

ECEN 4652/5002 - Communications Lab

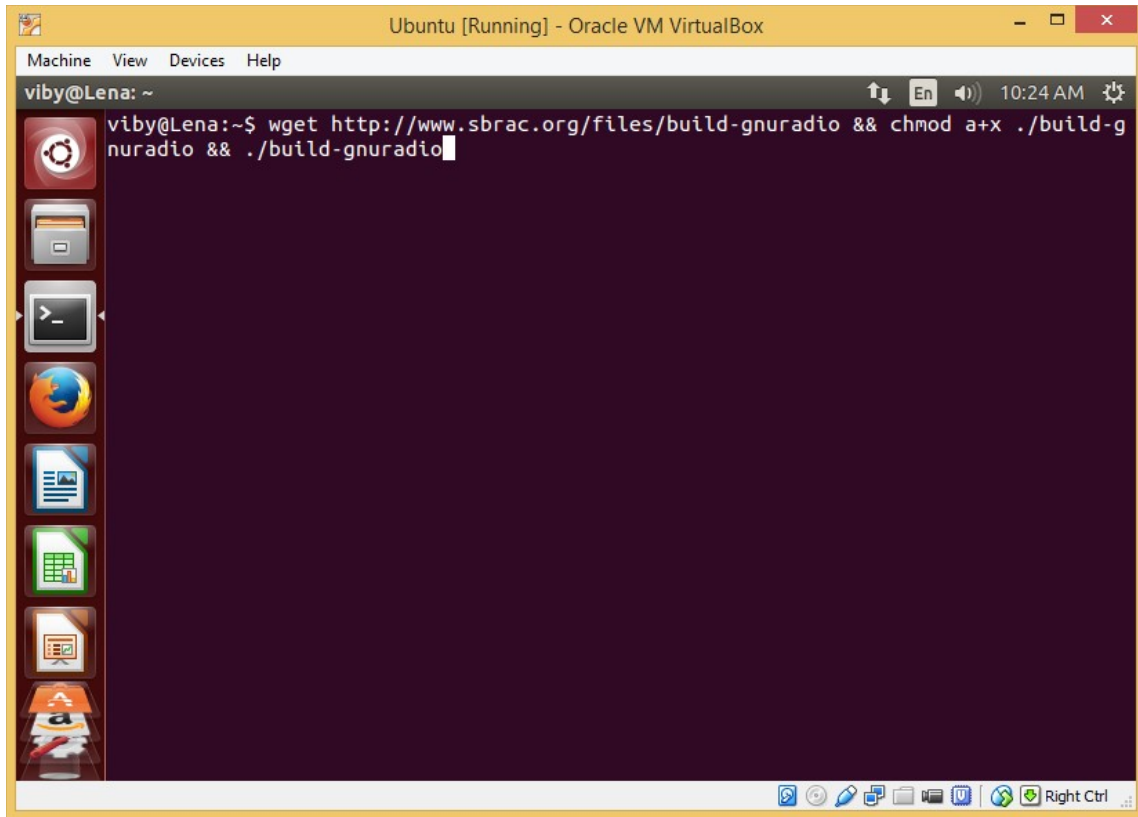
Peter Mathys, Spring 2017



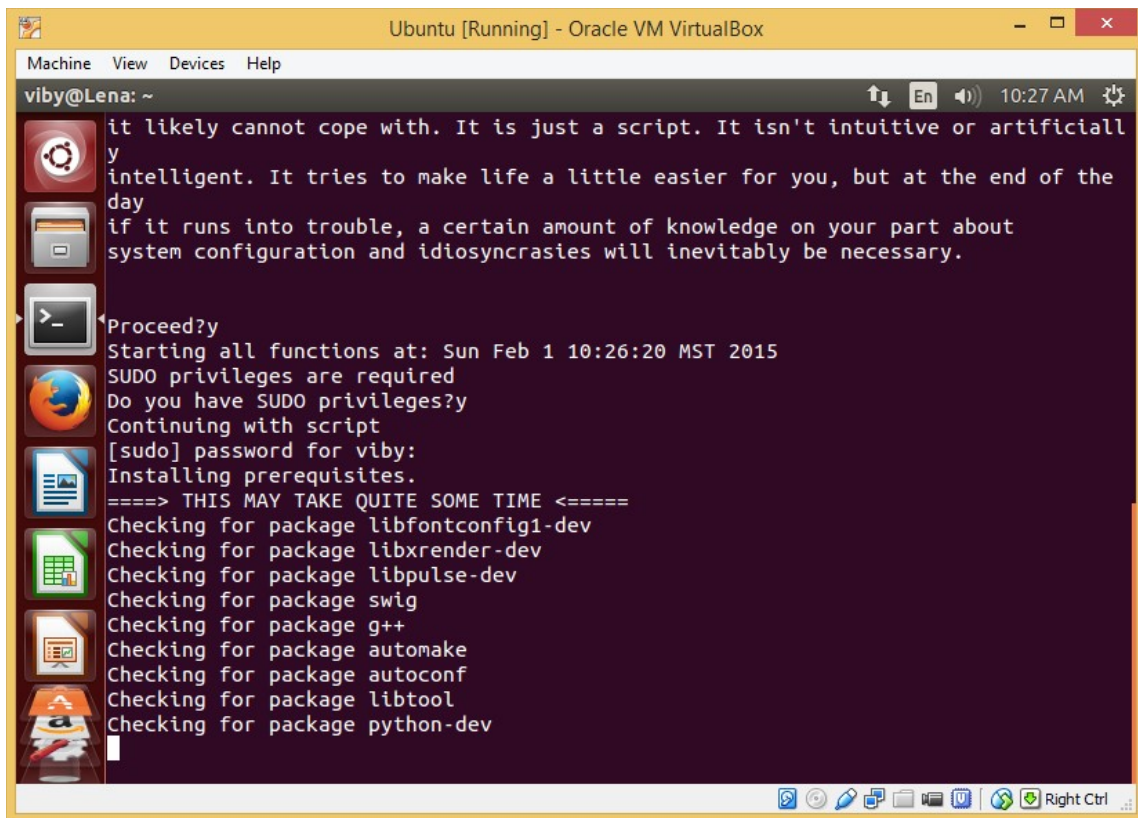
GNU Radio Installation in Ubuntu

This page describes the installation of the GNU Radio software V3.7 on Ubuntu 14.04. It is based on [Installing GNURadio from Source](#). Using the build-gnuradio script section. Note that this installation takes approximately 2-3 hours, so plan accordingly.

Start Ubuntu and open a terminal window. Move to the directory where you would like the source files to be stored. Type the following command to start the process of downloading, compiling, and installing the GNU Radio and the GNU Radio Companion (GRC) software



