

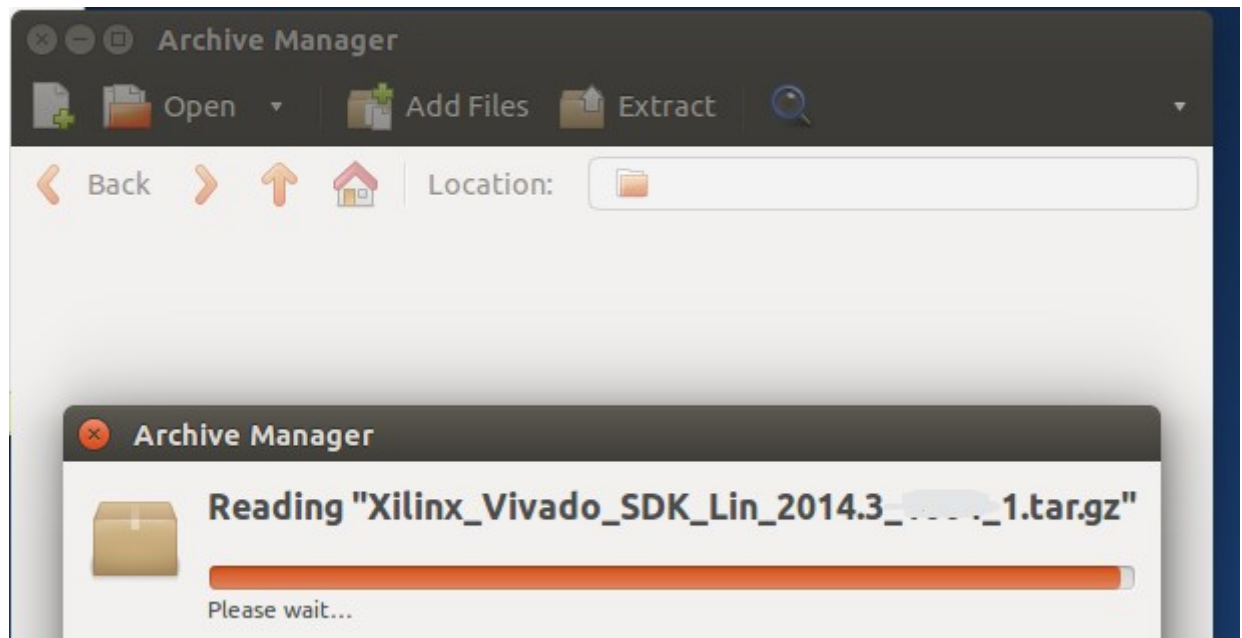
Vivado_2014.3 on Ubuntu 14.04.

Start here:

- Download the Linux Vivado tar.gz installation file.
- Most likely this file will be downloaded and stored in the **/Downloads** folder of your home directory.



- Browse into the **/Downloads** folder.
- Double click the Vivado install tar.gz file to load it into Ubuntu's Archive manager.



- Extract the file (I extracted it in the **/Downloads** folder and after installation of the tools delete the extracted Vivado tools folder).



- Double click the "Xilinx_Vivado_SDK ..." folder and dig into it.
- You will now view something as the picture below.



- The “xsetup” file is the file to execute in order to install the Vivado tools.

From this moment on leave the graphical tools for what they are and open a terminal window.

- Change directory to the folder with the “xsetup” file.
 - **cd ~/Downloads/Xilinx_Vivado_SDK_Lin_2014.3_<build_number>**
- A list command (**ls**) show us that we jumped to the correct place

```
batchxsetup  bin  lib  scripts  xsetup
batchxsetup.bat  data  payload  tps  xsetup.exe
```

Before starting anything, this:

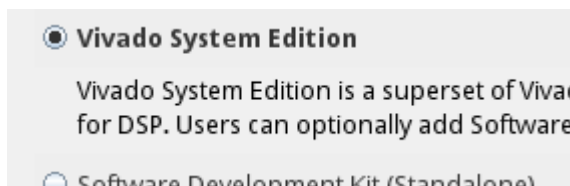
- Xilinx tools are best installed with root privileges.
- Why? Well:
 - The default install path given by the install tools is: **/opt/Xilinx**.
 - To be able to write something in the **/opt** folder one needs to have root privileges.
 - When installing the tools without root privileges and at the moment the cable drivers are installed, the installer will error out with the message that root privileges are necessary to install the cable drivers.
 - Thus: Install the tools with root privileges.
- I'm writing to install the tools with root privileges and not as root because the root user is by default not accessible in Linux.
 - Ubuntu has a root user, that is a fact.
 - That root user is only accessible when somebody explicitly made it available.
 - Performing actions as root are done through: **sudo** (Super User DO).
 - To be able to perform actions as 'sudo' one must be part of the '**sudoers**' list. The 'sudoers' list (file) can be found in the **/etc** folder.
 - How can I get on that list? or am I already on that list?
 - When you are the only user of the PC running Ubuntu, it is most likely that you have sudo rights.
 - When the PC is a company PC, it is very likely you don't have sudo rights.
 - To get add to the sudoers list ask your system administrator.
 - Generally to add somebody to the sudoers list do following:#
 - In a terminal window type:
 - **sudo visudo** (provide passwod when asked).
 - Search for a line that looks like this: '**root ALL=(ALL:ALL) ALL**'
 - Just below that line type: '**newuser ALL=(ALL:ALL) ALL**'
 - *Newuser* is the login name of the user that needs sudo rights.
 - Save and close the file by: 'CTRL X' followed bt 'Y' [ENTER].
 - Logout and log back in to make the setting effective.

