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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'openssl-rsautl.1ossil' command

\$ man openssl-rsautl.1ossil

OPENSSL-RSAUTL(1ossil) OpenSSL OPENSSL-RSAUTL(1ossil)

NAME

openssl-rsautl - RSA command

SYNOPSIS

openssl rsautl [-help] [-in file] [-passin arg] [-rev] [-out file]
[-inkey filename|uri] [-keyform DER|PEM|P12|ENGINE] [-pubin] [-certin]
[-sign] [-verify] [-encrypt] [-decrypt] [-pkcs] [-x931] [-oaep] [-raw]
[-hexdump] [-asn1parse] [-engine id] [-rand files] [-writerand file]
[-provider name] [-provider-path path] [-propquery propq]

DESCRIPTION

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

This command can be used to sign, verify, encrypt and decrypt data using the RSA algorithm.

OPTIONS

-help

Print out a usage message.

-in filename

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

-passin arg

The passphrase used in the output file. See see openssl-passphrase-options(1).

-rev

Reverse the order of the input.

-out filename

Specifies the output filename to write to or standard output by default.

-inkey filename|uri

The input key, by default it should be an RSA private key.

-keyform DER|PEM|P12|ENGINE

The key format; unspecified by default. See `openssl-format-options(1)` for details.

-pubin

The input file is an RSA public key.

-certin

The input is a certificate containing an RSA public key.

-sign

Sign the input data and output the signed result. This requires an RSA private key.

-verify

Verify the input data and output the recovered data.

-encrypt

Encrypt the input data using an RSA public key.

-decrypt

Decrypt the input data using an RSA private key.

-pkcs, -oaep, -x931 -raw

The padding to use: PKCS#1 v1.5 (the default), PKCS#1 OAEP, ANSI X9.31, or no padding, respectively. For signatures, only -pkcs and -raw can be used.

-hexdump

Hex dump the output data.

-asn1parse

Parse the ASN.1 output data, this is useful when combined with the -verify option.

-engine id

follows yields:

```
openssl asn1parse -in pca-cert.pem
```

```
0:d=0 hl=4 l= 742 cons: SEQUENCE
4:d=1 hl=4 l= 591 cons: SEQUENCE
8:d=2 hl=2 l=  3 cons: cont [ 0 ]
10:d=3 hl=2 l=  1 prim: INTEGER       :02
13:d=2 hl=2 l=  1 prim: INTEGER       :00
16:d=2 hl=2 l= 13 cons: SEQUENCE
18:d=3 hl=2 l=  9 prim: OBJECT        :md5WithRSAEncryption
29:d=3 hl=2 l=  0 prim: NULL
31:d=2 hl=2 l= 92 cons: SEQUENCE
33:d=3 hl=2 l= 11 cons: SET
35:d=4 hl=2 l=  9 cons: SEQUENCE
37:d=5 hl=2 l=  3 prim: OBJECT        :countryName
42:d=5 hl=2 l=  2 prim: PRINTABLESTRING :AU
```

....

```
599:d=1 hl=2 l= 13 cons: SEQUENCE
601:d=2 hl=2 l=  9 prim: OBJECT        :md5WithRSAEncryption
612:d=2 hl=2 l=  0 prim: NULL
614:d=1 hl=3 l= 129 prim: BIT STRING
```

The final BIT STRING contains the actual signature. It can be extracted with:

```
openssl asn1parse -in pca-cert.pem -out sig -noout -strparse 614
```

The certificate public key can be extracted with:

```
openssl x509 -in test/testx509.pem -pubkey -noout >pubkey.pem
```

The signature can be analysed with:

```
openssl rsautl -in sig -verify -asn1parse -inkey pubkey.pem -pubin
```

```
0:d=0 hl=2 l= 32 cons: SEQUENCE
2:d=1 hl=2 l= 12 cons: SEQUENCE
4:d=2 hl=2 l=  8 prim: OBJECT        :md5
14:d=2 hl=2 l=  0 prim: NULL
16:d=1 hl=2 l= 16 prim: OCTET STRING
```

```
0000 - f3 46 9e aa 1a 4a 73 c9-37 ea 93 00 48 25 08 b5 .F...Js.7...H%..
```

This is the parsed version of an ASN1 DigestInfo structure. It can be seen that the digest used was md5. The actual part of the certificate that was signed can be extracted with:

```
openssl asn1parse -in pca-cert.pem -out tbs -noout -strparse 4
```

and its digest computed with:

```
openssl md5 -c tbs
```

```
MD5(tbs)= f3:46:9e:aa:1a:4a:73:c9:37:ea:93:00:48:25:08:b5
```

which it can be seen agrees with the recovered value above.

SEE ALSO

openssl(1), openssl-pkeyutl(1), openssl-dgst(1), openssl-rsa(1),
openssl-genrsa(1)

HISTORY

This command was deprecated in OpenSSL 3.0.

The -engine option was deprecated in OpenSSL 3.0.

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