

ROS Installation Guide

Steps to install ROS noetic in ubuntu 20 :

1. Open terminal and execute the following commands.
2. `sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main" > /etc/apt/sources.list.d/ros-latest.list'`
3. `sudo apt install curl`
4. `curl -s https://raw.githubusercontent.com/ros/rosdistro/master/ros.asc | sudo apt-key add -`
5. `sudo apt update`
6. `sudo apt install ros-noetic-desktop-full`
** step 6 will take some time.
7. `source /opt/ros/noetic/setup.bash`
8. `roscore`

Now the ros is successfully installed if there are no errors.

To check if ROS is installed, press ctrl+c to stop roscore and type : `rosversion -d`

```
nitdelhi@nitdelhi:~/Desktop$ rosversion -d
noetic
```

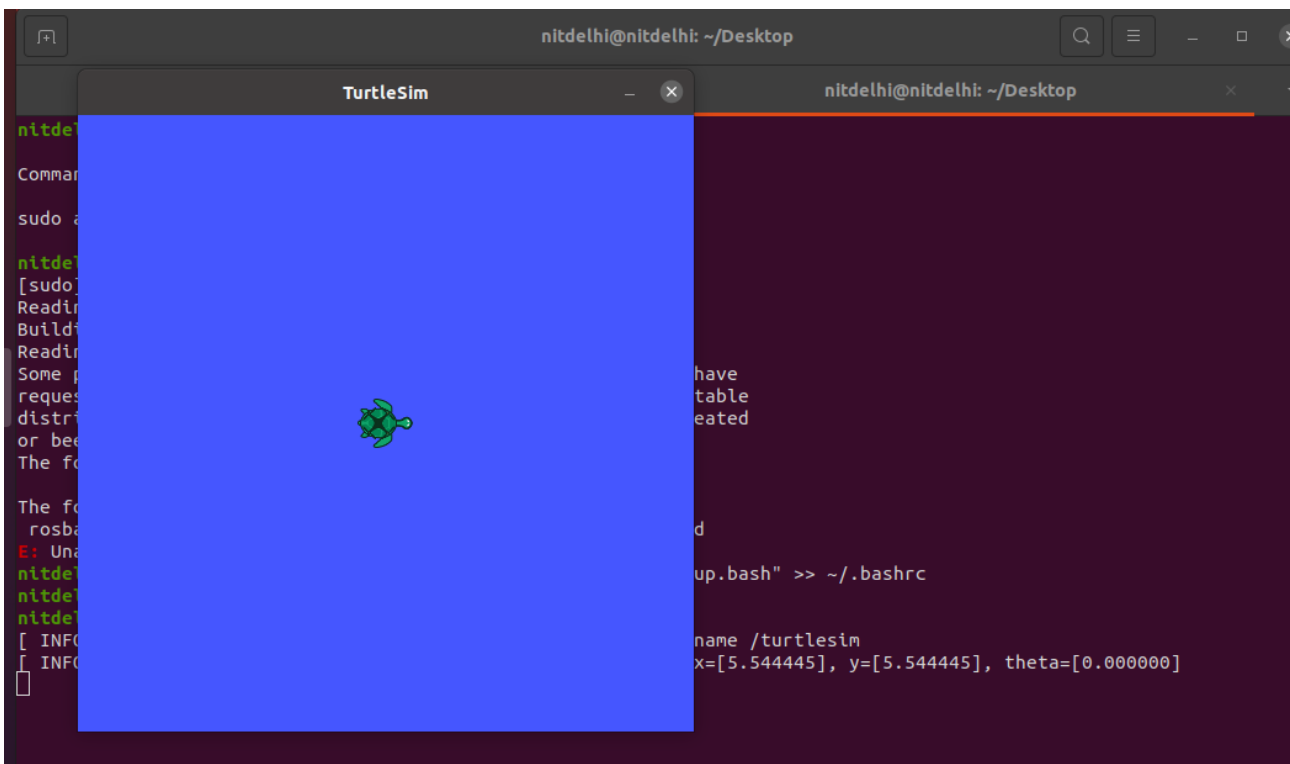
Now open new terminal and don't close the previous one.

