# Computer Graphics
# Custom install

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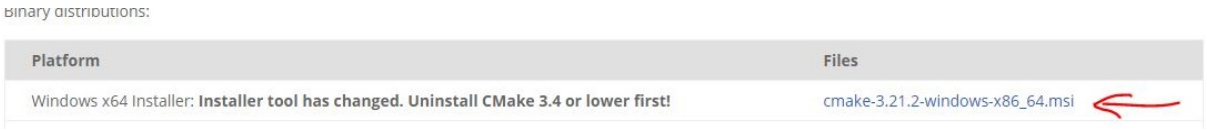
This document shows one way to install the practicals on a Windows machine using MinGW. Last section tackles Unix platform but with less details.

## 1 CMake install

Go to `https://cmake.org/download/` and download CMake. Install it.

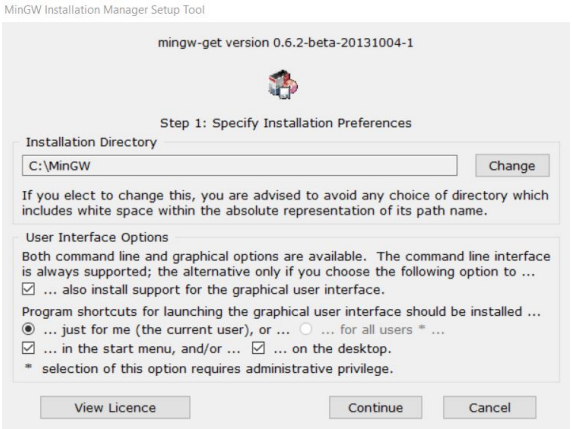


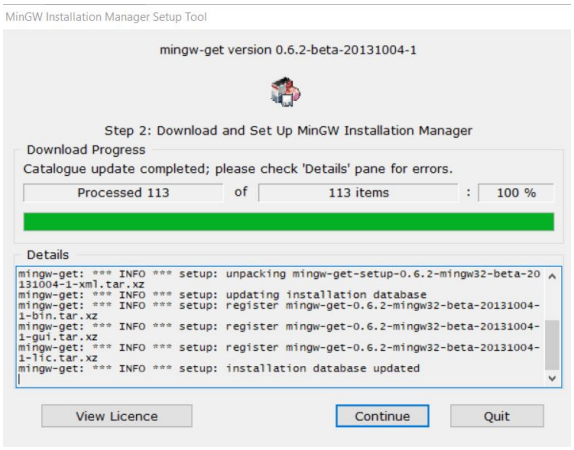

Add `Path/To/CMake/Installation/Directory/bin` to Windows' `PATH` if it is not already in it.

## 2 C++ Compiler

The practicals are compiled with gcc on the Ubuntu machines. One could use another compiler such as MSVC but here we stick to gcc provided by Minimal GNU-Windows (MinGW).

