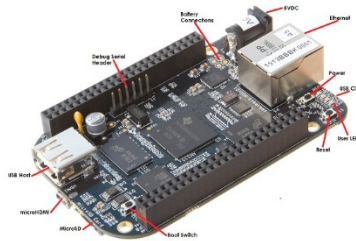
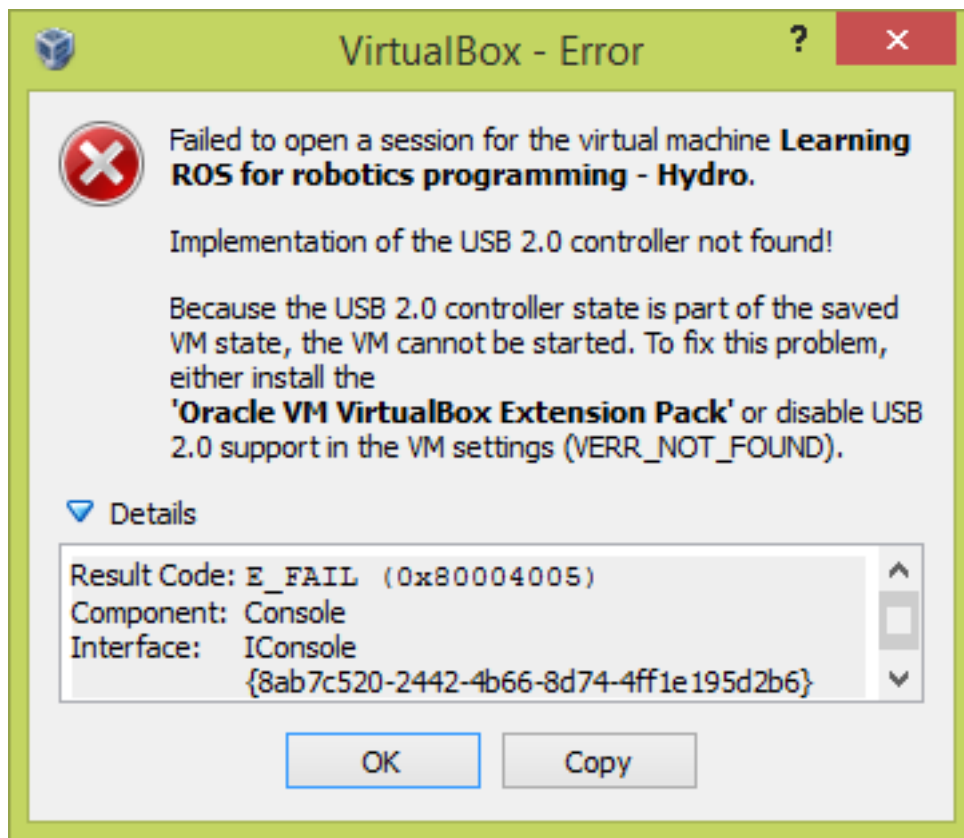
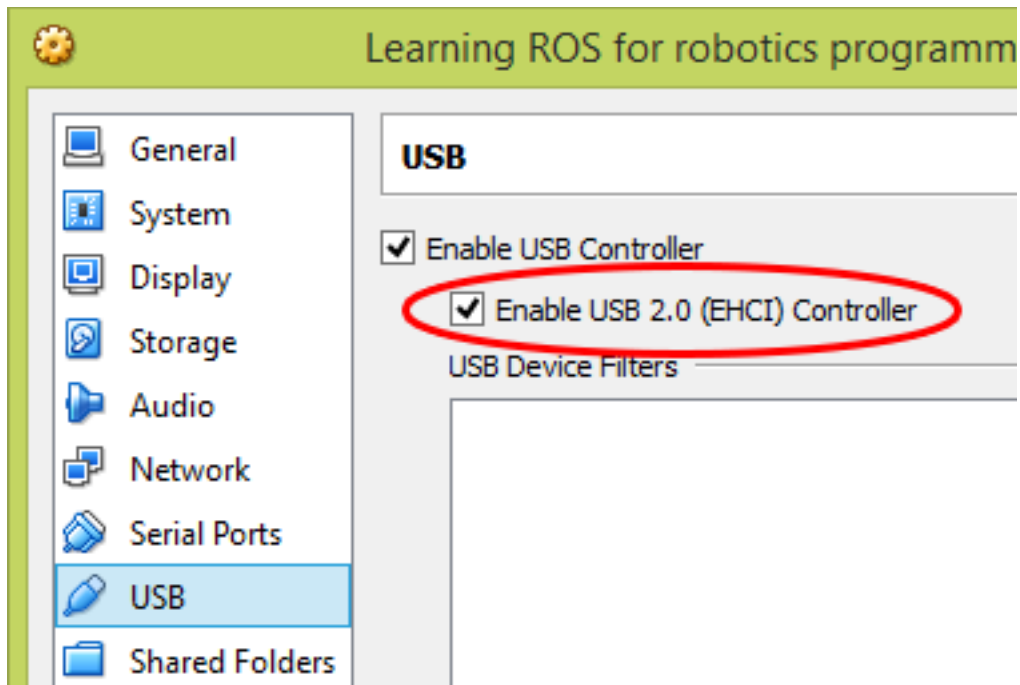
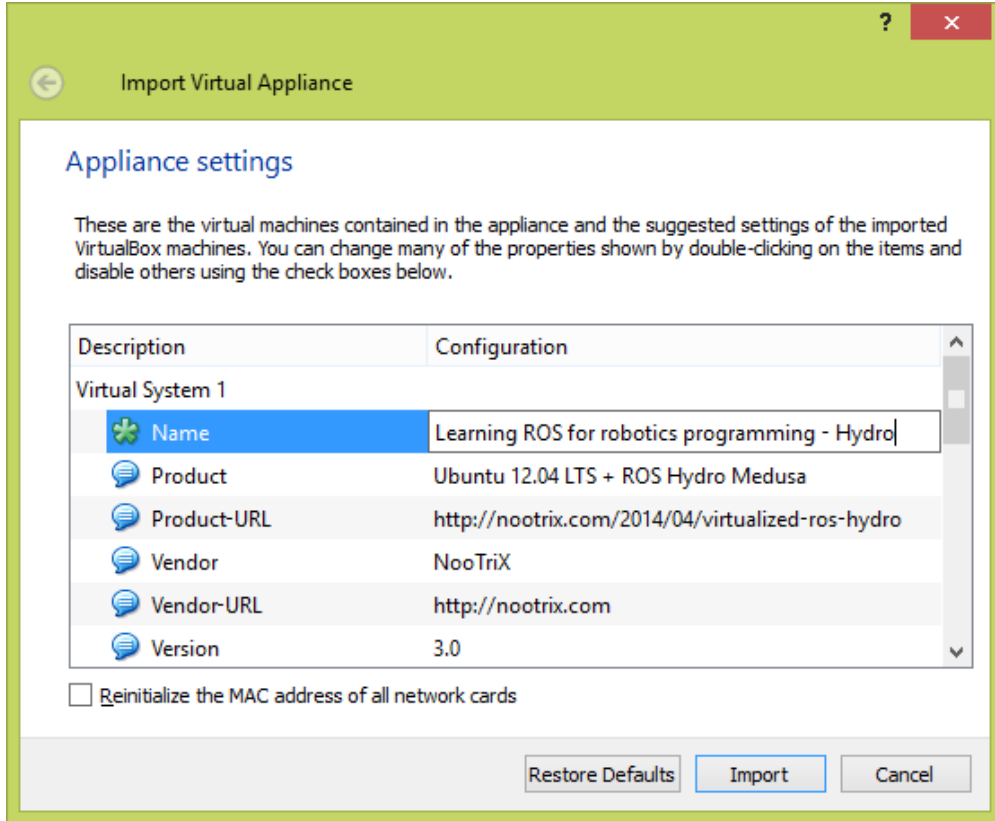
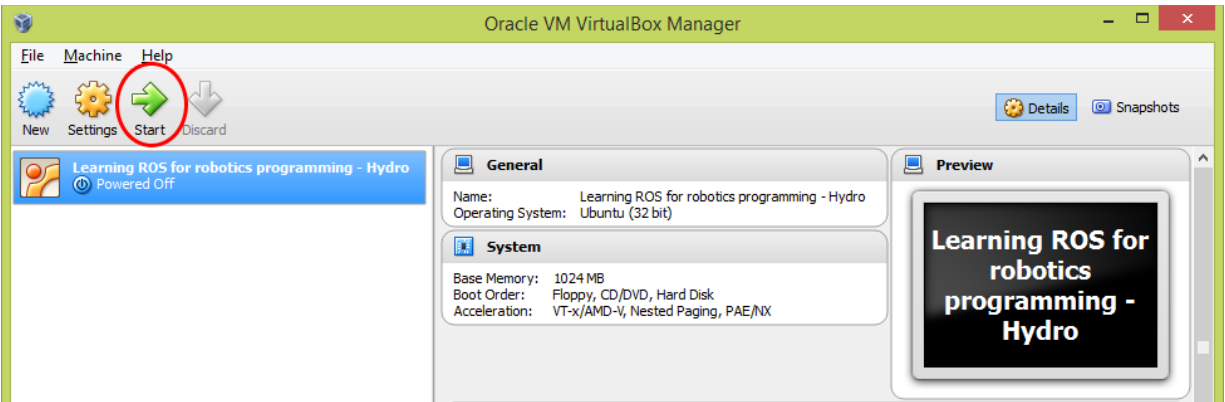
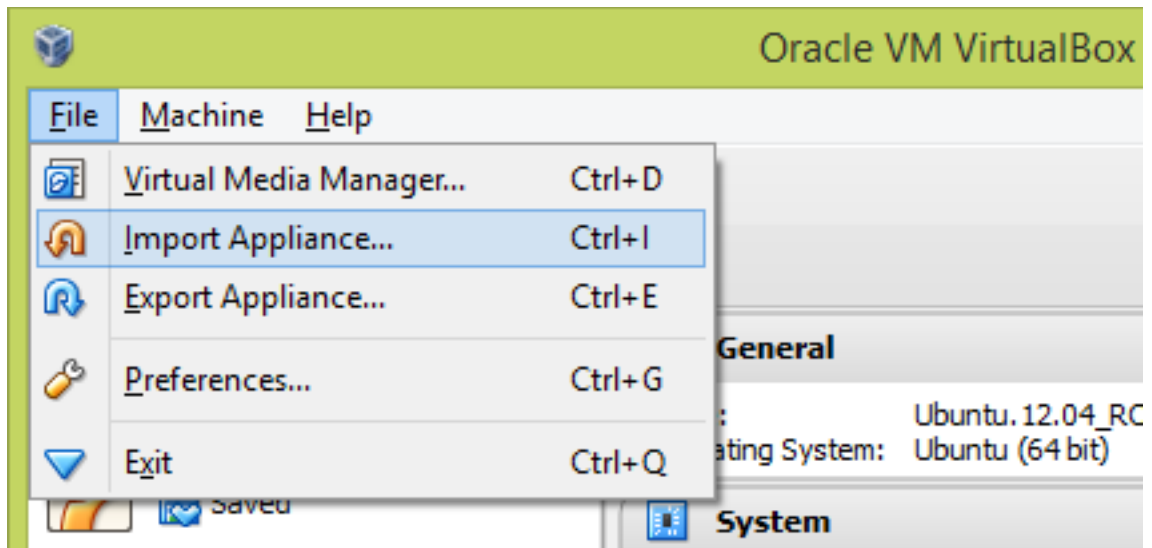


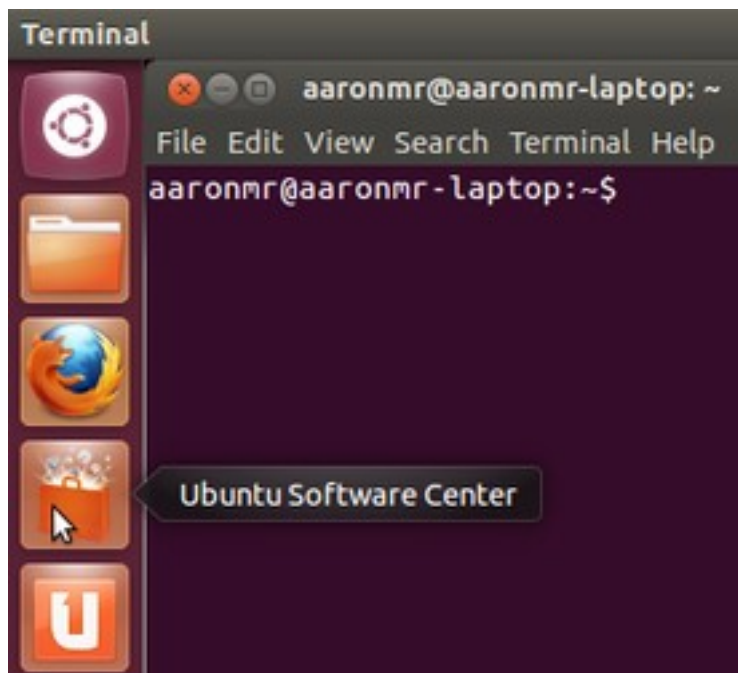
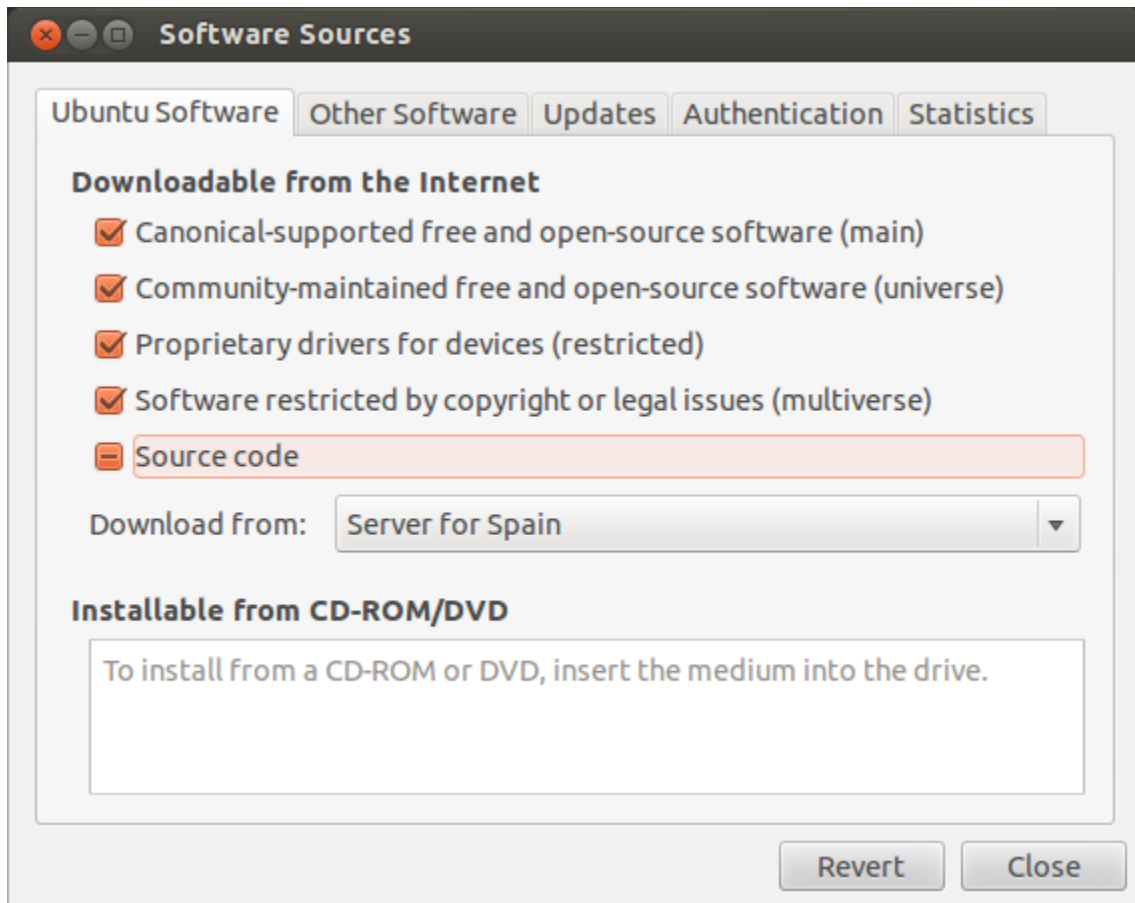
# Chapter 1









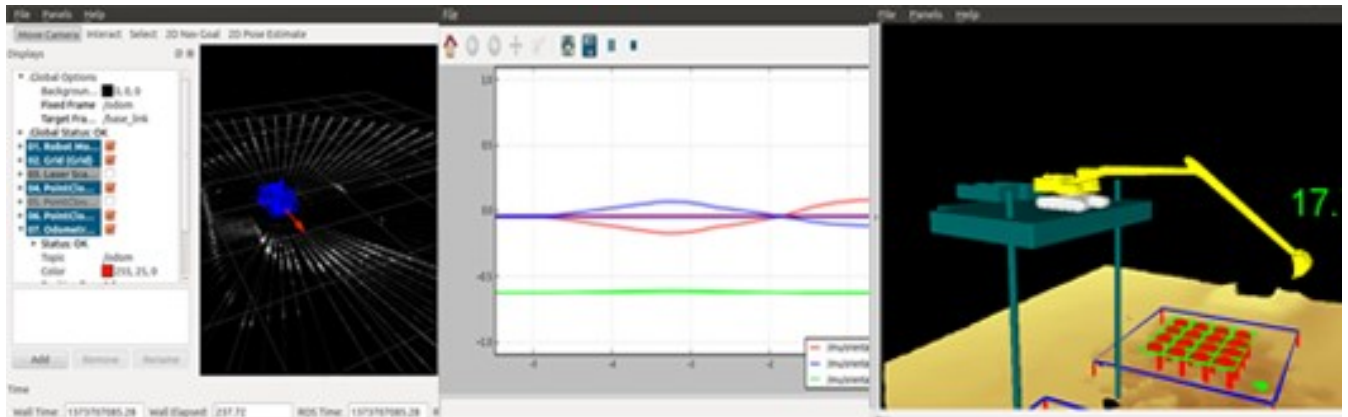






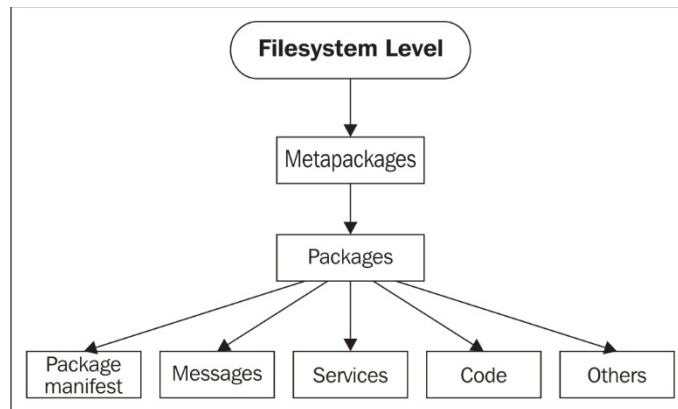
A horizontal navigation bar with three items:

-  [ROS Hydro](#)
- [ROS Spotlight: ROS Answers Reaches 15,000 Questions](#)
-  [Wiki](#)  
Find tutorials and learn more





## Chapter 2



```
?xml version="1.0"?>
<package>
  <name>example</name>
  <version>0.0.1</version>
  <description>
    this is a example.
  </description>
  <maintainer email="test@test.com">test</maintainer>
  <license>BSD</license>

  <url type="website">http://www.test.com</url>
  <author>test</author>

  <buildtool_depend>catkin</buildtool_depend>
  <build_depend>geometry_msgs</build_depend>

  <run_depend>geometry_msgs</run_depend>
</package>
```

```
catkin_ws/
├── build
│   ├── catkin
│   ├── catkin_generated
│   ├── Makefile
│   └── ...
├── devel
│   ├── bin
│   ├── setup.zsh
│   └── ...
└── src
    ├── CMakeLists.txt -> /opt/ros/hydro/share/catkin/cmake/toplevel.cmake
    ├── ros_tutorials-hydro-devel
    └── ...
```

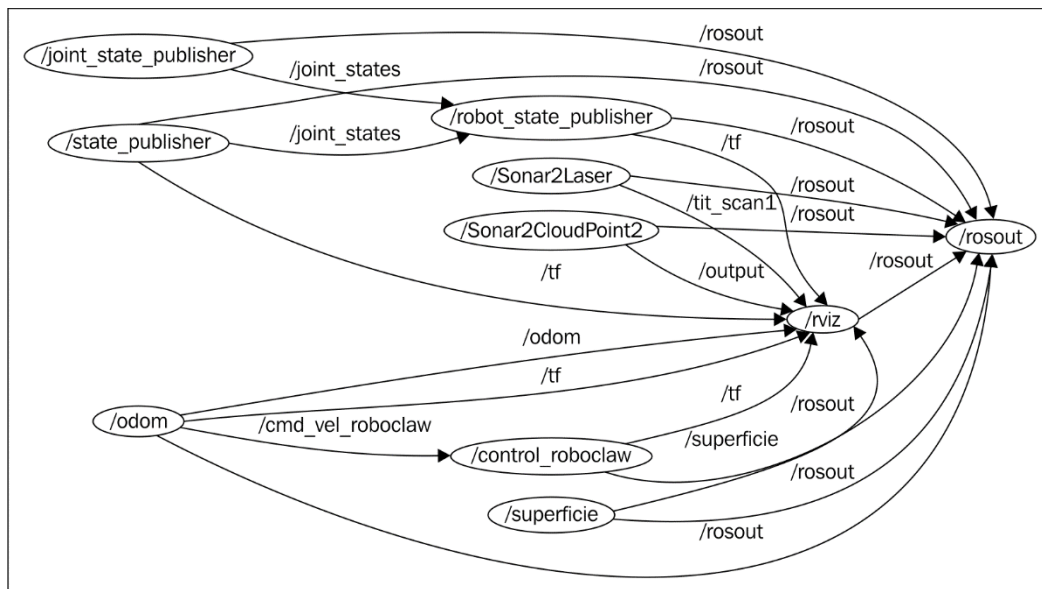
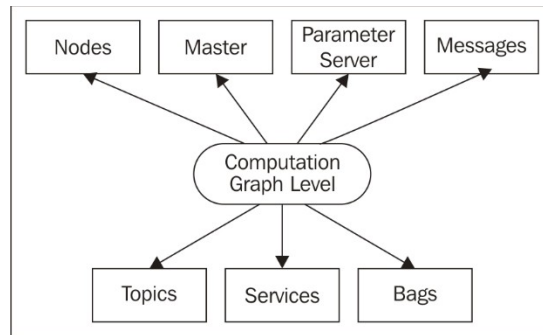
```
turtlesim/
├── CHANGELOG.rst
├── CMakeLists.txt
├── images
│   ├── files
│   └── hydro.svg
├── include
│   └── turtlesim
│       ├── turtle_frame.h
│       └── turtle.h
├── launch
│   └── multisin.launch
├── msg
│   ├── Color.msg
│   └── Pose.msg
├── package.xml
├── src
│   ├── turtle.cpp
│   └── turtlesim.cpp
├── srv
│   ├── Kill.srv
│   └── TeleportRelative.srv
```

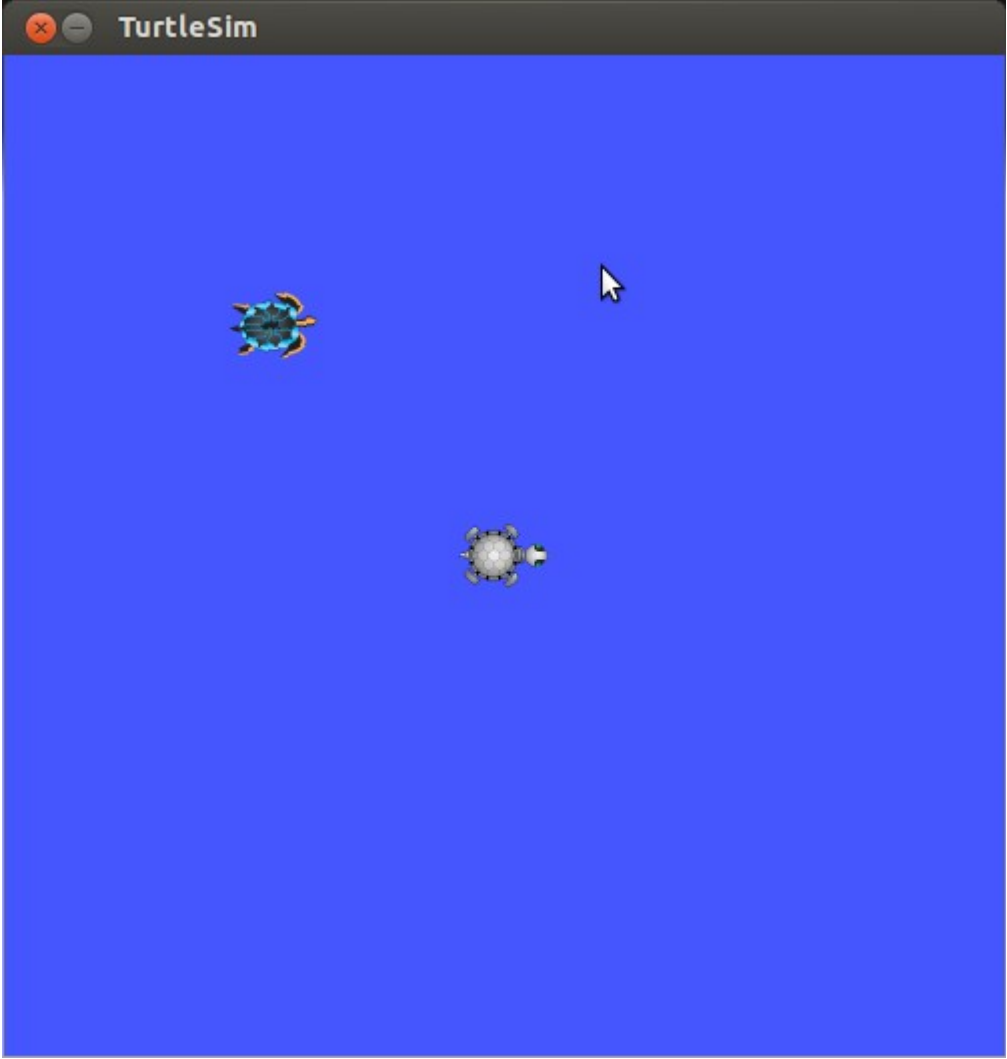


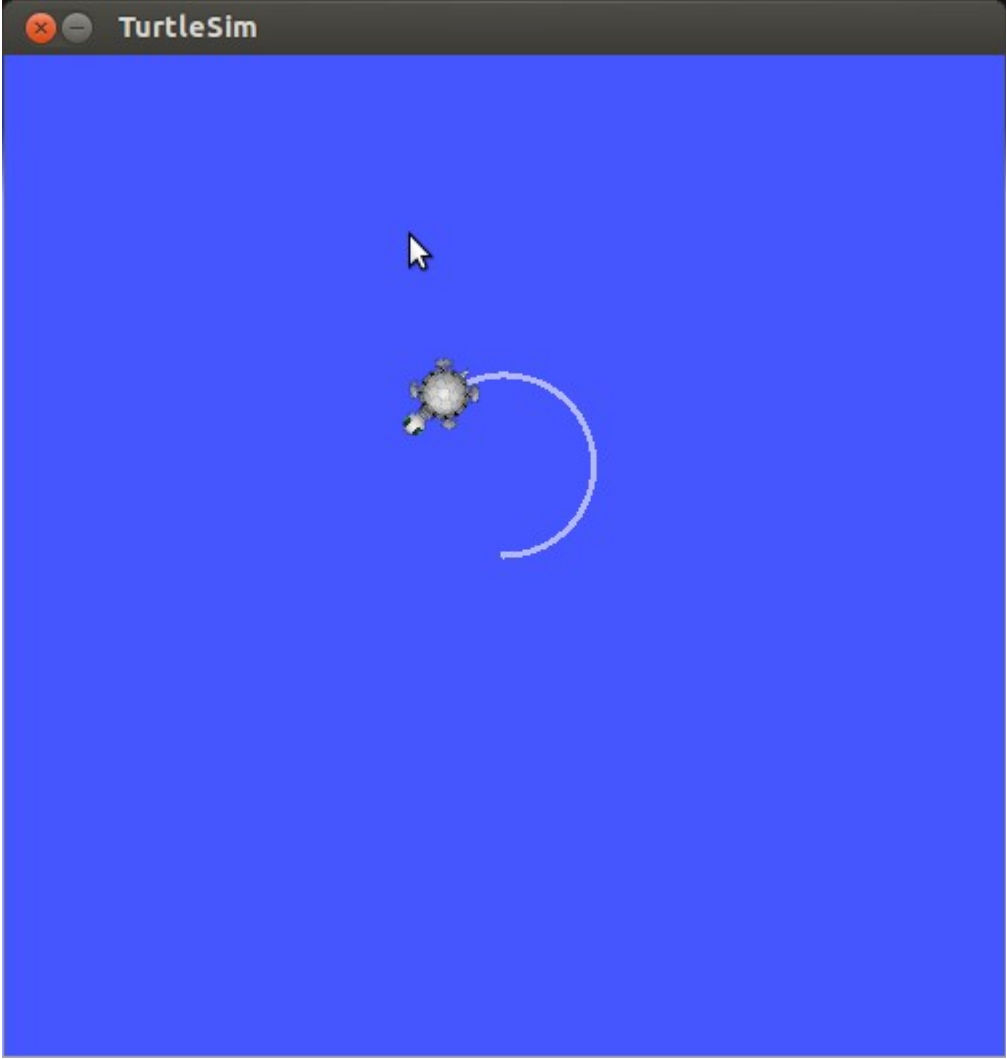
```

<?xml version="1.0"?>
<package>
  ...
  <buildtool_depend>catkin</buildtool_depend>
  ...
  <run_depend>roscpp_tutorials</run_depend>
  <run_depend>rospy_tutorials</run_depend>
  <run_depend>turtlesim</run_depend>
  ...
  <export>
    <metapackage/>
  </export>
  ...
</package>

```











TurtleSim



roscpp is a command-line tool for printing information about ROS Nodes.

