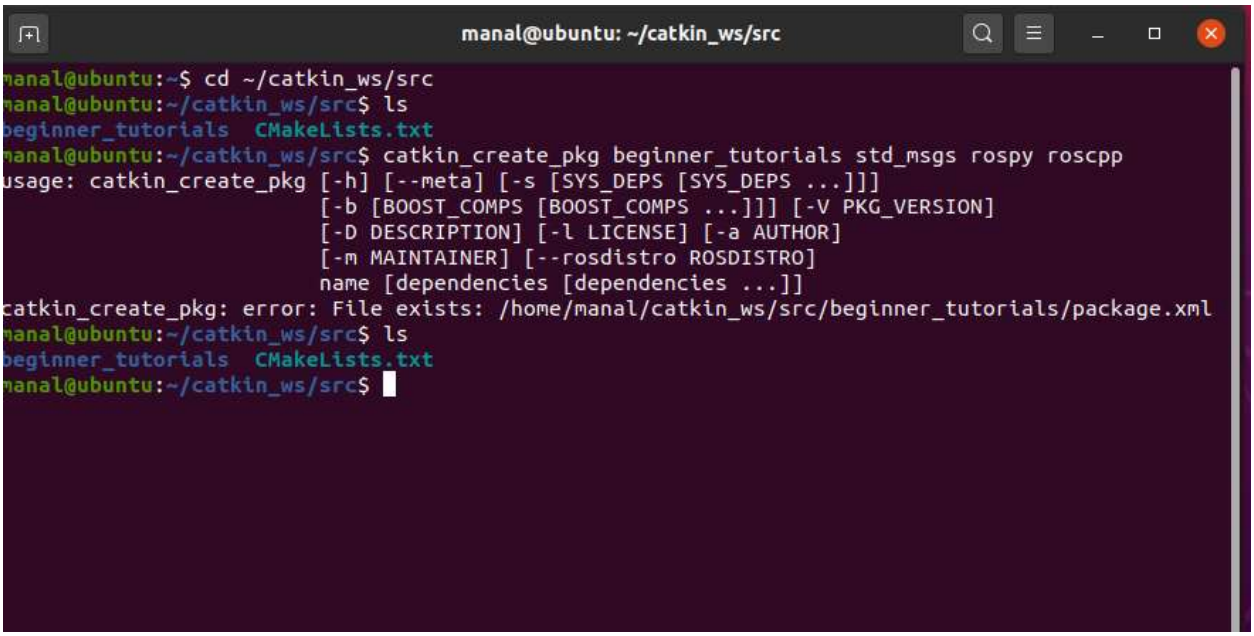
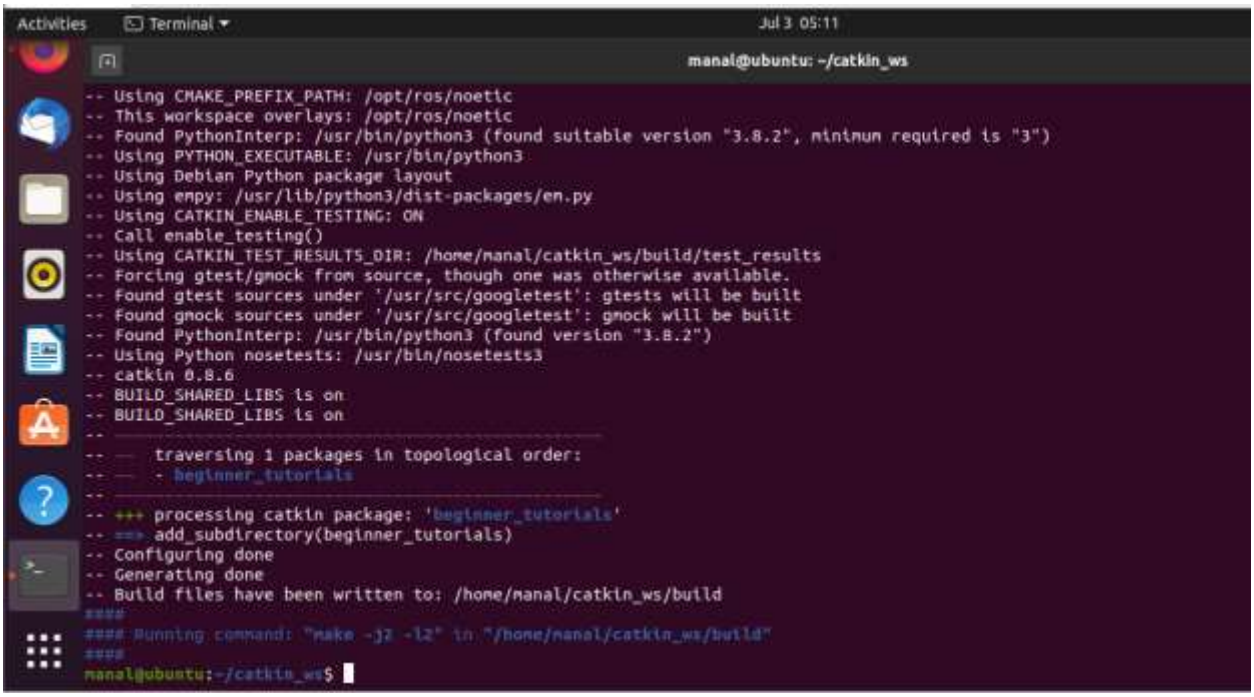
ROS packages and nodes

