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See Turtlesim Guide TurtlesimControl_Kinetic on the CENG 5435 website

1. Where is turtlesim package?

```
harman@D104-45931:/opt/ros/kinetic/lib/turtlesim$ roscd turtlesim
harman@D104-45931:/opt/ros/kinetic/share/turtlesim$ ls
cmake gotogoal.py images msg package.xml srv
```

2. Where is turtlesim_node?

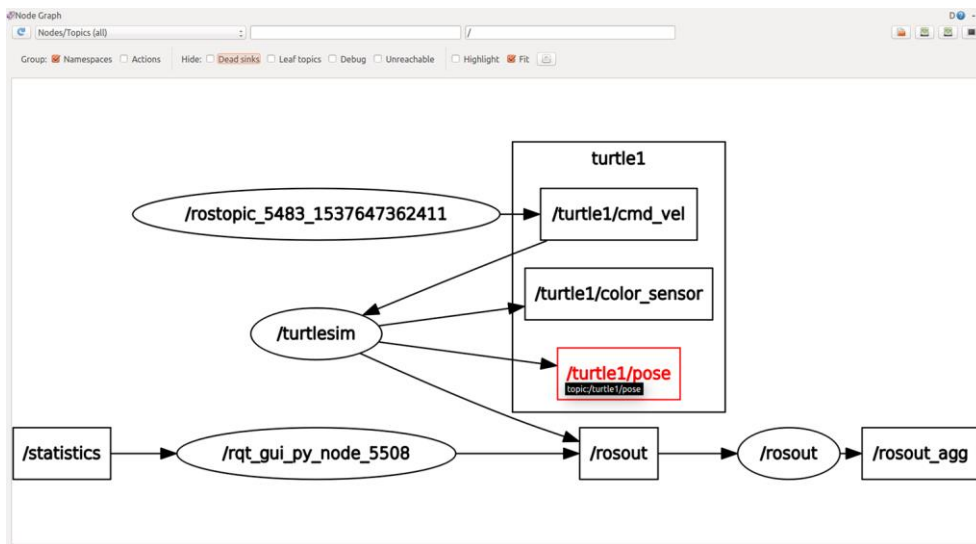
```
harman@D104-45931:/opt/ros/kinetic/lib/turtlesim$ ls -la
total 468
drwxr-xr-x  2 root root  4096 Jul 20  2017 .
drwxr-xr-x 189 root root 40960 Feb  5  2018 ..
-rwxr-xr-x  1 root root 76408 Jun 13  2017 draw_square
-rwxr-xr-x  1 root root 63976 Jun 13  2017 mimic
-rwxr-xr-x  1 root root 257336 Jun 13  2017 turtlesim_node
-rwxr-xr-x  1 root root 27176 Jun 13  2017 turtle_teleop_key
```

3. RUN TURTLE1 IN A CIRCLE

```
$ roscore
$ $ rostopic pub -r 1 /turtle1/cmd_vel geometry_msgs/Twist -- '[2.0, 0.0, 0.0]' '[0.0, 0.0, 1.8]'
```

4. RQT_GRAPH SHOW NODES AND TOPICS

```
$ $ rqt_graph
Note the selections Nodes/Topics (all) ; Deselect the Hide: stuff
```



5. \$ rostopic list

```
/rosout
/rosout_agg
/statistics
/turtle1/cmd_vel
/turtle1/color_sensor
/turtle1/pose
```

```

$ rostopic echo /rosout
header:
  seq: 1
  stamp:
    secs: 1537646477
    nsecs: 318554130
  frame_id: ""
level: 2
name: /turtlesim
msg: Spawning turtle [turtle1] at x=[5.544445], y=[5.544445], theta=[0.000000]
file: /tmp/binarydeb/ros-kinetic-turtlesim-0.7.1/src/turtle_frame.cpp
function: __cxx11::string turtlesim::TurtleFrame::spawnTurtle
line: 184
topics: ['/rosout', '/turtle1/pose', '/turtle1/color_sensor']
---
```

/statistics ??