Commands:

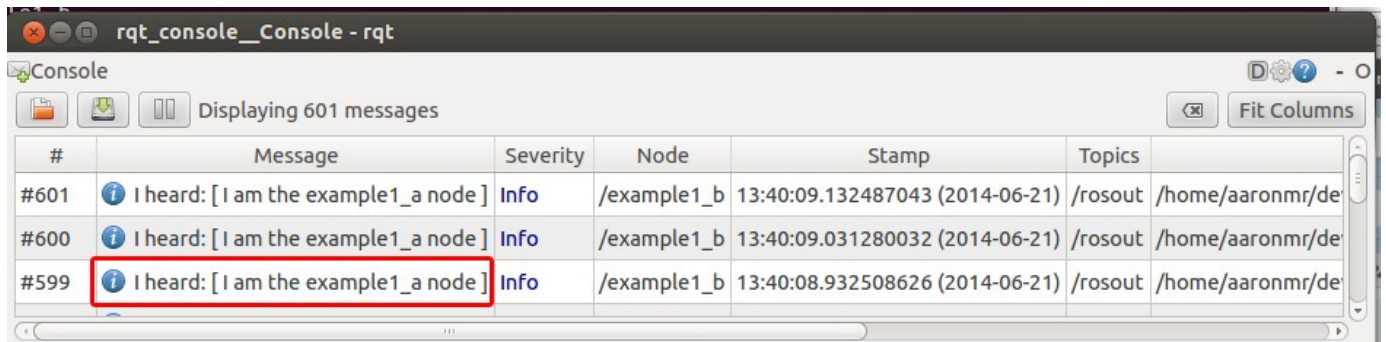
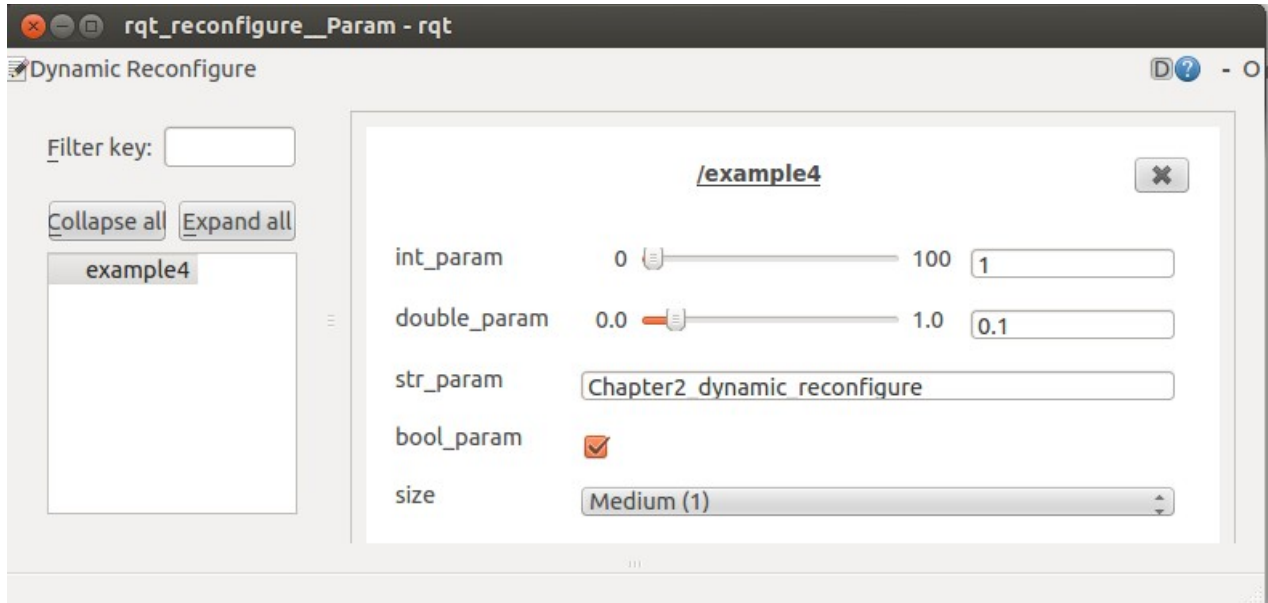
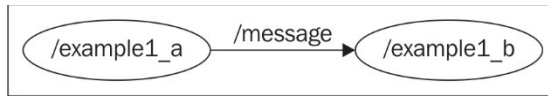
```
roscpp ping      test connectivity to node
roscpp list      list active nodes
roscpp info      print information about node
roscpp machine   list nodes running on a particular machine or list machines
roscpp kill      kill a running node
roscpp cleanup   purge registration information of unreachable nodes
```

Type roscpp <command> -h for more detailed usage, e.g. 'roscpp ping -h'

```
...
Base path: /home/aaronmr/dev/catkin_ws
Source space: /home/aaronmr/dev/catkin_ws/src
Build space: /home/aaronmr/dev/catkin_ws/build
Devel space: /home/aaronmr/dev/catkin_ws/devel
Install space: /home/aaronmr/dev/catkin_ws/install
...
-- BUILD_SHARED_LIBS is on
-- ~~~~~
-- ~~~ traversing 29 packages in topological order:
-- ~~~ - chapter2_tutorials
...
-- ~~~~~
-- +++ processing catkin package: 'chapter2_tutorials'
-- ==> add_subdirectory(chapter2_tutorials)
...
[100%] Built target .....
```

```
Created file chapter2_tutorials/package.xml
Created file chapter2_tutorials/CMakeLists.txt
Created folder chapter2_tutorials/include/chapter2_tutorials
Created folder chapter2_tutorials/src
Successfully created files in /home/aaronmr/dev/catkin_ws/src/chapter2_tutorials.
Please adjust the values in package.xml.
```

```
...
[ INFO] [1403252419.452448698]: I heard: [ I am the example1_a node ]
[ INFO] [1403252419.552163326]: I heard: [ I am the example1_a node ]
[ INFO] [1403252419.653701929]: I heard: [ I am the example1_a node ]
[ INFO] [1403252419.752261663]: I heard: [ I am the example1_a node ]
[ INFO] [1403252419.854459847]: I heard: [ I am the example1_a node ]
...
```



```

/example1_a
/example1_b
/rosout
  
```

```

started roslaunch server http://127.0.0.1:40930/

SUMMARY
=====

PARAMETERS
* /roscdistro
* /rosversion

NODES
/
  example1_a (chapter2_tutorials/example1_a)
  example1_b (chapter2_tutorials/example1_b)

auto-starting new master
process[master]: started with pid [19889]
ROS_MASTER_URI=http://localhost:11311

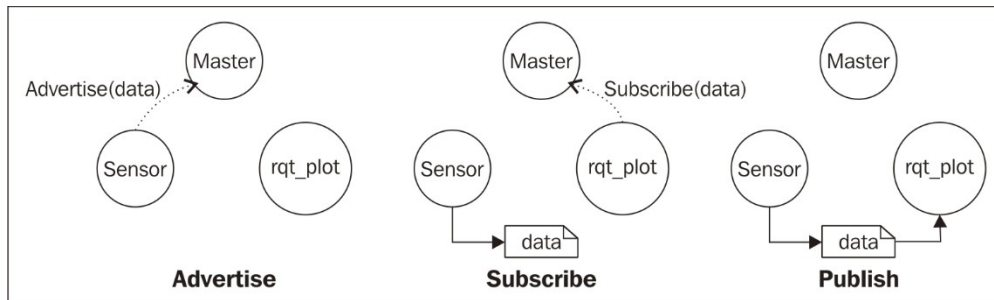
setting /run_id to b334800a-f940-11e3-989f-080027b05884
process[rosout-1]: started with pid [19902]
started core service [/rosout]
process[example1_a-2]: started with pid [19914]
process[example1_b-3]: started with pid [19925]

```

```

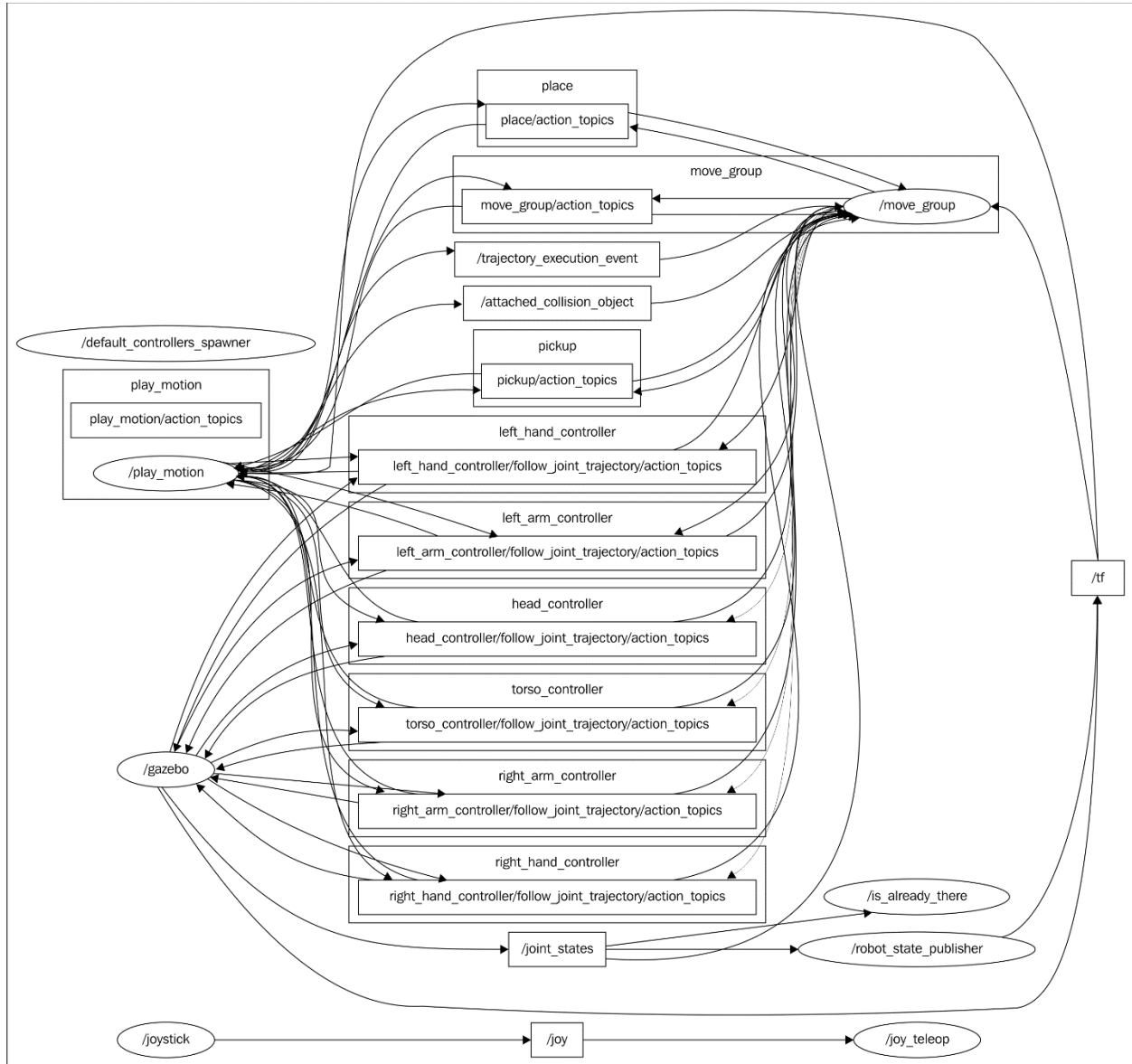
[ INFO] [1403367196.752115948]: Reconfigure Request: 20 0.800000 qwert True 1
[ INFO] [1403367196.942722848]: Reconfigure Request: 20 0.800000 qwerty True 1
[ INFO] [1403367196.973132691]: Reconfigure Request: 20 0.800000 qwerty True 1
[ INFO] [1403367197.183714401]: Reconfigure Request: 20 0.800000 qwertyu True 1
[ INFO] [1403367197.217819018]: Reconfigure Request: 20 0.800000 qwertyu True 1
[ INFO] [1403367203.160337570]: Reconfigure Request: 1 0.800000 qwertyu True 1
[ INFO] [1403367203.188864110]: Reconfigure Request: 1 0.800000 qwertyu True 1

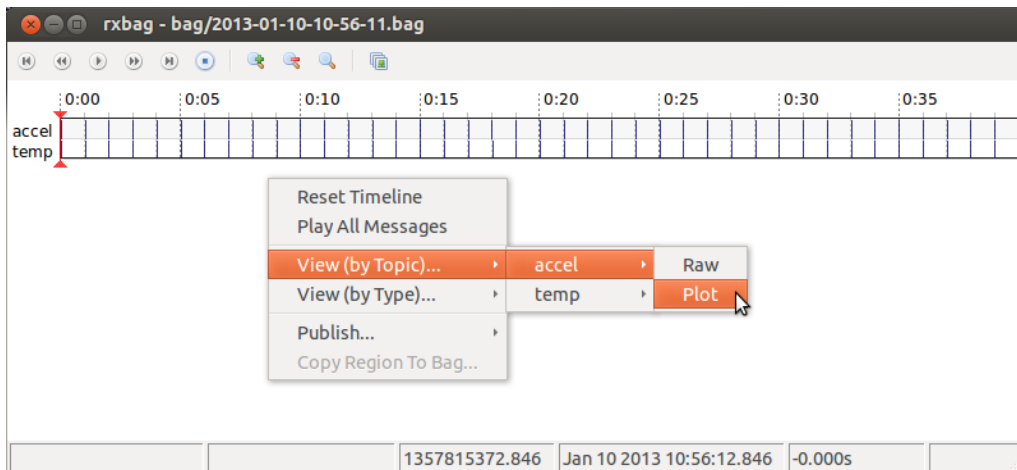
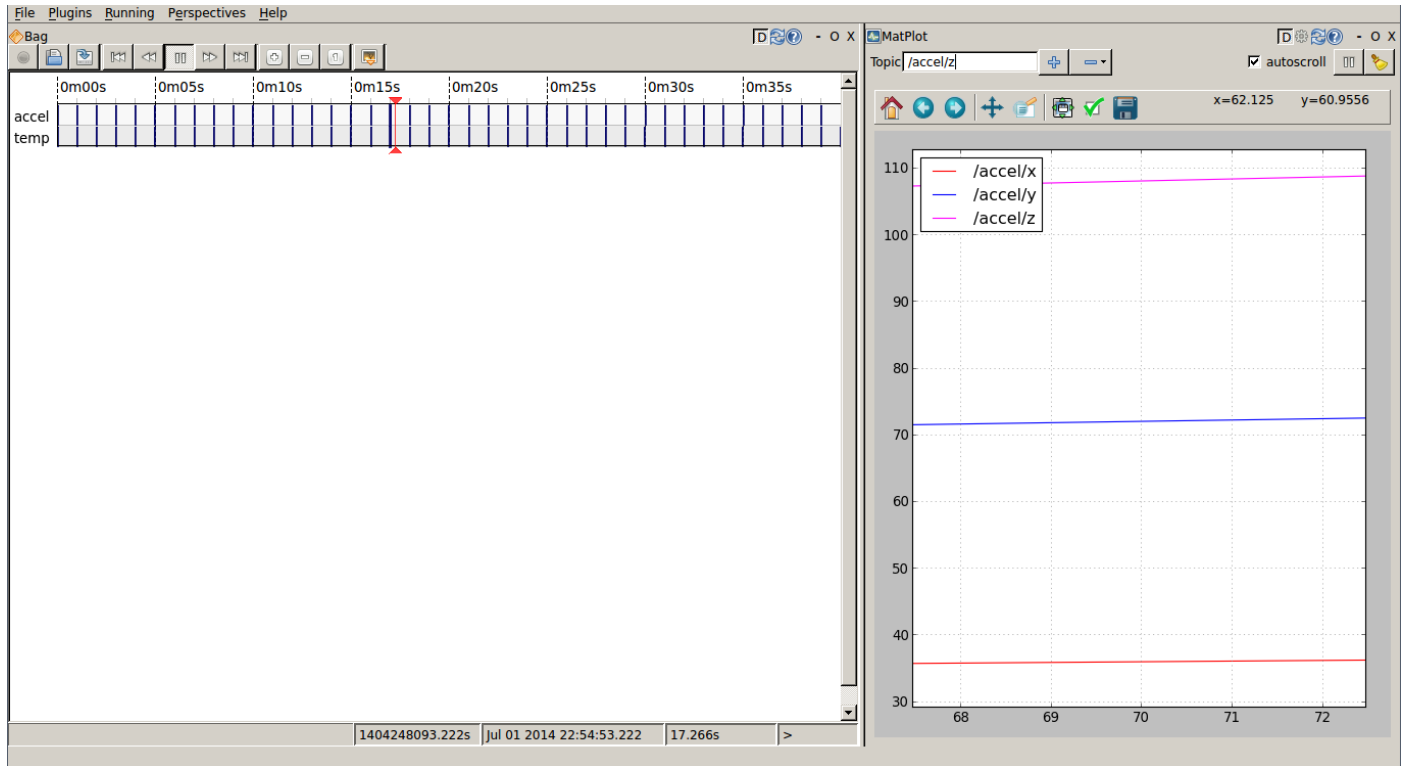
```

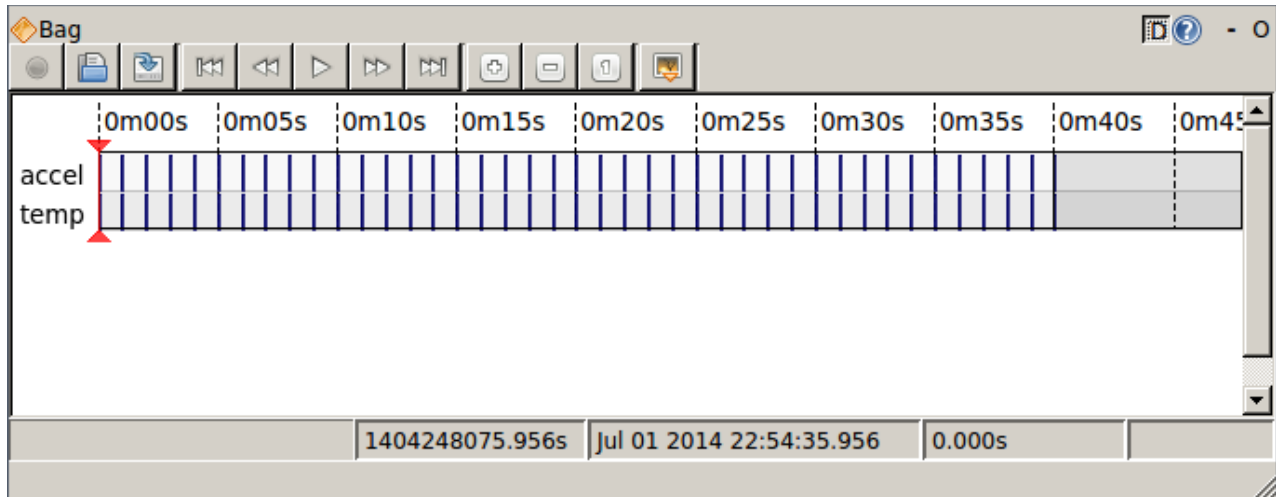




# Chapter 3







```
~/svn/ros_book_hydro_ws/src/ros_book_v2/chapter3_tutorials/bag$ rosbag info 2014-07-01-22-54-34.bag
path:          2014-07-01-22-54-34.bag
version:       2.0
duration:      40.0s
start:         Jul 01 2014 22:54:35.96 (1404248075.96)
end:           Jul 01 2014 22:55:15.96 (1404248115.96)
size:          10.9 KB
messages:      82
compression:   none [1/1 chunks]
types:         geometry_msgs/Vector3 [4a842b65f413084dc2b10fb484ea7f17]
               std_msgs/Int32        [da5909fbe378aaef85e547e830cc1bb7]
topics:        /accel  41 msgs      : geometry_msgs/Vector3
               /temp   41 msgs      : std_msgs/Int32
```

File Panels Help

Interact Move Camera Select Focus Camera Measure 2D Pose Estimate 2D Nav Goal Publish Point

Displays

- Global O...
- Fixed Fra... world
- Backgrou... 48; 48; 48
- Frame Rate 30
- Global St...
- Fixed ... OK
- Grid
- TF

Fixed Frame  
Frame into which all data is transformed before being displayed.

Add Remove Rename

Views

Type: TopDownOrtho Zero

Current View	TopDownOrtho...
Near Clip ...	0.01
Target Fra...	<Fixed Frame>
Scale	139.563
Angle	0
X	1.8428
Y	0.497047

Time

ROS Time: 1404247527.55 ROS Elapsed: 471.70 Wall Time: 1404247527.58 Wall Elapsed: 471.63

Reset



File Panels Help

Interact Move Camera Select Focus Camera Measure 2D Pose Estimate 2D Nav Goal Publish Point

Displays

- Global Options
- Global Status: Warn
- Grid
- Interactive Marker

2-DOF Control

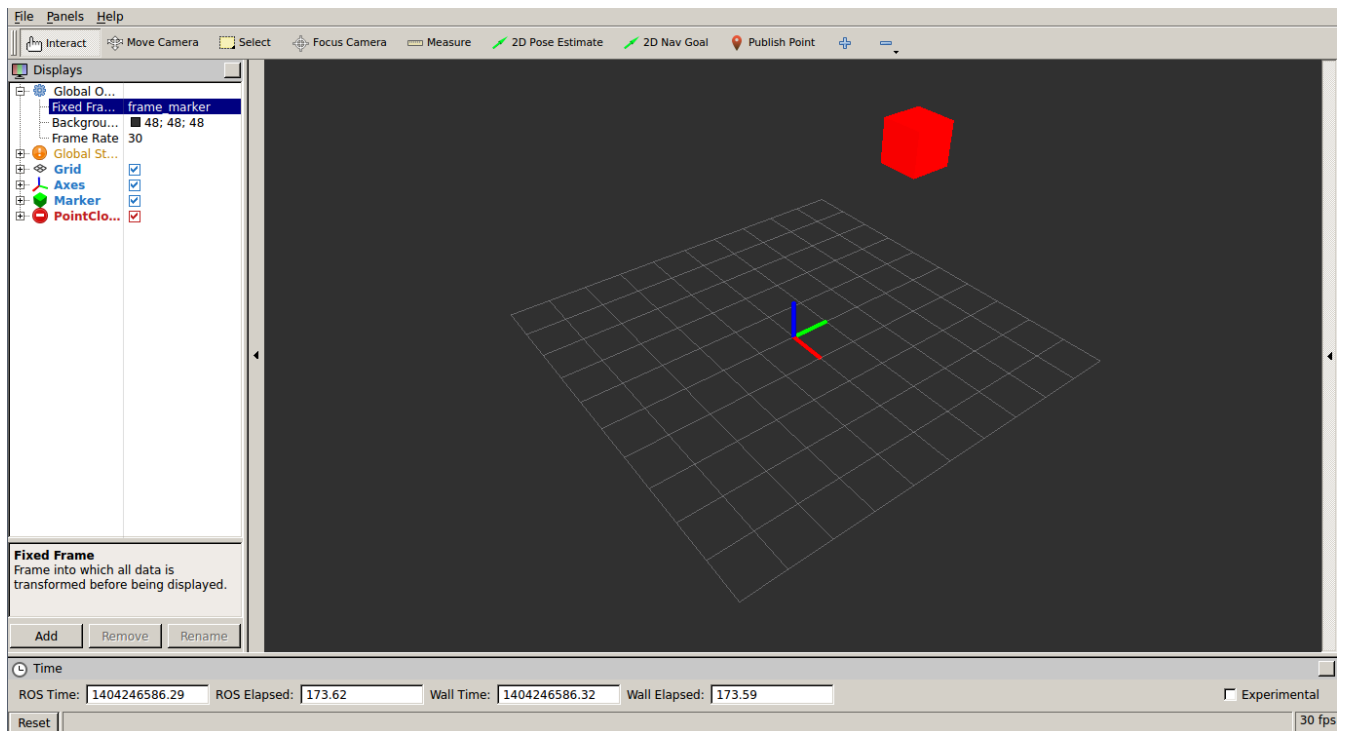
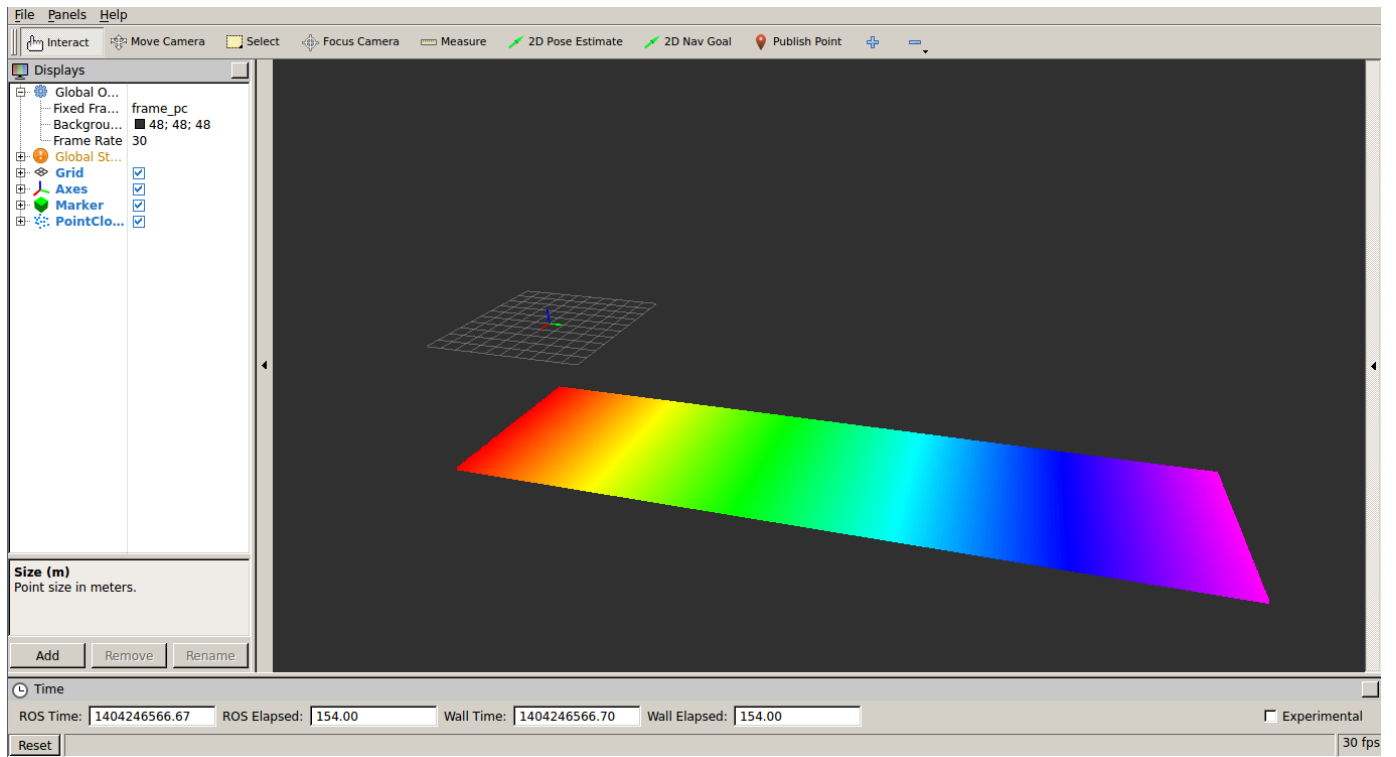
30 fps

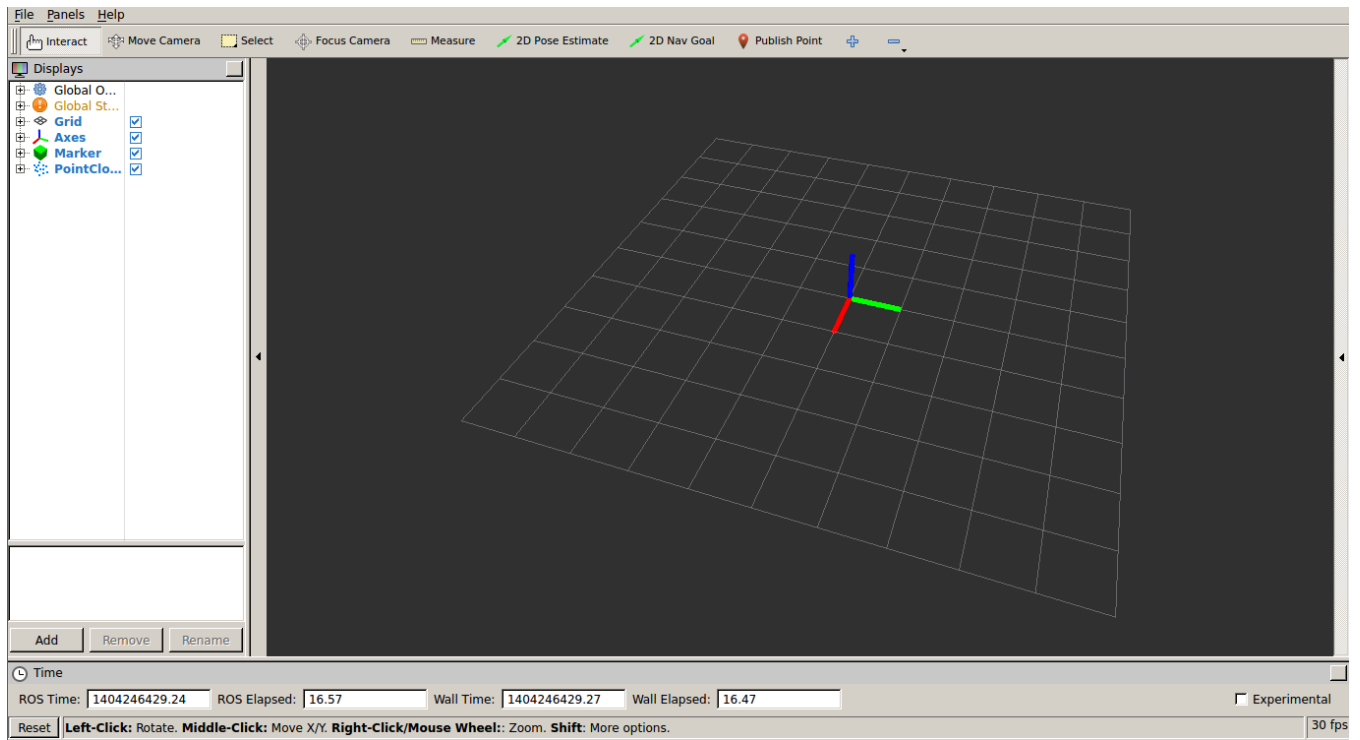
Time

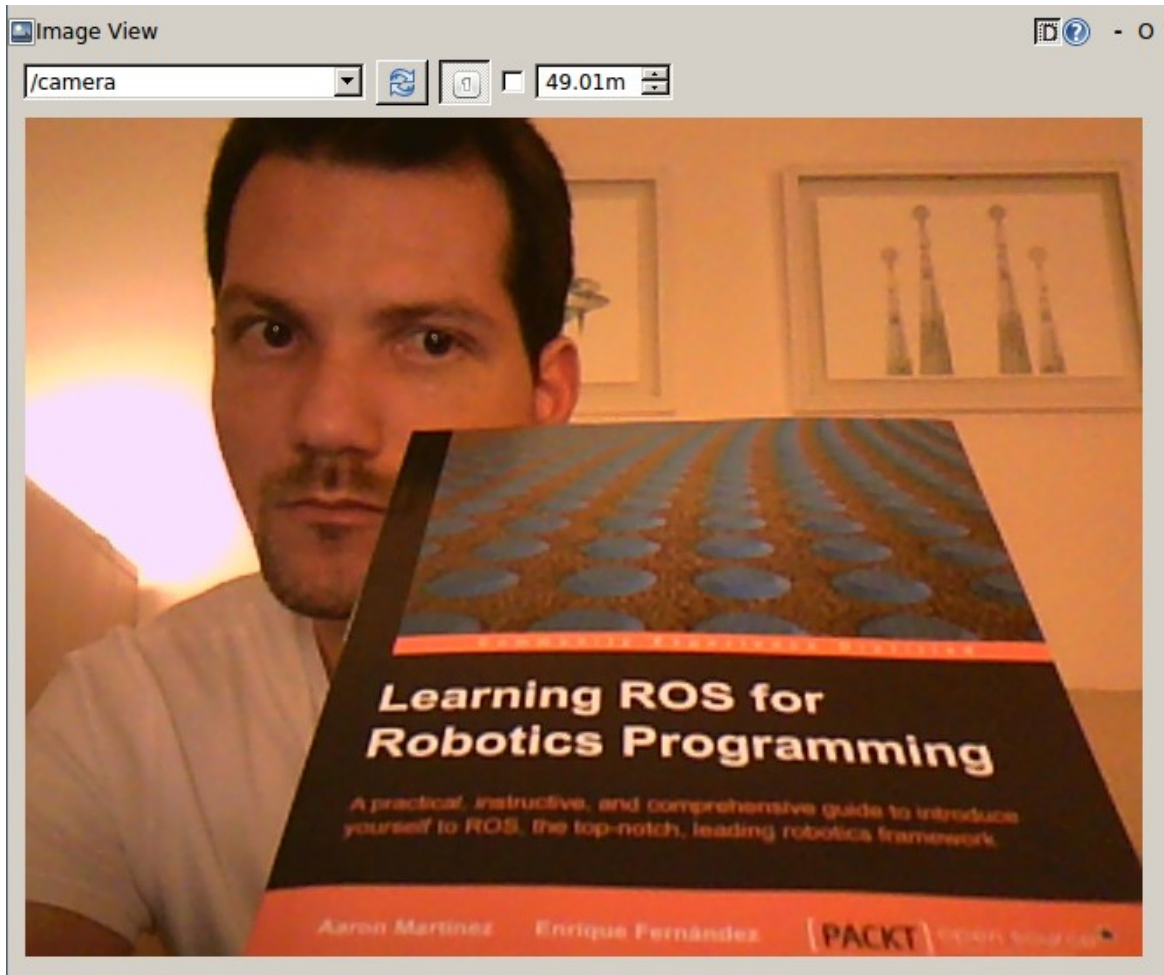
ROS Time: 1404246816.51 ROS Elapsed: 46.24 Wall Time: 1404246816.54 Wall Elapsed: 46.14 Experimental

Reset Left-Click: Move.