Let us install the Xilinx Vivado tools now.

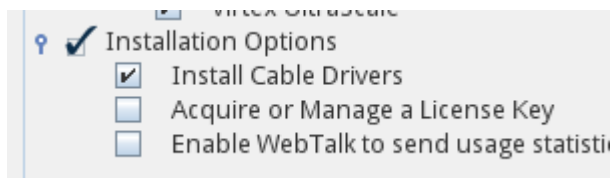
- Change directory to the folder with the “xsetup” file.
 - `cd ~/Downloads/Xilinx_Vivado_SDK_Lin_2014.3_<build_number>`
- Type:
 - `sudo ./xsetup` (provide password when asked).
- The Xilinx Vivado graphical install tool will now start.



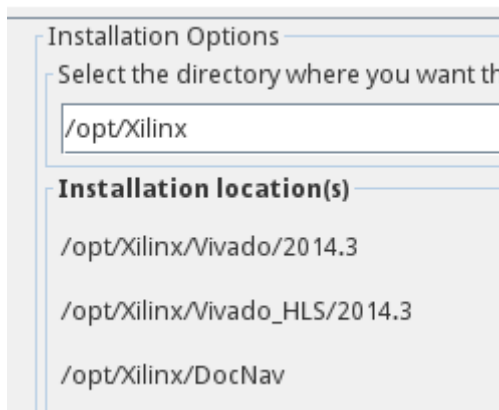
- Click [Next]
- Tick the three voting boxes when you agree with the conditions and click [Next]
- Select the installation you want to perform, Showed here is an installation for a “Vivado System Edition” and click [Next].



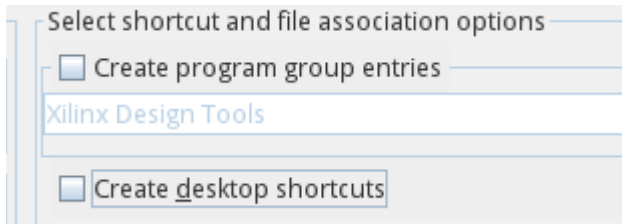
- Select the options you want to install or leave everything as it is.
- Here the “Installed Options” are changed to:



- Click [Next]
- The now presented window shows where the tools are going to be installed.
- For the “Installation Options” I've left it to the default setting.



- Deselected at the right side in the “Select shortcut and file association options” section the tick boxes.



- Why this instruction?
- Well:
 - When leaving the tick boxes selected, the program groups and desktop shortcuts will be created in the 'real' root user's directory. So there will be groups and icons but nobody will be able to use them.
 - Thus better not create anything.
- Click [Next].
- Click [Install] when you are happy with what the tools present as 'going to be installed', else go back and modify what's not correct.

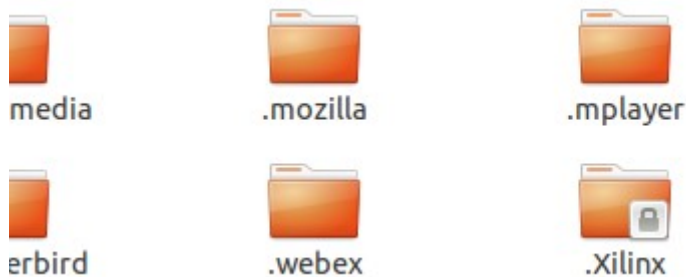
Wait till the installation is finished.

Check the installation:

- Open a Nautilus file window and check graphically the installation.
- Browse to the **/opt/Xilinx** folder and view what's installed.



- REMARK:
 - The **.xinstall** folder is normally not visible!
 - Make it visible by pressing: CTRL H (CTRL H again return the file hidden).
- The Vivado installation also dropped things in our **/home** folder.
- What the installed dropped in our home folder is hidden.
- Browse to your home folder and press CTRL H
- Then a **~/Xilinx** folder will become visible.



