

Installing and running Geant4

Linux

Required tools and libraries

- Cmake
- G++
- Gcc
- Libx11-dev
- Libxmu-dev
- Libxi-dev
- Libgl-dev
- Libglu1-mesa-dev
- libexpat-dev
- Qtbase5-dev
- Qtchooser
- Qt5-qmake
- qtbase5-dev-tools

(Optional)

- cmake-cursed-gui

Use:

Sudo apt install <tool/lib>

To download each of these

Download and unzip Geant4

- Create a Geant4 directory
- Download source code at [Download Geant4-11.3.1 - Geant4](#)
- Unzip into geant4 directory
- From here, create and go to a Geant4-build directory

Configure

Configure your project with the following commands:

```
cmake -DGEANT4_USE_QT=ON -DGEANT4_USE_OPENGL_X11=ON -DCMAKE_INSTALL_PREFIX=~/.geant4-install ~/geant4/geant4-v11.3.1
```

```
cmake -DGEANT4_INSTALL_DATA=ON ~/geant4/geant4-v11.3.1
```

If Qt is giving hassle, you can also use GDML for visualization program.

Configure

Better method:

Use `cmake-cursed-gui`.

Use `ccmake ..` to configure

Configure

```
Page 1 of 2
CMAKE_BUILD_TYPE Release
CMAKE_INSTALL_PREFIX /home/path/to/geant4/geant4-v11.3.1-install
GEANT4_BUILD_MULTITHREADED OFF
GEANT4_INSTALL_DATA ON
GEANT4_INSTALL_DATADIR
GEANT4_USE_G3TOG4 OFF
GEANT4_USE_GDML OFF
GEANT4_USE_INVENTOR OFF
GEANT4_USE_INVENTOR_QT OFF
GEANT4_USE_OPENGL_X11 OFF
GEANT4_USE_QT ON
GEANT4_USE_RAYTRACER_X11 ON
GEANT4_USE_SYSTEM_CLHEP OFF
GEANT4_USE_SYSTEM_EXPAT ON
GEANT4_USE_SYSTEM_ZLIB OFF
GEANT4_USE_VTK OFF
GEANT4_USE_XM OFF
QT_DIR /usr/lib/x86_64-linux-gnu/cmake/Qt5
Qt53DCore_DIR Qt53DCore_DIR-NOTFOUND
Qt53DExtras_DIR Qt53DExtras_DIR-NOTFOUND
Qt53DRender_DIR Qt53DRender_DIR-NOTFOUND
Qt5Core_DIR /usr/lib/x86_64-linux-gnu/cmake/Qt5Core
Qt5Gui_DIR /usr/lib/x86_64-linux-gnu/cmake/Qt5Gui
CMAKE_BUILD_TYPE: Choose the type of build, options are: None Release TestRelease MinSizeRel Debug Debug FPE RelWithDebI
Keys: [enter] Edit an entry [d] Delete an entry CMake Version 3.28.3
      [l] Show log output [c] Configure
      [h] Help [q] Quit without generating
      [t] Toggle advanced mode (currently off)
```

Generate, build, and install

Generate and build with:

```
make -j$(nproc)
```

- Or replace nproc with number of thread your CPU have.

Install with:

```
make install
```

Source it, this must be done every new session:

```
source ~/geant4-install/bin/geant4.sh
```

Running example B1

Source and find B1

If starting a new session, source

```
source ~/geant4-install/bin/geant4.sh
```

Navigate to directory with example B1:

```
path/to/geant4-install/share/Geant4/examples/basic
```

Create a B1run directory and copy B1 directory to it:

```
cp -r B1 path/to/geant4/B1run
```

Configure

Go to B1run directory and create a build directory

From the build directory, configure with:

```
cmake ..
```

Generate and build, and run example

Generate and build with:

```
make -j$(nproc)
```

Now, in the build directory, there should be an executable file called exampleB1, run with:

```
./exampleB1
```

Next ambition

Run with hepmc (WIP)