6. \$ rqt

\$ \$ rqt -help [A long list]

\$ \$ rqt --list-plugins

```

create_dashboard.dashboard.CreateDashboard
kobuki_dashboard.dashboard.KobukiDashboard
rqt_action.action_plugin.ActionPlugin
rqt_bag.bag.Bag
rqt_console.console.Console
rqt_dep.ros_pack_graph.RosPackGraph
rqt_graph.ros_graph.RosGraph
rqt_image_view/ImageView
rqt_joint_trajectory_controller.joint_trajectory_controller.JointTrajectoryController
rqt_launch.launch_plugin.LaunchPlugin
rqt_logger_level.logger_level.LoggerLevel
rqt_moveit.moveit_plugin.MoveitPlugin
rqt_msg.messages.Messages
rqt_nav_view.nav_view_plugin.NavViewPlugin
rqt_plot.plot.Plot
rqt_pose_view.pose_view.PoseView
rqt_publisher.publisher.Publisher
rqt_py_console.py_console.PyConsole
rqt_reconfigure.param_plugin.ParamPlugin
rqt_robot_monitor.robot_monitor_plugin.RobotMonitorPlugin
rqt_robot_steering.robot_steering.RobotSteering
rqt_runtime_monitor.runtime_monitor.RuntimeMonitor
rqt_rviz/RViz
rqt_service_caller.service_caller.ServiceCaller
rqt_shell.shell.Shell
rqt_srv.services.Services
rqt_tf_tree.tf_tree.RosTfTree
rqt_top.top_plugin.Top
rqt_topic.topic.Topic
rqt_web.web.Web
```

See the Turtlesim Guide on our Website for more details: rqt-graph pg. 35-37; rosbag pg. 40-47

7. TRY ROBOT STEERING WHILE TURTLESIM IS ACTIVE (See Page 23 - Turtlesim_Control_Kinetic)

\$ roscore

\$ rosrn turtlesim turtlesim_node

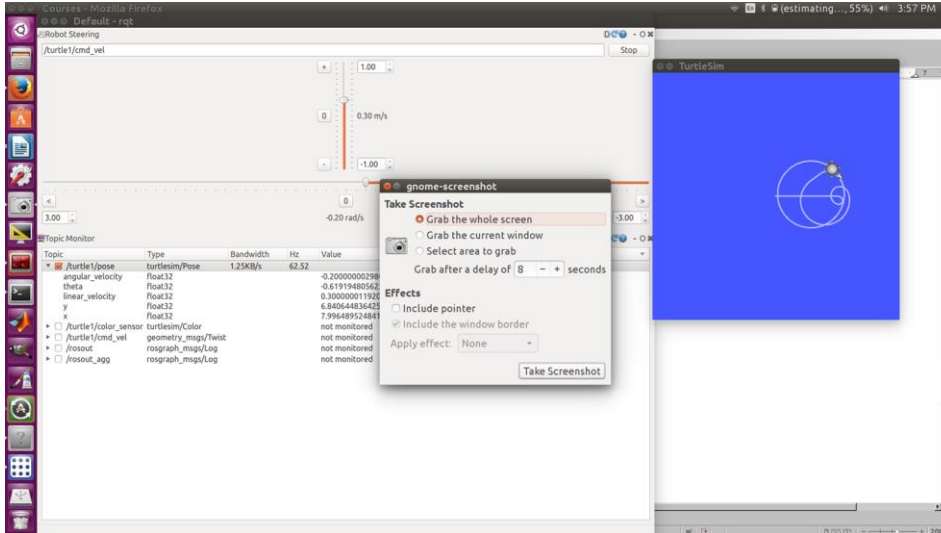
[INFO] [1537649213.226793325]: Starting turtlesim with node name /turtlesim

[INFO] [1537649213.231306735]: Spawning turtle [turtle1] at x=[5.544445], y=[5.544445], theta=[0.000000]

7a. **\$ rqt**

Top Menu Plugins – Robot Tools – Robot Steering AND Topics – Topic Monitor

Topic: /turtle1/cmd_vel



8. rqt_plot (See Page 12-13 - Turtlesim_Control_Kinetic)

\$ roscore (If Not Running)

\$ rosrn turtlesim turtlesim_node

\$ rostopic pub -r 1 /turtle1/cmd_vel geometry_msgs/Twist -- '[2.0, 0.0, 0.0]' '[0.0, 0.0, 1.8]'

Period for turtle1's circle is about 3.4 seconds (103.14 degrees/sec)

Play with selection of topics Using + and -; To set axes, use Checkmark and set in Figure Options Window

Stop and Start autoscroll to set values or see active graph

