**Instructions for setup the ROS Noetic Environment**

**These instructions are for ubuntu Platform.**

Reference: <http://wiki.ros.org/noetic/Installation/Ubuntu>

1. **Installation**

* Configure your Ubuntu repositories.
* **Setup your sources. List**

Setup your computer to accept software from packages.ros.org.

* sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb\_release -sc) main" > /etc/apt/sources.list.d/ros-latest.list'

Set up your keys

* sudo apt-key adv --keyserver 'hkp://keyserver.ubuntu.com:80' --recv-key C1CF6E31E6BADE8868B172B4F42ED6FBAB17C654

If you experience issues connecting to the keyserver, you can try substituting hkp://pgp.mit.edu:80 or hkp://keyserver.ubuntu.com:80 in the previous command.

Alternatively, you can use curl instead of the apt-key command, which can be helpful if you are behind a proxy server:

* curl -sSL 'http://keyserver.ubuntu.com/pks/lookup?op=get&search=0xC1CF6E31E6BADE8868B172B4F42ED6FBAB17C654' | sudo apt-key add -
* **Installation**

First, make sure your Debian package index is up to date:

* sudo apt update

Now pick how much of ROS you would like to install.

* **Desktop-Full Install: (Recommended)**: Everything in **Desktop** plus 2D/3D simulators and 2D/3D perception packages.
  + sudo apt install ros-noetic-desktop-full
* **Desktop Install:**Everything in **ROS-Base** plus tools like rqt and rviz
  + sudo apt install ros-noetic-desktop
* **ROS-Base: (Bare Bones)** ROS packaging, build, and communication libraries. No GUI tools.
  + sudo apt install ros-noetic-ros-base

There are even more packages available in ROS. You can always install a specific package directly.

* sudo apt install ros-noetic-PACKAGE

e.g.

sudo apt install ros-noetic-slam-gmapping

To find available packages, see [ROS Index](https://index.ros.org/packages/page/1/time/#noetic) or use:

apt search ros-noetic

Environment setup

You must source this script in every **bash** terminal you use ROS in.

source /opt/ros/noetic/setup. Bash

It can be convenient to automatically source this script every time a new shell is launched. These commands will do that for you.

**Bash**

If you have more than one ROS distribution installed, ~/.bashrc must only source the setup.bash for the version you are currently using.

echo "source /opt/ros/noetic/setup.bash" >> ~/.bashrc

source ~/.bashrc

**zsh**

echo "source /opt/ros/noetic/setup.zsh" >> ~/.zshrc

source ~/.zshrc

* **Dependencies for building packages**

Up to now you have installed what you need to run the core ROS packages. To create and manage your own ROS workspaces, there are various tools and requirements that are distributed separately. For example, [rosinstall](http://wiki.ros.org/rosinstall) is a frequently used command-line tool that enables you to easily download many source trees for ROS packages with one command.

To install this tool and other dependencies for building ROS packages, run:

sudo apt install python3-rosdep python3-rosinstall python3-rosinstall-generator python3-wstool build-essential

Initialize rosdep

Before you can use many ROS tools, you will need to initialize rosdep. rosdep enables you to easily install system dependencies for source you want to compile and is required to run some core components in ROS. If you have not yet installed rosdep, do so as follows.

sudo apt install python3-rosdep

With the following, you can initialize rosdep.

sudo rosdep init

rosdep update