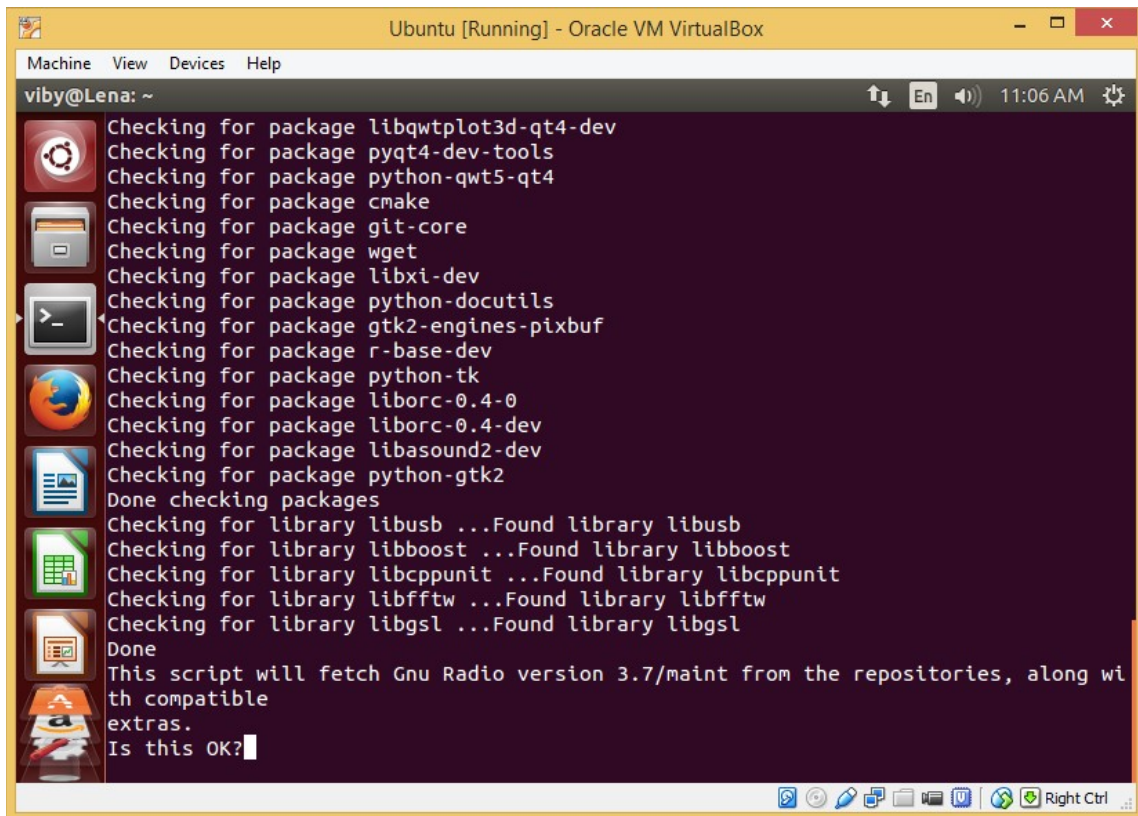
You will see the following warning screen. Enter "yes" to proceed. Note the time: 10:26:20.



```
Machine View Devices Help
viby@Lena: ~
it likely cannot cope with. It is just a script. It isn't intuitive or artificiall
y
intelligent. It tries to make life a little easier for you, but at the end of the
day
if it runs into trouble, a certain amount of knowledge on your part about
system configuration and idiosyncrasies will inevitably be necessary.

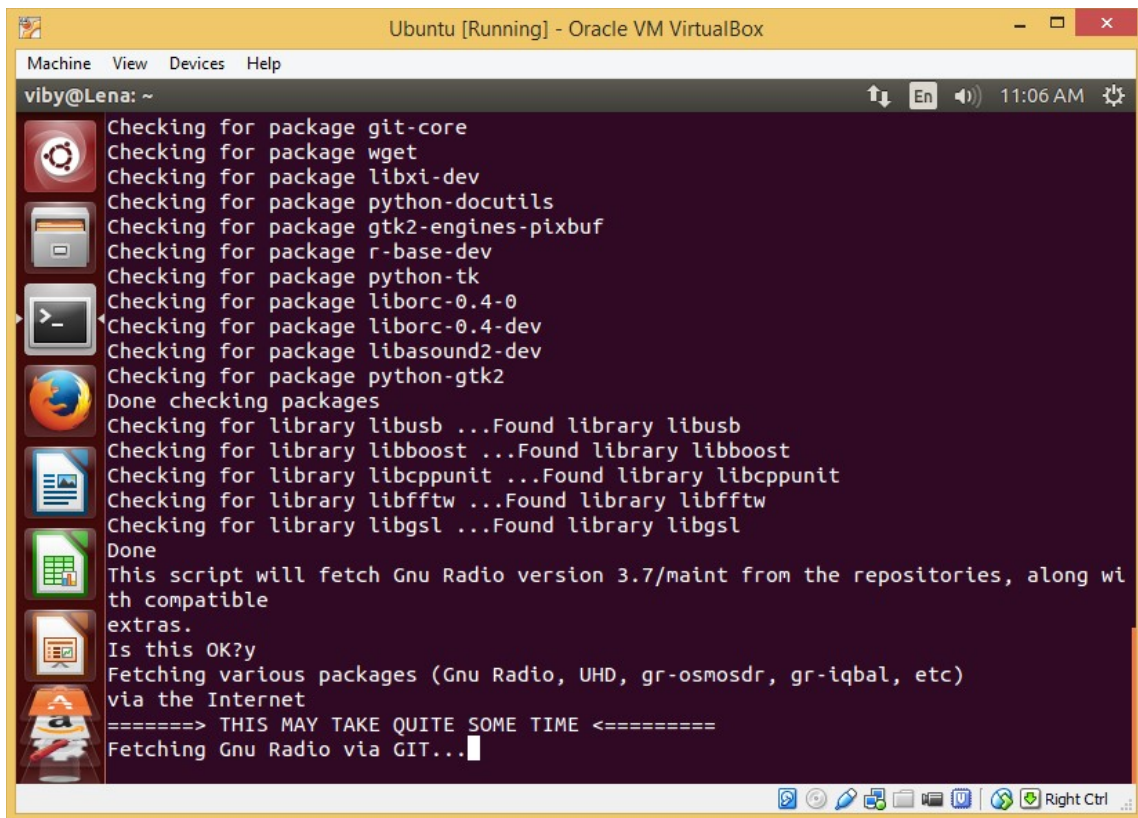
Proceed?y
Starting all functions at: Sun Feb 1 10:26:20 MST 2015
SUDO privileges are required
Do you have SUDO privileges?y
Continuing with script
[sudo] password for viby:
Installing prerequisites.
====> THIS MAY TAKE QUITE SOME TIME <====
Checking for package libfontconfig1-dev
Checking for package libxrender-dev
Checking for package libpulse-dev
Checking for package swig
Checking for package g++
Checking for package automake
Checking for package autoconf
Checking for package libtool
Checking for package python-dev
```

Occasionally the script will ask for input from you, so you need to stay nearby during the installation process.



