GUI configuration

The GUI is currently compatible only with Linux environments (the reference for this guide is Ubuntu). If you have a Windows OS in your PC, you will need to install and launch WSL2 (Windows Subsystem for Linux). You can find the installation guide here.

Dependencies:

1. Essentials
2. CMake
3. Qt
4. VTK

Make sure that all the packages are up to date calling `sudo apt update` and `sudo apt upgrade`

Essentials

```
sudo apt install build-essential mesa-common-dev mesa-utils freeglut3-dev python3-dev python3-venv git-core ninja-build libx11-dev rapidjson-dev
```

CMake

```
sudo apt install cmake
```

```
sudo apt install cmake-curses-gui
```

Qt

```
wget https://download.qt.io/new_archive/qt/5.12/5.12.0/qt-opensource-linux-x64-5.12.0.run
```

```
chmod 777 qt-opensource-linux-x64-5.12.0.run
```

```
./qt-opensource-linux-x64-5.12.0.run
```

The Qt MaintenanceTool will guide you through the installation of the required packages (here Qt5.12.0 with Desktop gcc 64 bit). Remember the path in which Qt will be installed, it will be needed for the VTK installation.

VTK

```
git clone https://gitlab.kitware.com/vtk/vtk.git
```

```
cd vtk
```

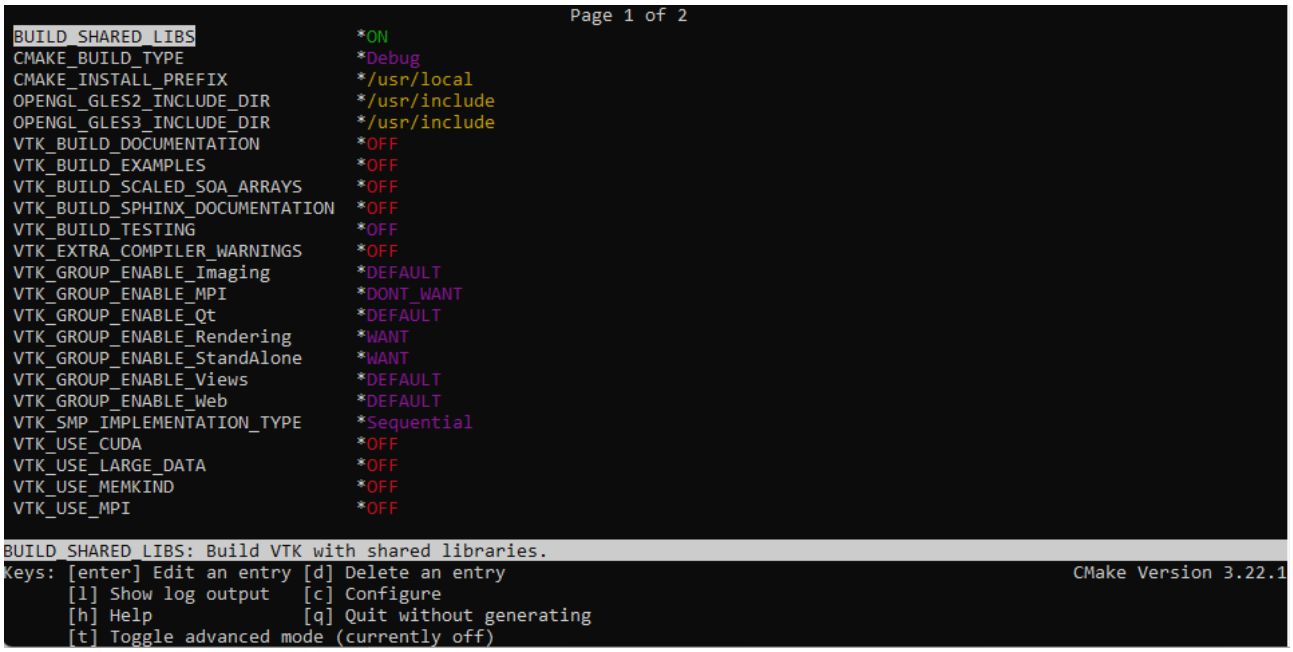
```
mkdir build
```

```
cd build
```

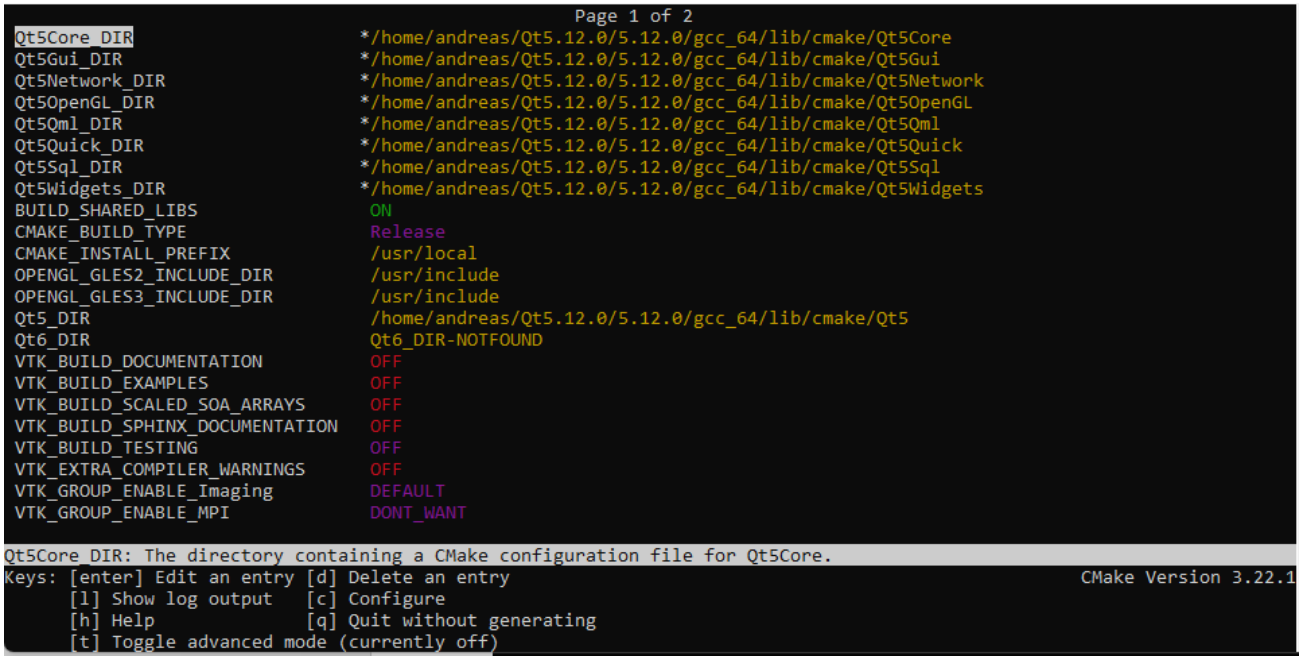
```
ccmake ..
```

The last command will display a configuration GUI for the (semi-automatic) definition of the path of several dependencies for VTK. Here, you need to press the “c” button.

If there are no issues, you should visualise something similar to what you can find in the following image:



Here, you need to set “CMAKE_BUILD_TYPE” to “Release” and “VTK_GROUP_ENABLE_Qt” to “YES”, then press again the “c” button. The procedure will give you an error, since it is not able to locate Qt. Press the “e” button and then proceed to set “VTK_QT_VERSION” to “5” and “Qt5_DIR” to “QtHOME/5.12.0/gcc_64/lib/cmake/Qt5”, where QtHOME is the path to the folder in which you installed Qt. Press again the “c” button and if everything is fine, you will see something like what you can see in the next image:



Press again the “c” button and then “g”. The GUI will be closed. Next, you need to run

```
make -j16
```

if you have a PC with good processor, you can even try putting a greater value after j, as it defines the number of threads to be used for the building of VTK (it will require some time). If everything works fine, you will not see errors and, after the building is finished, you need to launch

```
sudo make install
```

Libraries

1. SemantisedTriangleMesh
2. DrawableGeometries
3. UrbanIntelligenceEnvironment

SemantisedTriangleMesh

```
git clone https://github.com/andreasscalas/SemanticModellingFramework.git
```

```
cd SemantisedTriangleMesh
```

```
mkdir build
```

```
cd build
```

```
cmake ..
```

```
make -j16
```

```
sudo make install
```

DrawableGeometries

```
git clone https://github.com/andreasscalas/DrawableGeometries.git
```

```
cd DrawableGeometries
```

```
mkdir build
```

```
cd build
```

```
ccmake ..
```

As for VTK, here you need to set “Qt5_DIR” to “QtHOME/5.12.0/gcc_64/lib/cmake/Qt5” and press the “c” and then “g” button

```
make -j16
```

```
sudo make install
```

UrbanIntelligenceEnvironment

```
git clone https://github.com/andreasscalas/DrawableGeometries.git
```

```
cd SemantisedTriangleMesh
```

```
mkdir build
```

```
cd build
```

```
cmake ..
```

```
make -j16
```

At this point the GUI is built, you can launch it with

```
./UrIntEnv
```