

Tutorial 0: Installing the Robot Operating System (ROS)

The UVA F1/10 Autonomous Racing Team

Note: If using Ubuntu 20.04 please install ROS Noetic instead of ROS Melodic. Follow the instructions on the ROS Noetic wiki:

Installing ROS Melodic on Ubuntu 18.04 LTS (Bionic)

This tutorial assumes that the host OS on which ROS Melodic is to be installed is Ubuntu 18.04 LTS.

This tutorial offers a very concise walkthrough of the ROS Installation. For a detailed step-by-step explanation of the commands used, please visit the [<http://wiki.ros.org/melodic/Installation/Ubuntu>]

The steps listed below install the **'Desktop-Full'** ROS Melodic distribution.

This means that tools like Gazebo, rViz along with a large number of ROS packages are installed as well.

Again, this is a very brief guide and if there is any problem at any step please visit the link above.

- Configure your Ubuntu repositories to allow "restricted," "universe," and "multiverse." You can follow the [Ubuntu guide](#) for instructions on doing this.

Execute the following commands/steps in the terminal one after the other:

- `sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main" > /etc/apt/sources.list.d/ros-latest.list'`
- `sudo apt install curl`
- `curl -s https://raw.githubusercontent.com/ros/rosdistro/master/ros.asc | sudo apt-key add -`
- `sudo apt-get update`
- `sudo apt install ros-melodic-desktop-full`
- `echo "source /opt/ros/melodic/setup.bash" >> ~/.bashrc`
- `source ~/.bashrc`
- `sudo apt install python-rosdep python-rosinstall python-rosinstall-generator python-wstool build-essential`
- `sudo rosdep init`
- `rosdep update`

You should now have ROS Melodic on your system.

To confirm this open a new terminal and type the following:

```
printenv | grep ROS*
```