In new terminal, enter the following commands:

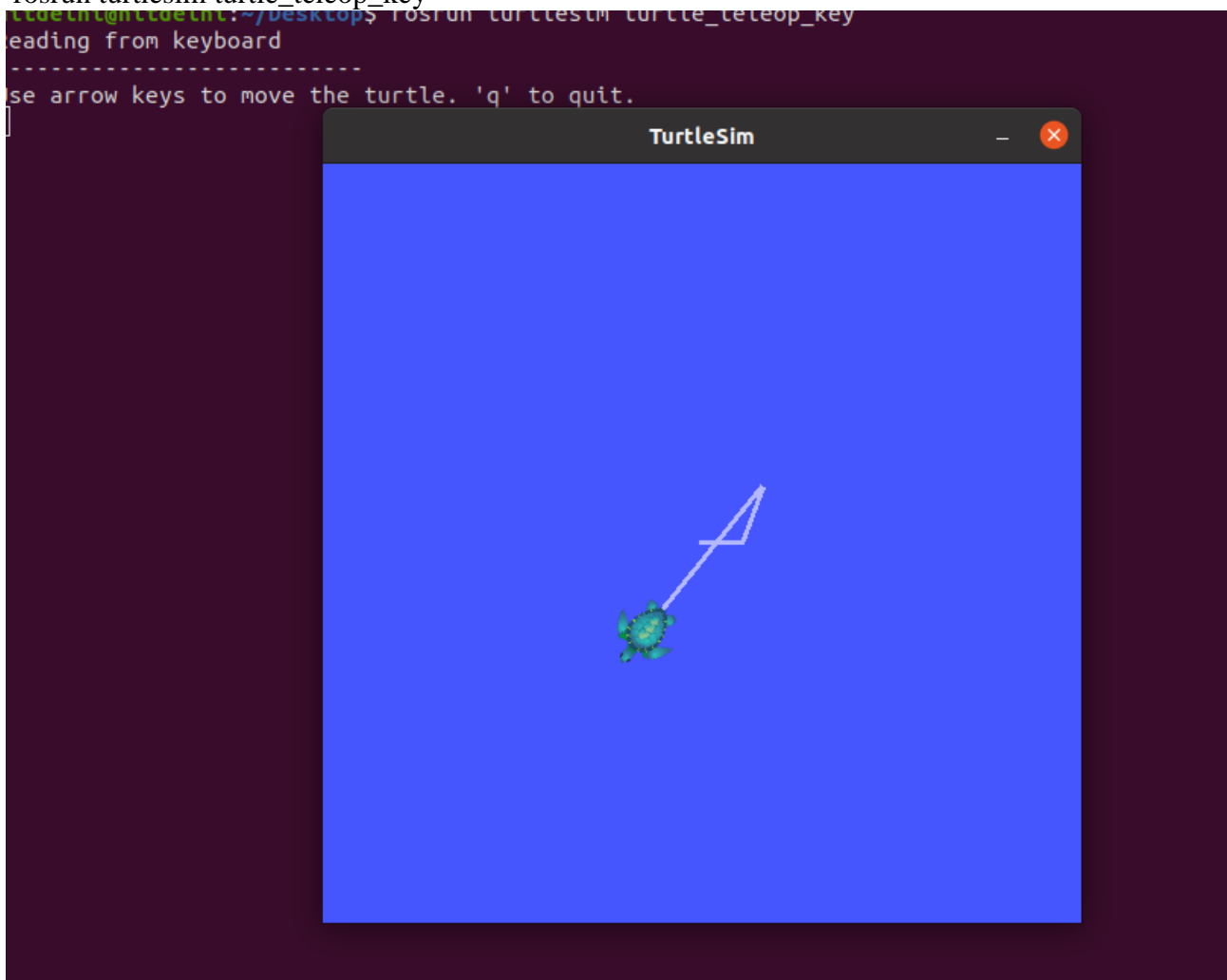
1. `echo "source /opt/ros/noetic/setup.bash" >> ~/.bashrc`
2. `source ~/.bashrc`

To setup and run turtlesim in ROS:

