

NAME

EVP_PKEY_missing_parameters, EVP_PKEY_copy_parameters, EVP_PKEY_parameters_eq, EVP_PKEY_cmp_parameters, EVP_PKEY_eq, EVP_PKEY_cmp - public key parameter and comparison functions

SYNOPSIS

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

```
int EVP_PKEY_missing_parameters(const EVP_PKEY *pkey);
int EVP_PKEY_copy_parameters(EVP_PKEY *to, const EVP_PKEY *from);
```

```
int EVP_PKEY_parameters_eq(const EVP_PKEY *a, const EVP_PKEY *b);
int EVP_PKEY_eq(const EVP_PKEY *a, const EVP_PKEY *b);
```

The following functions have been deprecated since OpenSSL 3.0, and can be hidden entirely by defining **OPENSSL_API_COMPAT** with a suitable version value, see **openssl_user_macros(7)**:

```
int EVP_PKEY_cmp_parameters(const EVP_PKEY *a, const EVP_PKEY *b);
int EVP_PKEY_cmp(const EVP_PKEY *a, const EVP_PKEY *b);
```

DESCRIPTION

The function **EVP_PKEY_missing_parameters()** returns 1 if the public key parameters of **pkey** are missing and 0 if they are present or the algorithm doesn't use parameters.

The function **EVP_PKEY_copy_parameters()** copies the parameters from key **from** to key **to**. An error is returned if the parameters are missing in **from** or present in both **from** and **to** and mismatch. If the parameters in **from** and **to** are both present and match this function has no effect.

The function **EVP_PKEY_parameters_eq()** checks the parameters of keys **a** and **b** for equality.

The function **EVP_PKEY_eq()** checks the keys **a** and **b** for equality, including their parameters if they are available.

NOTES

The main purpose of the functions **EVP_PKEY_missing_parameters()** and **EVP_PKEY_copy_parameters()** is to handle public keys in certificates where the parameters are sometimes omitted from a public key if they are inherited from the CA that signed it.

The deprecated functions **EVP_PKEY_cmp()** and **EVP_PKEY_cmp_parameters()** differ in their return values compared to other **_cmp()** functions. They are aliases for **EVP_PKEY_eq()** and

EVP_PKEY_parameters_eq()

The function **EVP_PKEY_cmp()** previously only checked the key parameters (if there are any) and the public key, assuming that there always was a public key and that private key equality could be derived from that. Because it's no longer assumed that the private key in an **EVP_PKEY(3)** is always accompanied by a public key, the comparison can not rely on public key comparison alone.

Instead, **EVP_PKEY_eq()** (and therefore also **EVP_PKEY_cmp()**) now compares:

1. the key parameters (if there are any)
2. the public keys or the private keys of the two **EVP_PKEYs**, depending on what they both contain.

RETURN VALUES

The function **EVP_PKEY_missing_parameters()** returns 1 if the public key parameters of **pkey** are missing and 0 if they are present or the algorithm doesn't use parameters.

These functions **EVP_PKEY_copy_parameters()** returns 1 for success and 0 for failure.

The functions **EVP_PKEY_cmp_parameters()**, **EVP_PKEY_parameters_eq()**, **EVP_PKEY_cmp()** and **EVP_PKEY_eq()** return 1 if their inputs match, 0 if they don't match, -1 if the key types are different and -2 if the operation is not supported.

SEE ALSO

EVP_PKEY_CTX_new(3), **EVP_PKEY_keygen(3)**

HISTORY

The **EVP_PKEY_cmp()** and **EVP_PKEY_cmp_parameters()** functions were deprecated in OpenSSL 3.0.

The **EVP_PKEY_eq()** and **EVP_PKEY_parameters_eq()** were added in OpenSSL 3.0 to replace **EVP_PKEY_cmp()** and **EVP_PKEY_cmp_parameters()**.

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