This image shows a screenshot of a ROS-based simulation environment. The main window displays a 3D view of a robot (a grey cube) on a grid floor, with a blue and red striped circular path around it. The text "2-DOF Control" is visible in the upper right of the 3D view. On the left, there is a "Displays" panel with several options: "Global Options", "Global Status: Warn", "Grid", and "Interactive Marker". The bottom of the window features a "Time" panel with fields for ROS Time, ROS Elapsed, Wall Time, and Wall Elapsed, along with an "Experimental" checkbox and a "Reset" button. The text "Left-Click: Move." is also present.







```
enrique@pc-acer[hydro]:svn:
~/svn/ros_book_hydro_ws/src/ros_book_v2/chapter3_tutorials$ rostopic hz /camera
subscribed to [/camera]
average rate: 10.728
  min: 0.084s max: 0.099s std dev: 0.00474s window: 10
average rate: 10.746
  min: 0.084s max: 0.099s std dev: 0.00441s window: 21
average rate: 10.725
  min: 0.084s max: 0.099s std dev: 0.00426s window: 31
average rate: 10.710
  min: 0.084s max: 0.100s std dev: 0.00409s window: 42
average rate: 10.702
  min: 0.084s max: 0.100s std dev: 0.00398s window: 53
█
```



### Plot Type

PyQtGraph

Based on PyQtGraph

- installer: <http://luke.campagnola.me/code/pyqtgraph>

MatPlot

Based on Matplotlib

- needs most CPU

- needs matplotlib  $\geq$  1.1.0

- if using PySide: PySide  $>$  1.1.0

QwtPlot

Based on QwtPlot

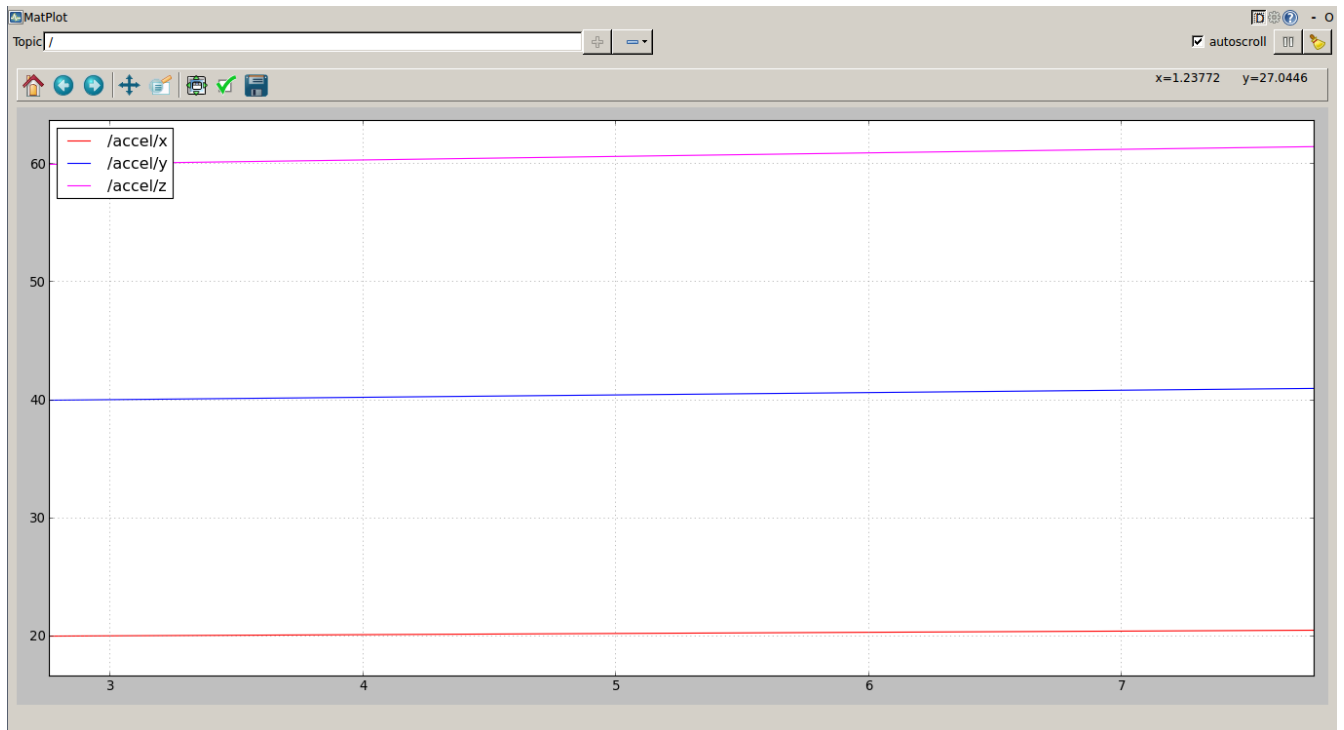
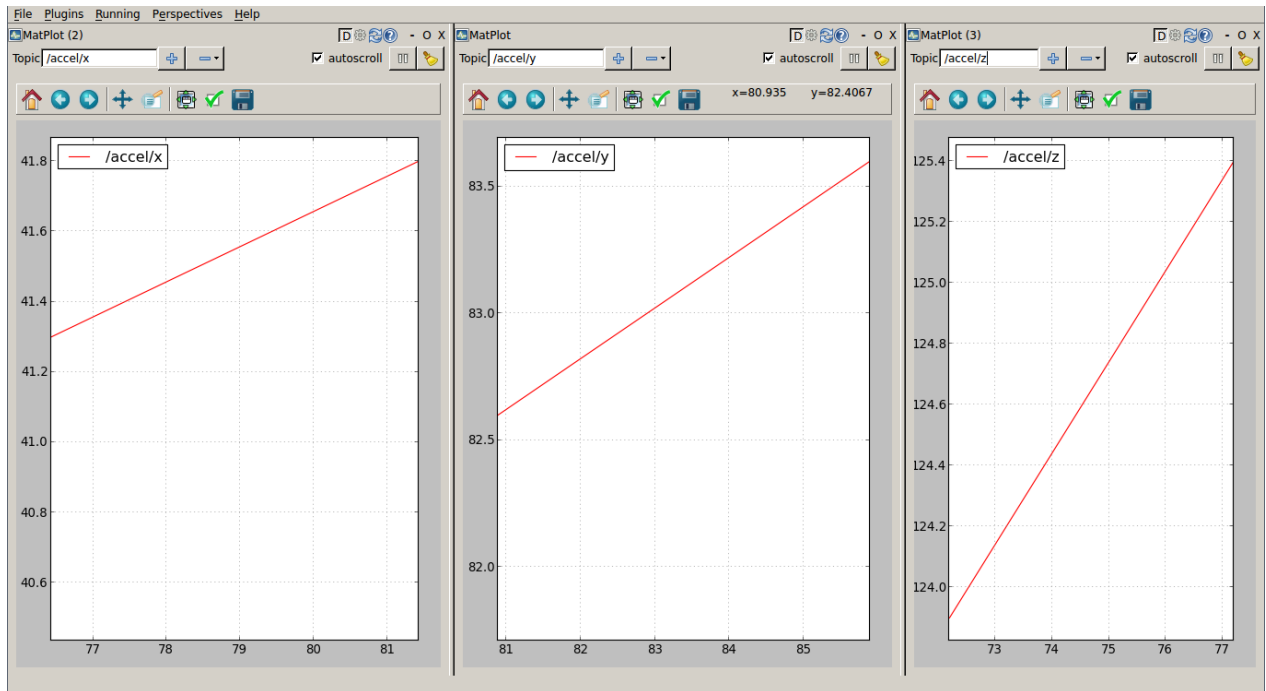
- does not use timestamps

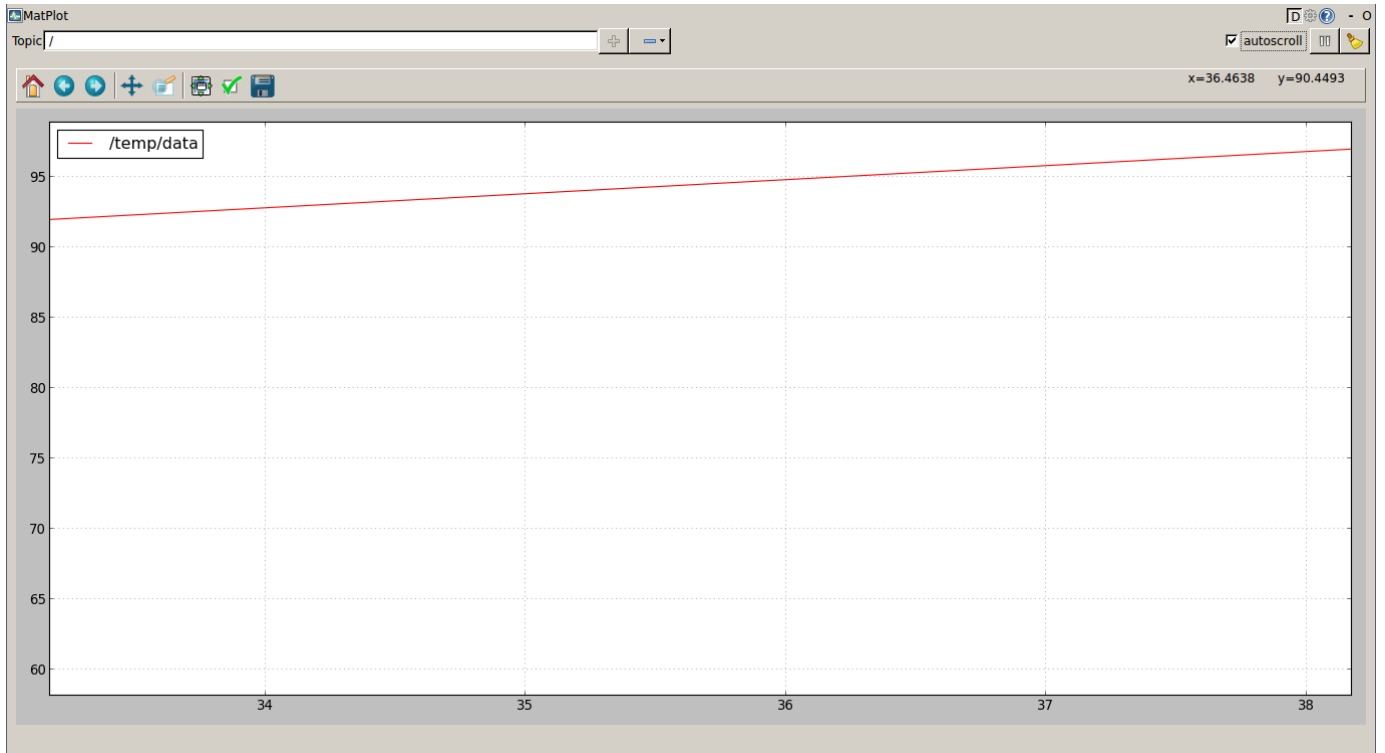
- uses least CPU

- needs Python Qwt bindings

OK

Cancel





Robot Monitor window showing error and warning messages:

Error Device	Message
[-] /Sensors/Status/example7	status error

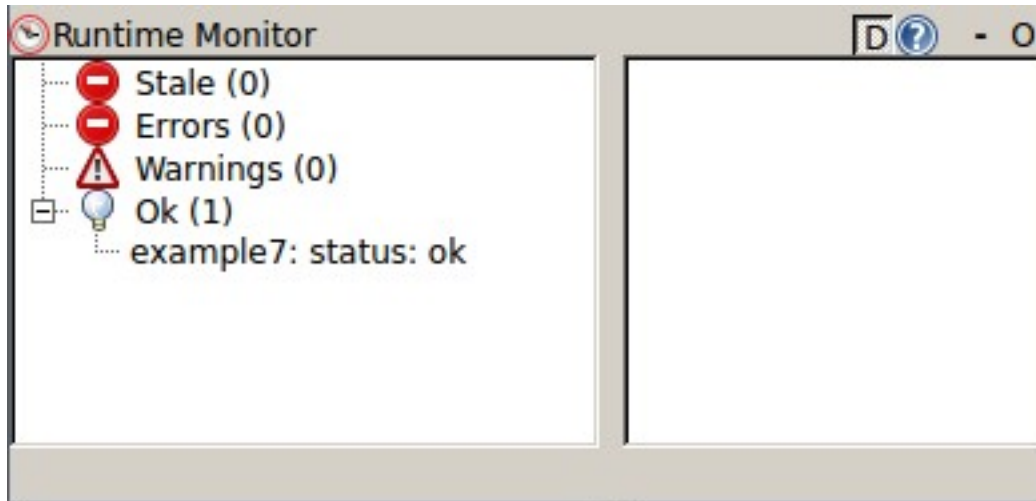
Warned Device	Message
---------------	---------

All devices	Message
[-] (Err: 2, Wrn: 0) Sensors Error	Error
[-] Status	Error
[-] example7: status	error

Last message received 0 seconds ago

Pause



```
enrique@pc-acer [hydro]:svn:
~/svn/ros_book_hydro_ws/src/ros_book_v2/chapter3_tutorials$ catkin_lint -W2 --pkg chapter3_tutorials
chapter3_tutorials: notice: target name 'example6' might not be sufficiently unique
chapter3_tutorials: notice: target name 'example7' might not be sufficiently unique
chapter3_tutorials: notice: target name 'example4' might not be sufficiently unique
chapter3_tutorials: notice: target name 'example5' might not be sufficiently unique
chapter3_tutorials: notice: target name 'example2' might not be sufficiently unique
chapter3_tutorials: notice: target name 'example3' might not be sufficiently unique
chapter3_tutorials: notice: target name 'example1' might not be sufficiently unique
chapter3_tutorials: notice: target name 'example8' might not be sufficiently unique
chapter3_tutorials: CMakeLists.txt(83): notice: extra arguments in endforeach()
catkin_lint: checked 1 packages and found 9 problems
enrique@pc-acer [hydro]:svn:
~/svn/ros_book_hydro_ws/src/ros_book_v2/chapter3_tutorials$
```

```
WARNING: Package name "3dof_bringup" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits and underscores.
WARNING: Package name "3dof_robot" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits and underscores.
WARNING: Package name "3dof_description" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits and underscores.
WARNING: Package name "3dof_controller_configuration" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits and underscores.
process[rosout-1]: started with pid [12411]
started core service [/rosout]
process[example6-2]: started with pid [12423]
[ INFO] [1404156269.276210812]: New configuration received with level = 4294967295:
bool = 1
int = 0
double = 0
string = Foo

```

```
enrique@pc-acer[hydro]:svn:
~/svn/ros_book_hydro_ws/src/ros_book_v2/chapter3_tutorials$ roswtf
No package or stack in context
=====
Static checks summary:

Found 1 warning(s).
Warnings are things that may be just fine, but are sometimes at fault

WARNING You have pip installed packages on Ubuntu, remove and install using Debian packages: rospkg --

=====
Beginning tests of your ROS graph. These may take awhile...
analyzing graph...
... done analyzing graph
running graph rules...
... done running graph rules

Online checks summary:

No errors or warnings
enrique@pc-acer[hydro]:svn:
~/svn/ros_book_hydro_ws/src/ros_book_v2/chapter3_tutorials$ 

WARNING: Package name "3dof_bringup" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits and underscores.
WARNING: Package name "3dof_robot" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits and underscores.
WARNING: Package name "3dof_description" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits and underscores.
WARNING: Package name "3dof_controller_configuration" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits and underscores.
process[rosout-1]: started with pid [12411]
started core service [/rosout]
process[example6-2]: started with pid [12423]
[ INFO] [1404156269.276210812]: New configuration received with level = 4294967295:
bool = 1
int = 0
double = 0
string = Foo

```

File

guid:	<input type="text" value="08144361026320a0"/>
video_mode:	<input type="text" value="Format0_Mode5 ('640x480_mono8')"/> ▾
frame_id:	<input type="text" value="/camera"/>
frame_rate:	<input type="range" value="1.875"/> 240 <input type="text" value="30"/>
iso_speed:	<input type="range" value="100"/> 3200 <input type="text" value="400"/>
camera_info_url:	<input type="text"/>
bayer_pattern:	<input type="text" value="none ('')"/> ▾
bayer_method:	<input type="text" value="image_proc ('')"/> ▾
auto_brightness:	<input type="text" value="Auto (2)"/> ▾
brightness:	<input type="range" value="0"/> 4095 <input type="text" value="383"/>
auto_exposure:	<input type="text" value="Auto (2)"/> ▾
exposure:	<input type="range" value="-10"/> 4095 <input type="text" value="511"/>
auto_gain:	<input type="text" value="Manual (3)"/> ▾
gain:	<input type="range" value="-10"/> 4095 <input type="text" value="255"/>
auto_gamma:	<input type="text" value="Manual (3)"/> ▾
gamma:	<input type="range" value="0"/> 10 <input type="text" value="1"/>
auto_hue:	<input type="text" value="None (5)"/> ▾
hue:	<input type="range" value="0"/> 4095 <input type="text" value="0"/>
auto_iris:	<input type="text" value="None (5)"/> ▾
iris:	<input type="range" value="0"/> 4095 <input type="text" value="8"/>
auto_saturation:	<input type="text" value="Manual (3)"/> ▾
saturation:	<input type="range" value="0"/> 4095 <input type="text" value="90"/>
auto_sharpness:	<input type="text" value="Manual (3)"/> ▾
sharpness:	<input type="range" value="0"/> 4095 <input type="text" value="80"/>
auto_shutter:	<input type="text" value="Manual (3)"/> ▾
shutter:	<input type="range" value="0"/> 4095 <input type="text" value="4"/>
auto_white_balance:	<input type="text" value="Auto (2)"/> ▾
white_balance_BU:	<input type="range" value="0"/> 4095 <input type="text" value="82"/>
white_balance_RV:	<input type="range" value="0"/> 4095 <input type="text" value="82"/>

```

string = Foo
[ INFO] [1404155692.740704020]: New configuration received with level = 3:
bool   = 0
int    = 2
double = 1.00531
string = Foo
[ INFO] [1404155699.438546902]: New configuration received with level = 0:
bool   = 0
int    = 2
double = 1.00531
string = Bar
[ INFO] [1404155713.895218175]: New configuration received with level = 0:
bool   = 0
int    = 2
double = 1.00531
string = Baz

```

Dynamic Reconfigure

Filter key:

**example6**

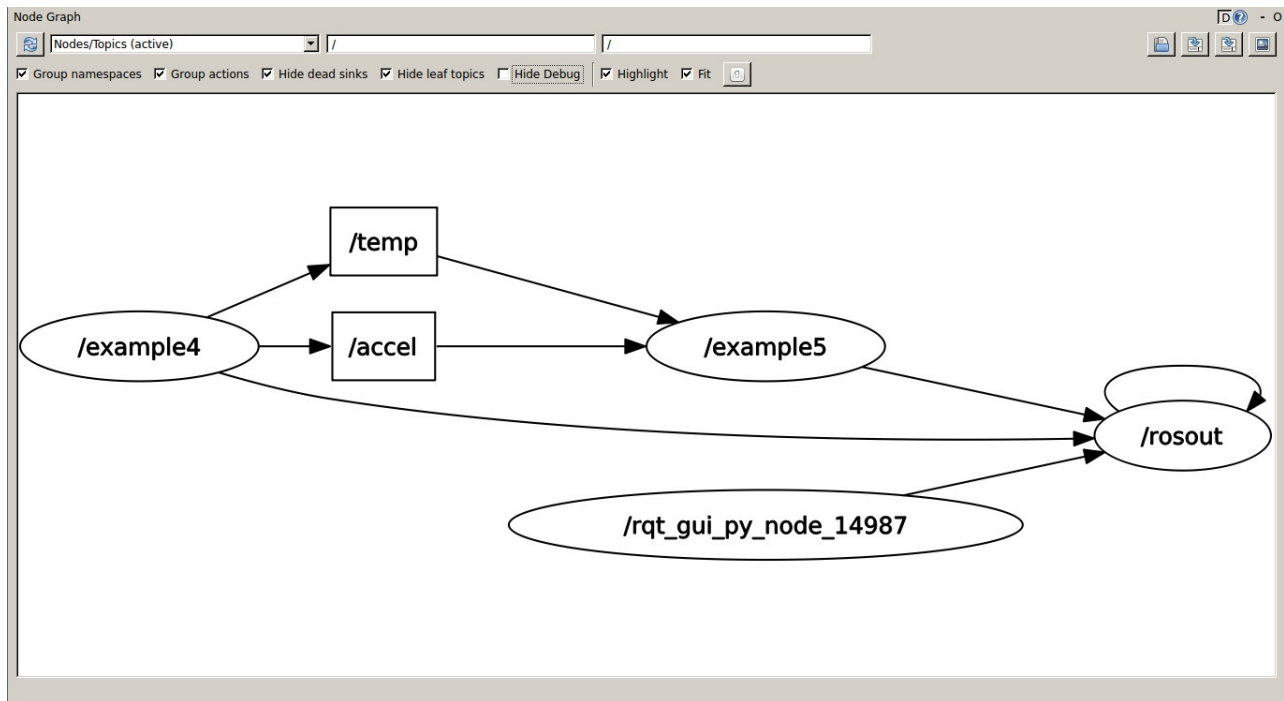
bool\_param

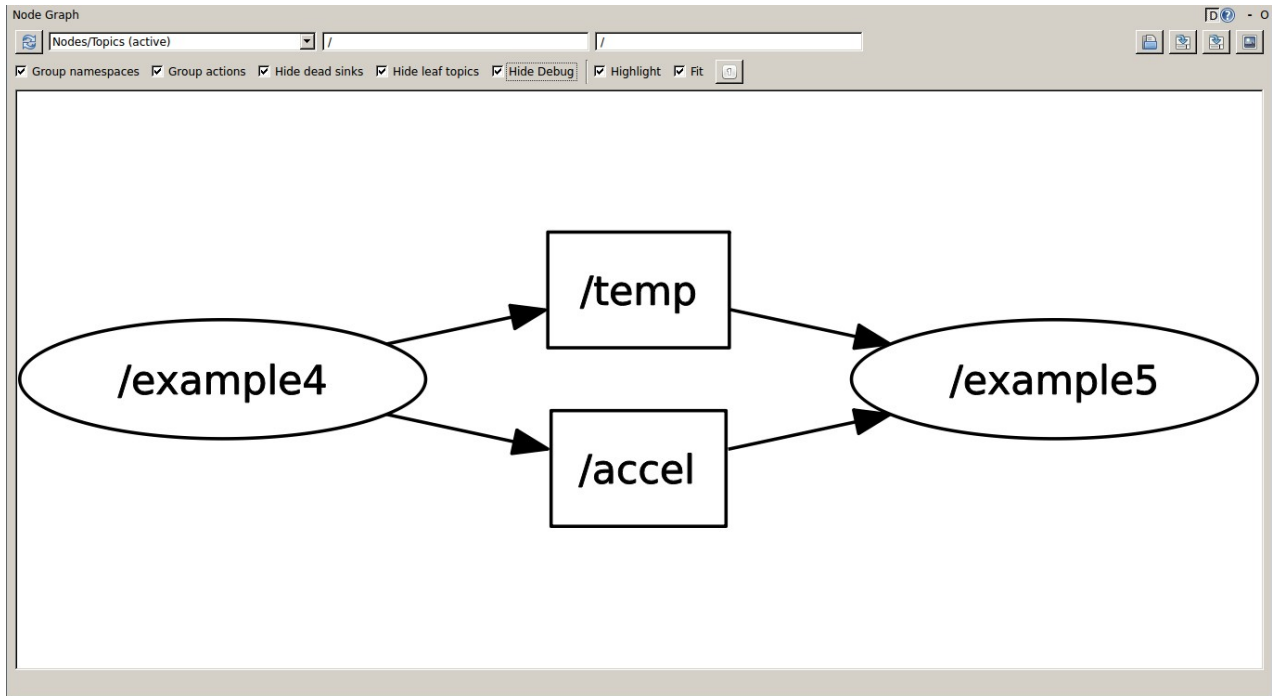
int\_param    -10  10 | 2

double\_param -3.14159265359  3.14159265359 | 1.00530964915

string\_param

(System message might be shown here when necessary)





Service Caller

Service /move\_base/NavfnROS/make\_plan

Call

Request

Topic	Type	Expression
/move_base/NavfnROS/make_plan	nav_msgs/GetPlanRequest	
start	geometry_msgs/PoseStamped	
header	std_msgs/Header	
seq	uint32	0
stamp	time	genpy.Time[0]
frame_id	string	"
pose	geometry_msgs/Pose	
position	geometry_msgs/Point	
x	float64	0.0
y	float64	0.0
z	float64	0.0
orientation	geometry_msgs/Quaternion	
x	float64	0.0
y	float64	0.0
z	float64	0.0
w	float64	0.0
goal	geometry_msgs/PoseStamped	
header	std_msgs/Header	
seq	uint32	0

Response

Field	Type	Value
/	nav_msgs/GetPlanResponse	
plan	nav_msgs/Path	
header	std_msgs/Header	
seq	uint32	0
stamp	time	genpy.Time[613797000000]
frame_id	string	'map'
poses	geometry_msgs/PoseStamped[]	[]



topic(+data member) name: /temp all clear

/accel/x: x [up] [down] repeat  -1.00 [slider] 1.00 [0.32] reset

/temp/data: x [up] [down] repeat  -100 [slider] 100 [10] reset

```
[ INFO] [1408203235.062137361]: Accel = (0.32, 0, 0)
[ INFO] [1408203235.176130320]: Accel = (0.32, 0, 0)
[ INFO] [1408203235.290146492]: Accel = (0.32, 0, 0)
[ INFO] [1408203235.354150873]: Accel = (0.32, 0, 0)
[ INFO] [1408203235.423985005]: Temp = 12
[ INFO] [1408203235.455685110]: Temp = 14
[ INFO] [1408203235.459028750]: Temp = 15
[ INFO] [1408203235.468083992]: Accel = (0.32, 0, 0)
[ INFO] [1408203235.490928768]: Temp = 16
[ INFO] [1408203235.507111764]: Temp = 17
[ INFO] [1408203235.582064323]: Accel = (0.32, 0, 0)
[ INFO] [1408203235.621114245]: Temp = 18
[ INFO] [1408203235.696175691]: Accel = (0.32, 0, 0)
[ INFO] [1408203235.760129757]: Accel = (0.32, 0, 0)
[ INFO] [1408203235.785343495]: Temp = 19
[ INFO] [1408203235.874210765]: Accel = (0.32, 0, 0)
[ INFO] [1408203235.988133672]: Accel = (0.32, 0, 0)
[ INFO] [1408203236.052052825]: Accel = (0.32, 0, 0)
[ INFO] [1408203236.167791626]: Accel = (0.32, 0, 0)
```

Message Publisher

Topic: /distance Type: std\_msgs/Int32 Freq: 20 Hz

topic	/	type	rate	expression
<input checked="" type="checkbox"/>	/bumper	std_msgs/Bool	1.00	
<input type="checkbox"/>	data	bool		False
<input checked="" type="checkbox"/>	/distance	std_msgs/Int32	2.00	
<input type="checkbox"/>	data	int32		2*

```
enrique@pc-acer [hydro]:svn:
~$ rostopic echo /bumper
data: False
---
data: False
---
data: False
---
data: False
---
data: False
---
enrique@pc-acer [hydro]:svn:
~$ rostopic echo /distance
data: 3286
---
data: 3288
---
data: 3290
---
data: 3292
---
data: 3294
---
data: 3296
---
data: 3298
---
```

Topic	Type	Bandwidth	Hz	Value
/amcl_pose	geometry_msgs/PoseWithCovarianceStamped	unknown	unknown	
header	std_msgs/Header			
frame_id	string			'map'
seq	uint32			0
stamp	time			genpyTime[591700000]
pose	geometry_msgs/PoseWithCovariance			
covariance	float64[36]			(0.20457495899314834, -0.001707561741432752, ...)
pose	geometry_msgs/Pose			
orientation	geometry_msgs/Quaternion			
w	float64			0.9999948663862841
x	float64			0.0
y	float64			0.0
z	float64			0.003204247349652341
position	geometry_msgs/Point			
x	float64			0.005243756470619018
y	float64			0.023378910660500424
z	float64			0.0
parameter_descriptions	dynamic_reconfigure/ConfigDescription			not monitored
parameter_updates	dynamic_reconfigure/Config			not monitored
attached_collision_object	moveit_msgs/AttachedCollisionObject			not monitored
back_camera/camera_info	sensor_msgs/CameraInfo			not monitored
back_camera/image	sensor_msgs/Image	10.22MB/s	9.34	
back_camera/image/compressed	sensor_msgs/CompressedImage			not monitored
back_camera/image/compressed/parameter_descriptions	dynamic_reconfigure/ConfigDescription			not monitored
back_camera/image/compressed/parameter_updates	dynamic_reconfigure/Config			not monitored
back_camera/image/compressedDepth	sensor_msgs/CompressedImage			not monitored
back_camera/image/compressedDepth/parameter_descriptions	dynamic_reconfigure/ConfigDescription			not monitored
back_camera/image/compressedDepth/parameter_updates	dynamic_reconfigure/Config			not monitored
back_camera/parameter_descriptions	dynamic_reconfigure/ConfigDescription			not monitored
back_camera/parameter_updates	dynamic_reconfigure/Config			not monitored
base_inclinometer	sensor_msgs/Imu	16.80KB/s	50.00	
angular_velocity	geometry_msgs/Vector3			
header	std_msgs/Header			
linear_acceleration	geometry_msgs/Vector3			
x	float64			0.0
y	float64			0.0
z	float64			0.0
linear_acceleration_covariance	float64[9]			(-1.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)
orientation	geometry_msgs/Quaternion			
orientation_covariance	float64[9]			(0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0)
bumper_states	gazebo_msgs/ContactsState			can not get message class for type "gazebo_msgs/C..."
clock	roscgraph_msgs/Clock			not monitored
diagnostics	diagnostic_msgs/DiagnosticArray			not monitored

Node	PID	CPU %	Mem %	Num Threads
/rqt_gui_py_node_10852	10852	13.10	1.07	5
/rosout	6271	1.00	0.12	5
/robot_state_publisher	6311	15.20	0.19	6
/play_motion	6398	20.20	0.54	9
/move_group	6365	25.30	0.72	19
/move_base	6575	26.30	0.43	11
/map_server	6408	9.10	0.14	5
/joystick	6319	9.10	0.11	5
/joy_teleop	6314	6.10	0.20	6
/is_already_there	6399	7.10	0.20	6
/gazebo	6296	139.00	3.78	69
/default_controllers_spawner	6299	6.10	0.20	5
/amcl	6438	19.20	0.26	7

Kill Node

Nodes	Loggers	Levels
/example3	ros	Debug
/rosout	ros.chapter3_tutorials	Info
/rqt_gui_py_node_4754	ros.chapter3_tutorials.named_msg	Warn
/rqt_gui_py_node_5180	ros.roscpp	Error
	ros.roscpp.roscpp_internal	Fatal
	ros.roscpp.superdebug	

Refresh

Logger Level

Nodes	Loggers	Levels
/example3 /rosout /rqt_gui_py_node_4754 /rqt_gui_py_node_5180	ros ros.chapter3_tutorials ros.chapter3_tutorials.named_msg ros.roscpp ros.roscpp.roscpp_internal ros.roscpp.superdebug	Debug <b>Info</b> Warn Error Fatal

Refresh

Console

Displaying 8 of 22 messages

#	Message	Severity	Node	Stamp	Topics	Location
#21	FATAL me...	Fatal	/example3	22:20:02.943...	/rosout	/home/enriqu...
#20	ERROR m...	Error	/example3	22:20:02.943...	/rosout	/home/enriqu...
#15	FATAL me...	Fatal	/example3	22:20:01.943...	/rosout	/home/enriqu...
#14	ERROR m...	Error	/example3	22:20:01.943...	/rosout	/home/enriqu...
#10	FATAL me...	Fatal	/example3	22:20:00.943...	/rosout	/home/enriqu...
#9	ERROR m...	Error	/example3	22:20:00.943...	/rosout	/home/enriqu...
#5	FATAL me...	Fatal	/example3	22:19:59.943...	/rosout	/home/enriqu...
#4	ERROR m...	Error	/example3	22:19:59.943...	/rosout	/home/enriqu...

Exclude Messages...

...with severities: **Debug** **Info** Warn Error Fatal

Highlight Messages...