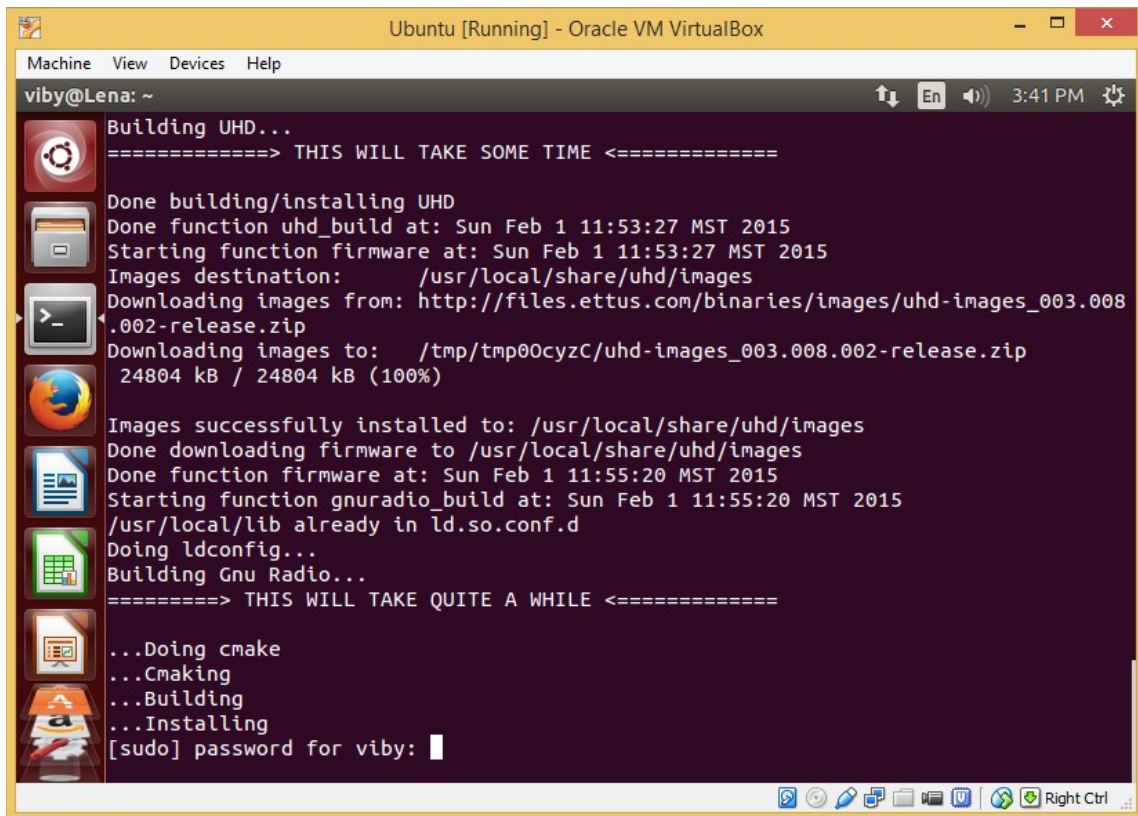
```
Machine View Devices Help
viby@Lena: ~
Checking for package libqwtplot3d-qt4-dev
Checking for package pyqt4-dev-tools
Checking for package python-qwt5-qt4
Checking for package cmake
Checking for package git-core
Checking for package wget
Checking for package libxi-dev
Checking for package python-docutils
Checking for package gtk2-engines-pixbuf
Checking for package r-base-dev
Checking for package python-tk
Checking for package liborc-0.4-0
Checking for package liborc-0.4-dev
Checking for package libasound2-dev
Checking for package python-gtk2
Done checking packages
Checking for library libusb ...Found library libusb
Checking for library libboost ...Found library libboost
Checking for library libcppunit ...Found library libcppunit
Checking for library libfftw ...Found library libfftw
Checking for library libgsl ...Found library libgsl
Done
This script will fetch Gnu Radio version 3.7/maint from the repositories, along wi
th compatible
extras.
Is this OK?
```

Another announcement that this "MAY TAKE QUITE SOME TIME".



