

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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