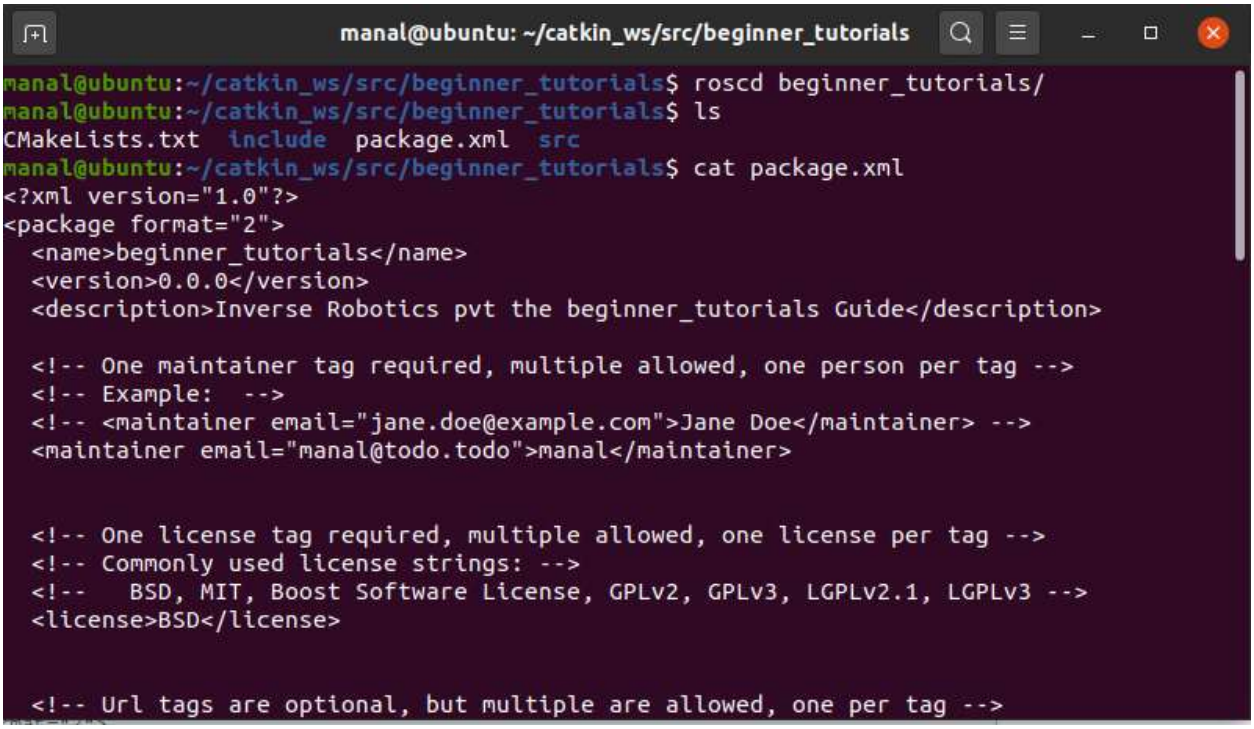
Creating a catkin Package

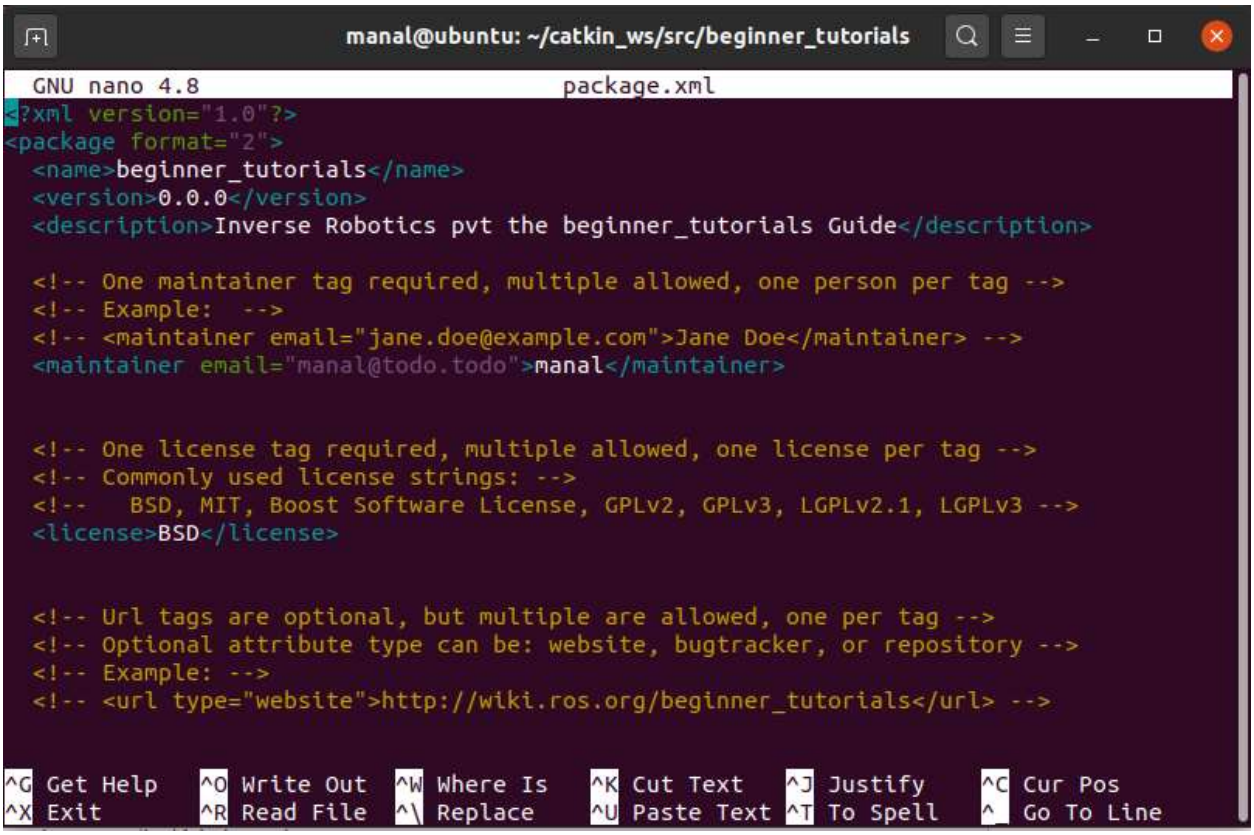


Building a catkin workspace and