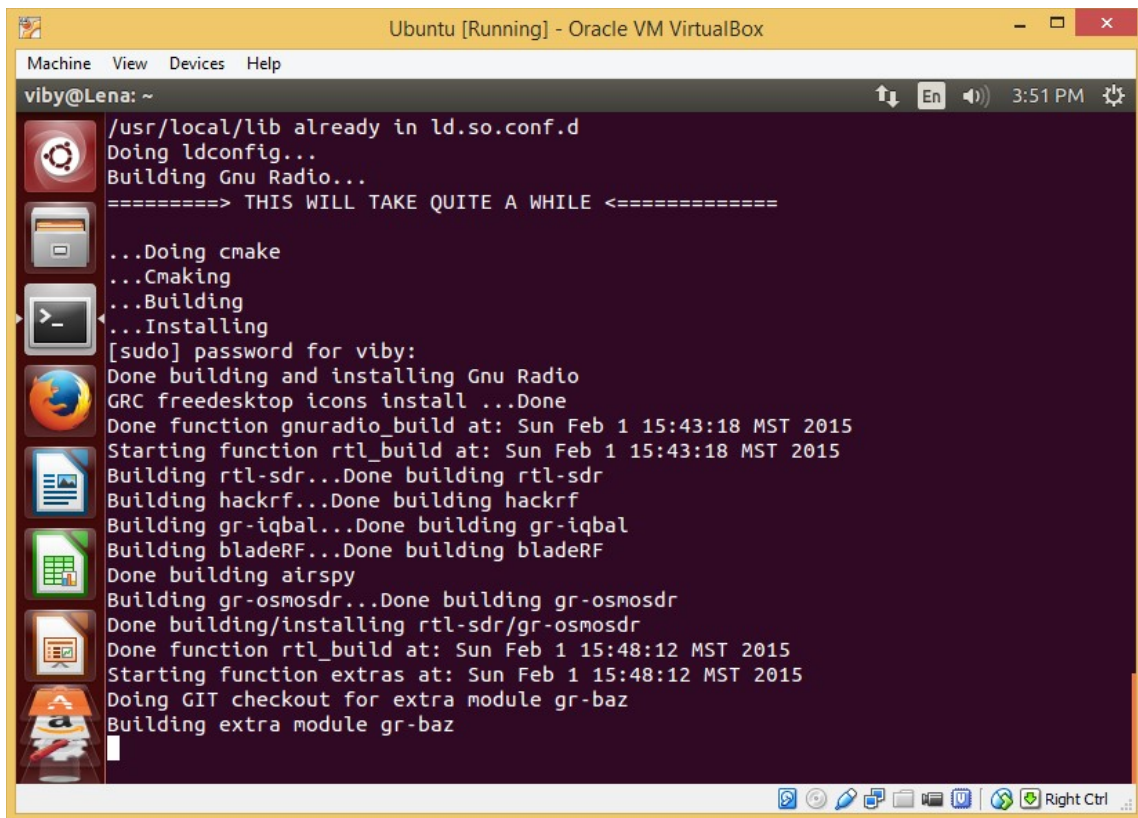
```
Machine View Devices Help
viby@Lena: ~
Checking for package git-core
Checking for package wget
Checking for package libxi-dev
Checking for package python-docutils
Checking for package gtk2-engines-pixbuf
Checking for package r-base-dev
Checking for package python-tk
Checking for package liborc-0.4-0
Checking for package liborc-0.4-dev
Checking for package libasound2-dev
Checking for package python-gtk2
Done checking packages
Checking for library libusb ...Found library libusb
Checking for library libboost ...Found library libboost
Checking for library libcppunit ...Found library libcppunit
Checking for library libfftw ...Found library libfftw
Checking for library libgsl ...Found library libgsl
Done
This script will fetch Gnu Radio version 3.7/maint from the repositories, along with compatible extras.
Is this OK?y
Fetching various packages (Gnu Radio, UHD, gr-osmosdr, gr-iqbal, etc) via the Internet
===== THIS MAY TAKE QUITE SOME TIME =====
Fetching Gnu Radio via GIT...
```

Now the main build of GNU Radio starts. Another SUDO password is needed. Note the time: 11:55:20.



