# Install and Configure wxWidgets on MacOS X and Ubuntu

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#### Introduction

wxWidgets is a C++ library that allows you to develop and deploy interactive GUI-based applications (<u>https://www.wxwidgets.org/</u> on different platforms – Windows, Mac, and Linux – and therefore you can also build your applications with little or no code change on those platforms.

In this tutorial, you will download, configure, build, and install wxWidgets on either MacOS X or Ubuntu, a distribution of the Linux operation system.

If you are on Windows 10, you should install Ubuntu. Read the tutorials "Install Ubuntu on Windows 10 and VirtualBox" (<u>http://www.cs.sjsu.edu/~mak/tutorials/InstallUbuntu.pdf</u>) and "Configure Ubuntu for Software Development" (<u>http://www.cs.sjsu.edu/~mak/tutorials/ConfigureUbuntu.pdf</u>).

Using wxWidgets, you can develop C++ desktop applications that display windows and interactive controls such as buttons, menus, text boxes, etc. (Figure 1).

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abl Text		Append many strings	
<ul> <li>ToggleButton</li> <li>Generic</li> </ul>		Delete selection	
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			Clear log Exit

Figure 1. Sample program widgets.

## Download wxWidgets

Go to <u>https://www.wxwidgets.org/downloads/</u> to download the latest stable release (currently 3.0.4). Click on the download link *Source for Linux, macOS, etc.* to download the source files of the toolkit. To build and deploy the wxWidgets library, you will have to configure, compile, link, and install it. The download includes shell scripts that will run in a terminal to perform these operations.

Unzip the downloaded zip file in your home directory to create a folder named **wxWidgets**-version, such as **wxWidgets**-3.0.4.

If you are going to build on MacOS X, read the next section. If you are going to build on Ubuntu, skip to the section "Build and install wxWidgets on Ubuntu".

For more detailed instructions for MacOS X, see docs/osx/install.txt. For Ubuntu, see docs/gtk/install.txt.

## Build and install wxWidgets on MacOS X

In a terminal window, cd to your wxWidgets-version directory. Then enter the following commands:

mkdir build-cocoa-debug
cd build-cocoa-debug

Configure and build the wxWidgets libraries (make takes a long time):

```
../configure --enable-debug --with-macosx-version-min=10.9 make
```

Enter the following commands to install the wxWidgets header files in the standard directory /usr/local/include and the library in the standard directory /usr/local/lib:

Skip to the section "Install the wxWidgets header files and library".

## Build and install wxWidgets on Ubuntu

#### The GTK development package

Build wxWidgets on top of the GIMP Toolkit (GTK) libraries which are already installed in Ubuntu. GTK is a multi-platform toolkit for creating graphical user interfaces. See <a href="https://www.gtk.org/">https://www.gtk.org/</a>

First download and install the GTK development package. In the Ubuntu terminal, enter the following command on the command line:

sudo apt install libgtk-3-dev

#### Build and install wxWidgets

Enter your wxWidgets directory, create a new subdirectory gtk-build, and cd to it:

mkdir gtk-build cd gtk-build

Configure and build the wxWidgets libraries (make takes a long time):

../configure --with-gtk
make

Enter the following commands to install the wxWidgets header files in the standard directory /usr/local/include and the library in the standard directory /usr/local/lib:

sudo su make install ldconfig exit

Build the sample and demo programs

Build all the sample programs (takes a long time):

cd samples make

Build all the demo programs:

cd ../demos make

## Run the sample and demo programs

You should now be able to run the minimal sample program (Figure 3):

cd ../samples/minimal
./minimal

Minimal wxWidgets App	Minimal wxWidgets App	_	×
	File Help		
Welcome to wxWidgets!	Welcome to wxWidgets!		111

Figure 3. Sample program minimal on MacOS X and on Ubuntu.

Sample program widgets demonstrates all the interactive control (Figure 4):

		wxMAC widgets demo	
<ul> <li>Native</li> <li>Button</li> <li>CheckBox</li> <li>Choice</li> <li>Combobox</li> <li>Gauge</li> <li>Listbox</li> <li>Notebook</li> <li>Radio</li> <li>abl SearchCtrl</li> <li>Sider</li> <li>Spin</li> <li>abl Text</li> <li>ToggleButton</li> <li>Generic</li> <li>Pickers</li> <li>Comboboxes</li> <li>With items</li> <li>Eliable</li> <li>Books</li> <li>All controls</li> </ul>	Set style  Set style  Text and bitmap  Fit exactly Require auth See command link button Interpret markup Default Use wxBitmapButton Use the following bitmaps in addition to the norm Pressed (small help icon) Pressed (small help icon) Current (small warning icon) Current (small warning icon) Current (small warning icon) Plasbled (broken image icon)  Image position Image position Horz alignment I left Centre right Vert alignment Current Comment Current Comment Current Comment Current Comment Current	Operations Change label & Pres	ss me! Press me!
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Figure 4. Sample program widgets on MacOS X and on Ubuntu.

Demo program **forty** (Figure 5):

cd ../../demos/forty ./forty



Figure 5. Demo program forty on MacOS X and on Ubuntu.