- Notice that in the bottom-right corner of the folder icon the emblem of a LOCK is visible.
- That means that the **~/Xilinx** folder is created by root and has root privileges.
- What does this mean?
- Well:
 - When Vivado is started as normal user, it will produce a lot of errors and warnings about files it can't access and modify.
- The it is necessary to interfere and modify the installation!

Absolute Necessary Modifications:

- Change the owner and group of the `~/Xilinx` folder and all its sub-folders.
- Open a terminal window.
- Change to your home directory "`cd ~`".
- Type:
 - **`sudo chgrp -R <your-user-name>.Xilinx`** (provide password when asked)
 - **`sudo chown -R <your-user-name> .Xilinx`**
- The lock emblem is now gone from `~/Xilinx` and all sub-folders and Vivado will start without problems.
- To be able to start Vivado with all whistles and bells, paths and environment variables need to be set.
- Open a terminal and browse to your home directory.
- Type:
 - **`gedit .bashrc`** (or double click the icon in Nautilus)
 - Add following at the end of the file:
 - **`./opt/Xilinx/Vivado/2014.3/settings64.sh`**
 - **`export XILINXD_LICENSE_FILE=/home/<username>/.Xilinx/Xilinx.lic`**
 - The first line calls a hidden file in the Xilinx installation to set all necessary paths and environments.
 - The second line sets the path to the license file for Vivado.
 - The license file is available in the hidden `~/Xilinx` folder.

Vivado can be started!

- Note that there are no icons nor program groups you can click on to start Vivado!
- It can only be started from the command line of a terminal.
- Thus:
 - Open a terminal.
 - Browse to the directory where your design resides.
 - Type:
 - **`vivado &`**
 - The Vivado GUI tool will start after a few seconds.

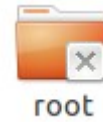
```
marc@Latitudeium: ~/Workspace
marc@Latitudeium:~$ cd Workspace/
marc@Latitudeium:~/Workspace$ vivado &
[1] 13720
marc@Latitudeium:~/Workspace$
***** Vivado v2014.3 (64-bit)
**** SW Build 1034051 on Fri Oct  3 16:31:15 MDT 2014
**** IP Build 1028902 on Fri Sep 26 17:35:13 MDT 2014
** Copyright 1986-2014 Xilinx, Inc. All Rights Reserved.

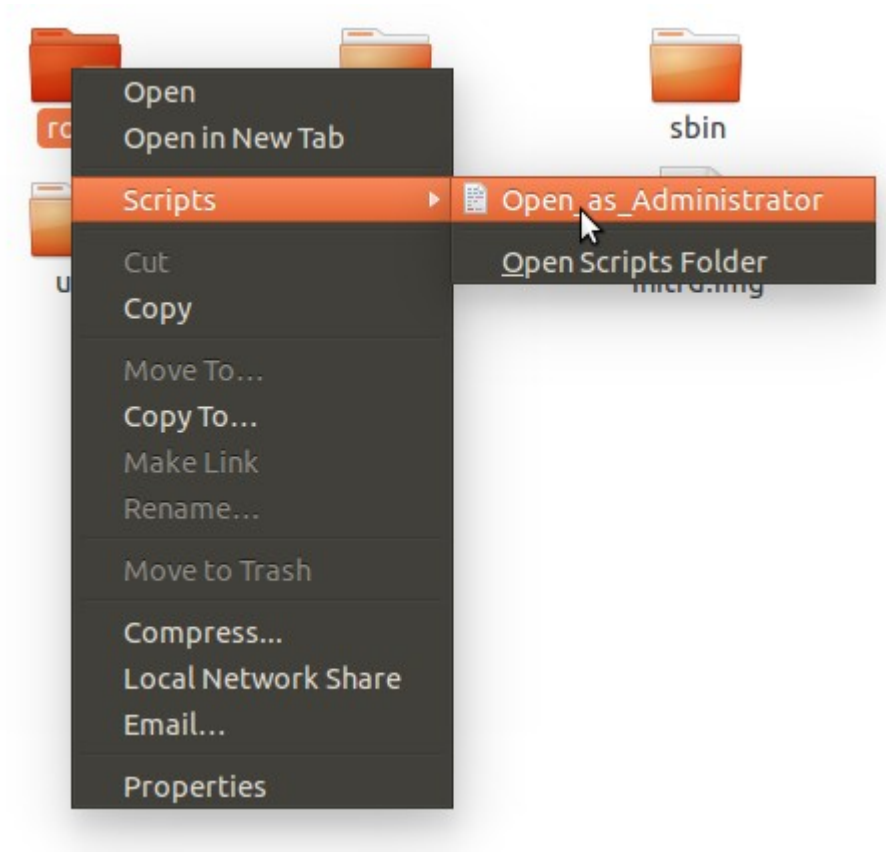
start_gui

```

Something extra about sudo and root

- Yes, as written earlier there is a root user in Linux, it is just hidden.
 - Open nautilus and display the contents of 'computer'
 - There is a root icon but it's not accessible.
- Maybe good to know it that it is possible to run tools and other as root/administrator from withing the nautilus file viewer.
- To enable this possibility, do this:
 - Open a terminal and type:
 - **sudo add-apt-repository ppa:noobslab/apps**
 - **sudo apt-get update**
 - **sudo apt-get install open-as-administrator**
 - **nautilus -q**
- When opening a nautilus browser there is now the option at right click to start or open something as administrator.