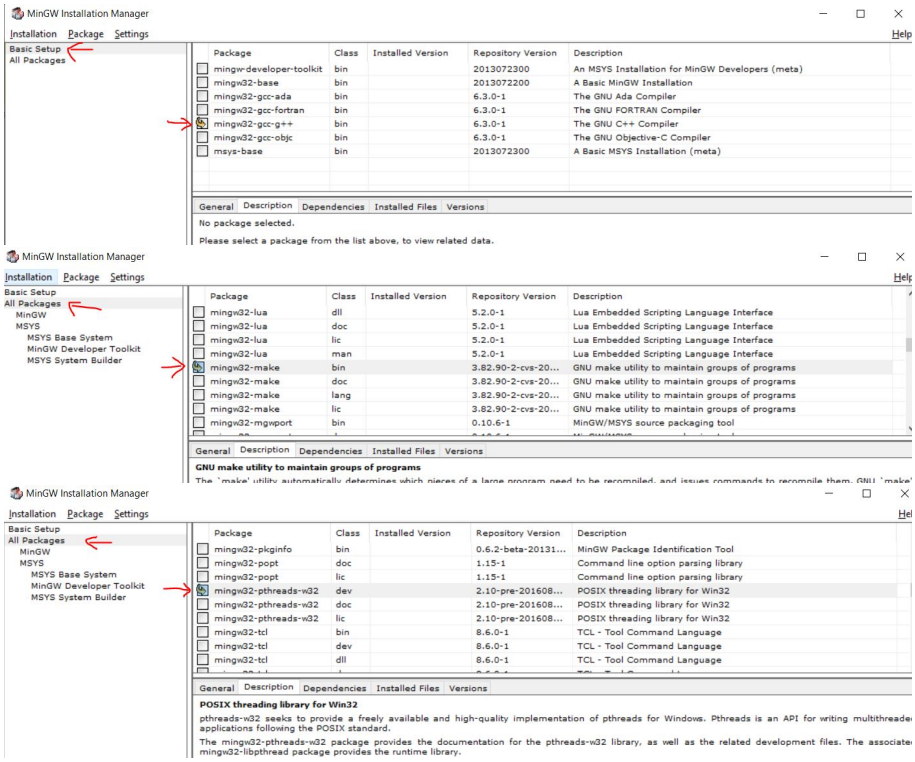
Go to `https://sourceforge.net/projects/mingw/` and install it on your machine.



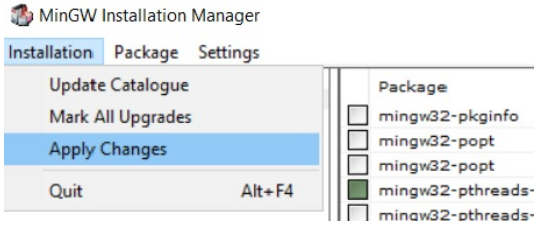



In the installation package manager, tick :

- mingw32-gcc-g++
- mingw32-make
- mingw32-pthreads-w32




Apply changes.




Add `Path/To/MinGW/Installation/Directory/bin` to Windows' PATH. Make a copy of `mingw32-make.exe` in the same directory and rename it into `make.exe`.

# 3 SFML

SFML's website provides binaries for Windows, but to avoid compiler mismatch we will compile from sources with gcc. Go to `https://www.sfml-dev.org/download/sfml/2.5.1/`, download the sources (In the bottom, "All" → "Source Code") and extract them to `sfmlGraphicsPipeline/extlib`. Do not modify the directory name (it should be `SFML-2.5.1`).

# 4 Compilation

Similarly to the compilation under Ubuntu, go to your project and type the following commands :

```
cd sfmlGraphicsPipeline/extlib
make

cd ../
mkdir build && cd build
cmake -G "MinGW Makefiles" ../
make -j6

cd ../../sampleProject
mkdir build && cd build
cmake -G "MinGW Makefiles" ../
make practical1 -j6
```

Note that you need to inform CMake to generate MinGW makefiles. Else, using the powershell, you can try to set the environment variable `CMAKE_GENERATOR` :
`$Env:CMAKE_GENERATOR = 'MinGW Makefiles'`

# 5 run.bat

A file run.bat similar to run.sh is provided :

- `run.bat target r` : Only runs target.exe.
- `run.bat target cr` : Runs make on both directories + above behavior.
- `run.bat target ccr` : Runs cmake on both directories + above behavior.

Note that for each `cpp` file in `sampleProject`, a make target of the same name is automatically created.

# 6 Unix install

Installing the practicals dependencies on an Unix platform should be quick :

- Make sure your drivers are up to date
- Using your package manager, install the following packages
  - SFML (Ubuntu : `sudo apt-get install libsfml-dev`)
  - CMake (Ubuntu : `sudo apt-get install cmake`)
  - GLEW (Ubuntu : `sudo apt-get instal libglew-dev`)
- It is very unlikely that the following packages are not already installed but they are also required :
  - gcc/g++ and make (Ubuntu : `sudo apt install build-essential`)
  - OpenGL (Ubuntu : `sudo apt-get install freeglut3-dev`)