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## **Red Hat Enterprise Linux Release 9.2 Manual Pages on 'openssl-genrsa.1oss1' command**

**\$ man openssl-genrsa.1oss1**

OPENSSL-GENRSA(1oss1)      OpenSSL      OPENSSL-GENRSA(1oss1)

### NAME

openssl-genrsa - generate an RSA private key

### SYNOPSIS

openssl genrsa [-help] [-out filename] [-passout arg] [-aes128]  
[-aes192] [-aes256] [-aria128] [-aria192] [-aria256] [-camellia128]  
[-camellia192] [-camellia256] [-des] [-des3] [-idea] [-F4] [-f4] [-3]  
[-primes num] [-verbose] [-traditional] [-rand files] [-writerand file]  
[-engine id] [-provider name] [-provider-path path] [-propquery propq]  
[numbits]

### DESCRIPTION

This command has been deprecated. The openssl-genpkey(1) command should be used instead.

This command generates an RSA private key.

### OPTIONS

-help

Print out a usage message.

-out filename

Output the key to the specified file. If this argument is not specified then standard output is used.

-passout arg

The output file password source. For more information about the format see openssl-passphrase-options(1).

-aes128, -aes192, -aes256, -aria128, -aria192, -aria256, -camellia128,  
-camellia192, -camellia256, -des, -des3, -idea

These options encrypt the private key with specified cipher before outputting it. If none of these options is specified no encryption is used. If encryption is used a pass phrase is prompted for if it is not supplied via the -passout argument.

-F4, -f4, -3

The public exponent to use, either 65537 or 3. The default is 65537. The -3 option has been deprecated.

-primes num

Specify the number of primes to use while generating the RSA key. The num parameter must be a positive integer that is greater than 1 and less than 16. If num is greater than 2, then the generated key is called a 'multi-prime' RSA key, which is defined in RFC 8017.

-verbose

Print extra details about the operations being performed.

-traditional

Write the key using the traditional PKCS#1 format instead of the PKCS#8 format.

-rand files, -writerand file

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

-engine id

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

-provider name

-provider-path path

-propquery propq

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

numbits

The size of the private key to generate in bits. This must be the last option specified. The default is 2048 and values less than 512 are not allowed.

## NOTES

RSA private key generation essentially involves the generation of two

or more prime numbers. When generating a private key various symbols will be output to indicate the progress of the generation. A .

represents each number which has passed an initial sieve test, + means a number has passed a single round of the Miller-Rabin primality test, \* means the current prime starts a regenerating progress due to some failed tests. A newline means that the number has passed all the prime tests (the actual number depends on the key size).

Because key generation is a random process the time taken to generate a key may vary somewhat. But in general, more primes lead to less generation time of a key.

#### SEE ALSO

openssl(1), openssl-genpkey(1), openssl-gendsa(1)

#### HISTORY

This command was deprecated in OpenSSL 3.0.

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