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## *Red Hat Enterprise Linux Release 9.2 Manual Pages on 'DH_check_pub_key_ex.3ossl' command*

***$ man DH_check_pub_key_ex.3ossl***

DH_GENERATE_PARAMETERS(3ossl) OpenSSL DH_GENERATE_PARAMETERS(3ossl)

NAME

DH_generate_parameters_ex, DH_generate_parameters, DH_check, DH_check_params, DH_check_ex, DH_check_params_ex, DH_check_pub_key_ex - generate and check Diffie-Hellman parameters

SYNOPSIS

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

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 DH_generate_parameters_ex(DH *dh, int prime_len, int generator, BN_GENCB *cb);
int DH_check(DH *dh, int *codes);
int DH_check_params(DH *dh, int *codes);
int DH_check_ex(const DH *dh);
int DH_check_params_ex(const DH *dh);
int DH_check_pub_key_ex(const DH *dh, const BIGNUM *pub_key);
```

The following functions have been deprecated since OpenSSL 0.9.8, and can be hidden entirely by defining OPENSSL_API_COMPAT with a suitable version value, see openssl_user_macros(7):

```
DH *DH_generate_parameters(int prime_len, int generator,
                           void (*callback)(int, int, void *), void *cb_arg);
```

DESCRIPTION

All of the functions described on this page are deprecated.

Applications should instead use EVP_PKEY_check(3), EVP_PKEY_public_check(3), EVP_PKEY_private_check(3) and EVP_PKEY_param_check(3).

DH_generate_parameters_ex() generates Diffie-Hellman parameters that can be shared among a group of users, and stores them in the provided DH structure. The pseudo-random number generator must be seeded before calling it. The parameters generated by DH_generate_parameters_ex() should not be used in signature schemes.

prime_len is the length in bits of the safe prime to be generated.

generator is a small number > 1, typically 2 or 5.

A callback function may be used to provide feedback about the progress of the key generation. If cb is not NULL, it will be called as described in BN_generate_prime(3) while a random prime number is generated, and when a prime has been found, BN_GENCB_call(cb, 3, 0) is called. See BN_generate_prime_ex(3) for information on the BN_GENCB_call() function.

DH_generate_parameters() is similar to DH_generate_prime_ex() but expects an old-style callback function; see BN_generate_prime(3) for information on the old-style callback.

DH_check_params() confirms that the p and g are likely enough to be valid. This is a lightweight check, if a more thorough check is needed, use DH_check(). The value of *codes is updated with any problems found. If *codes is zero then no problems were found, otherwise the following bits may be set:

DH_CHECK_P_NOT_PRIME

The parameter p has been determined to not being an odd prime. Note that the lack of this bit doesn't guarantee that p is a prime.

DH_NOT_SUITABLE_GENERATOR

The generator g is not suitable. Note that the lack of this bit doesn't guarantee that g is suitable, unless p is known to be a strong prime.

DH_MODULUS_TOO_SMALL

The modulus is too small.

DH_MODULUS_TOO_LARGE

The modulus is too large.

DH_check() confirms that the Diffie-Hellman parameters dh are valid.

The value of *codes is updated with any problems found. If *codes is

zero then no problems were found, otherwise the following bits may be

set:

DH_CHECK_P_NOT_PRIME

The parameter p is not prime.

DH_CHECK_P_NOT_SAFE_PRIME

The parameter p is not a safe prime and no q value is present.

DH_UNABLE_TO_CHECK_GENERATOR

The generator g cannot be checked for suitability.

DH_NOT_SUITABLE_GENERATOR

The generator g is not suitable.

DH_CHECK_Q_NOT_PRIME

The parameter q is not prime.

DH_CHECK_INVALID_Q_VALUE

The parameter q is invalid.

DH_CHECK_INVALID_J_VALUE

The parameter j is invalid.

DH_check_ex(), DH_check_params() and DH_check_pub_key_ex() are similar

to DH_check() and DH_check_params() respectively, but the error reasons

are added to the thread's error queue instead of provided as return

values from the function.

RETURN VALUES

DH_generate_parameters_ex(), DH_check() and DH_check_params() return 1

if the check could be performed, 0 otherwise.

DH_generate_parameters() returns a pointer to the DH structure or NULL

if the parameter generation fails.

DH_check_ex(), DH_check_params() and DH_check_pub_key_ex() return 1 if

the check is successful, 0 for failed.

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

SEE ALSO

DH_new(3), ERR_get_error(3), RAND_bytes(3), DH_free(3)

## HISTORY

All of these functions were deprecated in OpenSSL 3.0.

DH_generate_parameters() was deprecated in OpenSSL 0.9.8; use DH_generate_parameters_ex() instead.

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