

**NAME**

EVP\_PKEY\_verify\_recover\_init, 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(EVP_PKEY_CTX *ctx,
    unsigned char *rout, size_t *routlen,
    const unsigned char *sig, size_t siglen);
```

**DESCRIPTION**

The *EVP\_PKEY\_verify\_recover\_init()* function initializes a public key algorithm context using key **pkey** for a verify recover operation.

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.

**EXAMPLE**

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);
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**

These functions were first added to OpenSSL 1.0.0.