

## NAME

openssl-dhparam - DH parameter manipulation and generation

## SYNOPSIS

**openssl dhparam** [-help] [-inform DER|PEM] [-outform DER|PEM] [-in *filename*] [-out *filename*]  
[-dsaparam] [-check] [-noout] [-text] [-2] [-3] [-5] [-engine *id*] [-rand *files*] [-writerand *file*] [-provider  
*name*] [-provider-path *path*] [-propquery *propq*] [*numbits*]

## DESCRIPTION

This command is used to manipulate DH parameter files.

See "EXAMPLES" in **openssl-genpkey**(1) for examples on how to generate a key using a named safe prime group without generating intermediate parameters.

## OPTIONS

### **-help**

Print out a usage message.

### **-inform DER|PEM, -outform DER|PEM**

The input format and output format; the default is **PEM**. The object is compatible with the PKCS#3 **DHparameter** structure. See **openssl-format-options**(1) for details.

### **-in** *filename*

This specifies the input filename to read parameters from or standard input if this option is not specified.

### **-out** *filename*

This specifies the output filename parameters to. Standard output is used if this option is not present. The output filename should **not** be the same as the input filename.

### **-dsaparam**

If this option is used, DSA rather than DH parameters are read or created; they are converted to DH format. Otherwise, "strong" primes (such that  $(p-1)/2$  is also prime) will be used for DH parameter generation.

DH parameter generation with the **-dsaparam** option is much faster, and the recommended exponent length is shorter, which makes DH key exchange more efficient. Beware that with such DSA-style DH parameters, a fresh DH key should be created for each use to avoid small-subgroup attacks that may be possible otherwise.

**-check**

Performs numerous checks to see if the supplied parameters are valid and displays a warning if not.

**-2, -3, -5**

The generator to use, either 2, 3 or 5. If present then the input file is ignored and parameters are generated instead. If not present but *numbits* is present, parameters are generated with the default generator 2.

*numbits*

This option specifies that a parameter set should be generated of size *numbits*. It must be the last option. If this option is present then the input file is ignored and parameters are generated instead. If this option is not present but a generator (**-2**, **-3** or **-5**) is present, parameters are generated with a default length of 2048 bits. The minimum length is 512 bits. The maximum length is 10000 bits.

**-noout**

This option inhibits the output of the encoded version of the parameters.

**-text**

This option prints out the DH parameters in human readable form.

**-engine *id***

See "Engine Options" in **openssl(1)**. This option is deprecated.

**-rand *files*, -writerand *file***

See "Random State Options" in **openssl(1)** for details.

**-provider *name*****-provider-path *path*****-propquery *propq***

See "Provider Options" in **openssl(1)**, **provider(7)**, and **property(7)**.

**NOTES**

This command replaces the **dh** and **gendh** commands of previous releases.

**SEE ALSO**

**openssl(1)**, **openssl-pkeyparam(1)**, **openssl-dsaparam(1)**, **openssl-genpkey(1)**.

**HISTORY**

The **-engine** option was deprecated in OpenSSL 3.0.

The **-C** option was removed in OpenSSL 3.0.

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