3. `roslaunch turtlesim turtlesim_node`

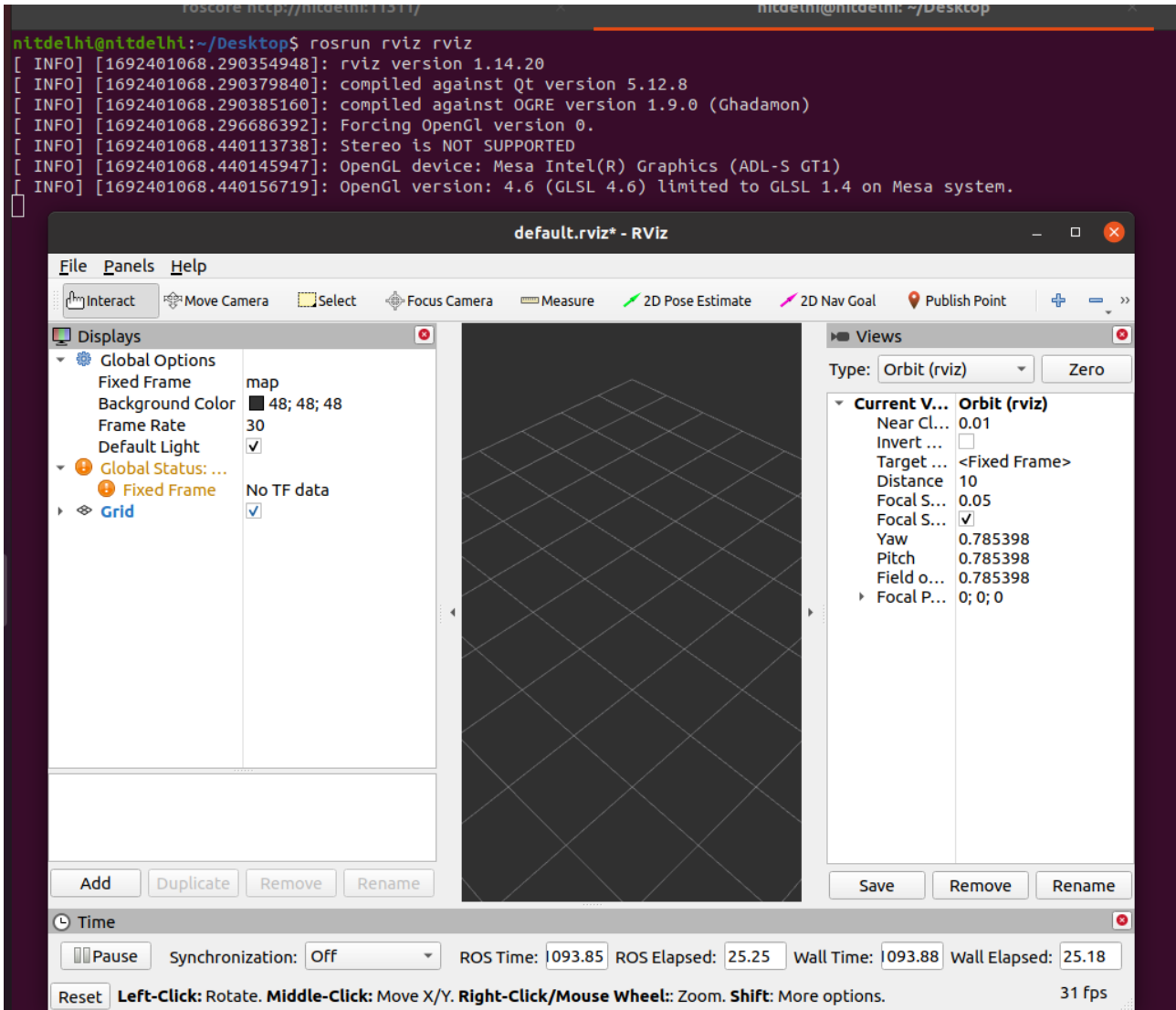


4. open new terminal and type:
rosrun turtlesim turtle_teleop_key



To run rviz in new terminal, type :

roslaunch rviz rviz



To run Gazebo:

```
sudo apt-get install ros-noetic-gazebo-ros-pkgs ros-noetic-gazebo-ros-control
```

or

using 'git':

```
sudo apt-get install git
```

```
git clone https://github.com/ros-simulation/gazebo_ros_pkgs.git -b noetic-devel
```

To run Turtlebot3:

```
export TURTLEBOT3_MODEL=burger
```

```
roslaunch turtlebot3_gazebo turtlebot3_world.launch
```

control key:

```
roslaunch turtlebot3_teleop turtlebot3_teleop_key.launch
```

for slam mapping:

```
roslaunch turtlebot3_slam turtlebot3_slam.launch slam_methods:=gmapping
```