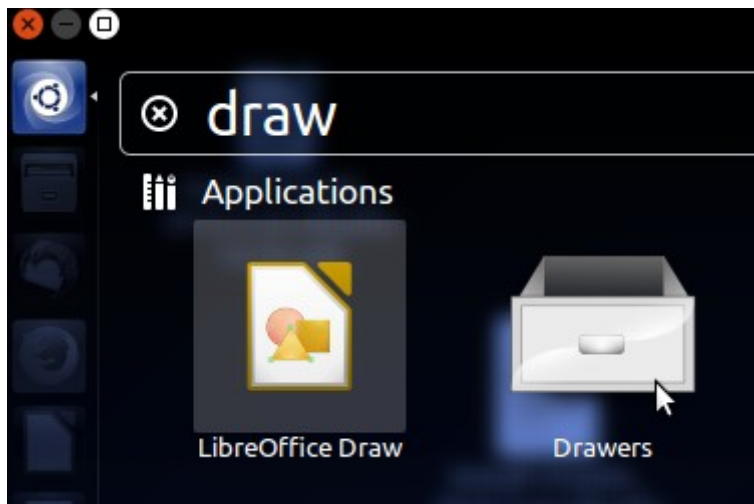




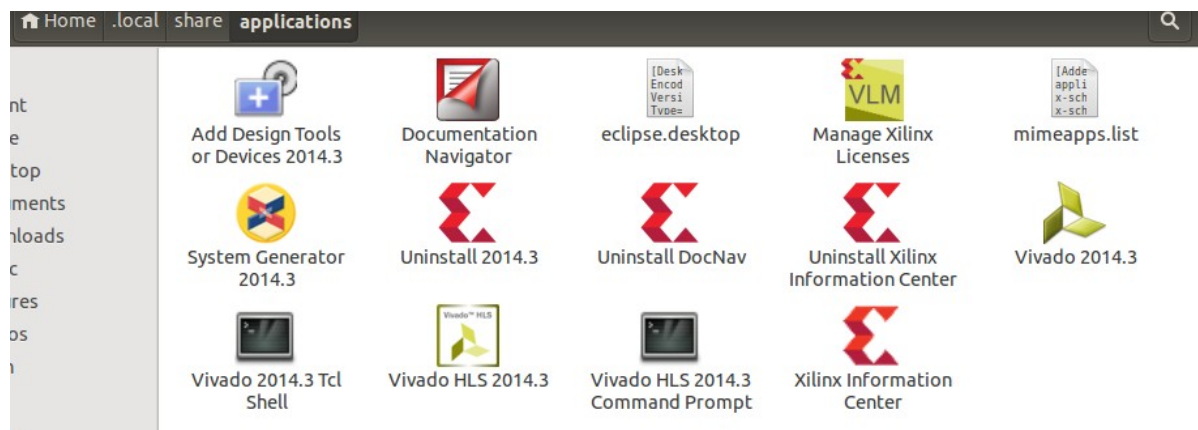
- Do as the figure shows:
 - select the root folder.
 - Right click with the mouse and select:
 - Scripts → Open_as_Administrator.
 - Provide the password.
- Examine what's in the root folder.
 - There is not much.
 - Hit CTRL H to make hidden files visible and look now.
 - There is a **.Xilinx** folder, but it is not used at all.

How can I get icons for Vivado?

- There is a tool to help you make icons and more, it is called "Drawers".
- To install it open a terminal and type:
 - **sudo add-apt-repository ppa:ian-berke/ppa-drawers**
 - **sudo apt-get update**
 - **sudo apt-get install drawers**
- Click the 'Dash' icon and type 'Draw...'
- While typing the icon to start Drawers is displayed.
- Click the icon.



- Experiment with the little tool
 - Give the maker some credit when you like it!
- Here are some hints for drawers you can make:
 - <http://www.youtube.com/watch?v=Z1mtldm3omk>
- Last thing I want to say about this:
 - The files drawers generate are dropped in the folder:
 - **~/.local/share/applications**
 - The files are so called .desktop files.
 - Here a quick peek:



08 October 2014.
Marc Defossez