



*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\_verify\_recover.3ossl'***

***\$ man EVP\_PKEY\_verify\_recover.3ossl***

EVP\_PKEY\_VERIFY\_RECOVER(3ossl)    OpenSSL    EVP\_PKEY\_VERIFY\_RECOVER(3ossl)

NAME

EVP\_PKEY\_verify\_recover\_init, EVP\_PKEY\_verify\_recover\_init\_ex,  
EVP\_PKEY\_verify\_recover - recover signature using a public key  
algorithm

SYNOPSIS

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

```
int EVP_PKEY_verify_recover_init(EVP_PKEY_CTX *ctx);  
int EVP_PKEY_verify_recover_init_ex(EVP_PKEY_CTX *ctx,  
                                     const OSSL_PARAM params[]);  
int EVP_PKEY_verify_recover(EVP_PKEY_CTX *ctx,  
                             unsigned char *rout, size_t *routlen,  
                             const unsigned char *sig, size_t siglen);
```

DESCRIPTION

`EVP_PKEY_verify_recover_init()` initializes a public key algorithm context `ctx` for signing 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_SIGNATURE` method implicitly, see "Implicit fetch" in `provider(7)` for more information about implicit fetches.

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

The `EVP_PKEY_verify_recover()` function recovers signed data using `ctx`. The signature is specified using the `sig` and `siglen` parameters. If `rout` is `NULL` then the maximum size of the output buffer is written to the `routlen` parameter. If `rout` is not `NULL` then before the call the `routlen` parameter should contain the length of the `rout` buffer, if the call is successful recovered data is written to `rout` and the amount of data written to `routlen`.

## NOTES

Normally an application is only interested in whether a signature verification operation is successful in those cases the `EVP_verify()` function should be used.

Sometimes however it is useful to obtain the data originally signed using a signing operation. Only certain public key algorithms can recover a signature in this way (for example RSA in PKCS padding mode).

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

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

parameters.

## RETURN VALUES

EVP\_PKEY\_verify\_recover\_init() and EVP\_PKEY\_verify\_recover() 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

Recover digest originally signed using PKCS#1 and SHA256 digest:

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

EVP_PKEY_CTX *ctx;
unsigned char *rout, *sig;
size_t routlen, siglen;
EVP_PKEY *verify_key;

/*
 * NB: assumes verify_key, sig and siglen are already set up
 * and that verify_key is an RSA public key
 */
ctx = EVP_PKEY_CTX_new(verify_key, NULL /* no engine */);
if (!ctx)
    /* Error occurred */
if (EVP_PKEY_verify_recover_init(ctx) <= 0)
    /* Error */
if (EVP_PKEY_CTX_set_rsa_padding(ctx, RSA_PKCS1_PADDING) <= 0)
    /* Error */
if (EVP_PKEY_CTX_set_signature_md(ctx, EVP_sha256()) <= 0)
    /* Error */
```

```
/* Determine buffer length */
if (EVP_PKEY_verify_recover(ctx, NULL, &routlen, sig, siglen) <= 0)
    /* Error */

rout = OPENSSL_malloc(routlen);

if (!rout)
    /* malloc failure */

if (EVP_PKEY_verify_recover(ctx, rout, &routlen, sig, siglen) <= 0)
    /* Error */

/* Recovered data is routlen bytes written to buffer rout */
```

## 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\_derive(3)

## HISTORY

The EVP\_PKEY\_verify\_recover\_init() and EVP\_PKEY\_verify\_recover() functions were added in OpenSSL 1.0.0.

The EVP\_PKEY\_verify\_recover\_init\_ex() function was added in OpenSSL 3.0.

## COPYRIGHT

Copyright 2013-2021 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>.

