



Compiling software from source code

Requirements

- **Install the following packages before starting the compilation:**
 - CodeBlocks IDE (<http://www.codeblocks.org/>).
 - CMake (<https://cmake.org/download/>)
- **If you are building on Windows, download and install required packages:**
 - Download and install **MSYS2** from <https://www.msys2.org/>
Select default installation folder (C:\msys64)
Before finishing installation, tick "Run MSYS2 64 bit now". This will launch the "MSYS2 **MSYS**" terminal.
Update packages using the following command in the MSYS terminal:

```
pacman -Syu
```


MSYS will close after this upgrade.
Add "C:\msys64\mingw64\bin" folder to Windows PATH variable!
Run "MSYS2 **MinGW 64-bit**" application and proceed to install required packages using the following commands:

```
pacman -Su  
pacman -S mingw-w64-x86_64-gcc  
pacman -S git  
pacman -S make  
pacman -S mingw-w64-x86_64-make  
pacman -S msys/automake-wrapper  
pacman -S msys/autoconf  
pacman -S mingw-w64-x86_64-nsis
```
- **If you are building on MACOSX install Xcode and Xcode command line tools**
- **If you are building on Linux (Ubuntu) install the required packages:**

```
sudo apt-get install cmake protobuf-compiler  
sudo apt-get install build-essential  
sudo apt-get install libgtk-3-dev  
sudo apt-get install libwxgtk3.0-gtk3-dev  
sudo apt-get install libudev-dev  
sudo apt-get install libgl1-mesa-dev  
sudo apt-get install autoconf  
sudo apt-get install automake  
sudo apt-get install libxxf86vm-dev
```
- **Extract software sources from GitLab**
 - **On Windows** run "MSYS2 **MinGW 64-bit**", on **Linux/Mac** open "Terminal":

```
git clone --branch develop https://gitlab.com/scopefun/scopefun-software.git
```
- **Create a build directory in the 'scopefun-software' directory and enter the directory**

```
mkdir scopefun-software/build && cd scopefun-software/build
```



1st step: compiling the libraries

- **Windows: Configure and generate 'MinGW makefiles' using CMake**

- Set the source code path ... C:/msys64/home/<your_username>/scopefun-software
- Set build the binaries path ... C:/msys64/home/<your_username>/scopefun-software/build
- ... where <your_username> is your Windows username
- Click Configure and specify **MinGW makefiles** as the generator (Use default native compilers)
- Enter the correct build type for SCOPEFUN_BUILD_TYPE variable (this can be **Debug** or **Release**), after performing 'Configure' step.
- Select 'Configure' step two times.
- Check that there is no red colored variables in CMake prior to generating chosen build system scripts.
- Select 'Generate'.
- Run **MSYS2 MinGW 64-bit**, and type

```
cd ~/scopefun-software/build
cd ../lib/libusb-1.0.22 && aclocal && automake && cd .. && cd ../build
mingw32-make package
```

- **Linux and Mac: Configure and generate 'Unix makefiles' using CMake**

Linux: run Terminal, go to your "build" directory and type:

```
cd ../lib/libusb-1.0.22 && aclocal && automake && cd .. && cd ../build
chmod +x ../lib/wxWidgets-3.0.5/src/stc/gen_iface.py
chmod +x ../lib/libusb-1.0.22/install-sh
cmake -G "Unix Makefiles" -D SCOPEFUN_VERSION_MAJOR="2" -D SCOPEFUN_VERSION_MINOR="1" \
-D SCOPEFUN_VERSION_MICRO="0" -D SCOPEFUN_BUILD_TYPE="Release" \
-D CPACK_BINARY_DEB="true" -D CPACK_BINARY_TZ="false" \
-D CPACK_BINARY_TGZ="false" -D CPACK_BINARY_STGZ="false" ..
make package
```

- **Mac:** run Terminal, go to your build folder and type:

```
chmod +x ../lib/wxWidgets-3.0.4/src/stc/gen_iface.py
chmod +x ../lib/libusb-1.0.22/install-sh
PATH="/Applications/Cmake.app/Contents/bin": "$PATH"
cmake -G "Unix Makefiles" -D SCOPEFUN_BUILD_TYPE="Release" \
-D CMAKE_VERBOSE_MAKEFILE="true" -D CPACK_BINARY_DRAGNDROP="true" \
-S "$CI_BUILDS_DIR.." -B.
make
```



2nd step: compiling source code in Codeblocks

- Make sure you have successfully finished the **1st step: compiling the libraries**
- **Windows: Configure and generate 'CodeBlocks-MinGW Makefiles' using CMake**
 - Set the source code path ... C:/msys64/home/<your_username>/scopefun-software
 - Set build the binaries path ... C:/msys64/home/<your_username>/scopefun-software/codeblocks-build
 - ... where <your_username> is your Windows username
 - Note: 'Where to build the binaries' folder **is different folder as in first step**.
 - Click Configure and specify **CodeBlocks-MinGW Makefiles** as the generator
 - Enter the correct build type for SCOPEFUN_BUILD_TYPE variable (this can be **Debug** or **Release**), after performing 'Configure' step.
 - Select 'Configure' step two times.
 - Check that there is no red colored variables in CMake prior to generating chosen build system scripts.
 - Select 'Generate'.
 - You can now build the project
 - Open the generated project with Codeblocks and build project. Then select target 'ScopeFun' and Run.
- **Linux or Mac: Configure and generate 'CodeBlocks-Unix Makefiles' using Cmake.**
 - Go to "scopefun-software" folder and **create a new folder "codeblocks-build"**
`mkdir codeblocks-build && cd codeblocks-build`
 - **Linux:** run Terminal, go to your "codeblocks-build" folder and type:
`cmake -G "CodeBlocks - Unix Makefiles" -D SCOPEFUN_BUILD_TYPE="Release" \`
`-D CPACK_BINARY_DEB="true" -D CPACK_BINARY_TZ="false" \`
`-D CPACK_BINARY_TGZ="false" -D CPACK_BINARY_STGZ="false" ..`
 - **Mac:** run Terminal, go to your build folder and type:
`cmake -G "CodeBlocks - Unix Makefiles" -D CMAKE_BUILD_TYPE="Release" \`
`-D CMAKE_VERBOSE_MAKEFILE="true" -D CPACK_BINARY_DRAGNDROP="true" \`
`-S "$CI_BUILDS_DIR.." -B.`
 - Open the generated project with Codeblocks and build project. Then select target 'ScopeFun' and Run.
- **Open CodeBlocks IDE and run Build (or optionally run below commands in command shell)**
 - Go to build directory and type:
 - **Windows (MSYS2 MinGW 64-bit)**
 - Build executable files: `mingw32-make -f makefile`
 - Build installer package: `mingw32-make package`
 - Build source files package: `mingw32-make package_source`
 - **Linux/Mac using Terminal**
 - Build executable files: `make`
 - Build installer package: `make package`
 - Build source files package: `make package_source`
- **Questions ?** Go to <https://www.scopefun.com/> where you can join a forum or contact us by e-mail.