.

The function `EVP_PKEY_encrypt()` can be called more than once on the same context if several operations are performed using the same parameters.

## RETURN VALUES

`EVP_PKEY_encrypt_init()`, `EVP_PKEY_encrypt_init_ex()` and `EVP_PKEY_encrypt()` return 1 for success and 0 or a negative value for failure. In particular a return value of -2 indicates the operation is not supported by the public key algorithm.

## EXAMPLES

Encrypt data using OAEP (for RSA keys). See also `PEM_read_PUBKEY(3)` or `d2i_X509(3)` for means to load a public key. You may also simply set `'eng = NULL;'` to start with the default OpenSSL RSA implementation:

```
#include <openssl/evp.h>
#include <openssl/rsa.h>
#include <openssl/engine.h>
```

```

EVP_PKEY_CTX *ctx;
ENGINE *eng;
unsigned char *out, *in;
size_t outlen, inlen;
EVP_PKEY *key;

/*
 * NB: assumes eng, key, in, inlen are already set up,
 * and that key is an RSA public key
 */
ctx = EVP_PKEY_CTX_new(key, eng);
if (!ctx)
    /* Error occurred */
if (EVP_PKEY_encrypt_init(ctx) <= 0)
    /* Error */
if (EVP_PKEY_CTX_set_rsa_padding(ctx, RSA_PKCS1_OAEP_PADDING) <= 0)
    /* Error */

/* Determine buffer length */
if (EVP_PKEY_encrypt(ctx, NULL, &outlen, in, inlen) <= 0)
    /* Error */

out = OPENSSL_malloc(outlen);

if (!out)
    /* malloc failure */

if (EVP_PKEY_encrypt(ctx, out, &outlen, in, inlen) <= 0)
    /* Error */

/* Encrypted data is outlen bytes written to buffer out */

```

d2i\_X509(3), ENGINE\_by\_id(3), EVP\_PKEY\_CTX\_new(3), EVP\_PKEY\_decrypt(3),  
EVP\_PKEY\_sign(3), EVP\_PKEY\_verify(3), EVP\_PKEY\_verify\_recover(3),  
EVP\_PKEY\_derive(3)

## HISTORY

These functions were added in OpenSSL 1.0.0.

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