Installing and Building QHG on Ubuntu 16.04

All commands shown here in bold face must be entered in a terminal window.

1 Installing necessary packages

Bring the package manager up to date

```
sudo apt-get update
```

Install developer tools

```
sudo apt-get install g++ make gdb valgrind
```

Libraries used by QHG

```
sudo apt-get install zlib1g-dev libssl-dev libgsl0-dev
sudo apt-get install libhdf5-serial-dev
```

2 Add environment variables to `~/.profile`

For the compilation to work we must make sure some environment variables will always be set. For this you have to edit the file '`.profile`' in your home directory (in the example vi is used, but you can use any ASCII text editor)

```
vi ~/.profile
```

Add the following lines to the end of '`~/.profile`'

```
export CPATH=/usr/include/hdf5/serial/:$CPATH
export LIBRARY_PATH=/usr/lib/x86_64-linux-gnu/hdf5/serial/:$LIBRARY_PATH
export GCC=/usr/bin/g++
```

Save and close the file

3 Create the source code directory and get the code

Create your source code directory

```
mkdir ~/progs
```

Got there

```
cd ~/progs
```

Check out the code base

```
svn co svn+ssh://alirv@aim-bigfoot.uzh.ch/home/morpho_svn/QHG3/trunk QHG3
```

4 Log out and log back in again

This makes sure the environment variable are set and stuff we installed gets initialised

5 Build QHG

Go to the code root directory

```
cd ~/progs/QHG3
```

Build **QHG** (with debug information)

```
make clean QHGMain
```

See if it works

```
app/QHGMain
```

6 Create output directory for some of the tools

The directory '~/utils' must exist, because some tools are copied there

```
mkdir ~/utils
```

7 Install packages needed by QHG tools

```
sudo apt-get install libpng-dev
sudo apt-get install libglib2.0-dev
sudo apt-get install libcairo2-dev
sudo apt-get install libgtk2.0-dev
```

8 Modify ~/.profile again

Open the file '~/.profile' with any text editor

```
vi ~/.profile
```

Add the following line (no line break) to the end of the file

```
  export CPATH=/usr/include/cairo/:/usr/include/gtk-2.0/gdk/:/usr/lib/x86_64-linux-gnu/glib-2.0/include/:/usr/include/glib-2.0:$CPATH
```

9 Log out and log back in again

This makes sure the environment variable are set and stuff we installed gets initialised

10 Build the tools

Got to the code root directory

```
cd ~/progs/QHG3
```

Build the tools

```
make tools_n
```