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

`$ man EVP_PKEY_cmp.3ossl`

EVP_PKEY_COPY_PARAMETERS(3ossl) OpenSSL EVP_PKEY_COPY_PARAMETERS(3ossl)

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_PKEY`s, 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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