...containing:   Regex

Console - 0

Displaying 22 messages

#	Message	Severity	Node	Stamp	Topics	Location
#22	INFO na...	Info	/example3	22:20:00		
#21	FATAL me...	Fatal	/example3	22:20:00		
#20	ERROR m...	Error	/example3	22:20:00		
#19	WARN m...	Warn	/example3	22:20:00		
#18	INFO mes...	Info	/example3	22:20:00		
#17	INFO thro...	Info	/example3	22:20:00		
#16	INFO na...	Info	/example3	22:20:00		
#15	FATAL me...	Fatal	/example3	22:20:00		
#14	ERROR m...	Error	/example3	22:20:00		
#13	WARN m...	Warn	/example3	22:20:00		
#12	INFO mes...	Info	/example3	22:20:00		
#11	INFO na...	Info	/example3	22:20:00		
#10	FATAL me...	Fatal	/example3	22:20:00		

Node: /example3  
 Time: 22:20:02.943365568 (2014-06-29)  
 Severity: Info  
 Published Topics: /rosout  
 INFO named message.  
 Location:  
 /home/enrique/svn/ros\_book\_hydro\_ws/src/ros\_book\_v2/chapter3\_tutorials/src/example3.c  
 p:main:21

Exclude Messages...  
 ...with severities: Debug Info Warn Error Fatal

Highlight Messages...  
 ...containing:  Regex

Close

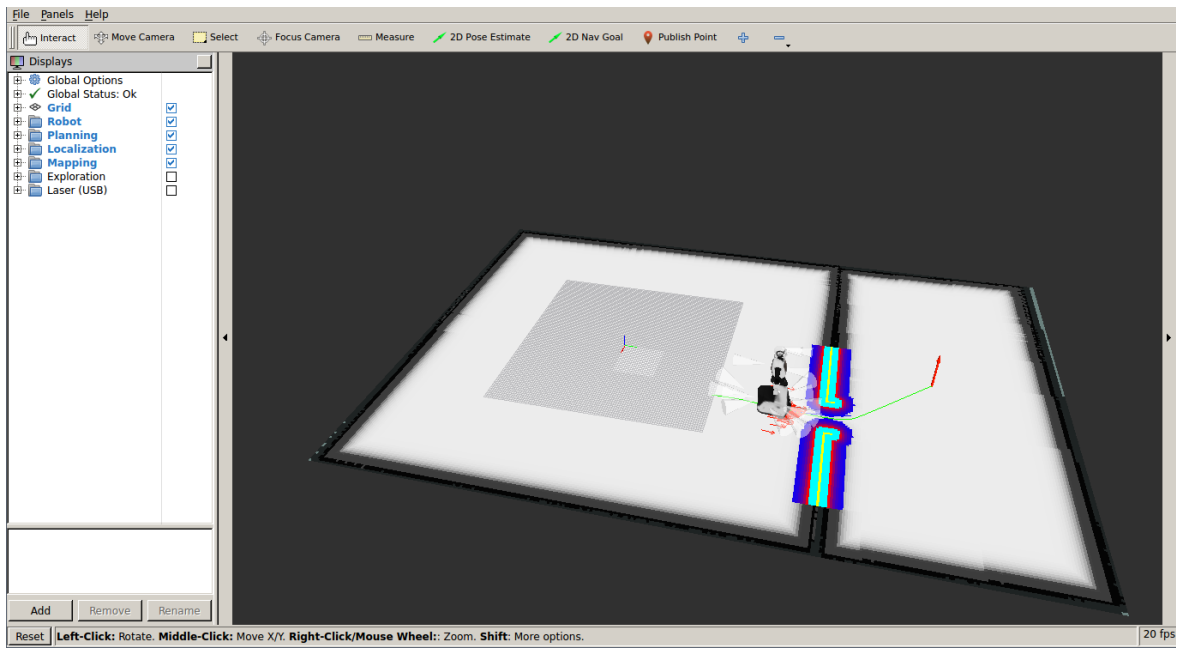
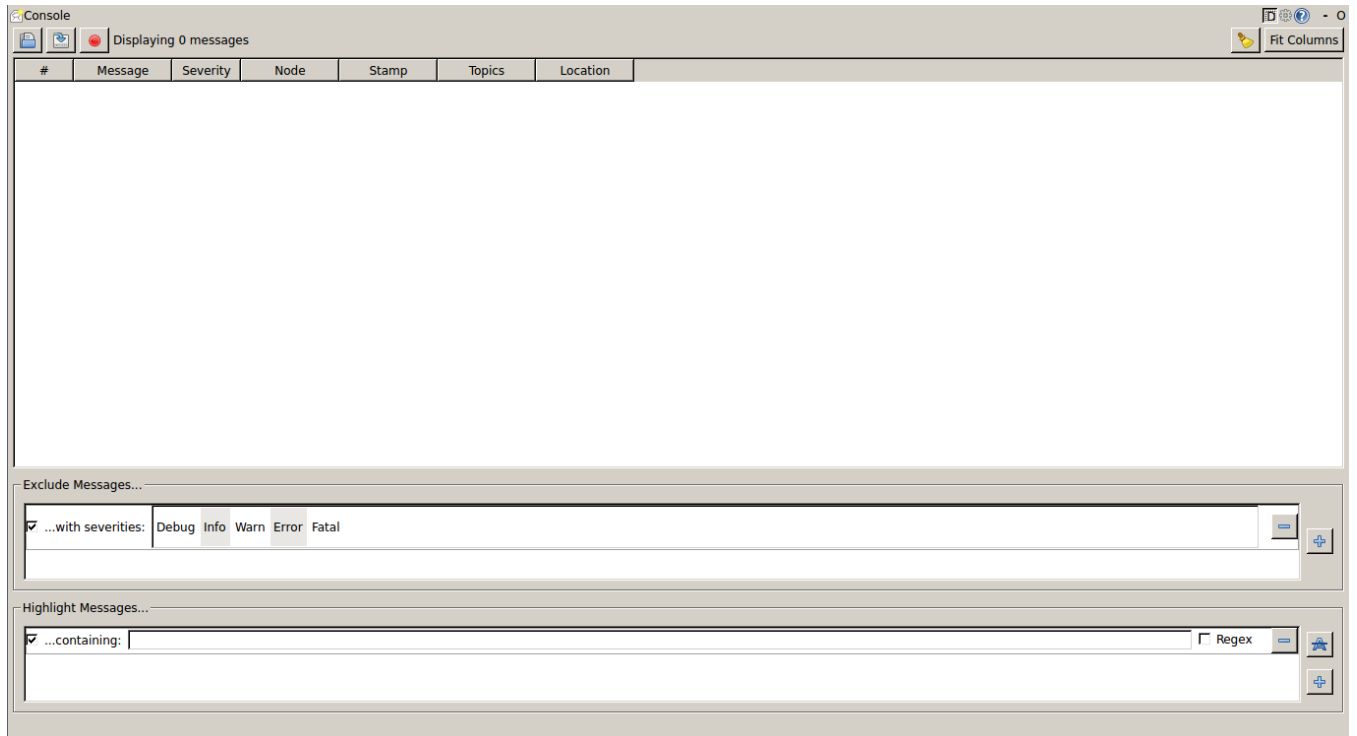
Console - 0

Displaying 49 messages

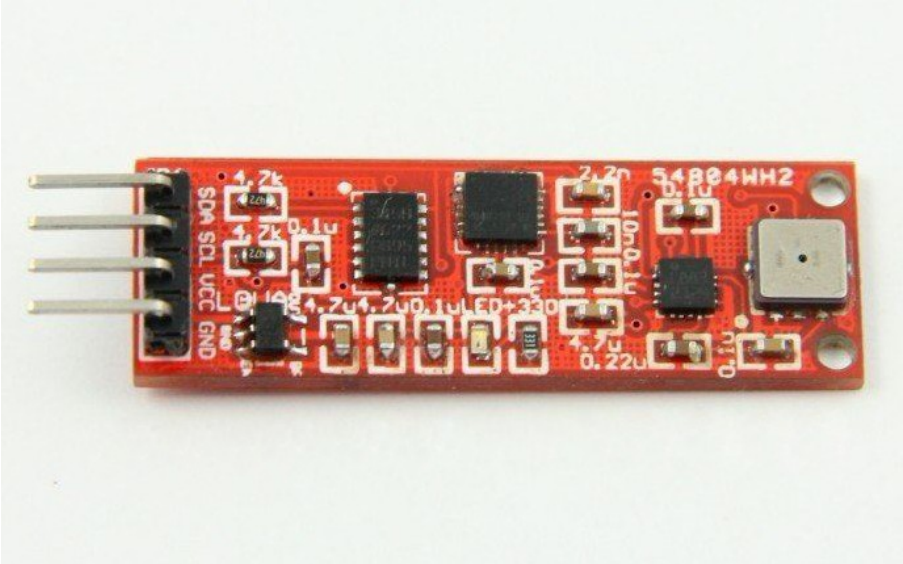
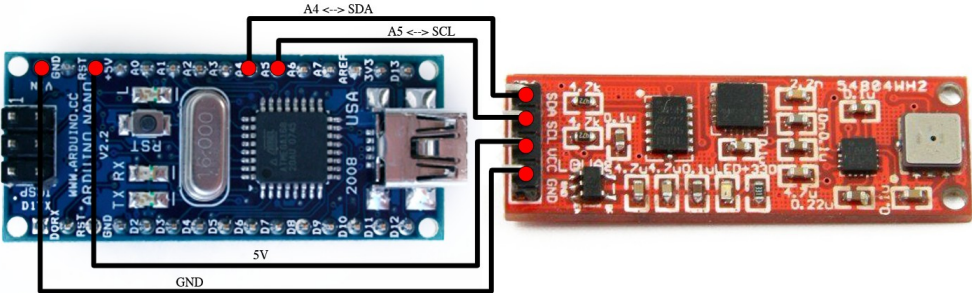
#	Message	Severity	Node	Stamp	Topics	Location
#49	INFO na...	Info	/example3	22:18:34.763...	/rosout	/home/enriqu...
#48	FATAL me...	Fatal	/example3	22:18:34.763...	/rosout	/home/enriqu...
#47	ERROR m...	Error	/example3	22:18:34.763...	/rosout	/home/enriqu...
#46	WARN m...	Warn	/example3	22:18:34.762...	/rosout	/home/enriqu...
#45	INFO mes...	Info	/example3	22:18:34.762...	/rosout	/home/enriqu...
#44	INFO thro...	Info	/example3	22:18:33.763...	/rosout	/home/enriqu...
#43	INFO na...	Info	/example3	22:18:33.763...	/rosout	/home/enriqu...
#42	FATAL me...	Fatal	/example3	22:18:33.763...	/rosout	/home/enriqu...
#41	ERROR m...	Error	/example3	22:18:33.763...	/rosout	/home/enriqu...
#40	WARN m...	Warn	/example3	22:18:33.762...	/rosout	/home/enriqu...
#39	INFO mes...	Info	/example3	22:18:33.762...	/rosout	/home/enriqu...
#38	INFO na...	Info	/example3	22:18:32.763...	/rosout	/home/enriqu...
#37	FATAL me...	Fatal	/example3	22:18:32.763...	/rosout	/home/enriqu...

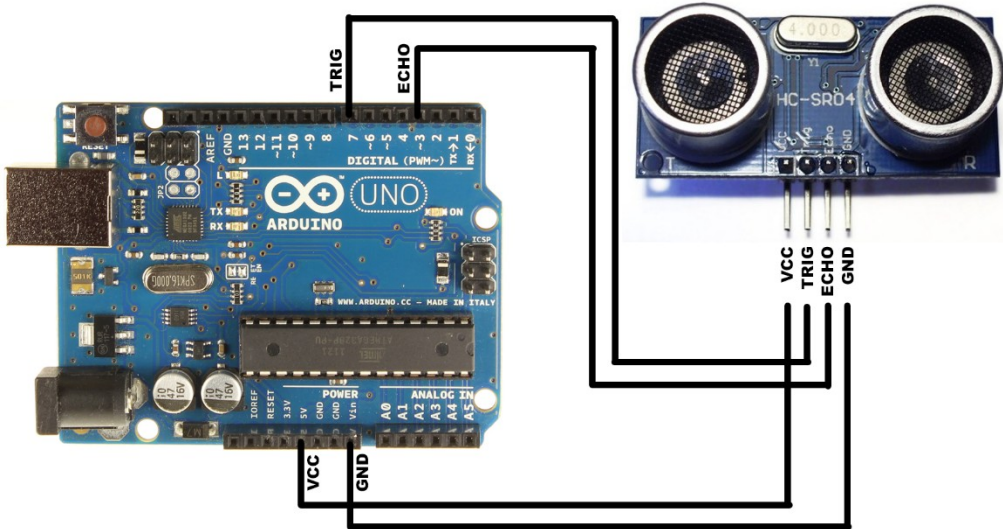
Exclude Messages...  
 ...with severities: Debug Info Warn Error Fatal

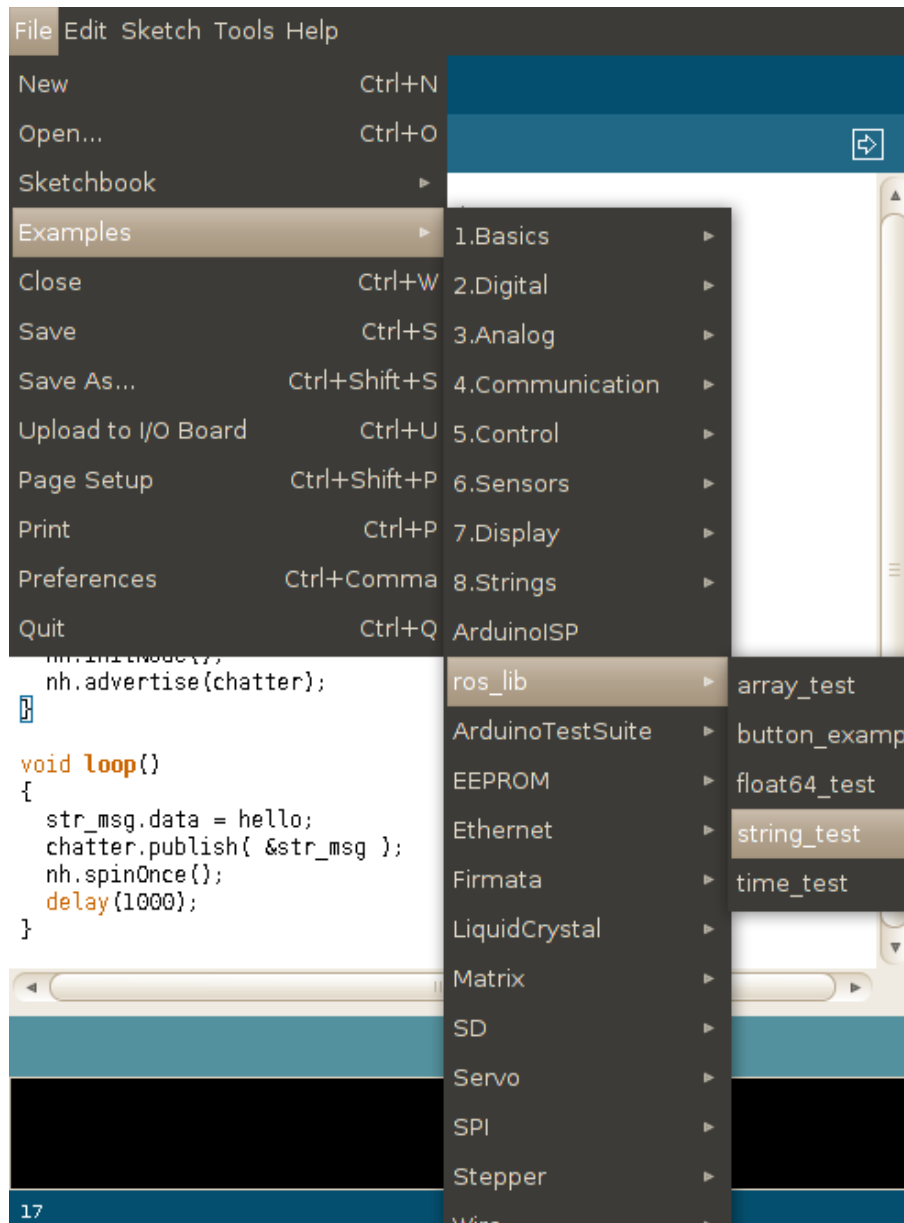
Highlight Messages...  
 ...containing:  Regex



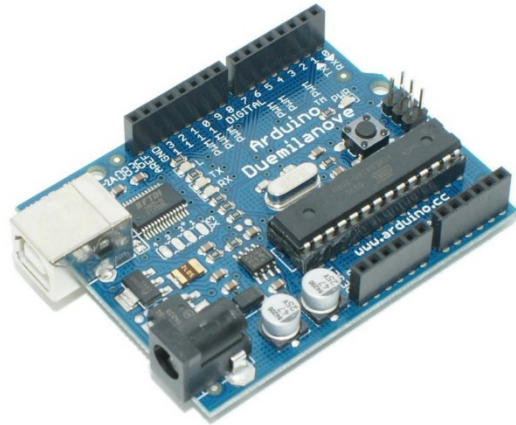
# Chapter 4

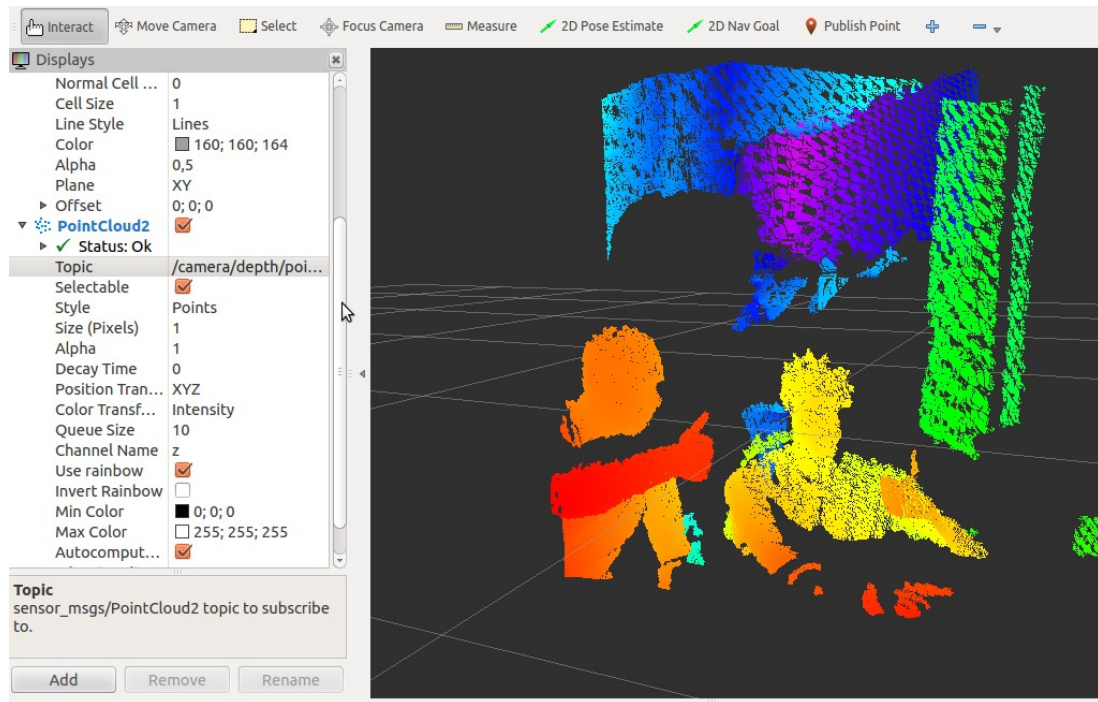
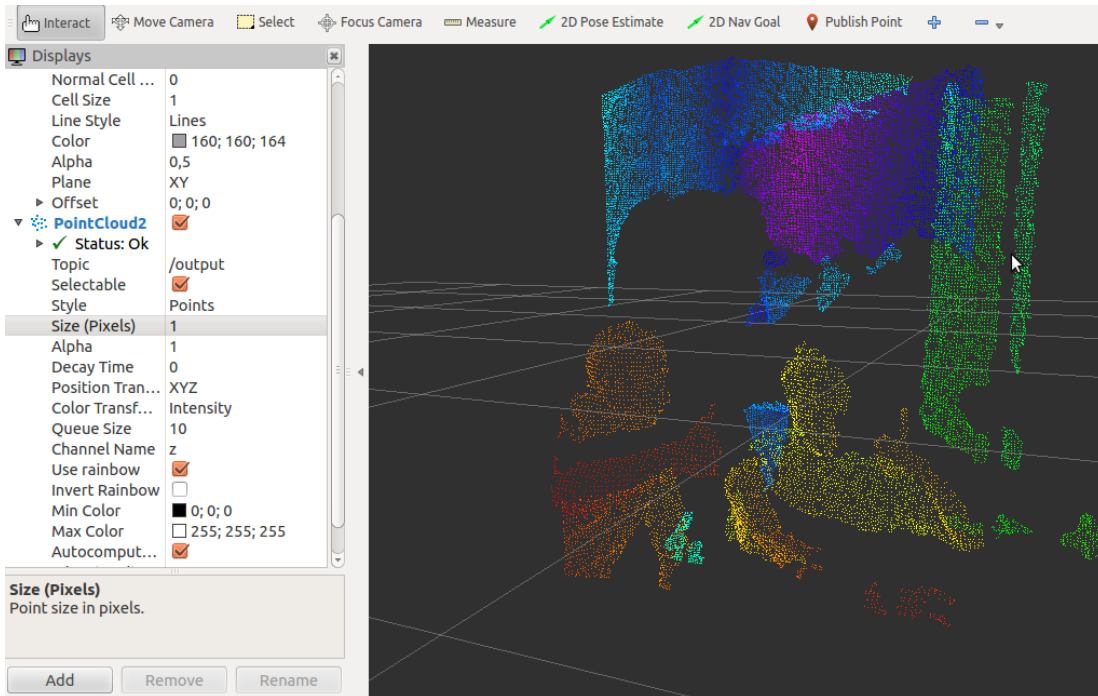


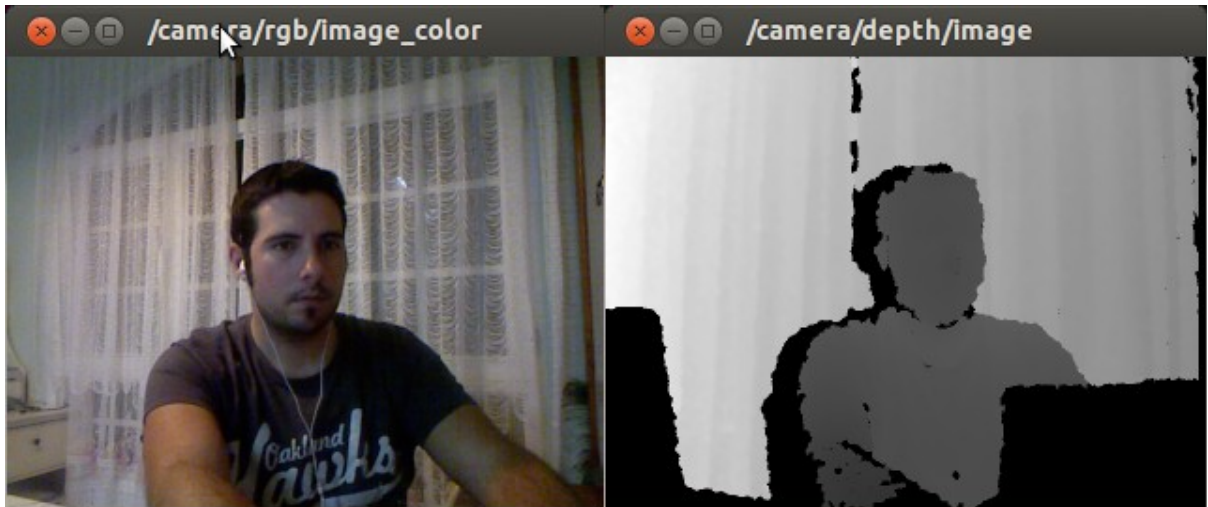




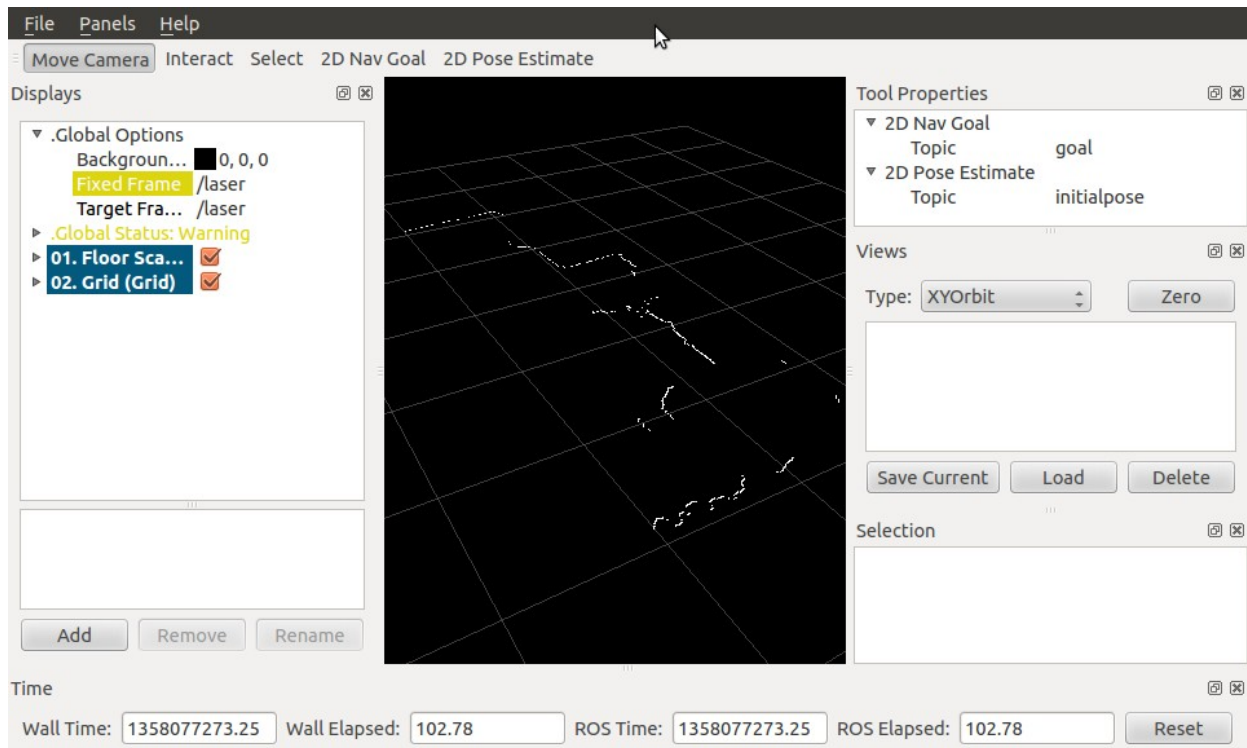
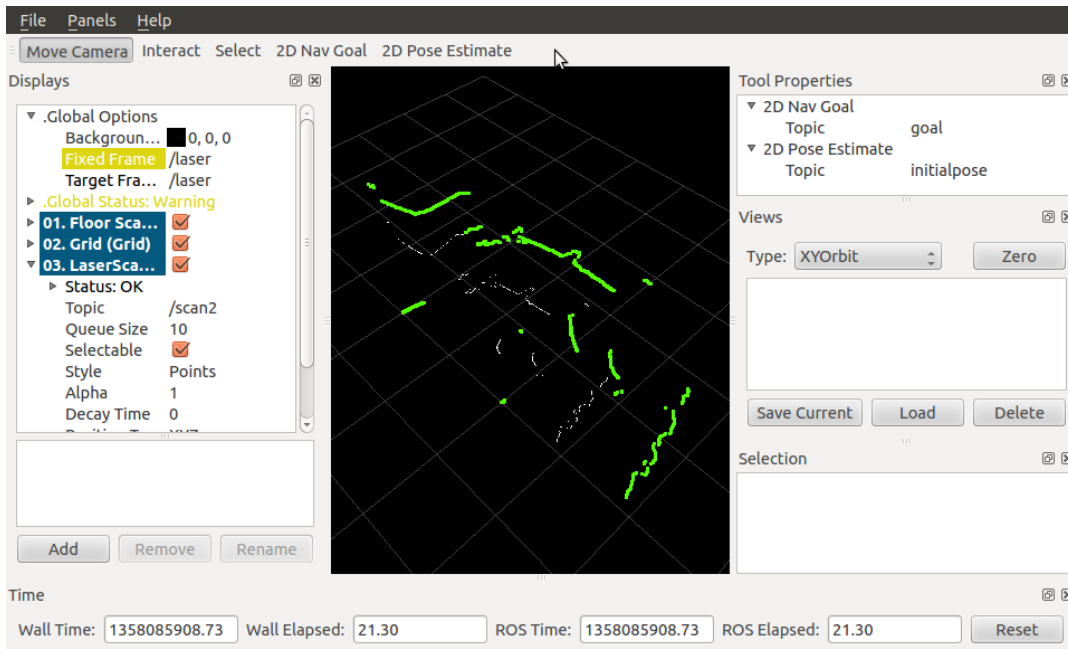








**KINECT™**  
for  XBOX 360.





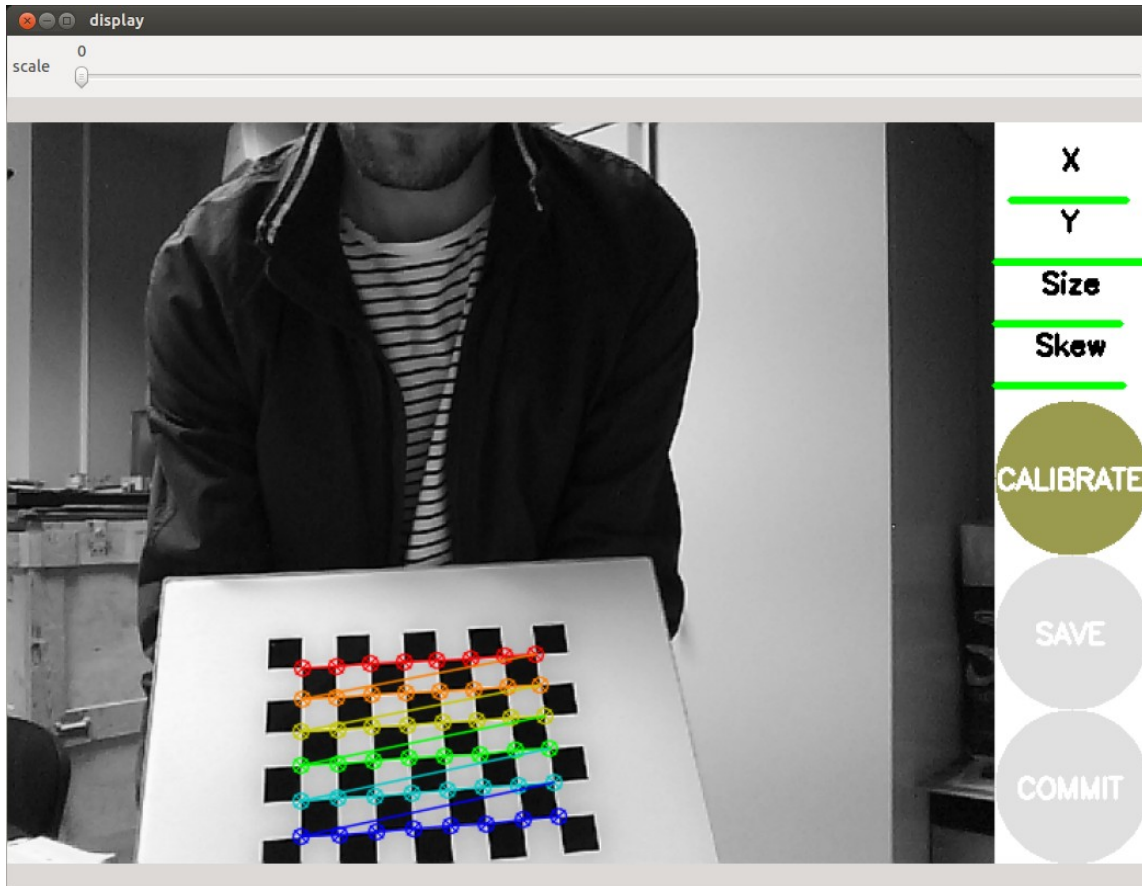
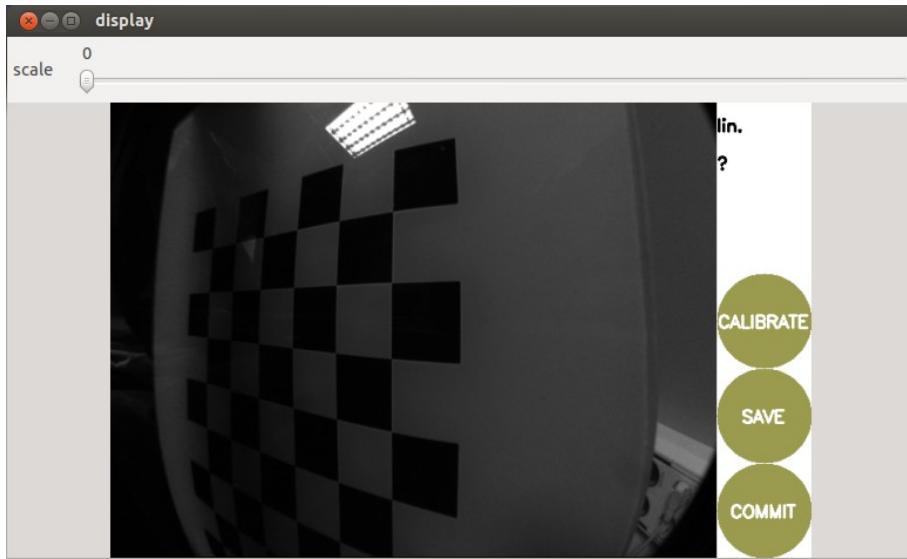
```
/rosout  
/rosout_agg  
/turtle1/color_sensor  
/turtle1/command_velocity  
/turtle1/pose
```

```
uint32 seq  
time stamp  
string frame_id  
float32[] axes  
int32[] buttons
```



