#### **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(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 a negative value 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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