sourcing the setup file

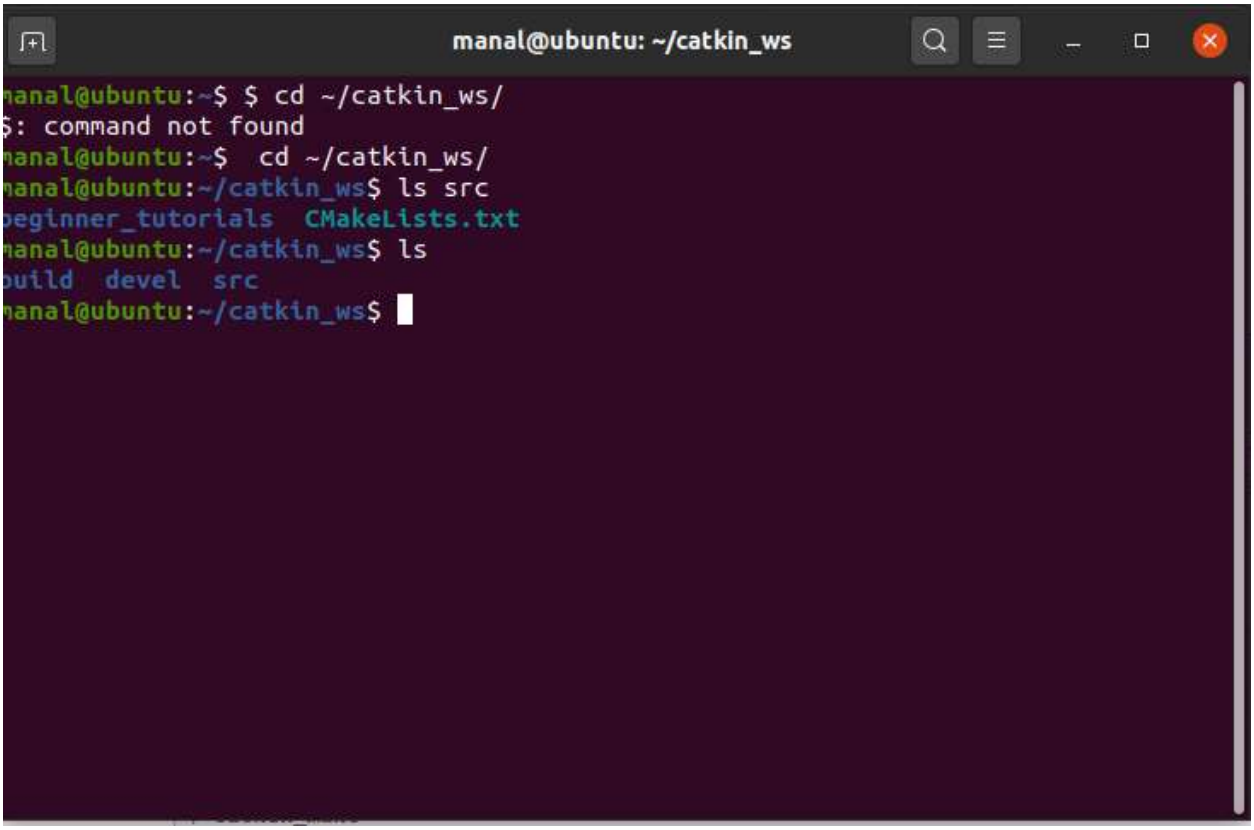


Customizing the package.xml





Building Your Package

