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## **Red Hat Enterprise Linux Release 9.2 Manual Pages on 'DSA\_generate\_parameters\_ex.3oss1' command**

```
$ man DSA_generate_parameters_ex.3oss1
```

```
DSA_GENERATE_PARAMETERS(3oss1)  OpenSSL  DSA_GENERATE_PARAMETERS(3oss1)
```

### NAME

DSA\_generate\_parameters\_ex, DSA\_generate\_parameters - generate DSA parameters

### SYNOPSIS

```
#include <openssl/dsa.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 DSA_generate_parameters_ex(DSA *dsa, int bits,  
                               const unsigned char *seed, int seed_len,  
                               int *counter_ret, unsigned long *h_ret,  
                               BN_GENCB *cb);
```

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):

```
DSA *DSA_generate_parameters(int bits, unsigned char *seed, int seed_len,
```

```
int *counter_ret, unsigned long *h_ret,  
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_paramgen_init(3)` and `EVP_PKEY_keygen(3)` as described in `EVP_PKEY-DSA(7)`.

`DSA_generate_parameters_ex()` generates primes `p` and `q` and a generator `g` for use in the DSA and stores the result in `dsa`.

`bits` is the length of the prime `p` to be generated. For lengths under 2048 bits, the length of `q` is 160 bits; for lengths greater than or equal to 2048 bits, the length of `q` is set to 256 bits.

If `seed` is `NULL`, the primes will be generated at random. If `seed_len` is less than the length of `q`, an error is returned.

`DSA_generate_parameters_ex()` places the iteration count in `*counter_ret` and a counter used for finding a generator in `*h_ret`, unless these are `NULL`.

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 shown below. For information on the `BN_GENCB` structure and the `BN_GENCB_call` function discussed below, refer to `BN_generate_prime(3)`.

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

? When a candidate for `q` is generated, `BN_GENCB_call(cb, 0, m++)` is called (`m` is 0 for the first candidate).

? When a candidate for q has passed a test by trial division, BN\_GENCB\_call(cb, 1, -1) is called. While a candidate for q is tested by Miller-Rabin primality tests, BN\_GENCB\_call(cb, 1, i) is called in the outer loop (once for each witness that confirms that the candidate may be prime); i is the loop counter (starting at 0).

? When a prime q has been found, BN\_GENCB\_call(cb, 2, 0) and BN\_GENCB\_call(cb, 3, 0) are called.

? Before a candidate for p (other than the first) is generated and tested, BN\_GENCB\_call(cb, 0, counter) is called.

? When a candidate for p has passed the test by trial division, BN\_GENCB\_call(cb, 1, -1) is called. While it is tested by the Miller-Rabin primality test, BN\_GENCB\_call(cb, 1, i) is called in the outer loop (once for each witness that confirms that the candidate may be prime). i is the loop counter (starting at 0).

? When p has been found, BN\_GENCB\_call(cb, 2, 1) is called.

? When the generator has been found, BN\_GENCB\_call(cb, 3, 1) is called.

## RETURN VALUES

DSA\_generate\_parameters\_ex() returns a 1 on success, or 0 otherwise.

The error codes can be obtained by ERR\_get\_error(3).

DSA\_generate\_parameters() returns a pointer to the DSA structure or NULL if the parameter generation fails.

## BUGS

Seed lengths greater than 20 are not supported.

## SEE ALSO

DSA\_new(3), ERR\_get\_error(3), RAND\_bytes(3), DSA\_free(3),  
BN\_generate\_prime(3)

## HISTORY

DSA\_generate\_parameters\_ex() was deprecated in OpenSSL 3.0.

DSA\_generate\_parameters() was deprecated in OpenSSL 0.9.8; use  
DSA\_generate\_parameters\_ex() instead.

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