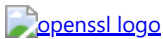


# Welcome to the OpenSSL Project



OpenSSL is a robust, commercial-grade, full-featured Open Source Toolkit for the Transport Layer Security (TLS) protocol formerly known as the Secure Sockets Layer (SSL) protocol. The protocol implementation is based on a full-strength general purpose cryptographic library, which can also be used stand-alone.

OpenSSL is descended from the SSLeay library developed by Eric A. Young and Tim J. Hudson.

The official Home Page of the OpenSSL Project is [www.openssl.org](http://www.openssl.org).

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## Overview

The OpenSSL toolkit includes:

- **libssl** an implementation of all TLS protocol versions up to TLSv1.3 ([RFC 8446](#)).
- **libcrypto** a full-strength general purpose cryptographic library. It constitutes the basis of the TLS implementation, but can also be used independently.
- **openssl** the OpenSSL command line tool, a swiss army knife for cryptographic tasks, testing and analyzing. It can be used for
  - creation of key parameters
  - creation of X.509 certificates, CSRs and CRLs
  - calculation of message digests
  - encryption and decryption
  - SSL/TLS client and server tests
  - handling of S/MIME signed or encrypted mail
  - and more...

## Download

### For Production Use

Source code tarballs of the official releases can be downloaded from [www.openssl.org/source](http://www.openssl.org/source). The OpenSSL project does not distribute the toolkit in binary form.

However, for a large variety of operating systems precompiled versions of the OpenSSL toolkit are available. In particular on Linux and other Unix operating systems it is normally recommended to link against the precompiled shared libraries provided by the distributor or vendor.

## For Testing and Development

Although testing and development could in theory also be done using the source tarballs, having a local copy of the git repository with the entire project history gives you much more insight into the code base.

The official OpenSSL Git Repository is located at [git.openssl.org](https://git.openssl.org). There is a GitHub mirror of the repository at [github.com/openssl/openssl](https://github.com/openssl/openssl), which is updated automatically from the former on every commit.

A local copy of the Git Repository can be obtained by cloning it from the original OpenSSL repository using

```
git clone git://git.openssl.org/openssl.git
```

or from the GitHub mirror using

```
git clone https://github.com/openssl/openssl.git
```

If you intend to contribute to OpenSSL, either to fix bugs or contribute new features, you need to fork the OpenSSL repository openssl/openssl on GitHub and clone your public fork instead.

```
git clone https://github.com/yourname/openssl.git
```

This is necessary, because all development of OpenSSL nowadays is done via GitHub pull requests. For more details, see [Contributing](#).

## Build and Install

After obtaining the Source, have a look at the [INSTALL](#) file for detailed instructions about building and installing OpenSSL. For some platforms, the installation instructions are amended by a platform specific document.

- [Notes for UNIX-like platforms](#)
- [Notes for Android platforms](#)
- [Notes for Windows platforms](#)
- [Notes for the DOS platform with DJGPP](#)
- [Notes for the OpenVMS platform](#)
- [Notes on Perl](#)
- [Notes on Valgrind](#)

Specific notes on upgrading to OpenSSL 3.0 from previous versions can be found in the [migration guide\(7oss\)](#) manual page.

## Documentation

### Manual Pages

The manual pages for the master branch and all current stable releases are available online.

- [OpenSSL master](#)
- [OpenSSL 3.0](#)
- [OpenSSL 1.1.1](#)

## Wiki

There is a Wiki at [wiki.openssl.org](http://wiki.openssl.org) which is currently not very active. It contains a lot of useful information, not all of which is up to date.

## License

OpenSSL is licensed under the Apache License 2.0, which means that you are free to get and use it for commercial and non-commercial purposes as long as you fulfill its conditions.

See the [LICENSE.txt](#) file for more details.

## Support

There are various ways to get in touch. The correct channel depends on your requirement. see the [SUPPORT](#) file for more details.

## Contributing

If you are interested and willing to contribute to the OpenSSL project, please take a look at the [CONTRIBUTING](#) file.

## Legalities

A number of nations restrict the use or export of cryptography. If you are potentially subject to such restrictions you should seek legal advice before attempting to develop or distribute cryptographic code.

## Copyright

Copyright (c) 1998-2022 The OpenSSL Project

Copyright (c) 1995-1998 Eric A. Young, Tim J. Hudson

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