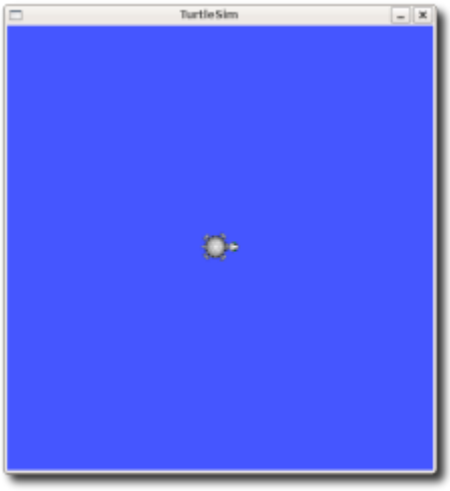


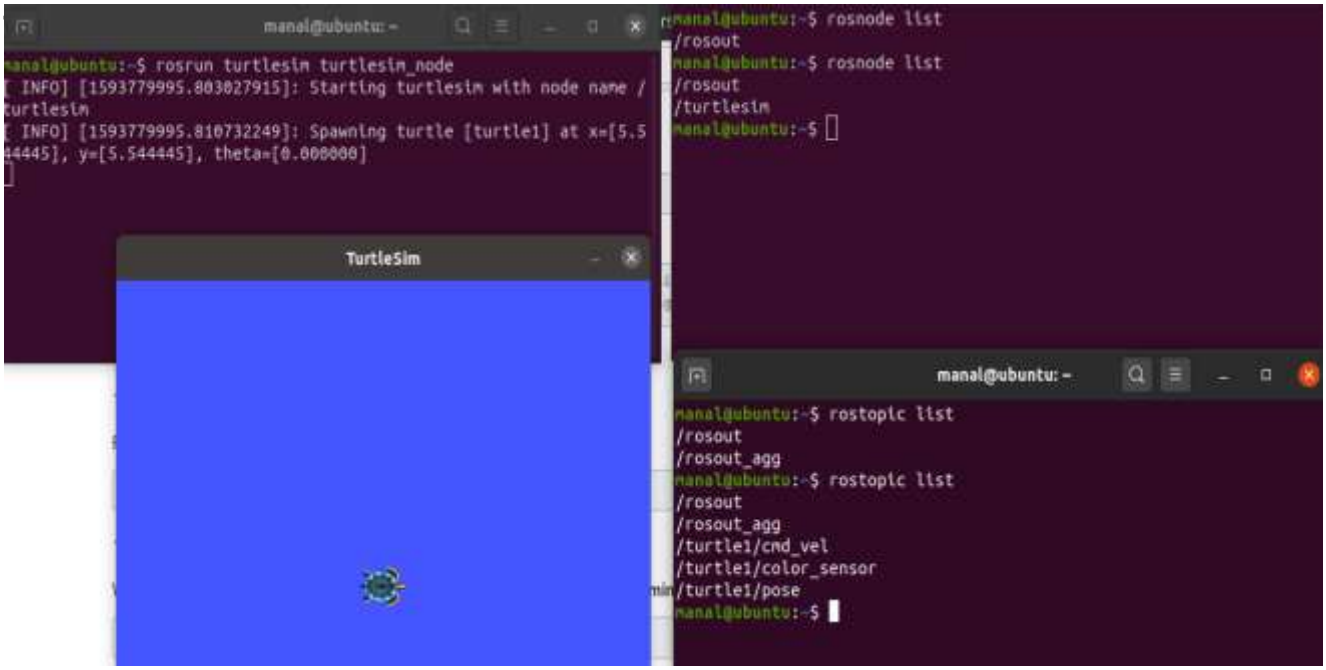
roscore

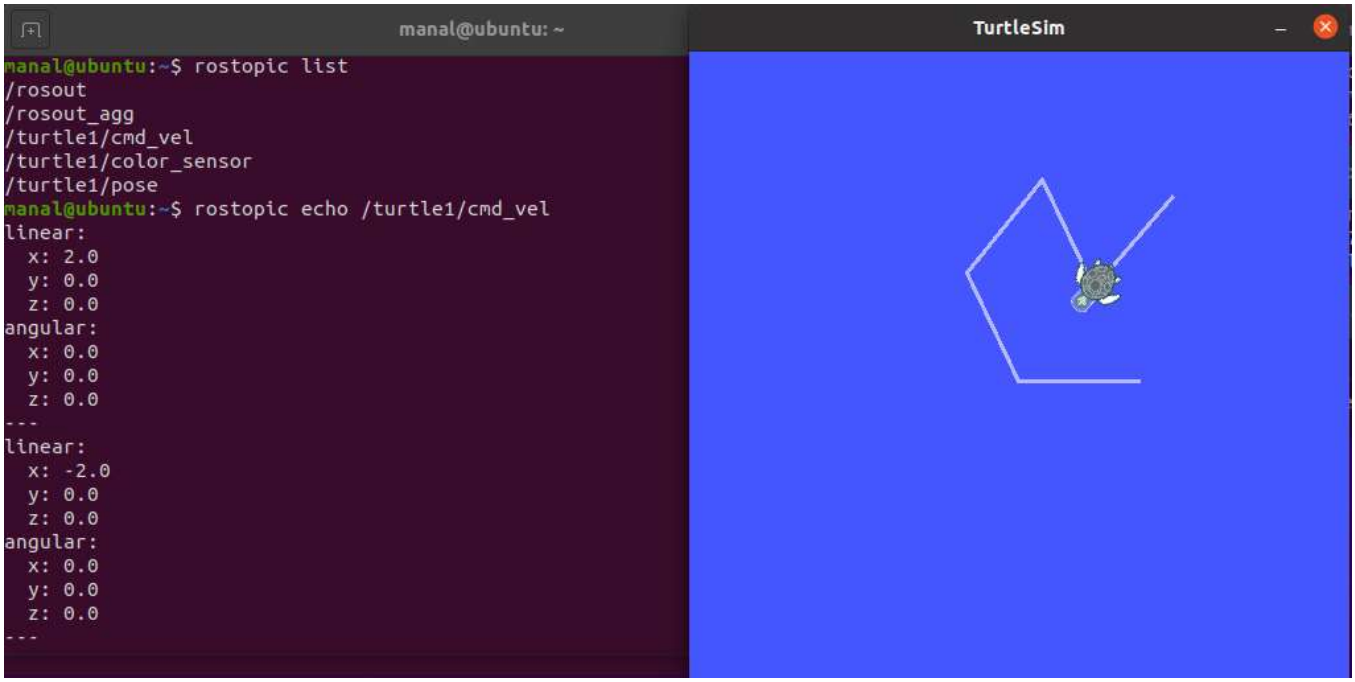
`rosnode` displays information about the ROS nodes that are currently running

rosrun turtlesim turtlesim_node: provides a simple simulator for teaching ROS concepts.