# Chapter 5



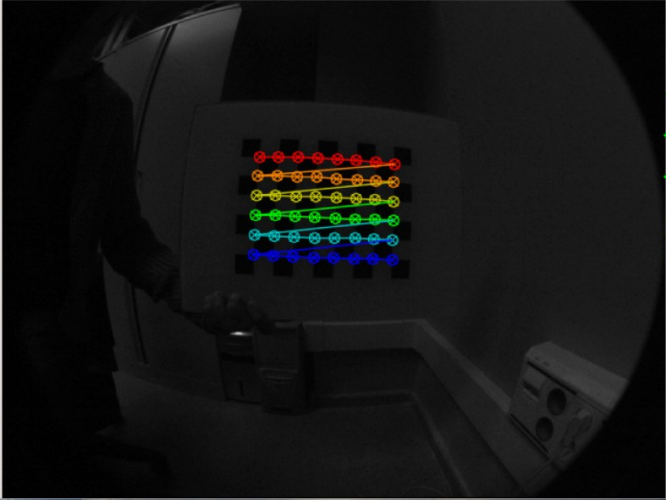


```

roscore http://siani... x /home/enrique/ros... x enrique@siani:~
#8/19 node=/camera/image_proc_rectify_color
[INFO] [WallTime: 1364224013.728094] rqt_reconfigure loading
#9/19 node=/camera/image_proc_rectify_mono
[INFO] [WallTime: 1364224013.755847] rqt_reconfigure loading
#10/19 node=/camera/image_raw/compressed
[INFO] [WallTime: 1364224013.808455] rqt_reconfigure loading
#11/19 node=/camera/image_raw/compressedDepth
[INFO] [WallTime: 1364224013.874147] rqt_reconfigure loading
#12/19 node=/camera/image_raw/theora
[INFO] [WallTime: 1364224013.943451] rqt_reconfigure loading
#13/19 node=/camera/image_rect/compressed
[INFO] [WallTime: 1364224014.002863] rqt_reconfigure loading
#14/19 node=/camera/image_rect/compressedDepth
[INFO] [WallTime: 1364224014.046688] rqt_reconfigure loading
#15/19 node=/camera/image_rect/theora
[INFO] [WallTime: 1364224014.131147] rqt_reconfigure loading
#16/19 node=/camera/image_rect_color/compressed
[INFO] [WallTime: 1364224014.189738] rqt_reconfigure loading
#17/19 node=/camera/image_rect_color/compressedDepth
[INFO] [WallTime: 1364224014.266306] rqt_reconfigure loading
#18/19 node=/camera/image_rect_color/theora
[INFO] [WallTime: 1364224014.334107] rqt_reconfigure loading
#19/19 node=/camera1394_node
enrique@siani:~$

```

scale 0



X

Y

Size

Skew

CALIBRATE

SAVE

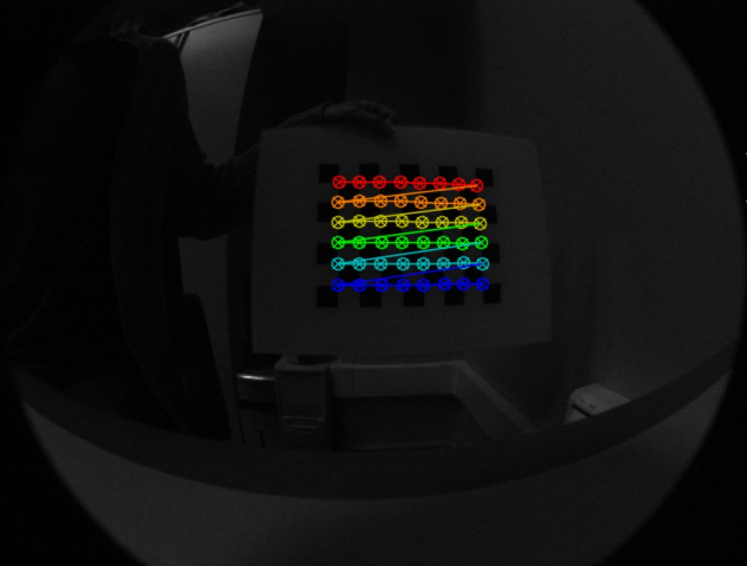
COMMIT

```

roscore http://siani... x /home/enrique/ros... x enrique@siani:~
#8/19 node=/camera/image_proc_rectify_color
[INFO] [WallTime: 1364224013.728094] rqt_reconfigure loading
#9/19 node=/camera/image_proc_rectify_mono
[INFO] [WallTime: 1364224013.755847] rqt_reconfigure loading
#10/19 node=/camera/image_raw/compressed
[INFO] [WallTime: 1364224013.808455] rqt_reconfigure loading
#11/19 node=/camera/image_raw/compressedDepth
[INFO] [WallTime: 1364224013.874147] rqt_reconfigure loading
#12/19 node=/camera/image_raw/theora
[INFO] [WallTime: 1364224013.943451] rqt_reconfigure loading
#13/19 node=/camera/image_rect/compressed
[INFO] [WallTime: 1364224014.002863] rqt_reconfigure loading
#14/19 node=/camera/image_rect/compressedDepth
[INFO] [WallTime: 1364224014.046688] rqt_reconfigure loading
#15/19 node=/camera/image_rect/theora
[INFO] [WallTime: 1364224014.131147] rqt_reconfigure loading
#16/19 node=/camera/image_rect_color/compressed
[INFO] [WallTime: 1364224014.189738] rqt_reconfigure loading
#17/19 node=/camera/image_rect_color/compressedDepth
[INFO] [WallTime: 1364224014.266306] rqt_reconfigure loading
#18/19 node=/camera/image_rect_color/theora
[INFO] [WallTime: 1364224014.334107] rqt_reconfigure loading
#19/19 node=/camera1394_node
enrique@siani:~$

```

scale 0



X

Y

Size

Skew

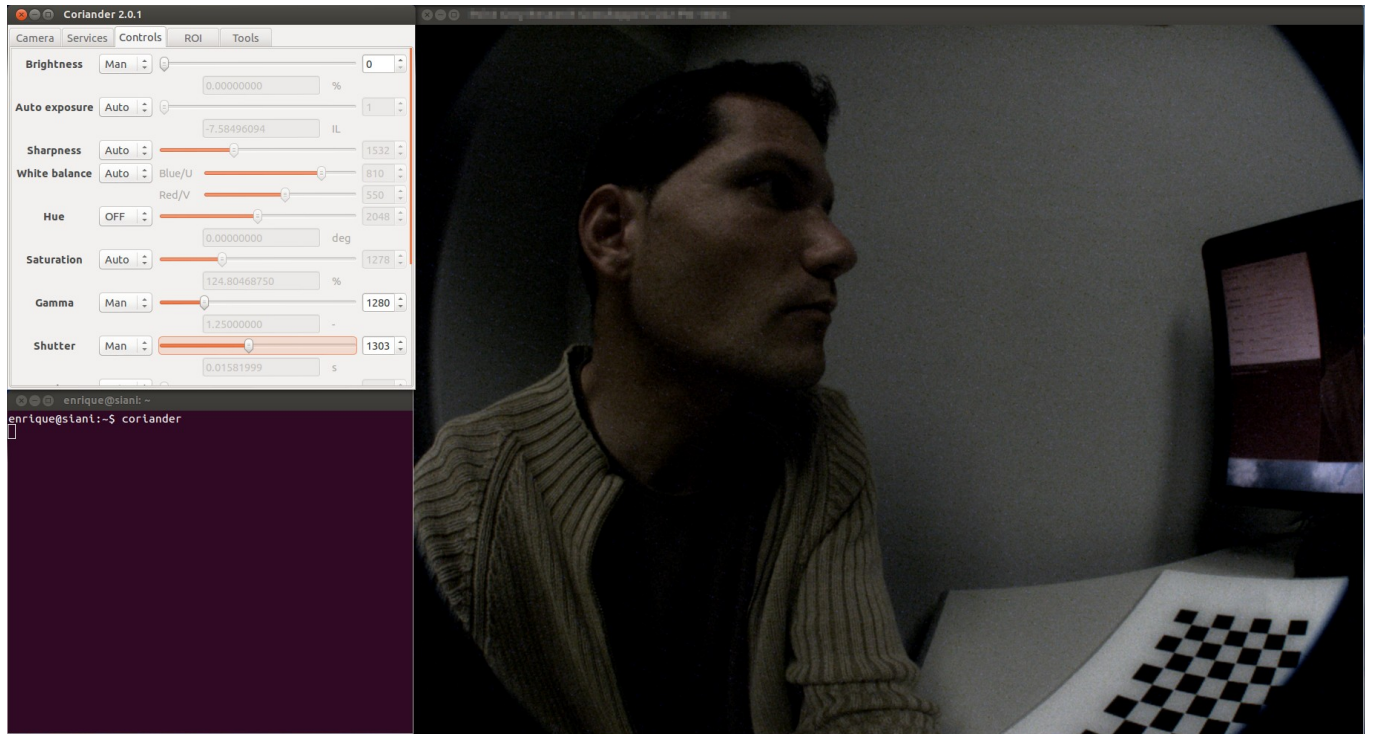
CALIBRATE

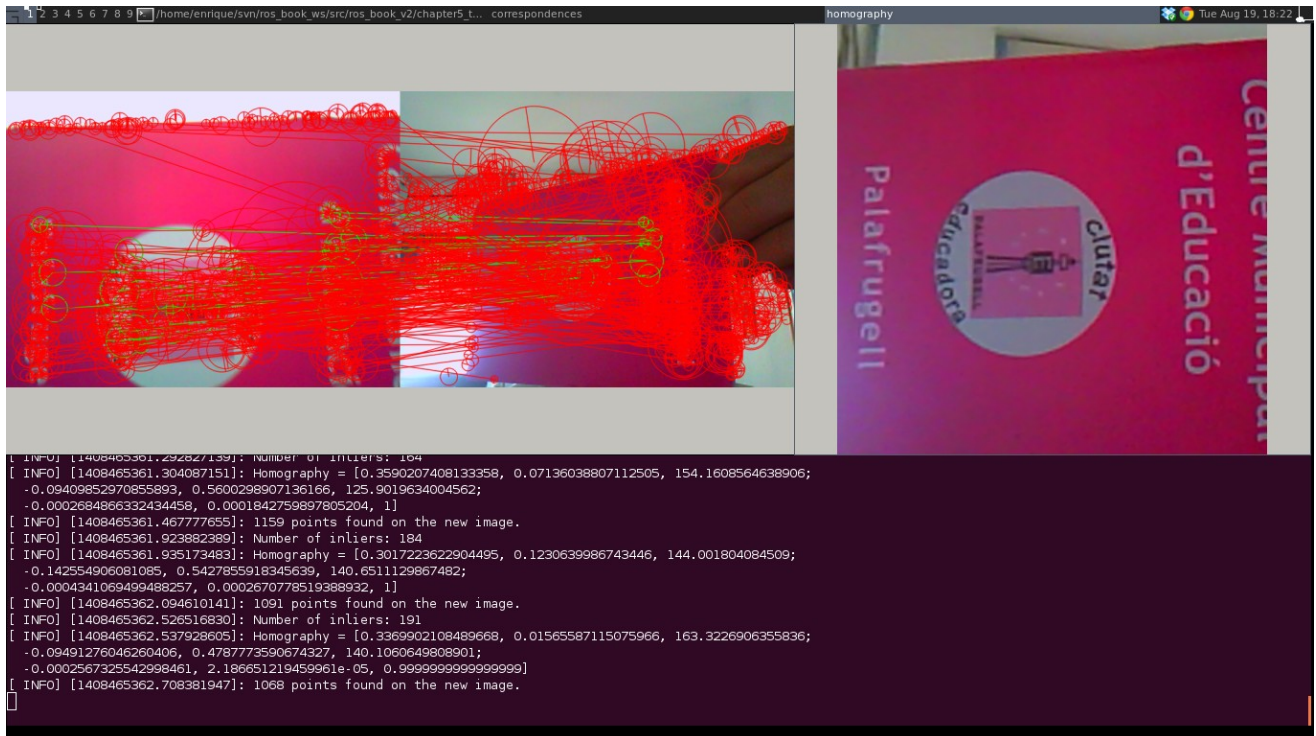
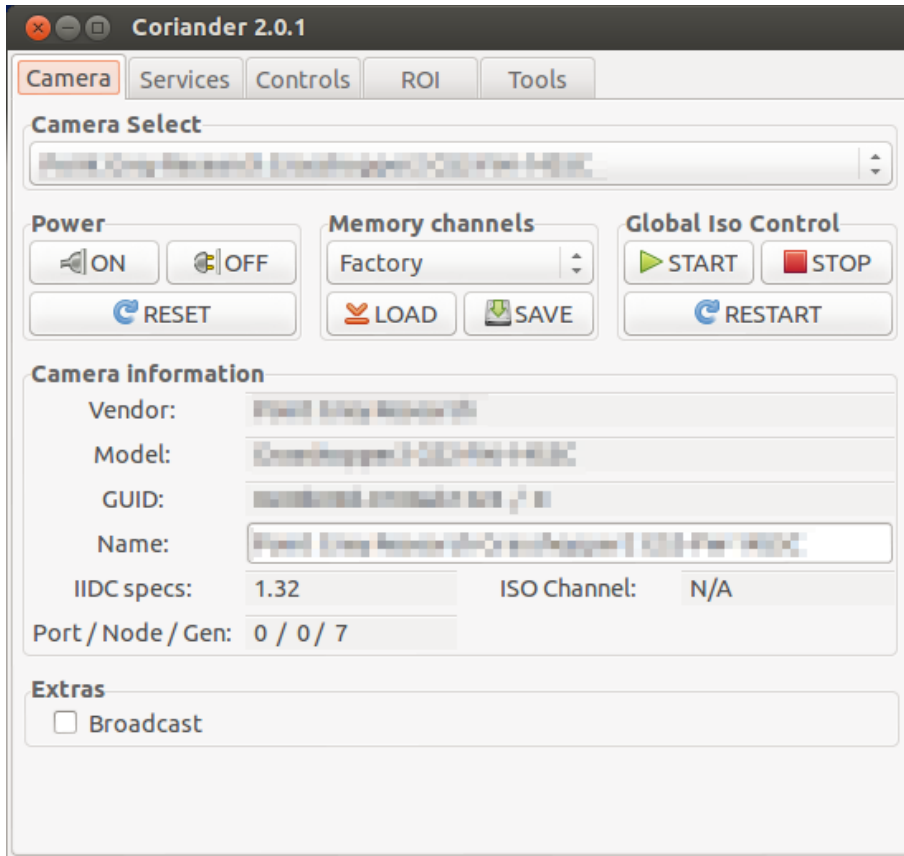
SAVE

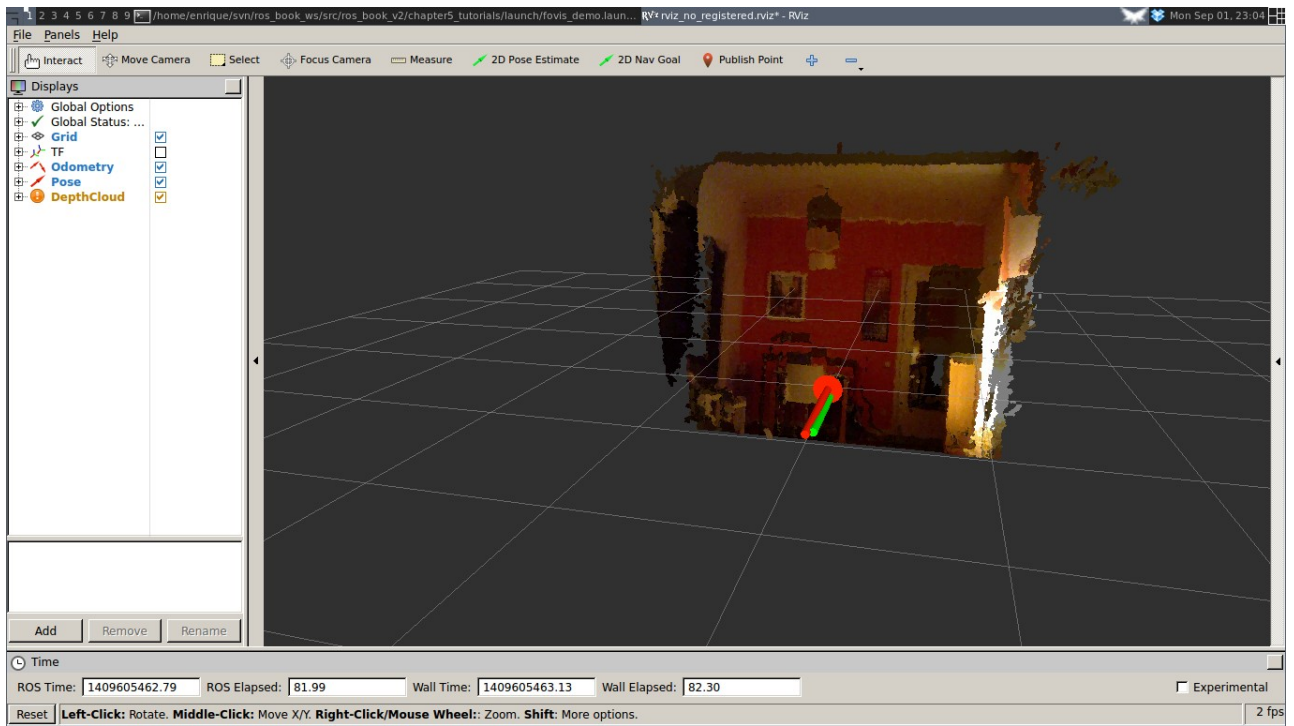
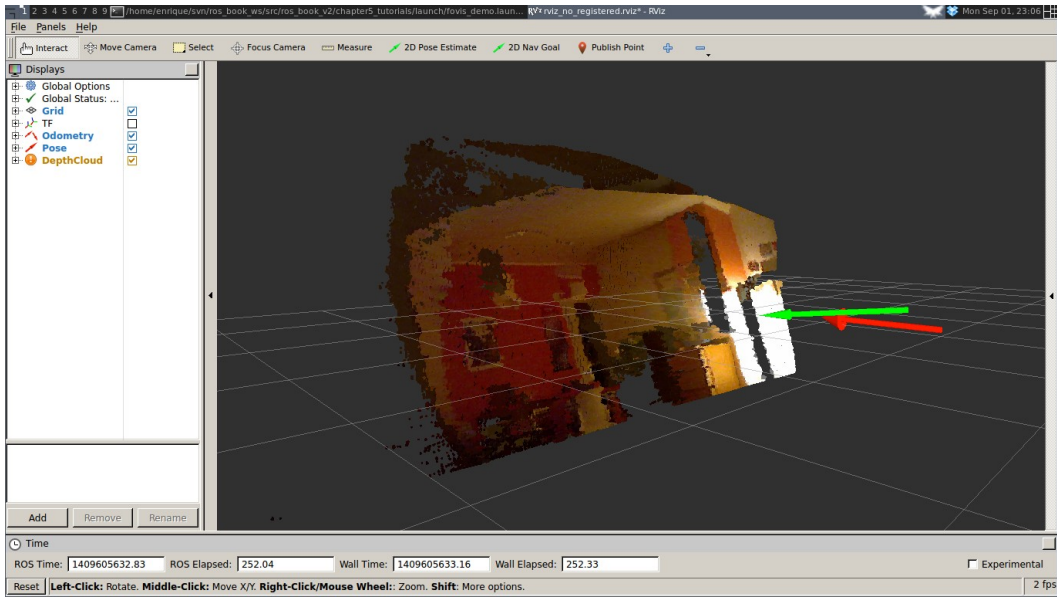
COMMIT

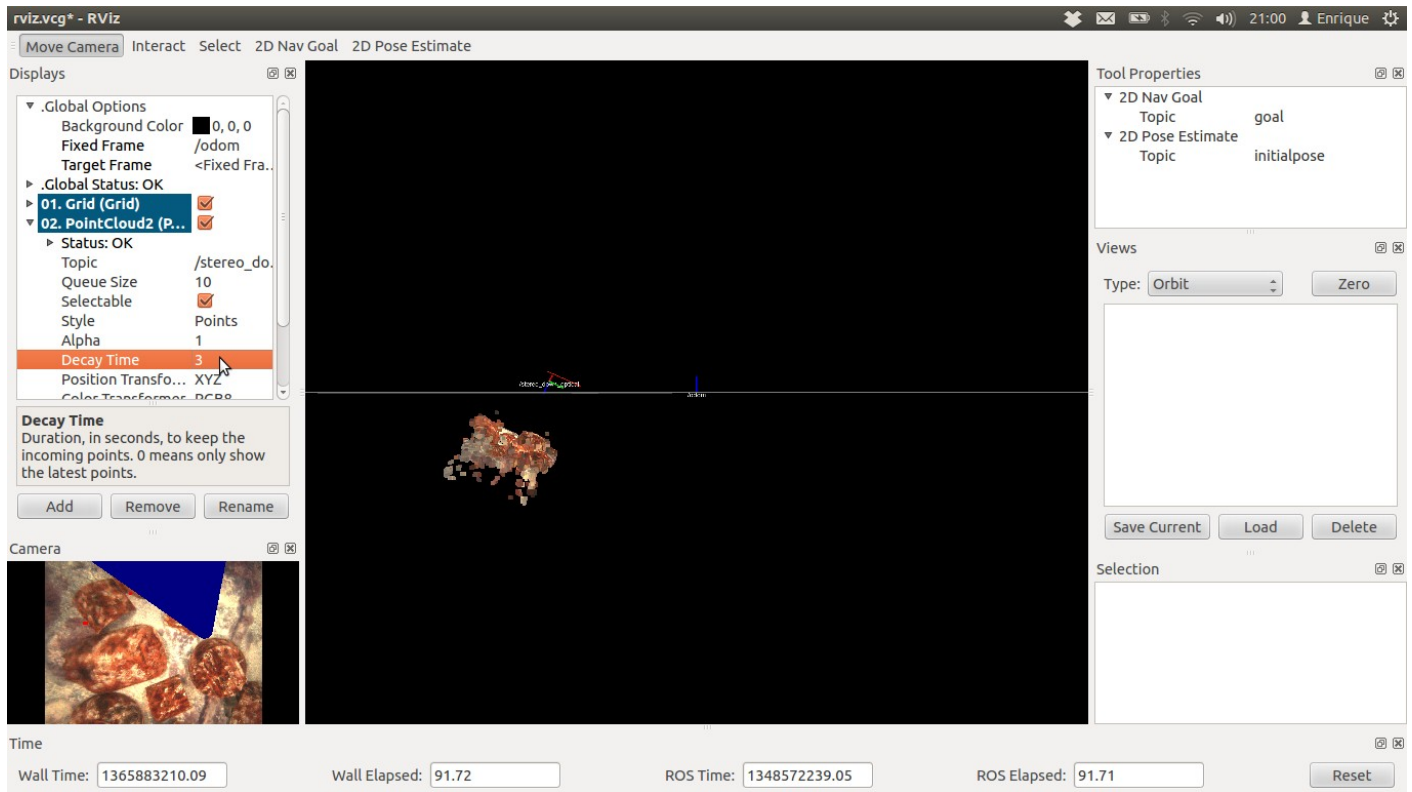
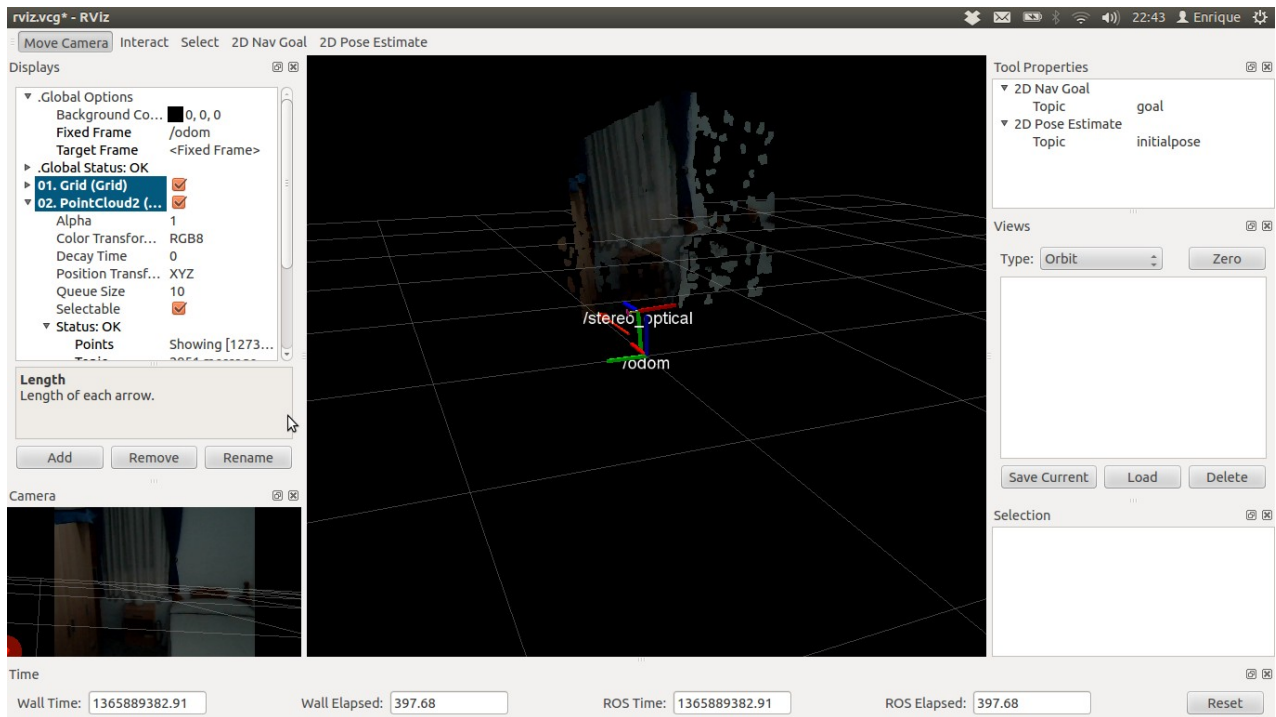


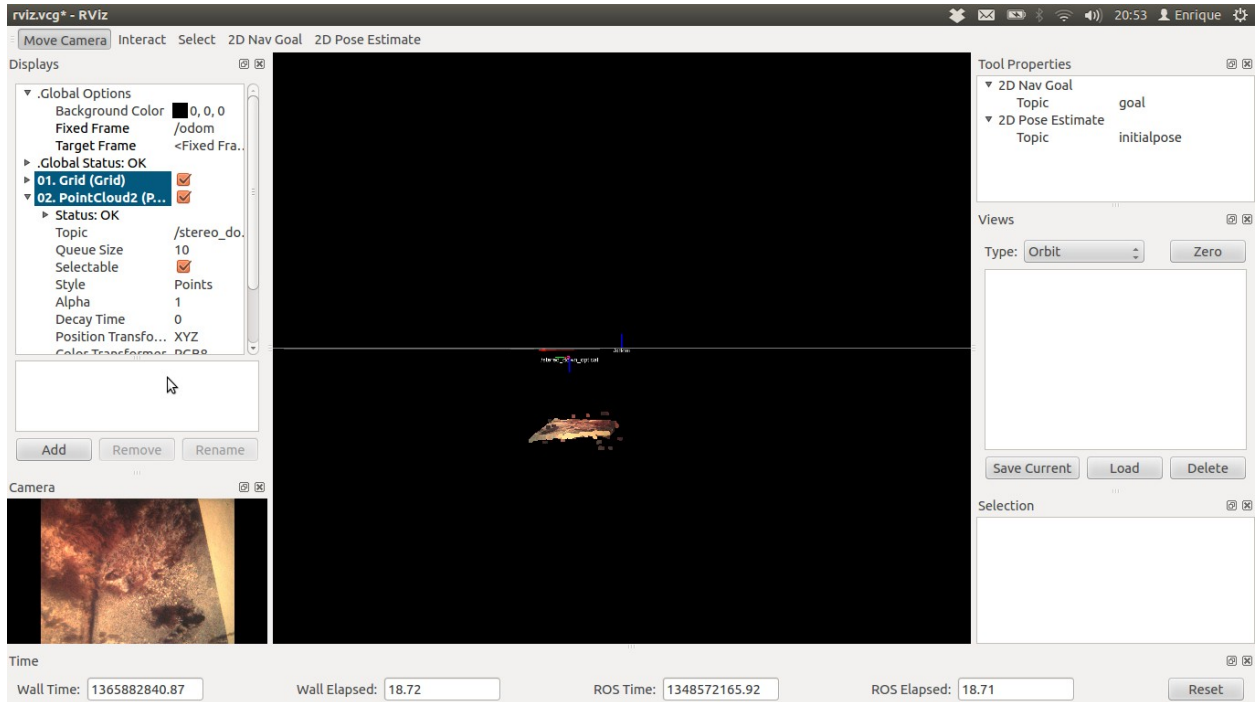
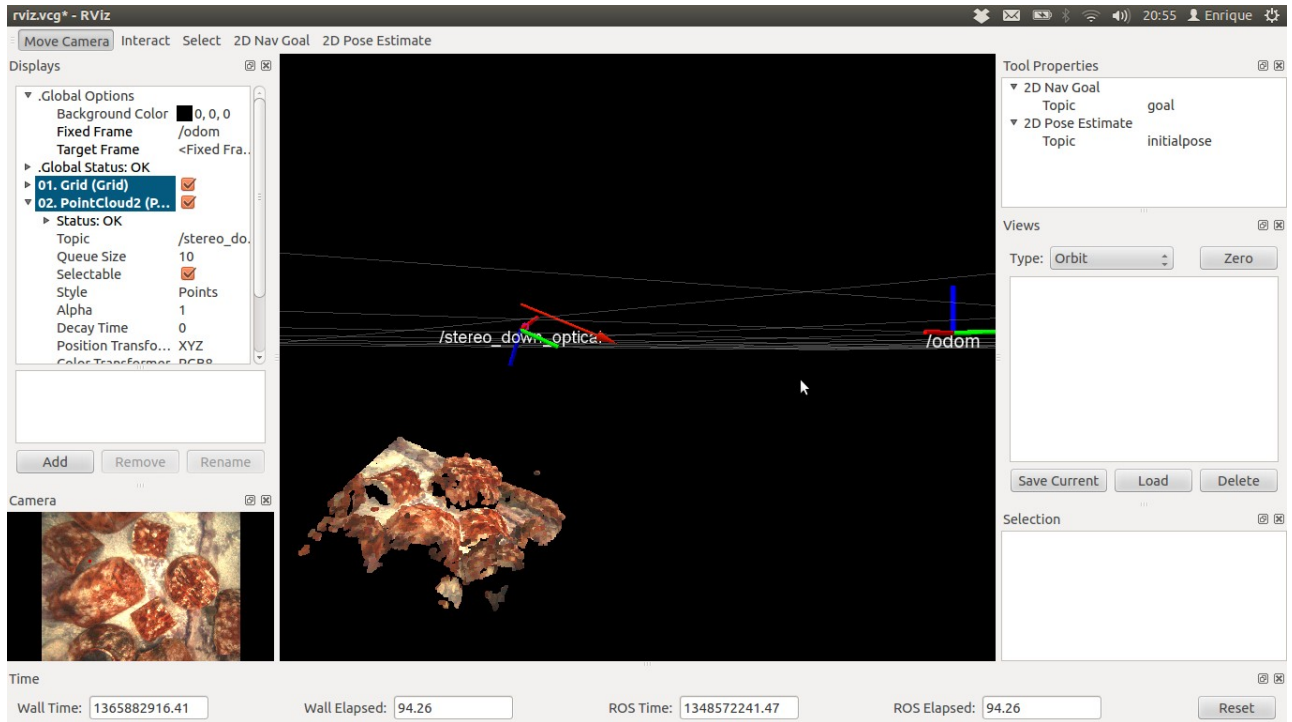