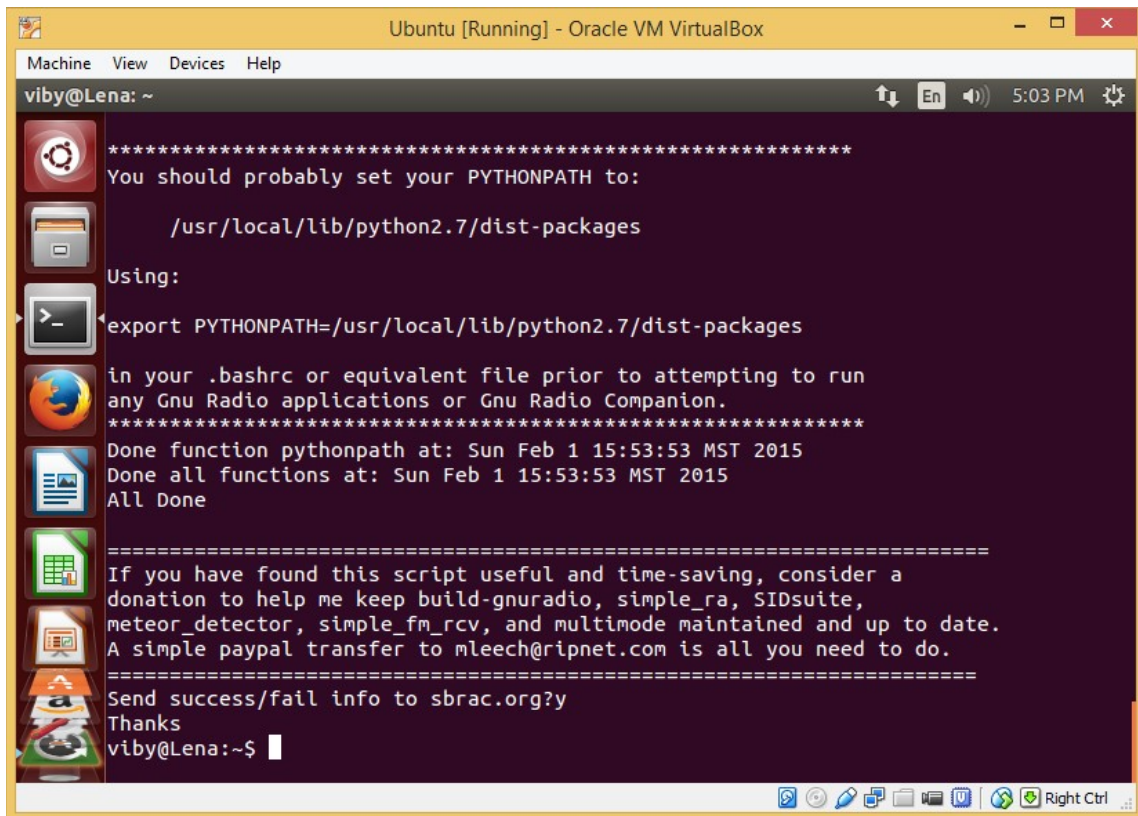
```
Machine View Devices Help
viby@Lena: ~
Building UHD...
===== THIS WILL TAKE SOME TIME =====
Done building/installing UHD
Done function uhd_build at: Sun Feb 1 11:53:27 MST 2015
Starting function firmware at: Sun Feb 1 11:53:27 MST 2015
Images destination: /usr/local/share/uhd/images
Downloading images from: http://files.ettus.com/binaries/images/uhd-images_003.008.002-release.zip
Downloading images to: /tmp/tmp00cyzC/uhd-images_003.008.002-release.zip
24804 kB / 24804 kB (100%)
Images successfully installed to: /usr/local/share/uhd/images
Done downloading firmware to /usr/local/share/uhd/images
Done function firmware at: Sun Feb 1 11:55:20 MST 2015
Starting function gnuradio_build at: Sun Feb 1 11:55:20 MST 2015
/usr/local/lib already in ld.so.conf.d
Doing ldconfig...
Building Gnu Radio...
===== THIS WILL TAKE QUITE A WHILE =====
...Doing cmake
...Cmaking
...Building
...Installing
[sudo] password for viby:
```

Some information that appears on the screen during the build process. Note the time 15:48:12 (I was not next to the computer at all times, so there were some times when the script waited for my input).



```
Ubuntu [Running] - Oracle VM VirtualBox
Machine View Devices Help
viby@Lena: ~
/usr/local/lib already in ld.so.conf.d
Doing ldconfig...
Building Gnu Radio...
=====> THIS WILL TAKE QUITE A WHILE <=====
...Doing cmake
...Cmaking
...Building
...Installing
[sudo] password for viby:
Done building and installing Gnu Radio
GRC freedesktop icons install ...Done
Done function gnuradio_build at: Sun Feb 1 15:43:18 MST 2015
Starting function rtl_build at: Sun Feb 1 15:43:18 MST 2015
Building rtl-sdr...Done building rtl-sdr
Building hackrf...Done building hackrf
Building gr-iqbal...Done building gr-iqbal
Building bladerf...Done building bladerf
Done building airspy
Building gr-osmosdr...Done building gr-osmosdr
Done building/installing rtl-sdr/gr-osmosdr
Done function rtl_build at: Sun Feb 1 15:48:12 MST 2015
Starting function extras at: Sun Feb 1 15:48:12 MST 2015
Doing GIT checkout for extra module gr-baz
Building extra module gr-baz
viby@Lena: ~
```

