



[Main](#) /

Building Opal on Unix

This page describes how to build Opal from revision 3.4.2 (Wolf) or later. For information on building earlier releases of Opal, see [this page](#)

Contents

1. [Introduction](#)
2. [Prerequisites](#)
3. [Default build and install](#)
4. [Build and use without install](#)
5. [Editing configure.ac. and running aclocal and autoconf](#)

1. Introduction

Opal is built from source using make and configure in the same way as most other Unix programs.

If you want to install Opal into a shared location accessible by all users of the system (normally /usr/local), and you have root access, then you can use the default configure and install procedure [Introduction](#) described here.

If you do not want to install Opal into a shared location, because you do not have root access or because you want to have more than one version of Opal on the same host, then follow [this procedure](#).

2. Prerequisites

You will need the following:

- A version of PTLib installed in a shared location, e.g. /usr/local, or built in a directory pointed to by the PTLIBDIR environment variable (see [the page on building PTLib](#)) for more information. Note when using local PTLib it must be configured **and** built **before** OPAL is configured.
- A copy of the Opal source archive from the [SourceForge download page](#) or from [Subversion](#). This is extracted into a directory referred to as *srcdir*

For Ubuntu etc, there are the following optional packages:

```
apt install libgsm1-dev libspeex-dev libopus-dev libavcodec-dev libx264-dev libvpx-dev libtheora-dev libspandsp-dev capiutils dahdi
```

For CentOS, Fedora etc, use:

```
yum install gsm-devel speex-devel opus-devel avcodec-devel x264-devel vpx-devel theora-devel libspandsp-devel capiutils dahdi
```

To use the Cisco OpenH.264 library, download <http://ciscobinary.openh264.org/libopenh264-1.8.0-linux64.4.so.bz2>, unzip and rename it to /usr/local/lib/libopenh264.so

3. Default build and install

By default, Opal will install into the /usr/local tree. In order for other packages locate Opal, the directory /usr/local/lib/pkgconfig must be added to the search path for pkg-config. This is usually done by setting the PKG_CONFIG_PATH environment variable.

It is also necessary to set the LD_LIBRARY_PATH environment variable so that programs can find the Opal libraries at link or run time.

If you are using plugins, the PTLIBPLUGINDIR environment variable must be set to the location of the installed plugins. By default, this is /usr/local/lib/opal-a.b.c, where a.b.c is the version of PTLib being used. For the current revision of Wolf, this is /usr/local/lib/opal-3.4.2, but please check your installation as the version numbers may have changed. Note that the PTLib plugin path must also be included

For bash/sh

```
export PKG_CONFIG_PATH=/usr/local/lib/pkgconfig
export LD_LIBRARY_PATH=/usr/local/lib
export PTLIBPLUGINDIR=/usr/local/lib/ptlib-x.y.z:/usr/local/lib/opal-a.b.c
```

For tcsh/csh

```
setenv PKG_CONFIG_PATH /usr/local/lib/pkgconfig
setenv LD_LIBRARY_PATH /usr/local/lib
setenv PTLIBPLUGINDIR /usr/local/lib/ptlib-x.y.z:/usr/local/lib/opal-a.b.c
```

Use the following command to build and install the release version (optimised) as a shared library

```
cd srcdir
./configure
```

```
make
sudo make install
```

Use the following command to build and install the release version (optimised) as a static library

```
cd srcdir
./configure --disable-shared
make
sudo make install
```

Use the following command to build and install the debug version (includes debugging symbols) as a shared library

```
cd srcdir
./configure --enable-debug
make debug
sudo make install
```

Use the following command to build and install the debug version (includes debugging symbols) as a static library

```
cd srcdir
./configure --enable-debug --disable-shared
make debug
sudo make install
```

Multiple versions can be built in the same directory tree and installed separately

3. Build and use without install

Set the OPALDIR environment variable to point to *srcdir* as follows. This allows other libraries that use Opal to find the code without using pkg-config.

IMPORTANT: you must set the environment variable **before** executing the configure script or the system will get very confused.

It is also necessary to set the LD_LIBRARY_PATH environment variable so that programs can find the Opal libraries at link or run time. The correct directory name depends on the host architecture:

```
For Linux x86 32 bit      ${OPALDIR}/lib_linux_x86
For Linux x86 64 bit      ${OPALDIR}/lib_linux_x86_64
```

If you are using plugins, the PTLIBPLUGINDIR environment variable must be set to the location of the compiled plugins. This will be the same directory as used above for the LD_LIBRARY_PATH

For bash/sh

```
export OPALDIR=srcdir
export LD_LIBRARY_PATH=/usr/local/lib:${PTLIBDIR}/linux_x86:${OPALDIR}/lib_linux_x86
export PTLIBPLUGINDIR=${PTLIBDIR}/lib_linux_x86:${OPALDIR}/lib_linux_x86
```

For tcsh/csh

```
setenv OPALDIR srcdir
setenv LD_LIBRARY_PATH /usr/local/lib:${PTLIBDIR}/linux_x86:${OPALDIR}/lib_linux_x86
setenv PTLIBPLUGINDIR ${PTLIBDIR}/lib_linux_x86:${OPALDIR}/lib_linux_x86
```

Once this is done, configure and build the appropriate version of the code using the same commands as described in section 3 above, but omit the *sudo make install*

Note that it may be necessary to add /usr/local/lib to LD_LIBRARY_PATH and set PKG_CONFIG_PATH to /usr/local/lib/pkgconfig in order for other packages to be detected correctly.

4. Editing configure.ac, and running aclocal and autoconf

If you are developer, it may be necessary to modify the configure.ac file and regenerate the configure script using autoconf.

The following message may appear

```
configure.ac:5: error: possibly undefined macro: dnl
    If this token and others are legitimate, please use m4_pattern_allow.
    See the Autoconf documentation.
```

If this occurs, then you need to regenerate the aclocal.m4 file by running the following command:

```
aclocal
```

[More information](#)

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