NAME

openssl−dhparam, dhparam − DH parameter manipulation and generation

SYNOPSIS

openssl dhparam [**−help**] [**−inform DER|PEM**] [**−outform DER|PEM**] [**−in** *filename*] [**−out** *filename*] [**−dsaparam**] [**−check**] [**−noout**] [**−text**] [**−C**] [**−2**] [**−5**] [**−rand file...**] [**−writerand file**] [**−engine id**] [*numbits*]

DESCRIPTION

This command is used to manipulate DH parameter files.

OPTIONS

−help

Print out a usage message.

−inform DER|PEM

This specifies the input format. The **DER** option uses an ASN1 DER encoded form compatible with the PKCS#3 DHparameter structure. The PEM form is the default format: it consists of the **DER** format base64 encoded with additional header and footer lines.

−outform DER|PEM

This specifies the output format, the options have the same meaning and default as the **−inform** option.

−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, **−5**

The generator to use, either 2 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.

−rand file...

A file or files containing random data used to seed the random number generator. Multiple files can be specified separated by an OS-dependent character. The separator is **;** for MS-Windows, **,** for OpenVMS, and **:** for all others.

[**−writerand file**]

Writes random data to the specified *file* upon exit. This can be used with a subsequent **−rand** flag.

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** or **−5**) is present, parameters are generated with a default length of 2048 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.

−C This option converts the parameters into C code. The parameters can then be loaded by calling the **get_dhNNNN()** function.

−engine id
Specifying an engine (by its unique **id** string) will cause **dhparam** to attempt to obtain a functional reference to the specified engine, thus initialising it if needed. The engine will then be set as the default for all available algorithms.

WARNINGS

The program **dhparam** combines the functionality of the programs **dh** and **gendh** in previous versions of OpenSSL. The **dh** and **gendh** programs are retained for now but may have different purposes in future versions of OpenSSL.

NOTES

PEM format DH parameters use the header and footer lines:

```
-----BEGIN DH PARAMETERS-----
-----END DH PARAMETERS-----
```

OpenSSL currently only supports the older PKCS#3 DH, not the newer X9.42 DH.

This program manipulates DH parameters not keys.

BUGS

There should be a way to generate and manipulate DH keys.

SEE ALSO

dsaparam (1)

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