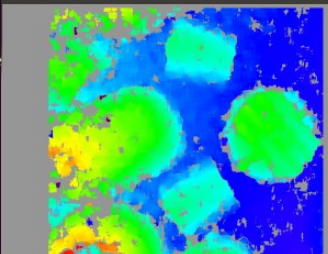
```

outlier_disp_tolerance = 5
outlier_flow_tolerance = 5
multi_stage = 1
half_resolution = 1
refinement = 1
Bucketing parameters:
max_features = 2
bucket_width = 50
bucket_height = 50
Stereo odometry parameters:
base = 0.124709
ransac_iters = 200
inlier_threshold = 1.5
reweighting = 1
motion_threshold = 5
[ WARN ] [1365881823.146520654, 1348572182.950380694]: Visual Odometer got lost!
[ WARN ] [1365881824.241013901, 1348572184.038589802]: Visual Odometer got lost!

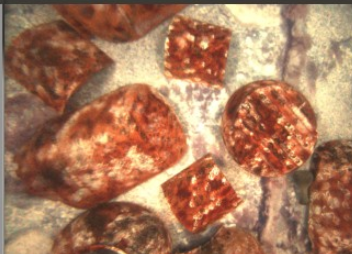
```

prefilter_size	5	255	15
prefilter_cap	1	63	5
correlation_window_size	5	255	23
min_disparity	-128	128	77
disparity_range	32	128	48
uniqueness_ratio	0	100	5
texture_threshold	0	10000	500
speckle_size	0	1000	100
speckle_range	0	31	5

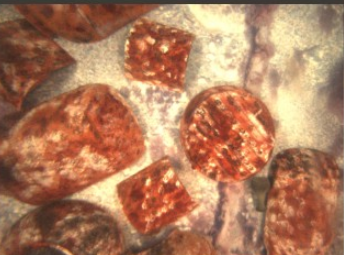
disparity




left



right



/aggregated\_image



```

/home/enrique/ros/stacks/camera_pose/camera_pose_calibration/launch_extrinsics/calibrate_2_camera.launch
/home/enrique/dev/rosbook/chapter6_tutorials/launch/c... /home/enrique/ros/stacks/camera_pose/camera_pose_c...
[INFO] [WallTime: 1365876274.168936] RMS: 0.9333076290619952
[INFO] [WallTime: 1365876274.426209] RMS: 0.9333076290619902
[INFO] [WallTime: 1365876274.703459] RMS: 0.9333076290619940
[INFO] [WallTime: 1365876275.025765] RMS: 0.9333076290619945
[INFO] [WallTime: 1365876275.348485] RMS: 0.9333076290619914
[INFO] [WallTime: 1365876275.668242] RMS: 0.9333076290619918
[INFO] [WallTime: 1365876275.955935] RMS: 0.9333076290619916
[INFO] [WallTime: 1365876276.266447] RMS: 0.9333076290619914
[INFO] [WallTime: 1365876276.591021] RMS: 0.9333076290619911
[INFO] [WallTime: 1365876276.889535] RMS: 0.9333076290619938
[INFO] [WallTime: 1365876277.163942] RMS: 0.9333076290619916
[INFO] [WallTime: 1365876277.460607] RMS: 0.9333076290619919
[INFO] [WallTime: 1365876277.763509] RMS: 0.9333076290619911
[INFO] [WallTime: 1365876278.045626] RMS: 0.9333076290619925
[INFO] [WallTime: 1365876278.322111] RMS: 0.9333076290619942
[INFO] [WallTime: 1365876278.578488] RMS: 0.9333076290619925
[INFO] [WallTime: 1365876278.874106] RMS: 0.9333076290619908

```







Reconfi File

enrique@pc-acer: ~/dev/rosbook/chapter6\_tutorial

```
enrique@pc-acer:~/dev/rosbook/chapter6_tutorial$ figure reconfigure_gui
reconfigure_gui started
```

left

right

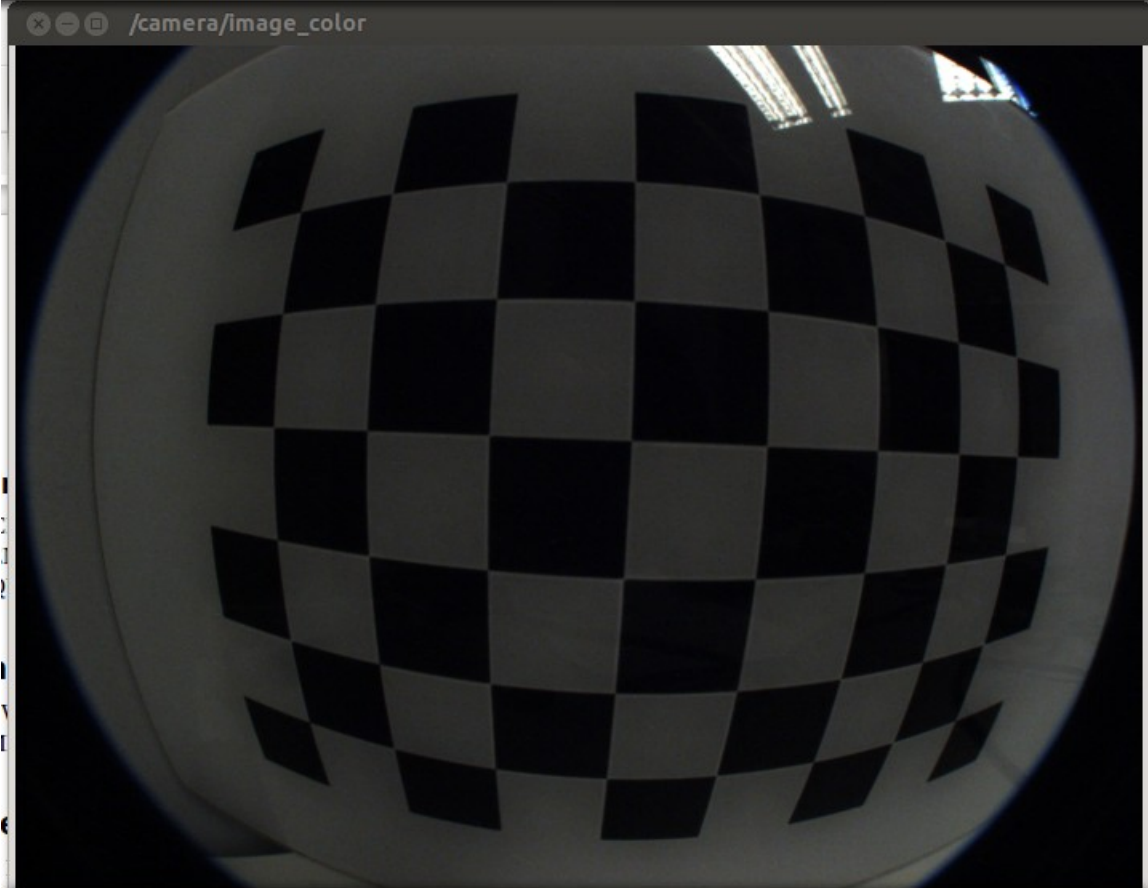
disparity

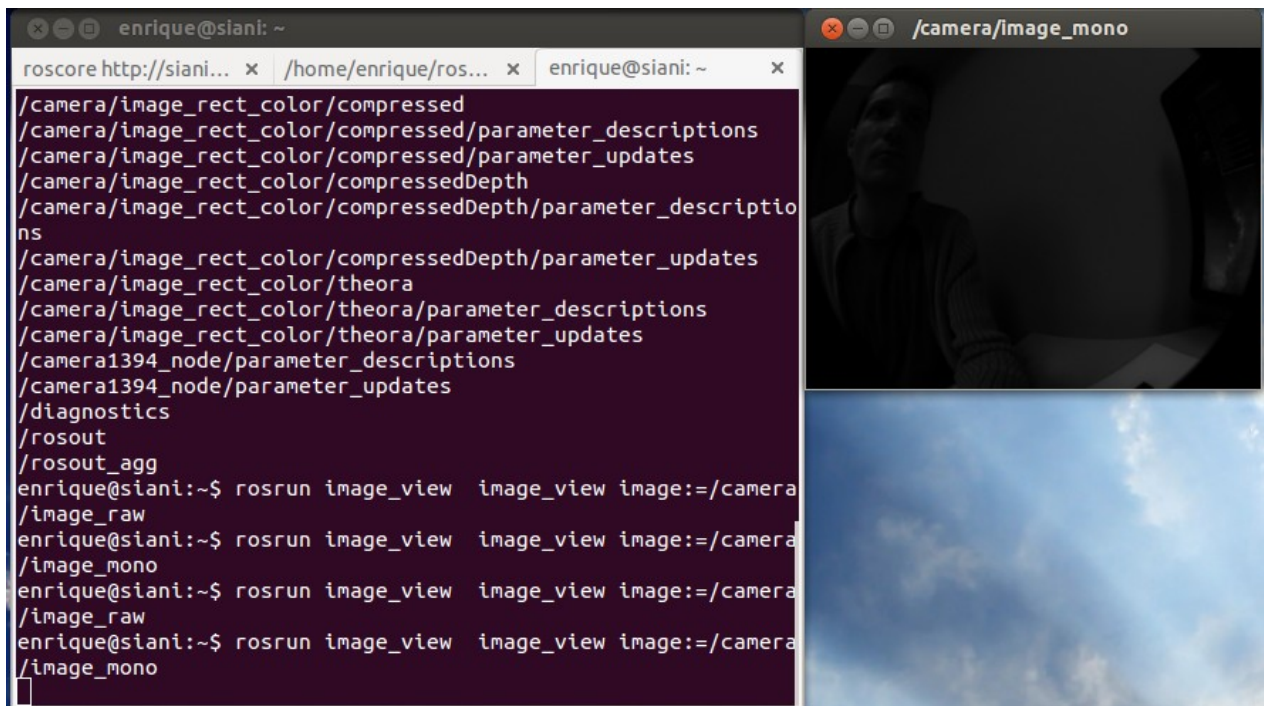
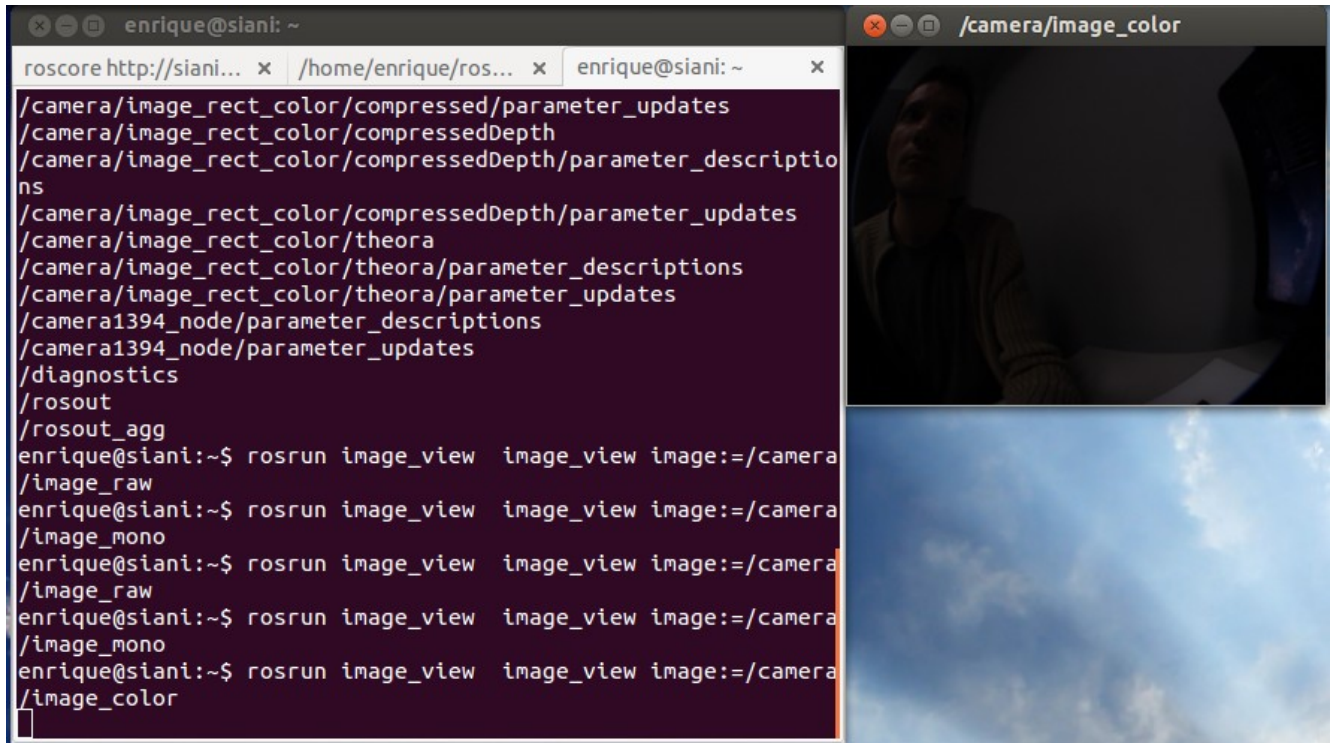
Reconfigure

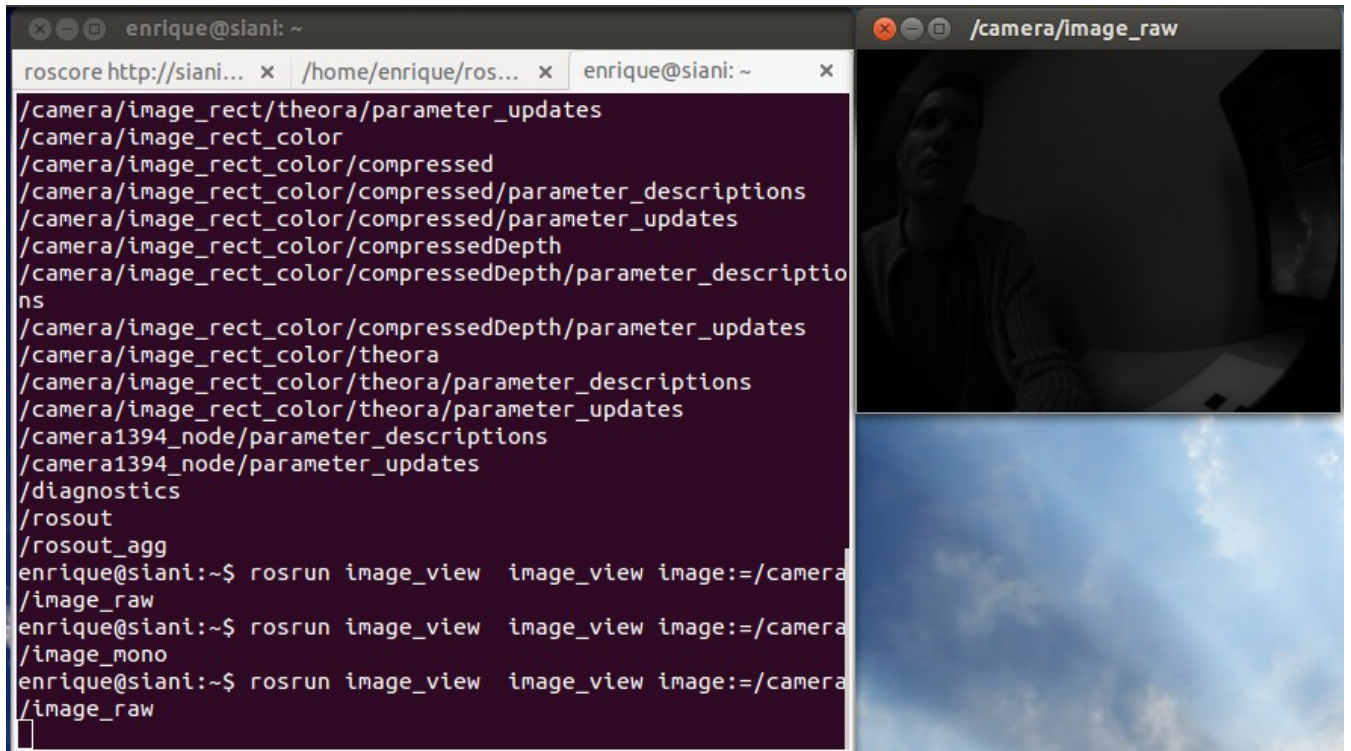
/stereo/stereo\_image\_proc

prefilter_size: 5	255	15
prefilter_cap: 1	63	5
correlation_window_size: 5	255	33
min_disparity: -128	128	25
disparity_range: 32	128	32
uniqueness_ratio: 0	100	5
texture_threshold: 0	10000	1000
speckle_size: 0	1000	50
speckle_range: 0	31	15

The image shows a ROS reconfigure GUI window titled 'Reconfigure' for the '/stereo/stereo\_image\_proc' node. It contains several sliders for parameters: prefilter\_size (5), prefilter\_cap (1), correlation\_window\_size (5), min\_disparity (-128), disparity\_range (32), uniqueness\_ratio (0), texture\_threshold (0), speckle\_size (0), and speckle\_range (0). Each slider has a range and a current value. In the background, there are two stereo image windows labeled 'left' and 'right' showing a person kneeling in a room. A 'disparity' window in the foreground shows a colorful depth map of the same scene, with red representing the closest objects and blue representing the furthest.

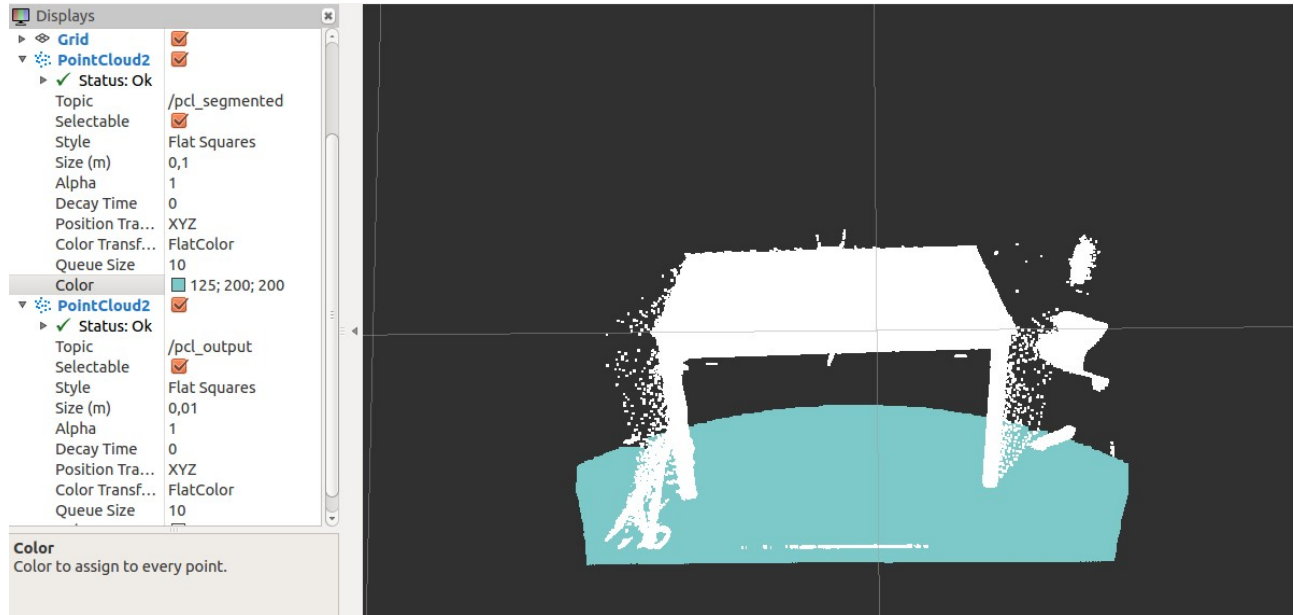


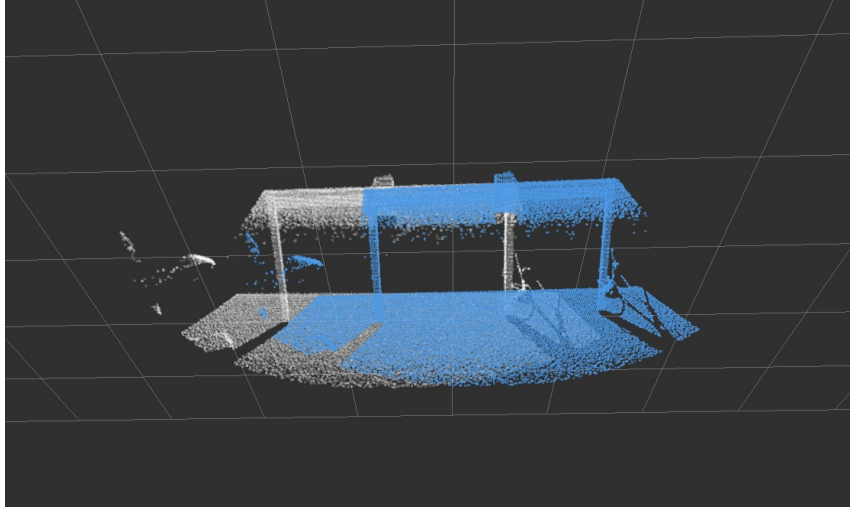






# Chapter 6

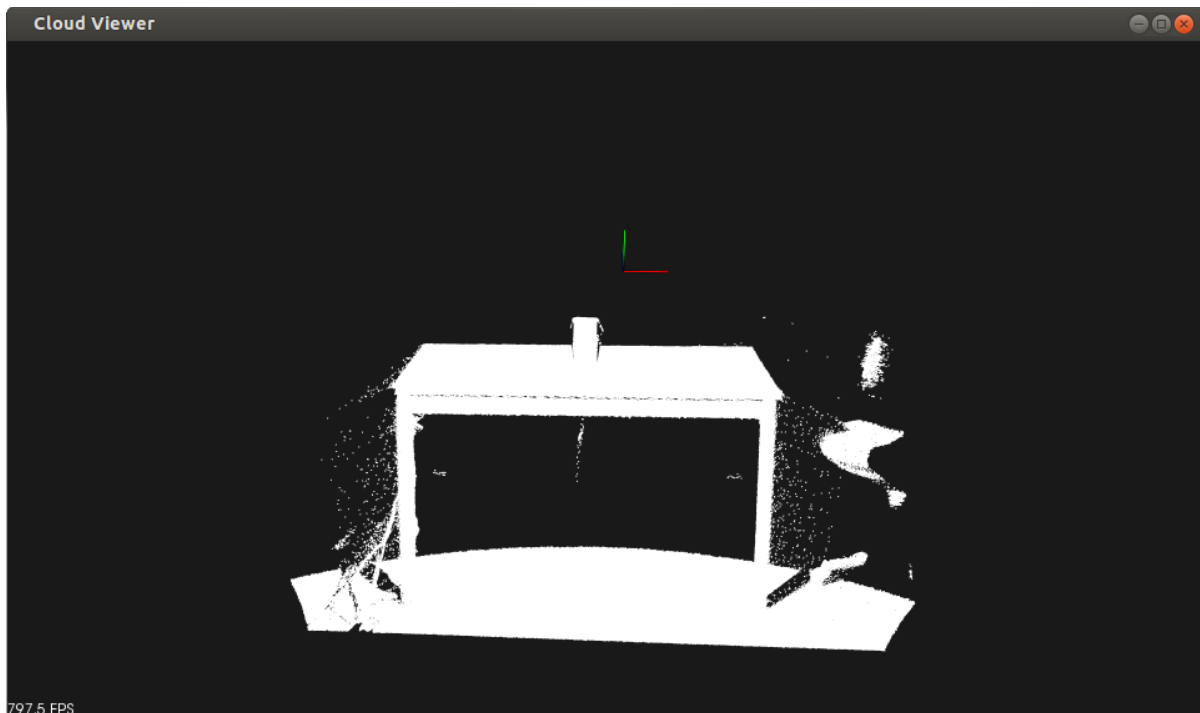






| Help:

```
-----  
p, P : switch to a point-based representation  
w, W : switch to a wireframe-based representation (where available)  
s, S : switch to a surface-based representation (where available)  
  
j, J : take a .PNG snapshot of the current window view  
c, C : display current camera/window parameters  
f, F : fly to point mode  
  
e, E : exit the interactor  
q, Q : stop and call VTK's TerminateApp  
  
+/- : increment/decrement overall point size  
+/- [+ ALT] : zoom in/out  
  
g, G : display scale grid (on/off)  
u, U : display lookup table (on/off)  
  
r, R [+ ALT] : reset camera [to viewpoint = {0, 0, 0} -> center_{x, y, z}]  
  
ALT + s, S : turn stereo mode on/off  
ALT + f, F : switch between maximized window mode and original size  
  
l, L : list all available geometric and color handlers for the current actor map  
ALT + 0..9 [+ CTRL] : switch between different geometric handlers (where available)  
0..9 [+ CTRL] : switch between different color handlers (where available)  
  
SHIFT + left click : select a point  
  
x, X : toggle rubber band selection mode for left mouse button
```

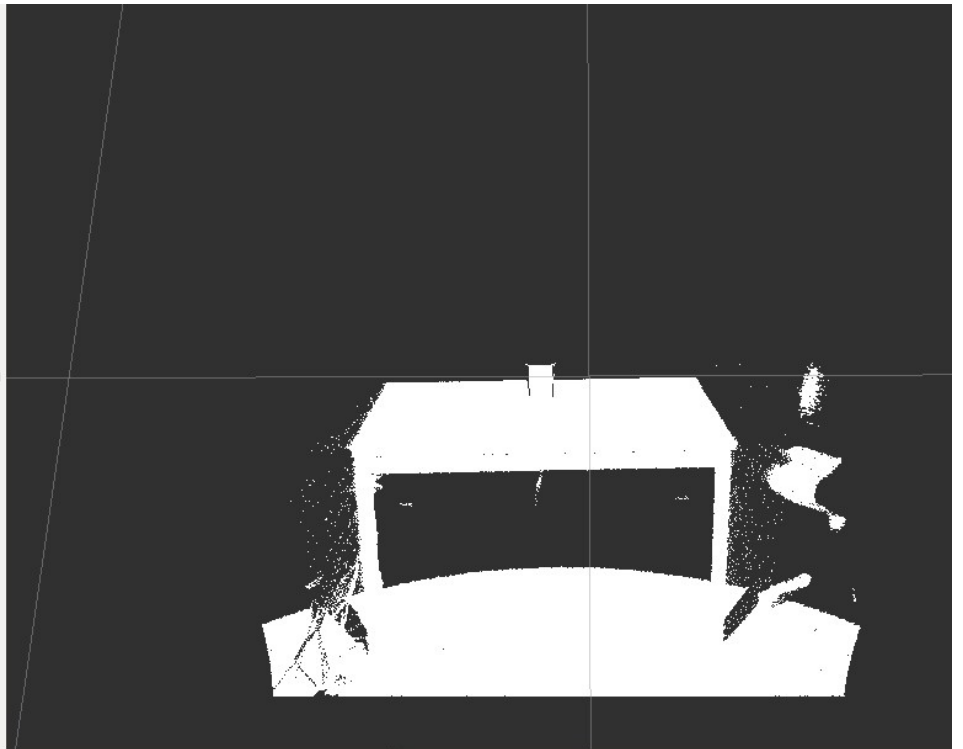


Displays

- Global Options
  - Fixed Frame: odom
  - Background: 48; 48; 48
  - Frame Rate: 30
- Global Status: No tf data. Actual ...
  - Fixed Fra...
- Grid
  -
- PointCloud2
  - Status: Ok
  - Topic: /pcl\_output
  - Selectable:
  - Style: Points
  - Size (Pixels): 1
  - Alpha: 1
  - Decay Time: 0
  - Position Tran...: XYZ
  - Color Transf...: Intensity
  - Queue Size: 10
  - Channel Name: intensity
  - Use rainbow:
  - Invert Rainbow:
  - Min Color: 0; 0; 0
  - Max Color: 255; 255; 255
  - Autocomput...:

**Color Transformer**  
Set the transformer to use to set the color of the points.

Add Remove Rename

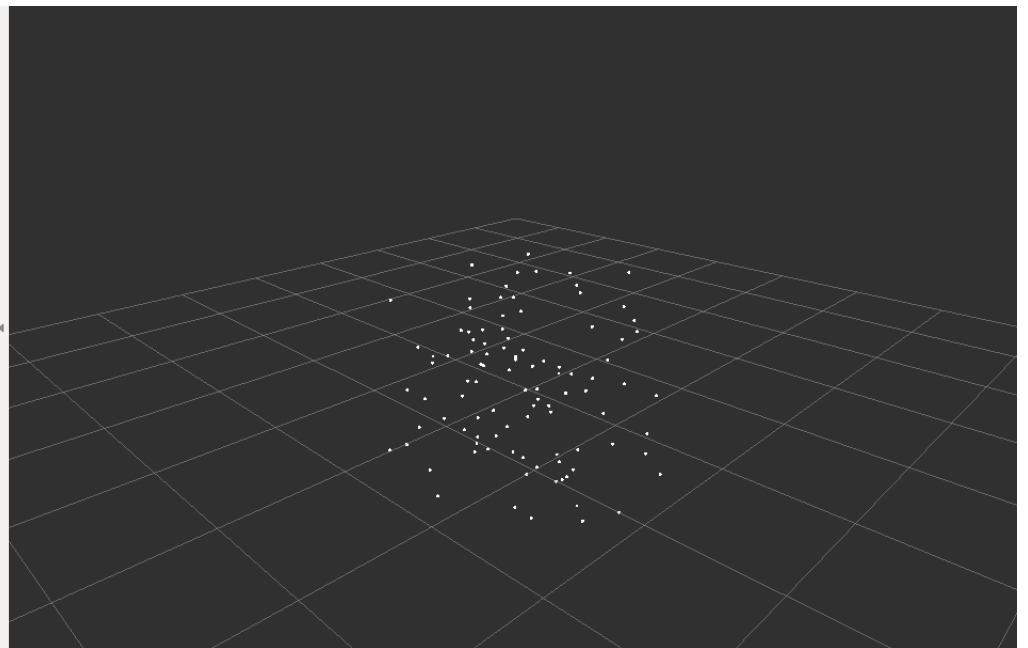


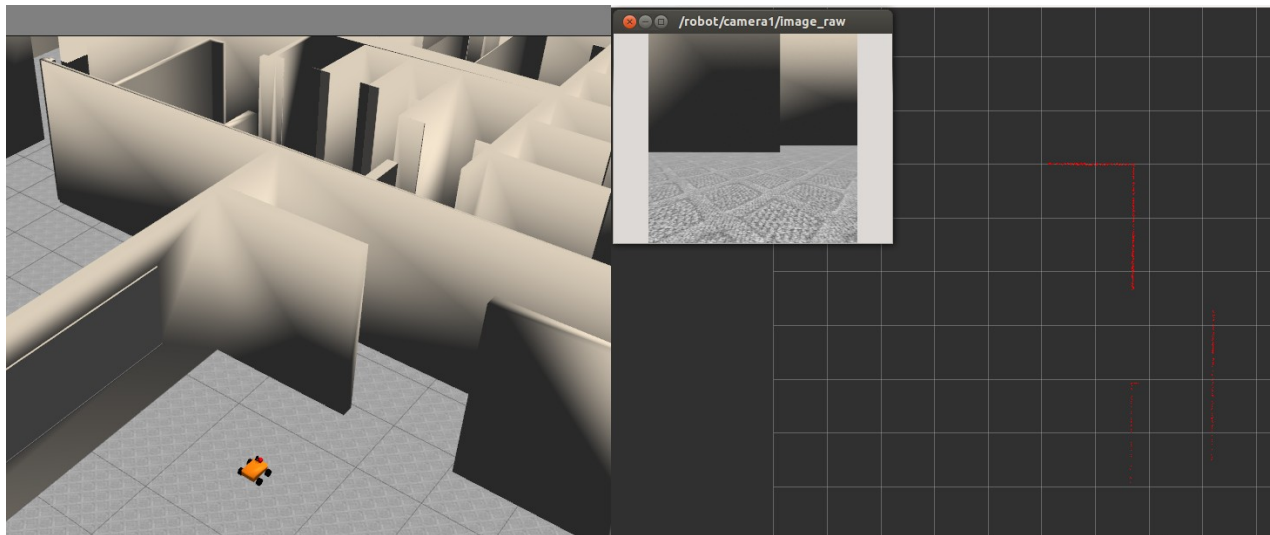
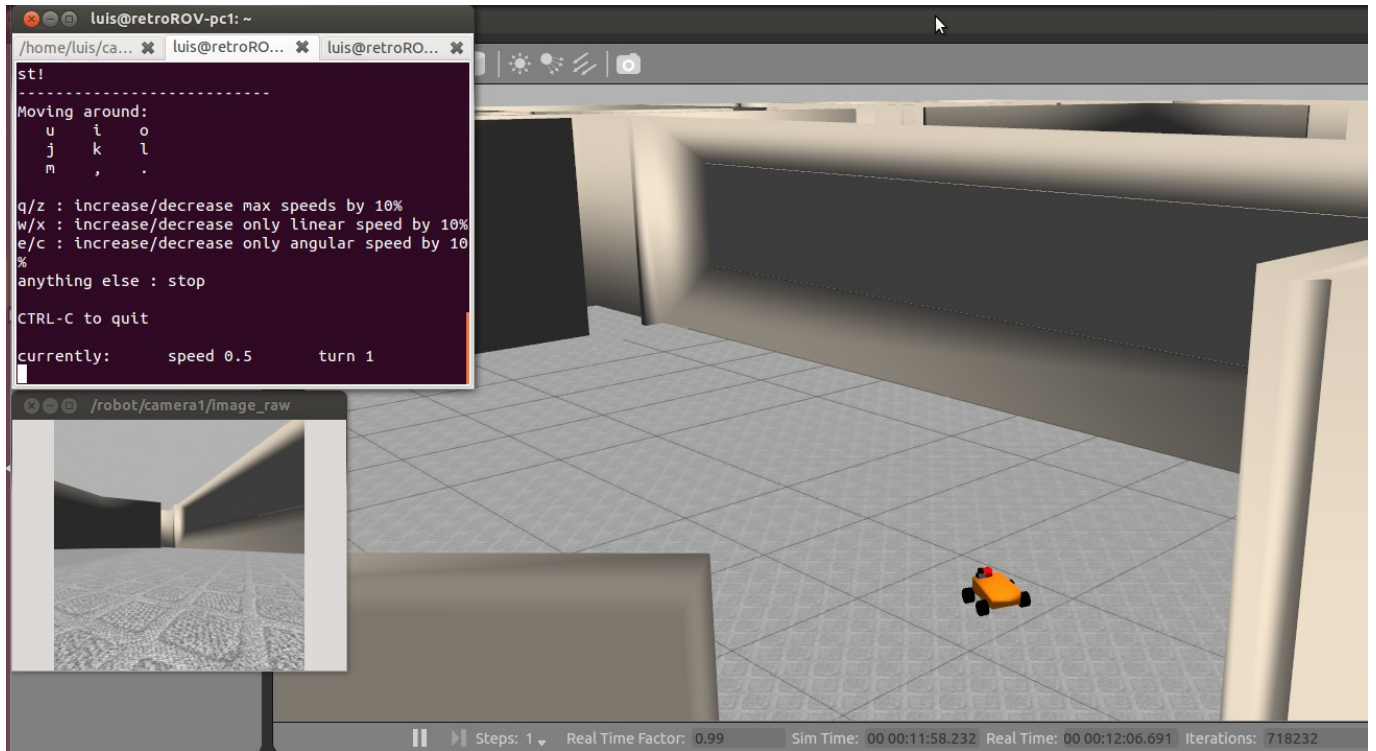
Displays

