



Rocky Enterprise Linux 9.2 Manual Pages on command 'Ed25519.7ssl'

C:\>man Ed25519.7ssl

ED25519(7SSL) OpenSSL ED25519(7SSL)

NAME

Ed25519, Ed448 - EVP_PKEY Ed25519 and Ed448 support

DESCRIPTION

The Ed25519 and Ed448 EVP_PKEY implementation supports key generation, one-shot digest sign and digest verify using PureEdDSA and Ed25519 or Ed448 (see RFC8032).

It has associated private and public key formats compatible with RFC 8410.

No additional parameters can be set during key generation, one-shot signing or verification. In particular, because PureEdDSA is used, a digest must NOT be specified when signing or verifying.

NOTES

The PureEdDSA algorithm does not support the streaming mechanism of other signature algorithms using, for example, EVP_DigestUpdate(). The message to sign or verify must be passed using the one-shot EVP_DigestSign() and EVP_DigestVerify() functions.

When calling EVP_DigestSignInit() or EVP_DigestVerifyInit(), the digest type parameter MUST be set to NULL.

Applications wishing to sign certificates (or other structures such as CRLs or certificate requests) using Ed25519 or Ed448 can either use X509_sign() or X509_sign_ctx() in the usual way.

A context for the Ed25519 algorithm can be obtained by calling:

```
EVP_PKEY_CTX *pctx = EVP_PKEY_CTX_new_id(EVP_PKEY_ED25519, NULL);
```

For the Ed448 algorithm a context can be obtained by calling:

```
EVP_PKEY_CTX *pctx = EVP_PKEY_CTX_new_id(EVP_PKEY_ED448, NULL);
```

Ed25519 or Ed448 private keys can be set directly using

EVP_PKEY_new_raw_private_key(3) or loaded from a PKCS#8 private key file using PEM_read_bio_PrivateKey(3) (or similar function). Completely new keys can also be generated (see the example below). Setting a private key also sets the associated public key.

Ed25519 or Ed448 public keys can be set directly using

EVP_PKEY_new_raw_public_key(3) or loaded from a SubjectPublicKeyInfo structure in a PEM file using PEM_read_bio_PUBKEY(3) (or similar function).

Ed25519 and Ed448 can be tested within speed(1) application since version 1.1.1.

Valid algorithm names are ed25519, ed448 and eddsa. If eddsa is specified, then both Ed25519 and Ed448 are benchmarked.

EXAMPLES

This example generates an ED25519 private key and writes it to standard output in PEM format:

```
#include <openssl/evp.h>
#include <openssl/pem.h>
```

...

```
EVP_PKEY *pkey = NULL;  
EVP_PKEY_CTX *pctx = EVP_PKEY_CTX_new_id(EVP_PKEY_ED25519, NULL);  
EVP_PKEY_keygen_init(pctx);  
EVP_PKEY_keygen(pctx, &pkey);  
EVP_PKEY_CTX_free(pctx);  
PEM_write_PrivateKey(stdout, pkey, NULL, NULL, 0, NULL, NULL);
```

SEE ALSO

EVP_PKEY_CTX_new(3), EVP_PKEY_keygen(3), EVP_DigestSignInit(3),
EVP_DigestVerifyInit(3),

COPYRIGHT

Copyright 2017-2020 The OpenSSL Project Authors. All Rights Reserved.

Licensed under the OpenSSL license (the "License"). You may not use this file
except in compliance with the License. You can obtain a copy in the file LICENSE
in the source distribution or at <<https://www.openssl.org/source/license.html>>.

1.1.1f

2023-02-06

ED25519(7SSL)