



Full credit is given to the above companies including the OS that this PDF file was generated!

Rocky Enterprise Linux 9.2 Manual Pages on command 'EVP_PKEY_derive.3ossl'

\$ man EVP_PKEY_derive.3ossl

EVP_PKEY_DERIVE(3ossl) OpenSSL EVP_PKEY_DERIVE(3ossl)

NAME

EVP_PKEY_derive_init, EVP_PKEY_derive_init_ex,
EVP_PKEY_derive_set_peer_ex, EVP_PKEY_derive_set_peer, EVP_PKEY_derive
- derive public key algorithm shared secret

SYNOPSIS

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

int EVP_PKEY_derive_init(EVP_PKEY_CTX *ctx);
int EVP_PKEY_derive_init_ex(EVP_PKEY_CTX *ctx, const OSSL_PARAM params[]);
int EVP_PKEY_derive_set_peer_ex(EVP_PKEY_CTX *ctx, EVP_PKEY *peer,
                                int validate_peer);
int EVP_PKEY_derive_set_peer(EVP_PKEY_CTX *ctx, EVP_PKEY *peer);
int EVP_PKEY_derive(EVP_PKEY_CTX *ctx, unsigned char *key, size_t *keylen);
```

DESCRIPTION

`EVP_PKEY_derive_init()` initializes a public key algorithm context `ctx` for shared secret derivation using the algorithm given when the context was created using `EVP_PKEY_CTX_new(3)` or variants thereof. The algorithm is used to fetch a `EVP_KEYEXCH` method implicitly, see "Implicit fetch" in `provider(7)` for more information about implicit fetches.

`EVP_PKEY_derive_init_ex()` is the same as `EVP_PKEY_derive_init()` but additionally sets the passed parameters `params` on the context before returning.

`EVP_PKEY_derive_set_peer_ex()` sets the peer key: this will normally be a public key. The `validate_peer` will validate the public key if this value is non zero.

`EVP_PKEY_derive_set_peer()` is similar to `EVP_PKEY_derive_set_peer_ex()` with `validate_peer` set to 1.

`EVP_PKEY_derive()` derives a shared secret using `ctx`. If `key` is `NULL` then the maximum size of the output buffer is written to the `keylen` parameter. If `key` is not `NULL` then before the call the `keylen` parameter should contain the length of the key buffer, if the call is successful the shared secret is written to `key` and the amount of data written to `keylen`.

NOTES

After the call to `EVP_PKEY_derive_init()`, algorithm specific control operations can be performed to set any appropriate parameters for the operation.

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

RETURN VALUES

EVP_PKEY_derive_init() and EVP_PKEY_derive() 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

Derive shared secret (for example DH or EC keys):

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

EVP_PKEY_CTX *ctx;
ENGINE *eng;
unsigned char *skey;
size_t skeylen;
EVP_PKEY *pkey, *peerkey;
/* NB: assumes pkey, eng, peerkey have been already set up */

ctx = EVP_PKEY_CTX_new(pkey, eng);
if (!ctx)
    /* Error occurred */
if (EVP_PKEY_derive_init(ctx) <= 0)
    /* Error */
if (EVP_PKEY_derive_set_peer(ctx, peerkey) <= 0)
    /* Error */

/* Determine buffer length */
if (EVP_PKEY_derive(ctx, NULL, &skeylen) <= 0)
    /* Error */

skey = OPENSSL_malloc(skeylen);

if (!skey)
```

```
/* malloc failure */

if (EVP_PKEY_derive(ctx, skey, &skeylen) <= 0)
    /* Error */

/* Shared secret is skey bytes written to buffer skey */
```

SEE ALSO

EVP_PKEY_CTX_new(3), EVP_PKEY_encrypt(3), EVP_PKEY_decrypt(3),
EVP_PKEY_sign(3), EVP_PKEY_verify(3), EVP_PKEY_verify_recover(3),
EVP_KEYEXCH_fetch(3)

HISTORY

The EVP_PKEY_derive_init(), EVP_PKEY_derive_set_peer() and
EVP_PKEY_derive() functions were originally added in OpenSSL 1.0.0.

The EVP_PKEY_derive_init_ex() and EVP_PKEY_derive_set_peer_ex()
functions were added in OpenSSL 3.0.

COPYRIGHT

Copyright 2006-2021 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 EVP_PKEY_DERIVE(3openssl)