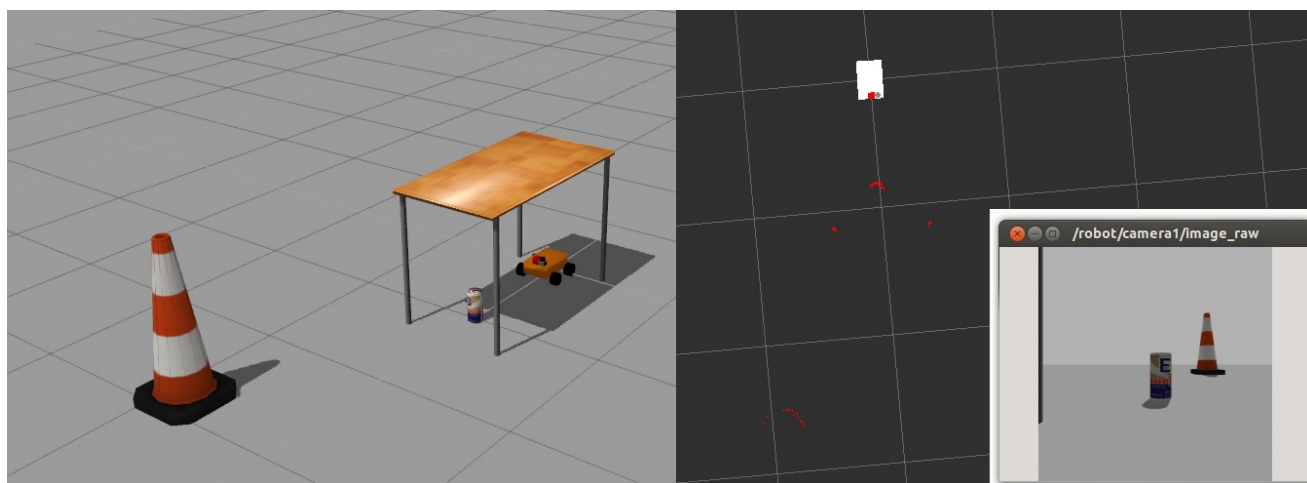
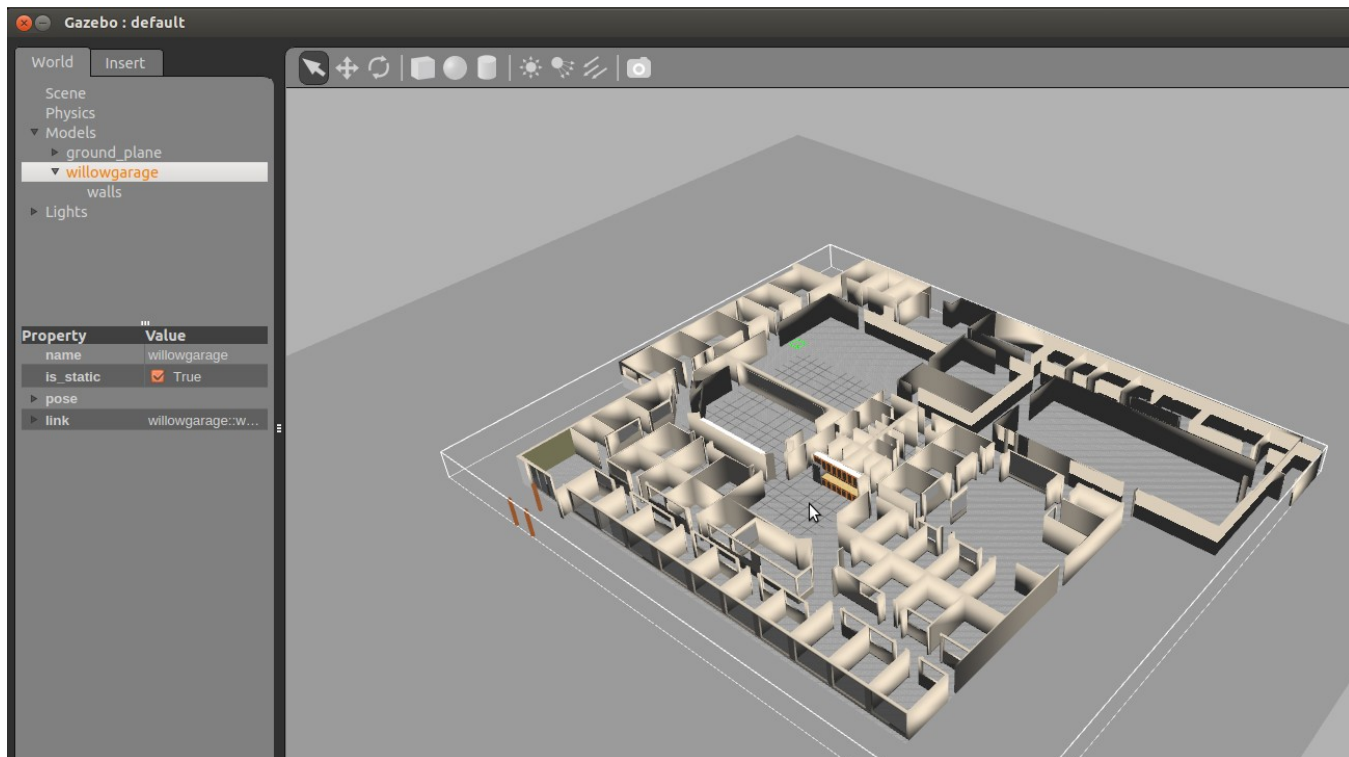
- Global Options
  - Fixed Frame: odom
  - Background: 48; 48; 48
  - Frame Rate: 30
- Global Status: No tf data. Actual ...
  - Fixed Fra...
- Grid
  -
- PointCloud2
  - Status: Ok
  - Topic: /pcl\_output
  - Selectable:
  - Style: Points
  - Size (Pixels): 3
  - Alpha: 1
  - Decay Time: 0
  - Position Tran...: XYZ
  - Color Transf...: Intensity
  - Queue Size: 10
  - Channel Name: intensity
  - Use rainbow:
  - Invert Rainbow:
  - Min Color: 0; 0; 0
  - Max Color: 255; 255; 255
  - Autocomput...:

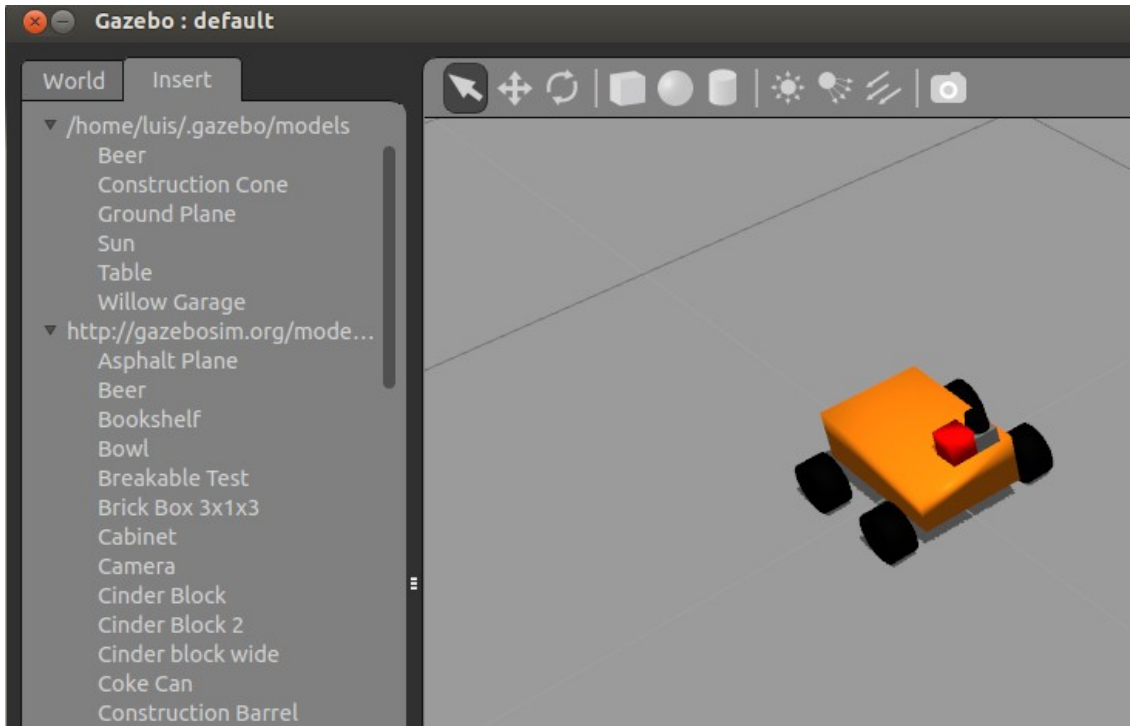
**Color Transformer**  
Set the transformer to use to set the color of the points.

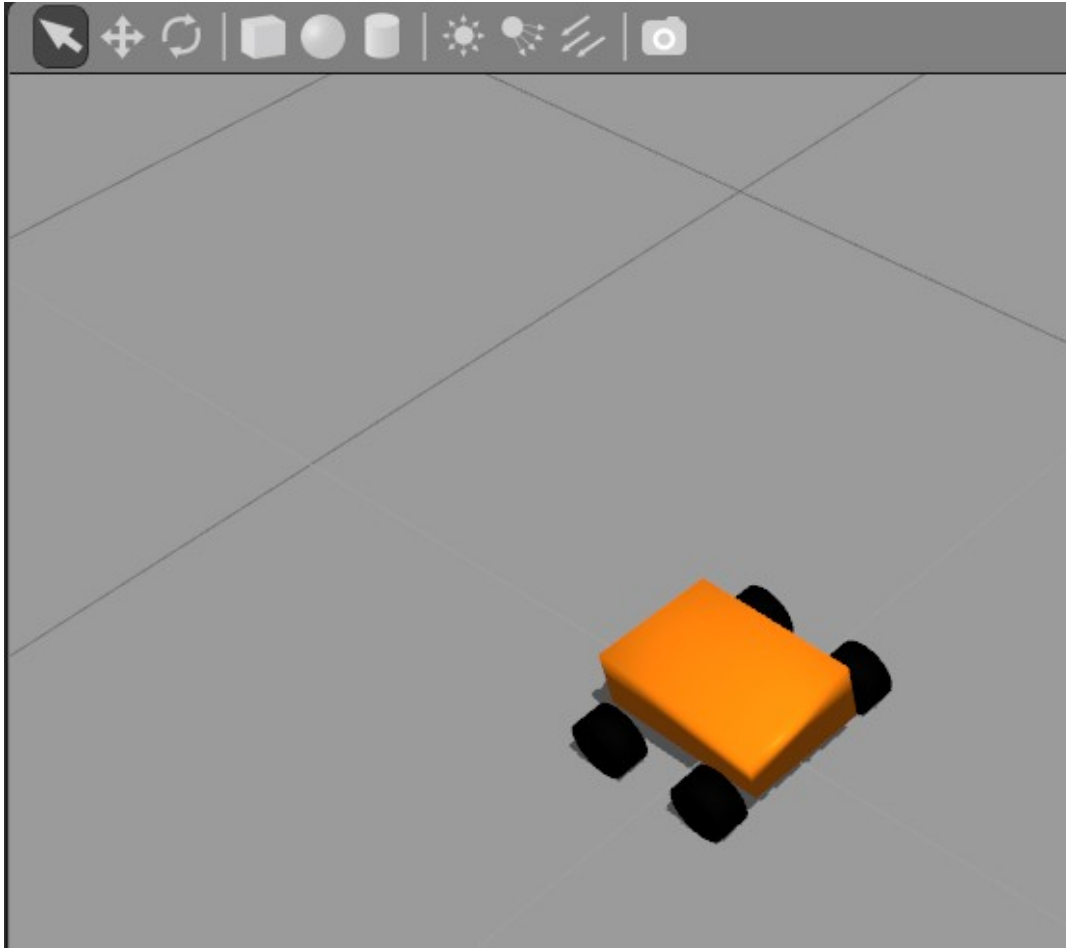
Add Remove Rename

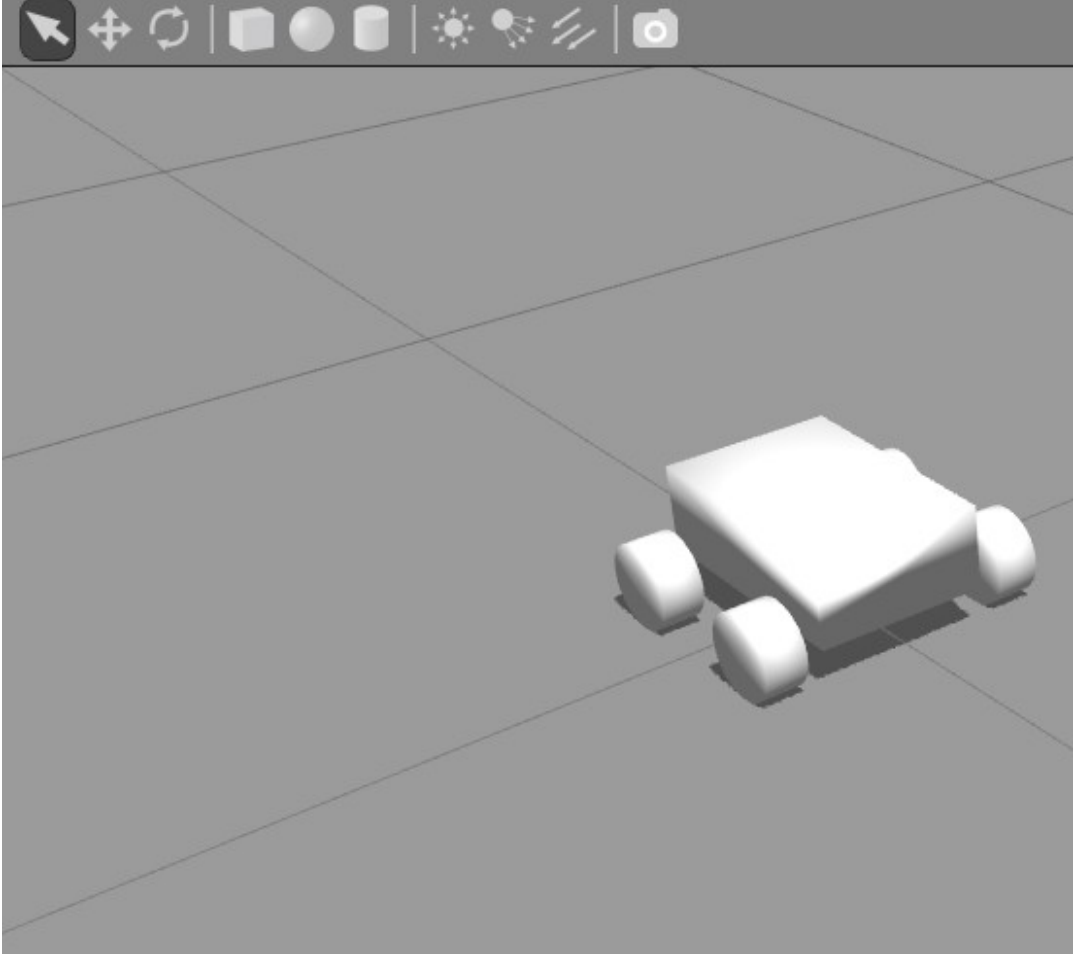












File Panels Help

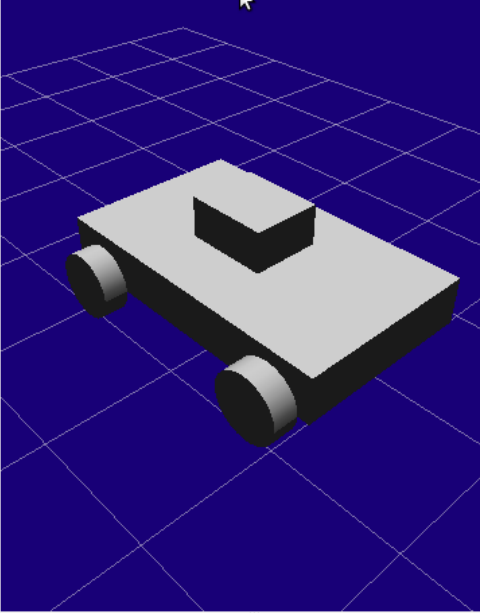
Move Camera Interact Select 2D Nav Goal 2D Pose Estimate

Displays

- Cell Size 0.5
- Line Style Lines
- Color 228, 228, 228
- Alpha 0.5
- Plane XY
- Offset 0; 0; 0
- 02. Robot Mo...
- Status: OK
- Visual Ena...
- Collision E...
- Update Int... 0
- Alpha 1
- Robot Des... robot\_descrip...
- TF Prefix
- Links

Status: OK

Add Remove Rename



Tool Properties

- 2D Nav Goal
  - Topic goal
- 2D Pose Estimate
  - Topic initialpose

Views

Type: Orbit Zero

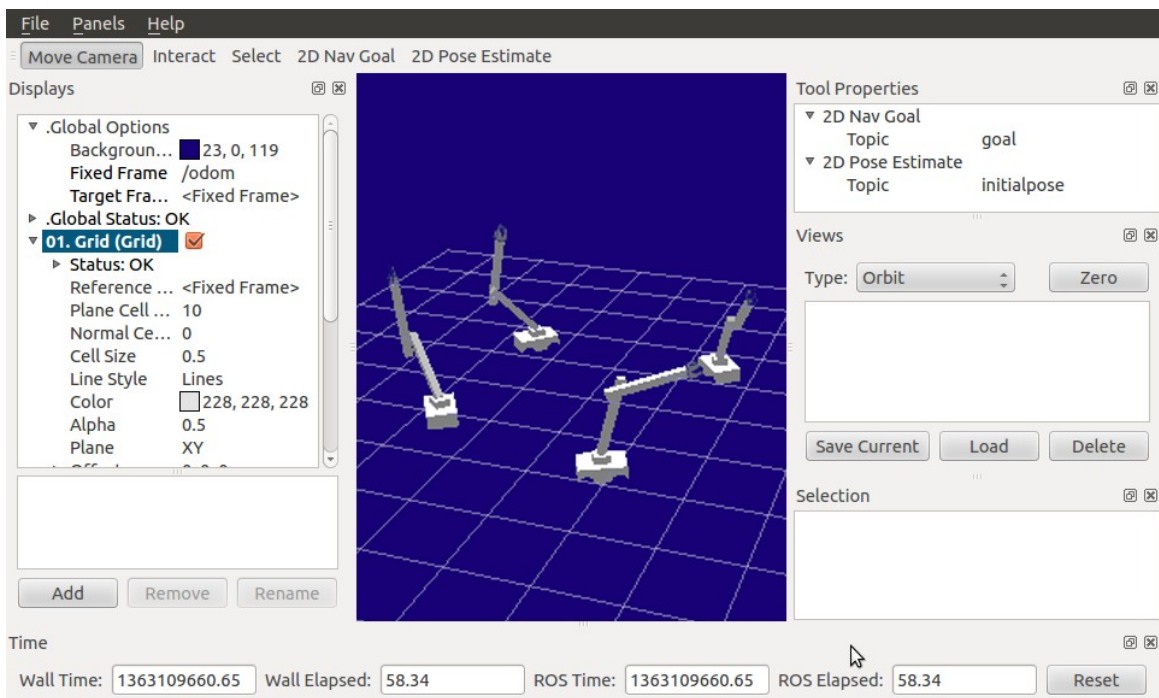
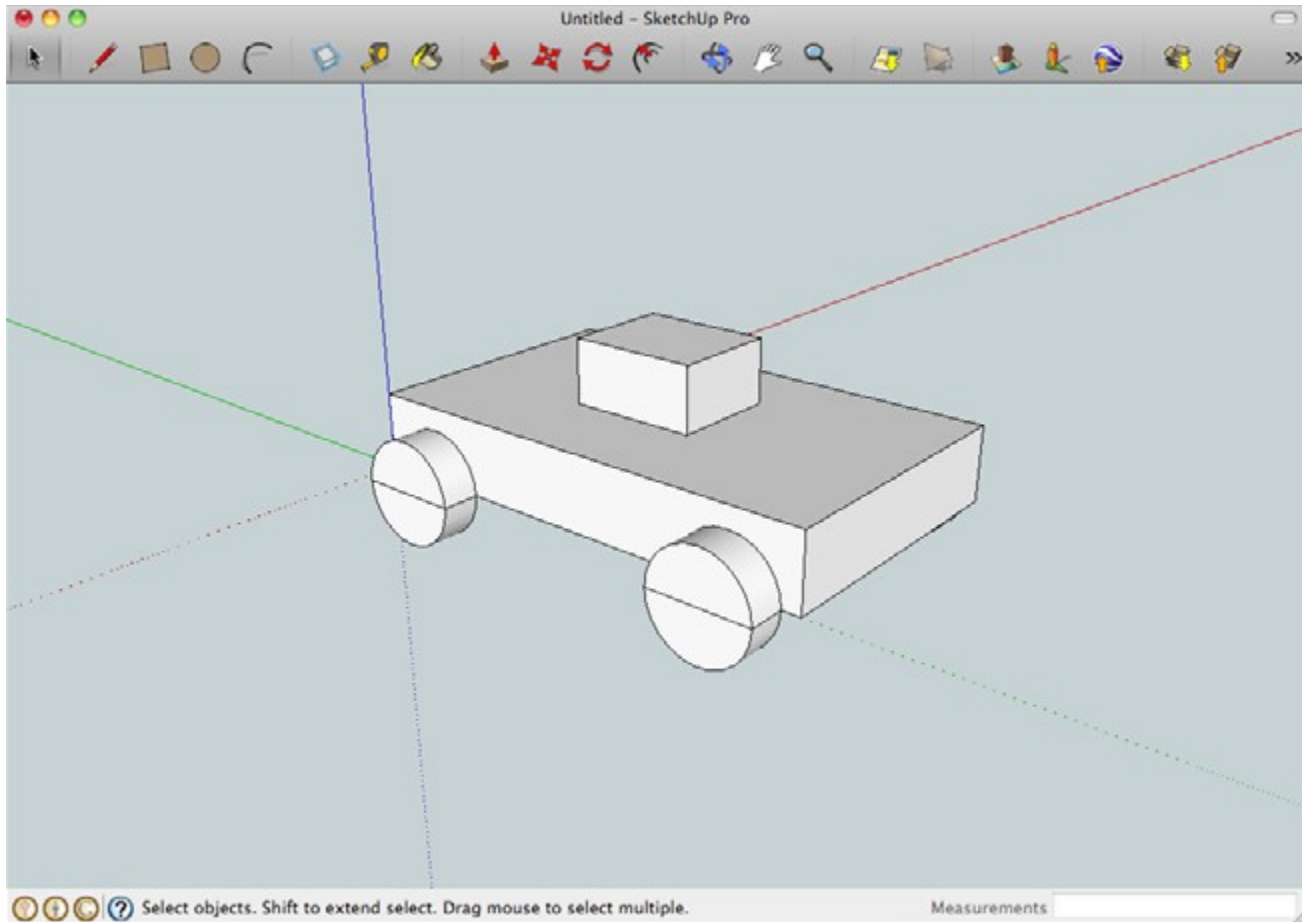
Save Current Load Delete

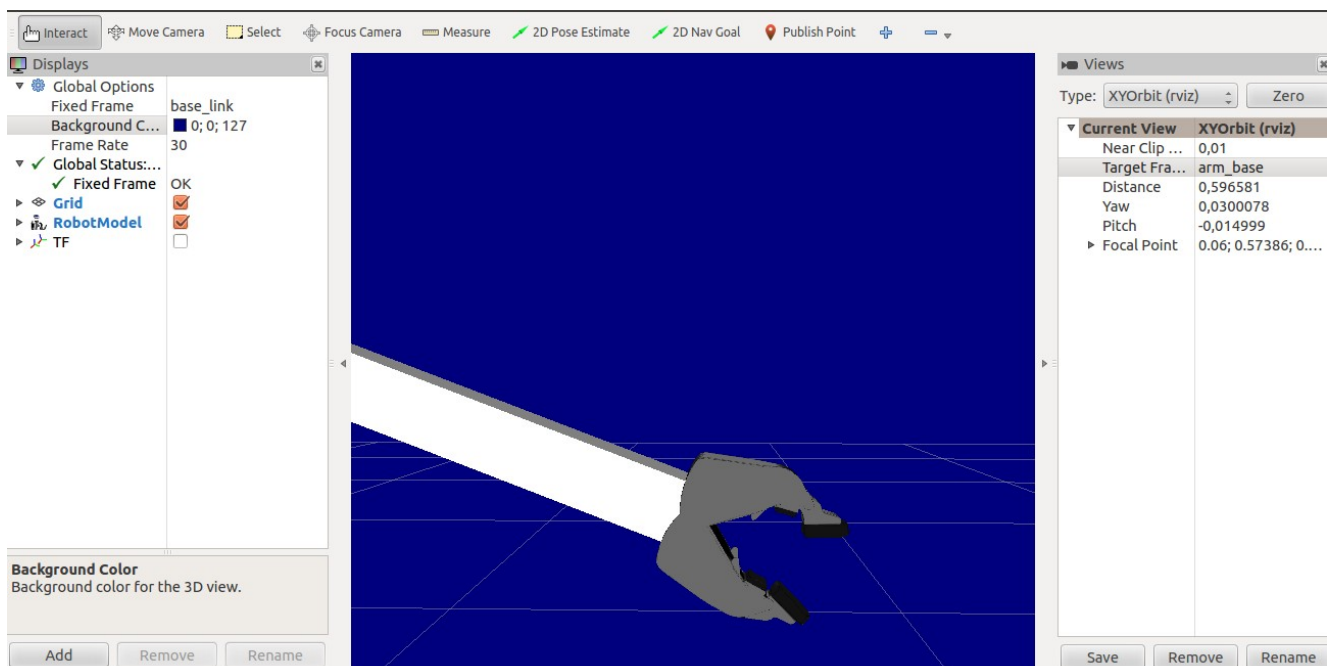
Selection

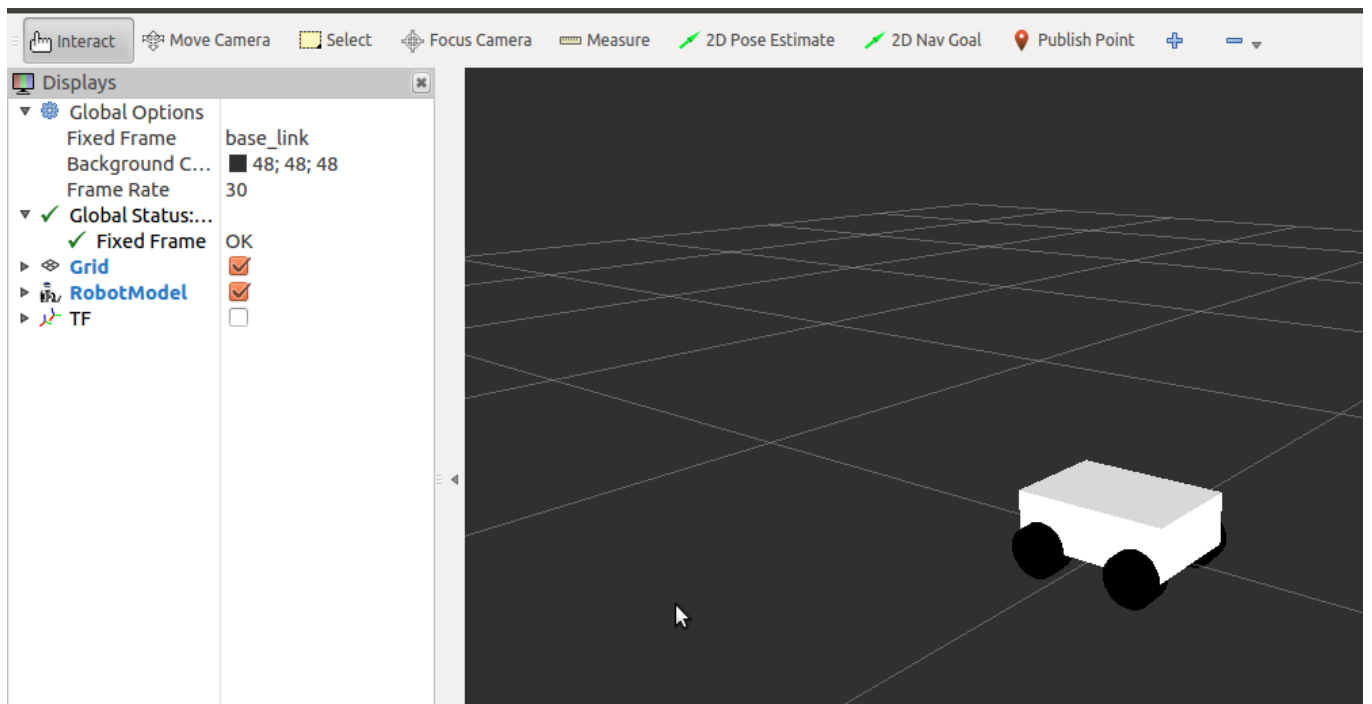
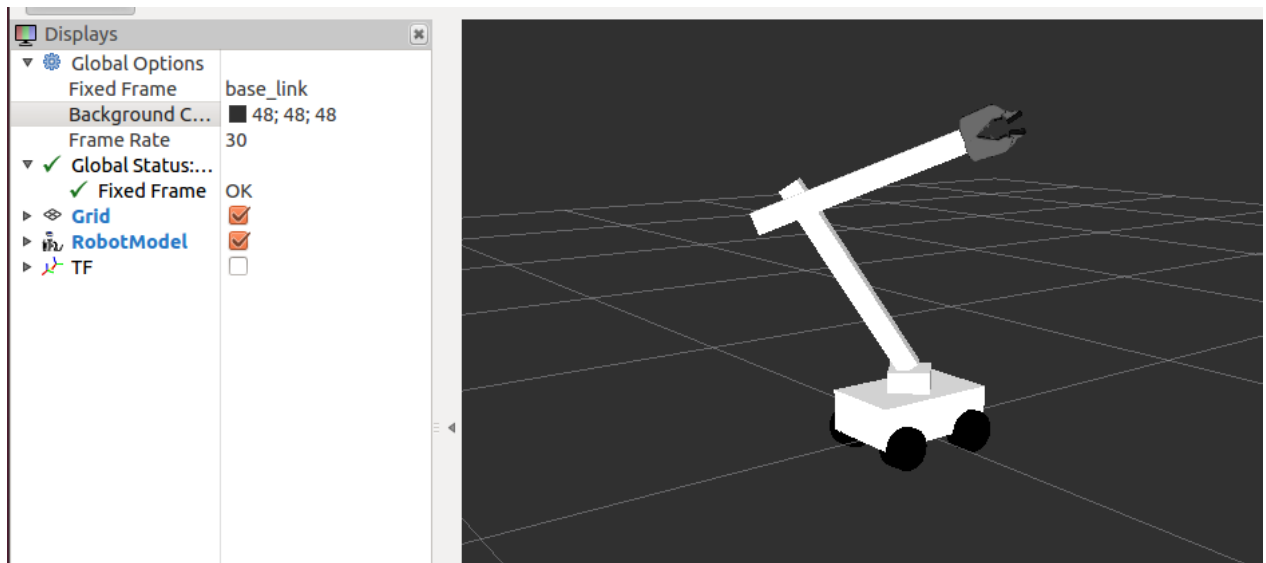
Time