rosrun turtlesim turtle_teleop_key: use the arrow keys of the keyboard to drive the turtle around



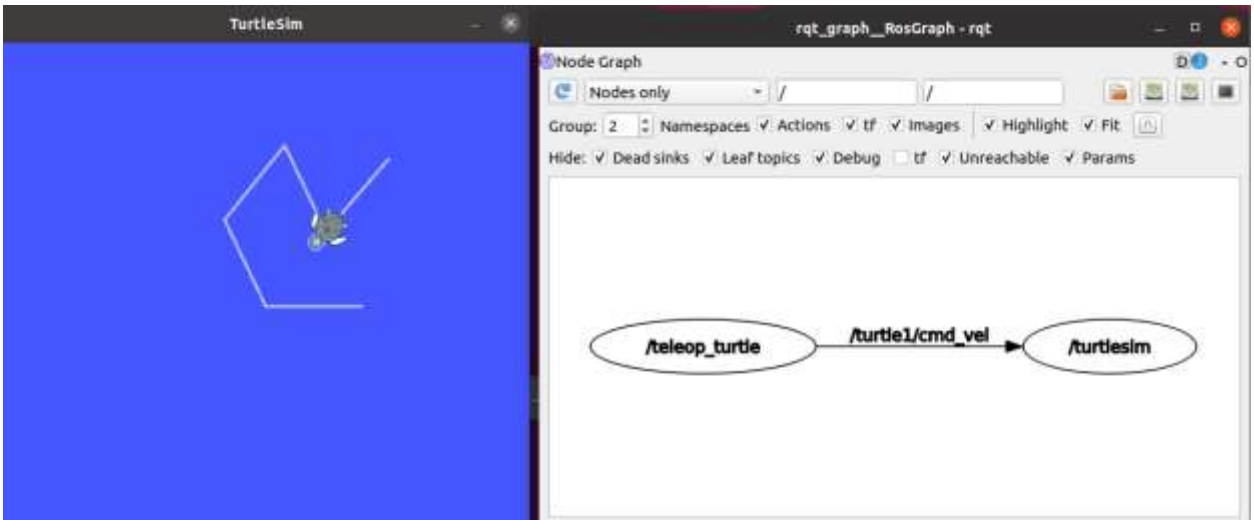

manal@ubuntu: ~
manal@ubuntu:~$ rosrun turtlesim turtlesim_node
[INFO] [1593779995.803027915]: Starting turtlesim with node name /turtlesim
[INFO] [1593779995.810732249]: Spawning turtle [turtle1] at x=[5.544445], y=[5.544445], theta=[0.000000]
TurtleSim
manal@ubuntu:~$ rosnode list
/rosout
manal@ubuntu:~$ rosnode list
/rosout
/turtlesim
manal@ubuntu:~$
manal@ubuntu: ~
manal@ubuntu:~$ rostopic list
/rosout
/rosout_agg
manal@ubuntu:~$ rostopic list
/rosout
/rosout_agg
/turtle1/cmd_vel
/turtle1/color_sensor
/turtle1/pose
manal@ubuntu:~$


manal@ubuntu: ~
manal@ubuntu:~$ rostopic list
/rosout
/rosout_agg
/turtle1/cmd_vel
/turtle1/color_sensor
/turtle1/pose
manal@ubuntu:~$ rostopic echo /turtle1/cmd_vel
linear:
x: 2.0
y: 0.0
z: 0.0
angular:
x: 0.0
y: 0.0
z: 0.0
---
linear:
x: -2.0
y: 0.0
z: 0.0
angular:
x: 0.0
y: 0.0
z: 0.0