Finally successfully completed. Note the time 15:53:53 (A bit longer than the minimum because the script had to wait for my input).



```
Ubuntu [Running] - Oracle VM VirtualBox
Machine View Devices Help
viby@Lena: ~
*****
You should probably set your PYTHONPATH to:

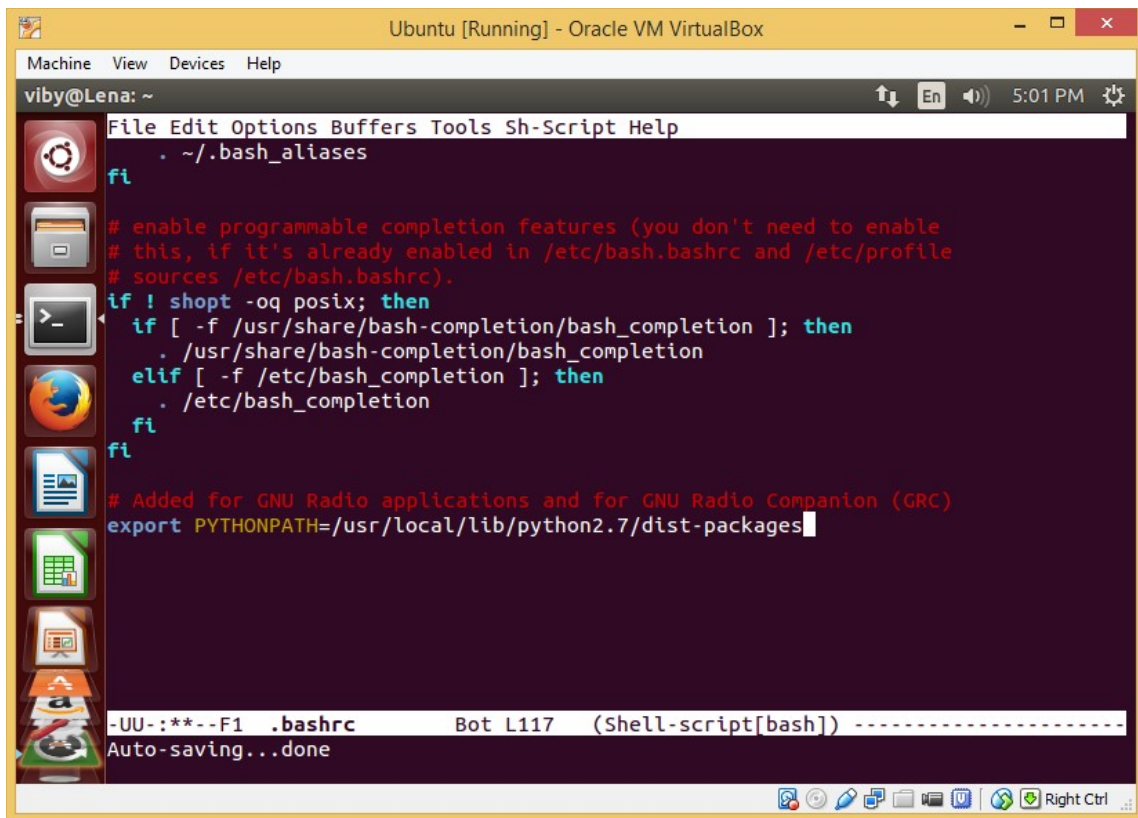
/usr/local/lib/python2.7/dist-packages

Using:
export PYTHONPATH=/usr/local/lib/python2.7/dist-packages

in your .bashrc or equivalent file prior to attempting to run
any Gnu Radio applications or Gnu Radio Companion.
*****
Done function pythonpath at: Sun Feb 1 15:53:53 MST 2015
Done all functions at: Sun Feb 1 15:53:53 MST 2015
All Done

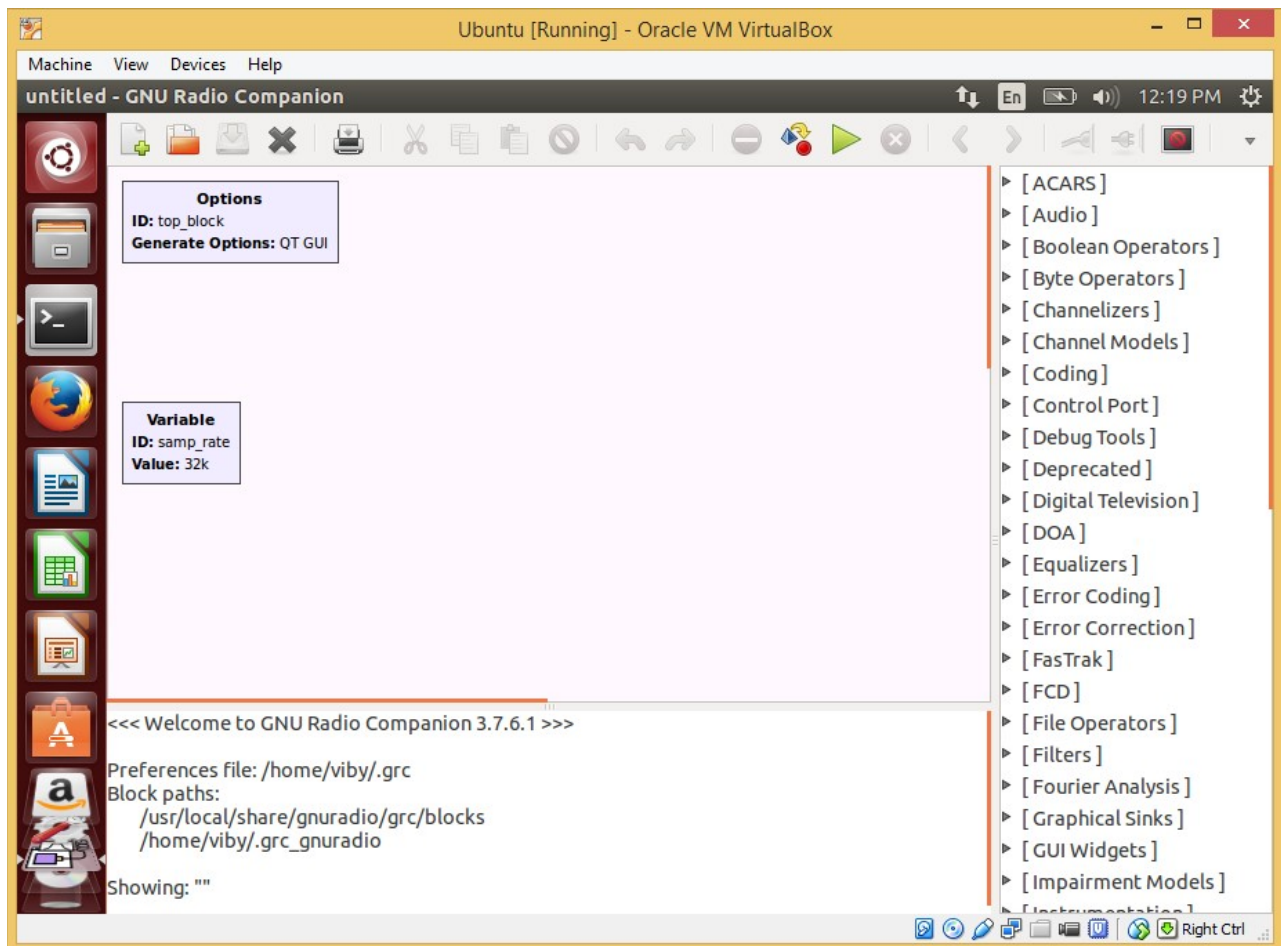
=====
If you have found this script useful and time-saving, consider a
donation to help me keep build-gnuradio, simple_ra, SIDSuite,
meteor_detector, simple_fm_rcv, and multimode maintained and up to date.
A simple paypal transfer to mleeche@ripnet.com is all you need to do.
=====
Send success/fail info to sbrac.org?y
Thanks
viby@Lena:~$
```

The final thing to do is to add PYTHONPATH at the end of the .bashrc file. I did this using the emacs editor (install using `sudo apt-get install emacs24` in a command-line terminal), but you can also use the gedit text editor (use a command-line terminal and type `gedit ~/.bashrc`).



```
Machine View Devices Help
viby@Lena: ~
File Edit Options Buffers Tools Sh-Script Help
. ~/.bash_aliases
fi
# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
  if [ -f /usr/share/bash-completion/bash_completion ]; then
    . /usr/share/bash-completion/bash_completion
  elif [ -f /etc/bash_completion ]; then
    . /etc/bash_completion
  fi
fi
# Added for GNU Radio applications and for GNU Radio Companion (GRC)
export PYTHONPATH=/usr/local/lib/python2.7/dist-packages
-UU-:***-F1 .bashrc Bot L117 (Shell-script[bash]) -----
Auto-saving...done
```

To run the GNURadio Companion (GRC) which provides the graphical user interface for GNURadio, type `gnuradio-companion` in a command-line terminal. You should see a window like the following.



Happy GNU Radio experimentation!

