

How to install ROS (Robot Operating System)

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Extracted from the web pages listed below

Prerequisites:

- You have installed and are running Ubuntu 12.04 LTS (Long Term Support).
- You are connected to the Internet. (Wired may be best.)
- You know how to do the following in Ubuntu:
 - Locate files, including those that begin with a slash.
 - Edit and create files, including “dot” files. Consider *gedit*?
 - Copy and paste text.
 - Open a Terminal window. (Control-Alt-T.)
 - Use a Terminal window to execute commands:
 - What a “command” is
 - What “arguments” are
 - What “options” are. The dash character.
 - Up-arrow and other shortcuts.
 - The meaning of the special characters / . .. ~ in filenames.
 - What a “shell” is, what it means to “launch” one
 - Use **sudo** (*Super-User DO*), including entering passwords.
 - Open Ubuntu things like the Ubuntu Software Center.

The following instructions are extracted from:

<http://wiki.ros.org/hydro/Installation/Ubuntu>

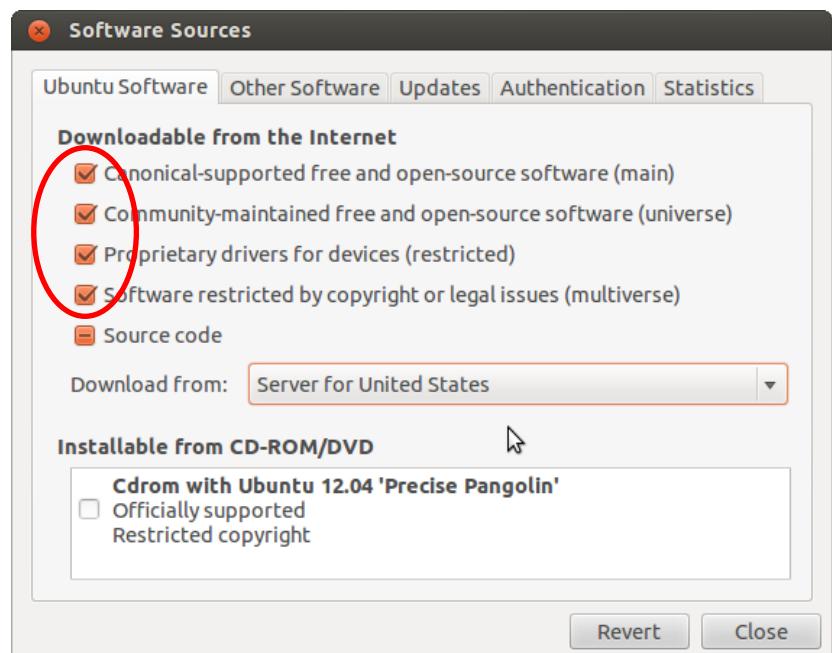
1. Configure your Ubuntu repositories

Configure your Ubuntu repositories to allow *restricted*, *universe* and *multiverse*. Here are instructions for how to do so, but you can visit:

<https://help.ubuntu.com/community.Repositories/Ubuntu>

if you want a more detailed explanation.

- a. Open the **Ubuntu Software Center**.
- b. From the **Edit** menu select “**Software Sources**.” You may have to enter your password to change settings in this window.
- c. **Check the first 4 boxes** as shown in the picture below:
- d. Select **Close** to save your changes. A dialog box may appear asking whether you would like to update the list of



repositories. If so, select **Reload** to update the list.



2. Setup your *sources.list*

Set up your computer to accept software from packages.ros.org. To do so, create the following file:

```
/etc/apt/sources.list.d/ros-latest.list
```

and put the following line into it:

```
deb http://packages.ros.org/ros/ubuntu precise main
```

3. Set up your keys

Set up your “keys” that allow ROS to install software. To do so:

In a Terminal window, type:

```
wget http://packages.ros.org/ros.key -O -  
| sudo apt-key add -
```

Note: This is a SINGLE line; throughout, I use indentation to indicate line-continuation in this document.

4. Installation

Do the actual installation of ROS. To do so, type the following two commands in a Terminal window. Each may take several (many?) minutes. The first command updates the file that Ubuntu uses to get software. The second command downloads the ROS files.

```
sudo apt-get update  
sudo apt-get install ros-hydro-desktop-full
```

From the above: Understand NOW what apt-get does in general. Ask questions as needed!

5. Initialize rosdep

Before you can use ROS, you will need to initialize **rosdep**, a tool that enables you install system dependencies for source code that

you want to compile. It is required to run some core components in ROS. To initialize rosdep, type in a Terminal window:

```
sudo rosdep init
```

```
rosdep update
```

6. Environment setup

ROS expects certain environment variables. Rather than set their values every time you want to use ROS, it is convenient to have them automatically set for you every time you open a Terminal window (more precisely, every time a new shell is launched). To do this setup:

Open the file: ~/.bashrc

At the end of that file, *add the line:*

```
echo "source /opt/ros/hydro/setup.bash"
```

Then, just this once, run that file so that the changes take effect immediately (in your current *Terminal* window), as follows:

```
source ~/.bashrc
```

From the above: Understand NOW what echo and source do in general. Ask questions as needed!

7. Getting rosinstall

rosinstall is a frequently used command-line tool in ROS that is distributed separately. It enables you to easily download many source trees for ROS packages with one command. To get this tool, type in a Terminal window:

```
sudo apt-get install python-rosinstall
```