TurtleSim

```
manal@ubuntu:~$ rosrun rqt_graph rqt_graph
```

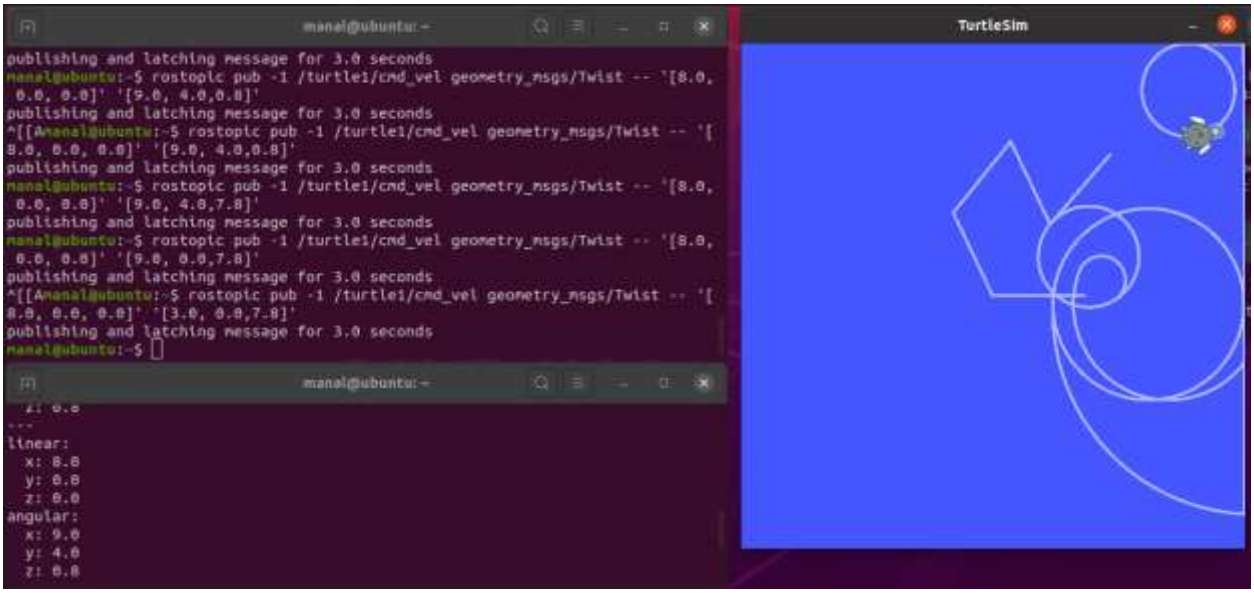
rqt_graph creates a dynamic graph of what's going on in the system. rqt_graph is part of the rqt package.




```
manal@ubuntu:~$ rostopic info /turtle1/cmd_vel
Type: geometry_msgs/Twist

Publishers:
 * /teleop_turtle (http://ubuntu:42221/)

Subscribers:
 * /turtlesim (http://ubuntu:33497/)
```


manal@ubuntu: ~
publishing and latching message for 3.0 seconds
manal@ubuntu:~$ rostopic pub -1 /turtle1/cmd_vel geometry_msgs/Twist -- '[8.0, 0.0, 0.0]' '[9.0, 4.0,0.8]'
publishing and latching message for 3.0 seconds
^[[Amanal@ubuntu:~$ rostopic pub -1 /turtle1/cmd_vel geometry_msgs/Twist -- '[8.0, 0.0, 0.0]' '[9.0, 4.0,0.8]'
publishing and latching message for 3.0 seconds
manal@ubuntu:~$ rostopic pub -1 /turtle1/cmd_vel geometry_msgs/Twist -- '[8.0, 0.0, 0.0]' '[9.0, 4.0,7.8]'
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manal@ubuntu:~$ rostopic pub -1 /turtle1/cmd_vel geometry_msgs/Twist -- '[8.0, 0.0, 0.0]' '[9.0, 0.0,7.8]'
publishing and latching message for 3.0 seconds
^[[Amanal@ubuntu:~$ rostopic pub -1 /turtle1/cmd_vel geometry_msgs/Twist -- '[8.0, 0.0, 0.0]' '[3.0, 0.0,7.8]'
publishing and latching message for 3.0 seconds
manal@ubuntu:~$
manal@ubuntu: ~
z: 0.0
---
linear:
x: 8.0
y: 0.0
z: 0.0
angular:
x: 9.0
y: 4.0
z: 0.0
TurtleSim