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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'EVP_VerifyInit_ex.3ossl' command

\$ man EVP_VerifyInit_ex.3ossl

EVP_VERIFYINIT(3ossl) OpenSSL EVP_VERIFYINIT(3ossl)

NAME

EVP_VerifyInit_ex, EVP_VerifyInit, EVP_VerifyUpdate,
EVP_VerifyFinal_ex, EVP_VerifyFinal - EVP signature verification
functions

SYNOPSIS

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

```
int EVP_VerifyInit_ex(EVP_MD_CTX *ctx, const EVP_MD *type, ENGINE *impl);
```

```
int EVP_VerifyUpdate(EVP_MD_CTX *ctx, const void *d, unsigned int cnt);
```

```
int EVP_VerifyFinal_ex(EVP_MD_CTX *ctx, const unsigned char *sigbuf,  
                      unsigned int siglen, EVP_PKEY *pkey,  
                      OSSL_LIB_CTX *libctx, const char *propq);
```

```
int EVP_VerifyFinal(EVP_MD_CTX *ctx, unsigned char *sigbuf, unsigned int siglen,  
                    EVP_PKEY *pkey);
```

```
int EVP_VerifyInit(EVP_MD_CTX *ctx, const EVP_MD *type);
```

DESCRIPTION

The EVP signature verification routines are a high-level interface to digital signatures.

EVP_VerifyInit_ex() sets up verification context ctx to use digest type from ENGINE impl. ctx must be created by calling EVP_MD_CTX_new() before calling this function.

EVP_VerifyUpdate() hashes cnt bytes of data at d into the verification context ctx. This function can be called several times on the same ctx to include additional data.

EVP_VerifyFinal_ex() verifies the data in ctx using the public key pkey and siglen bytes in sigbuf. The library context libctx and property query propq are used when creating a context to use with the key pkey.

EVP_VerifyFinal() is similar to EVP_VerifyFinal_ex() but uses default values of NULL for the library context libctx and the property query propq.

EVP_VerifyInit() initializes verification context ctx to use the default implementation of digest type.

RETURN VALUES

EVP_VerifyInit_ex() and EVP_VerifyUpdate() return 1 for success and 0 for failure.

EVP_VerifyFinal_ex() and EVP_VerifyFinal() return 1 for a correct signature, 0 for failure and -1 if some other error occurred.

The error codes can be obtained by ERR_get_error(3).

NOTES

The EVP interface to digital signatures should almost always be used in preference to the low-level interfaces. This is because the code then becomes transparent to the algorithm used and much more flexible.

The call to `EVP_VerifyFinal()` internally finalizes a copy of the digest context. This means that calls to `EVP_VerifyUpdate()` and `EVP_VerifyFinal()` can be called later to digest and verify additional data.

Since only a copy of the digest context is ever finalized the context must be cleaned up after use by calling `EVP_MD_CTX_free()` or a memory leak will occur.

BUGS

Older versions of this documentation wrongly stated that calls to `EVP_VerifyUpdate()` could not be made after calling `EVP_VerifyFinal()`.

Since the public key is passed in the call to `EVP_SignFinal()` any error relating to the private key (for example an unsuitable key and digest combination) will not be indicated until after potentially large amounts of data have been passed through `EVP_SignUpdate()`.

It is not possible to change the signing parameters using these function.

The previous two bugs are fixed in the newer `EVP_DigestVerify*()` function.

SEE ALSO

`evp(7)`, `EVP_SignInit(3)`, `EVP_DigestInit(3)`, `evp(7)`, `HMAC(3)`, `MD2(3)`, `MD5(3)`, `MDC2(3)`, `RIPEMD160(3)`, `SHA1(3)`, `openssl-dgst(1)`

HISTORY

The function `EVP_VerifyFinal_ex()` was added in OpenSSL 3.0.

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