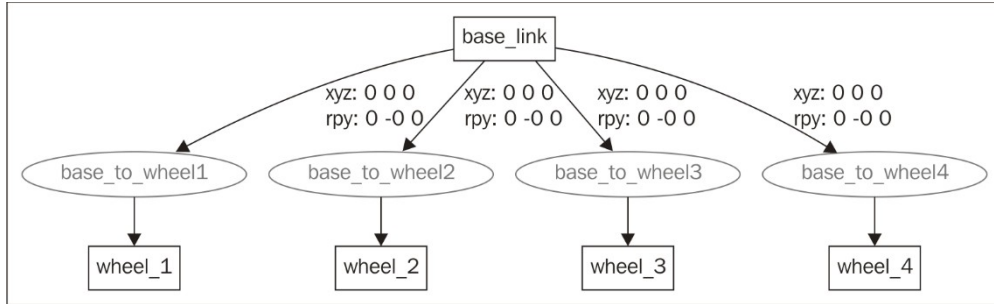
Wall Time: 1363113603.66 Wall Elapsed: 61.03 ROS Time: 1363113603.66 ROS Elapsed: 61.03 Reset



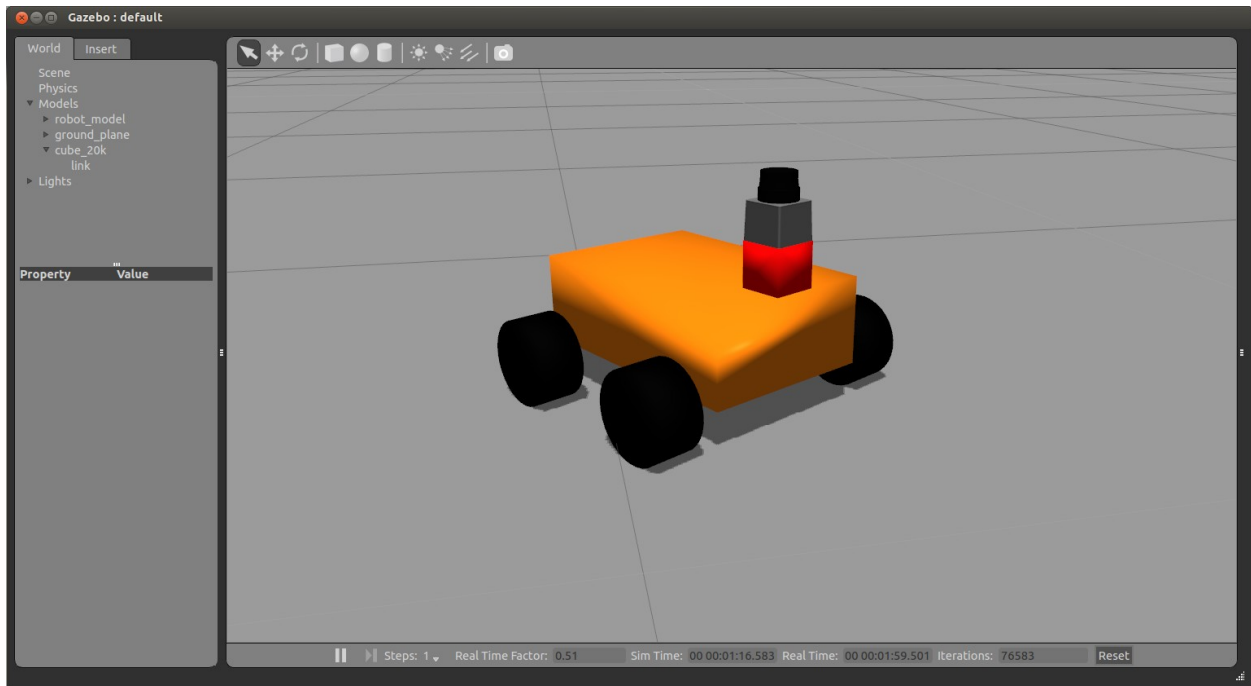
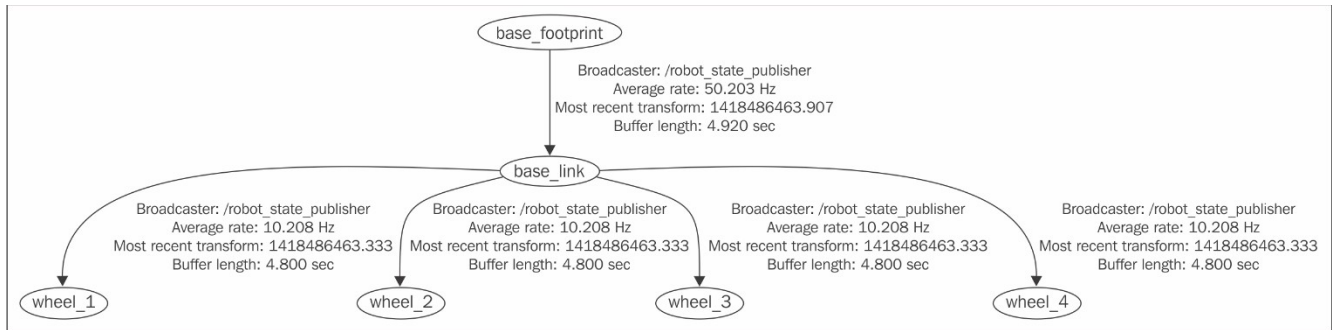


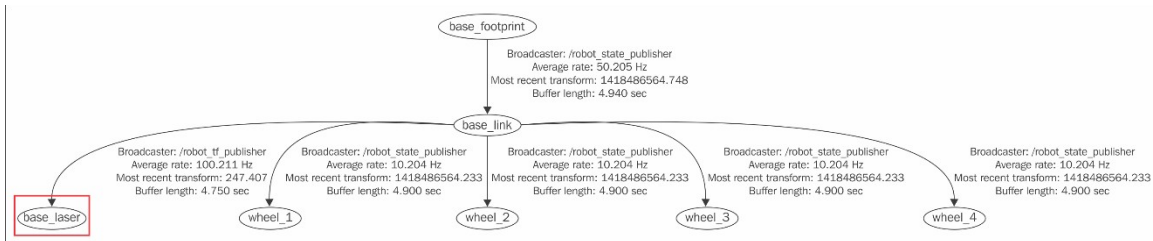
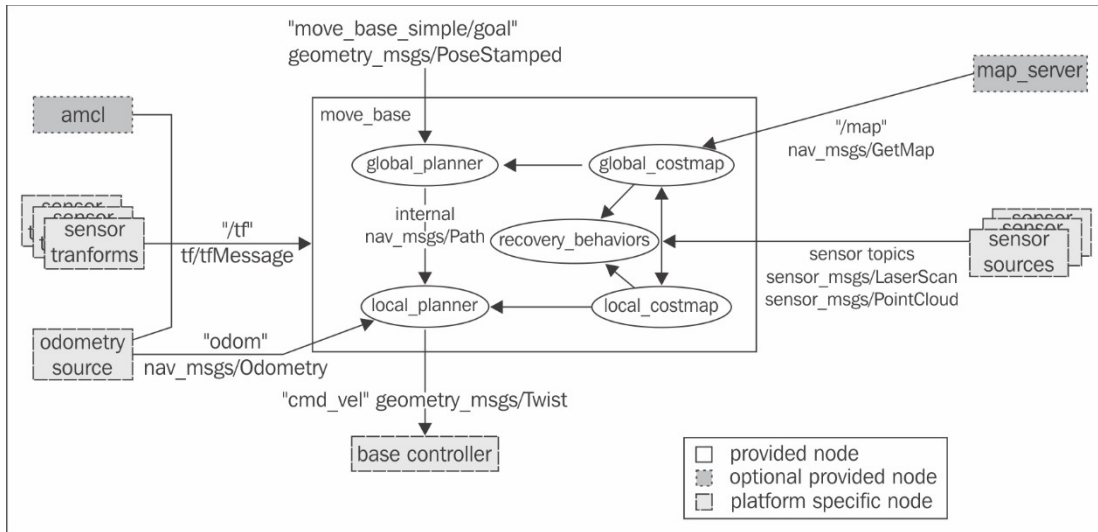






## Chapter 8





```

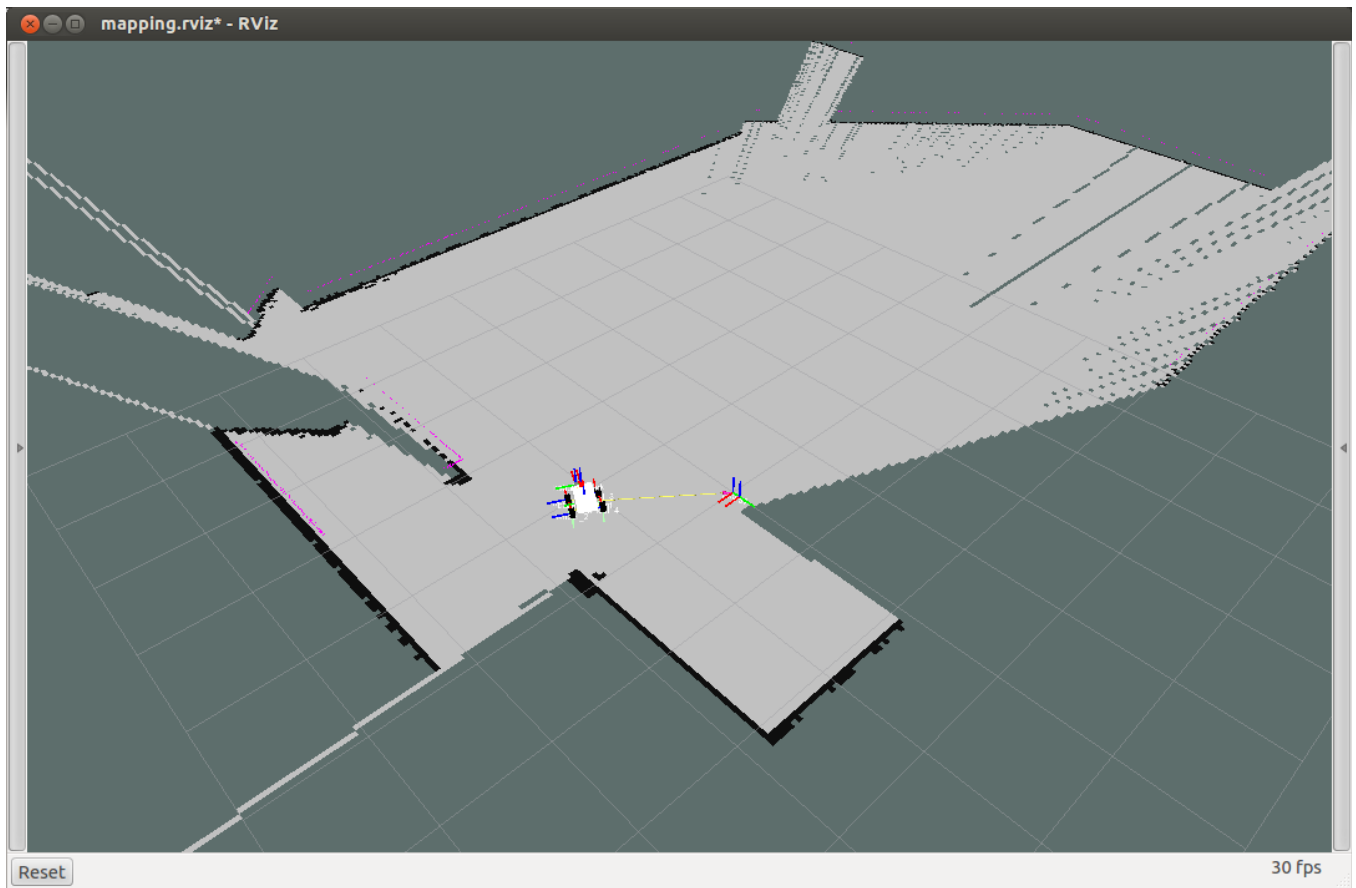
image: map.pgm
resolution: 0.050000
origin: [-100.000000, -100.000000, 0.000000]
negate: 0
occupied_thresh: 0.65
free_thresh: 0.196

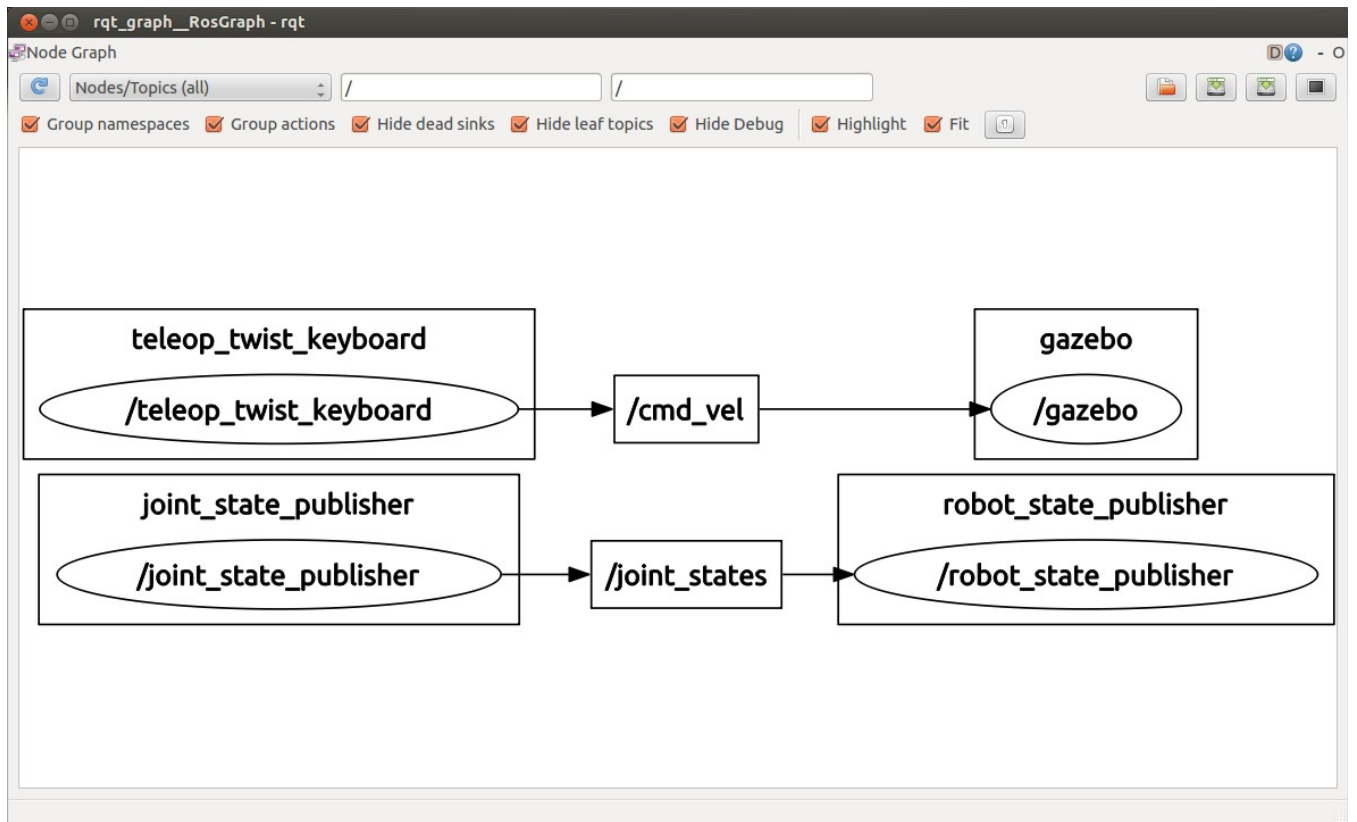
```

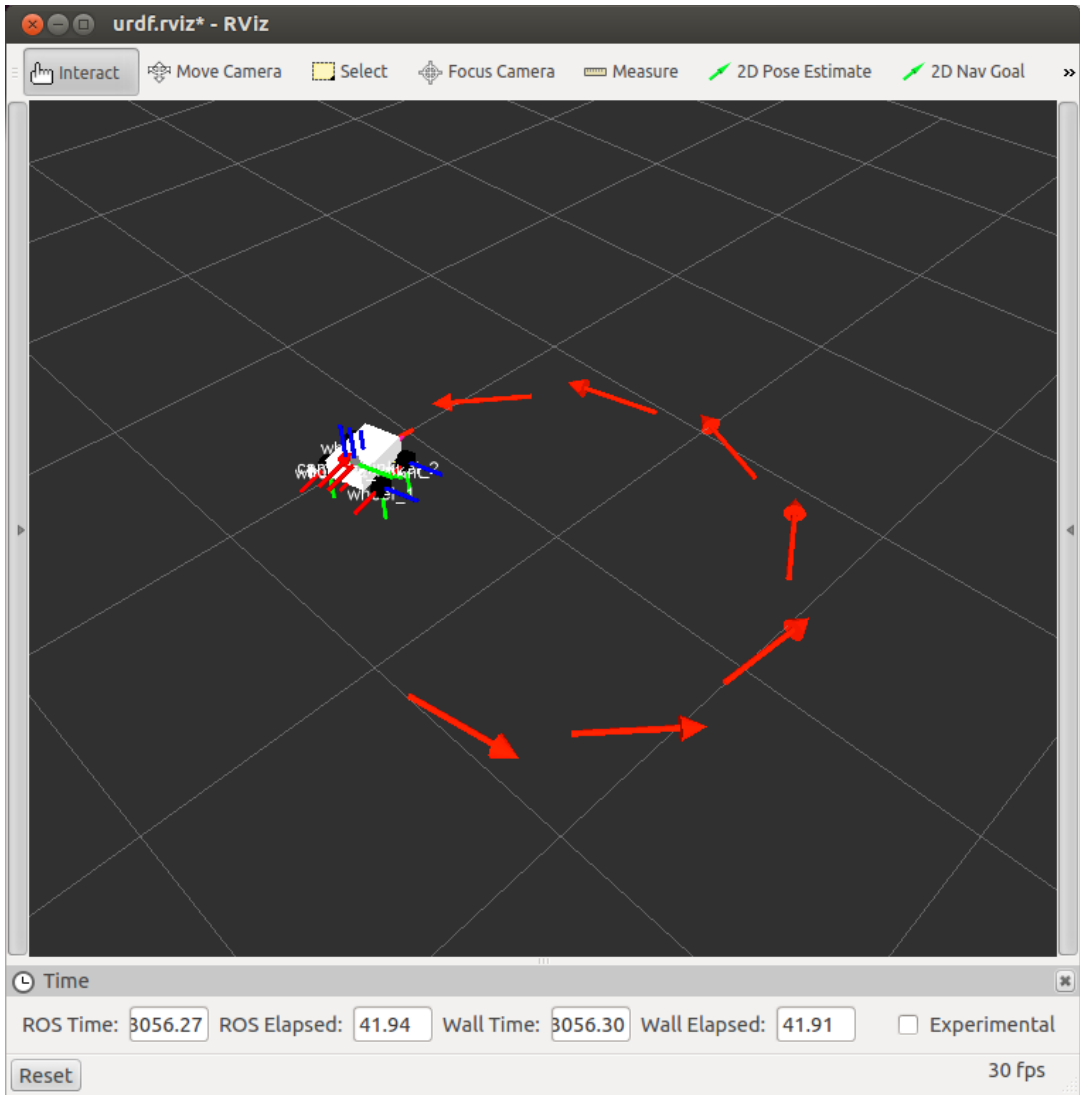
```

[ INFO] [1418594807.613374681]: Waiting for the map
[ INFO] [1418594807.958979924, 126.5300000000]: Received a 4000 X 4000 map @ 0.050 m/pix
[ INFO] [1418594807.959452501, 126.5300000000]: Writing map occupancy data to map.pgm
[ INFO] [1418594808.997886519, 127.0850000000]: Writing map occupancy data to map.yaml
[ INFO] [1418594808.998301431, 127.0850000000]: Done

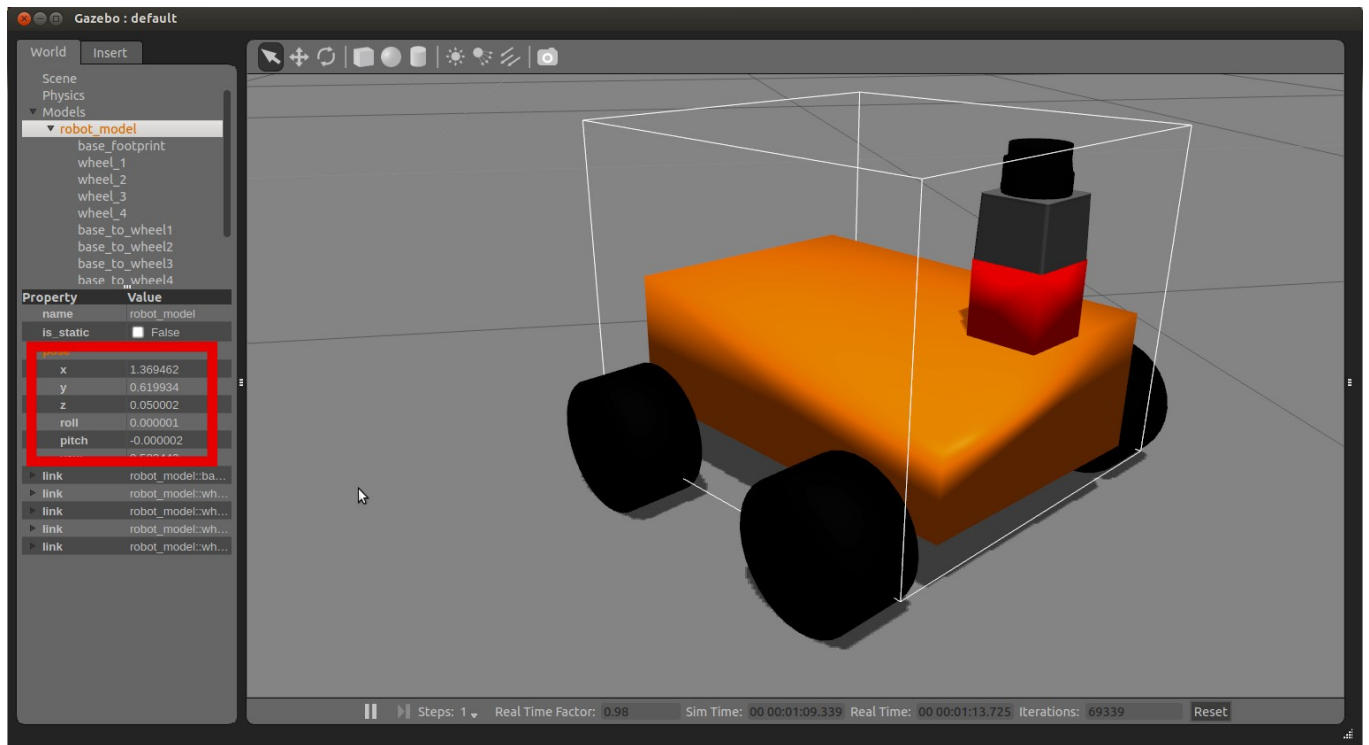
```







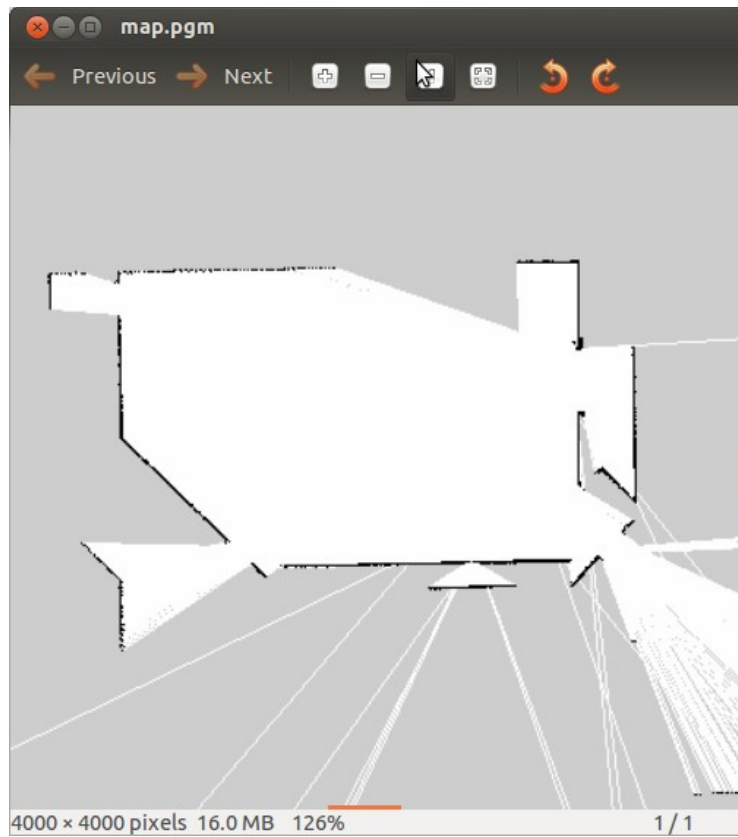
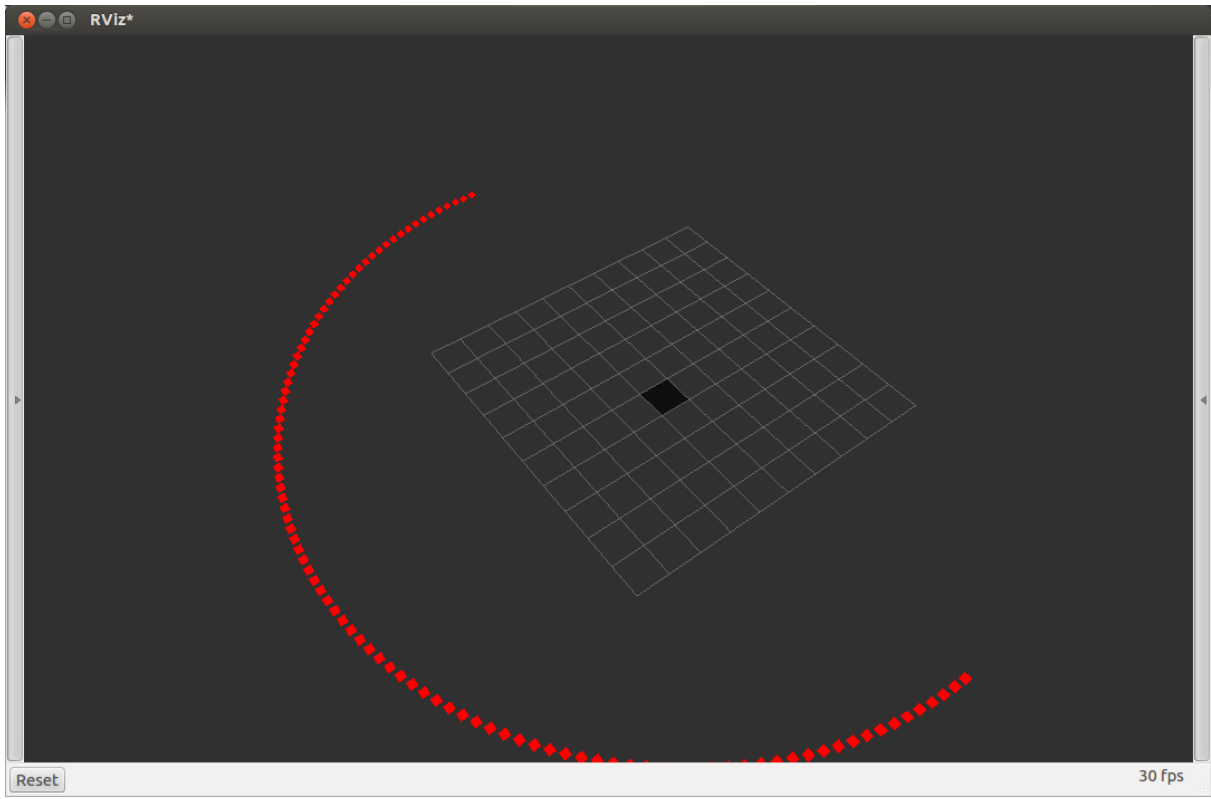




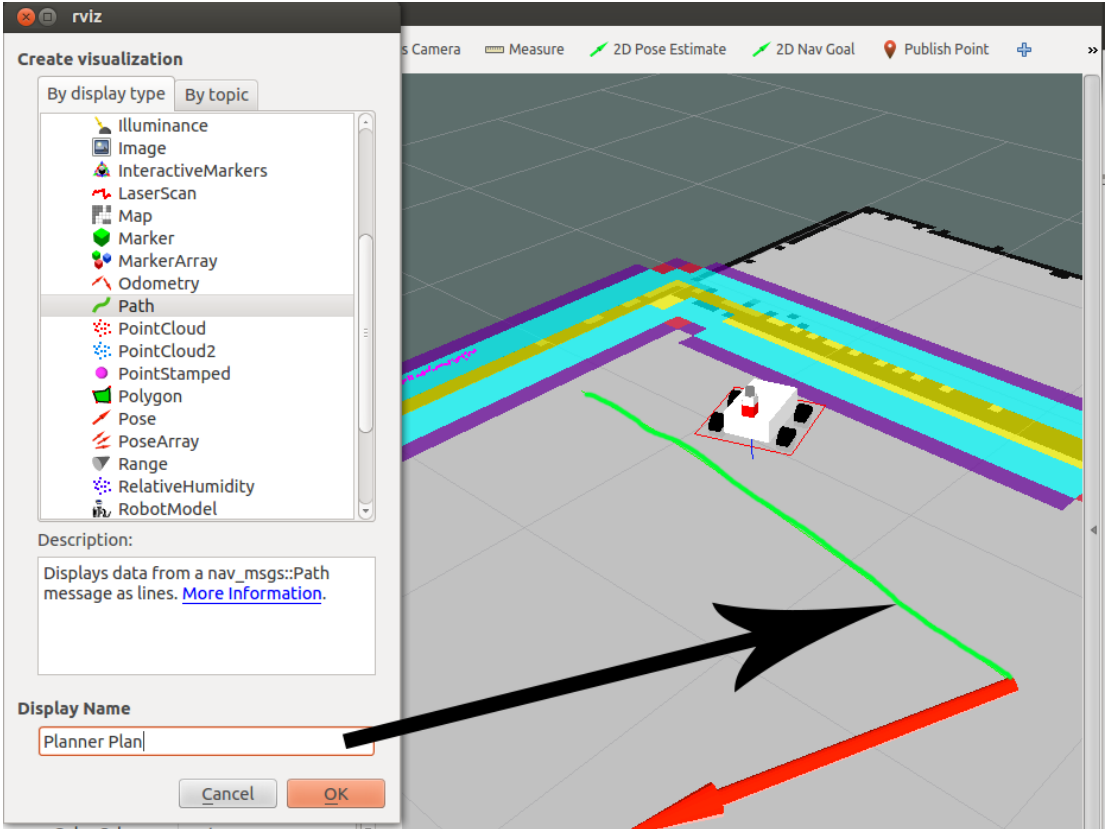
```

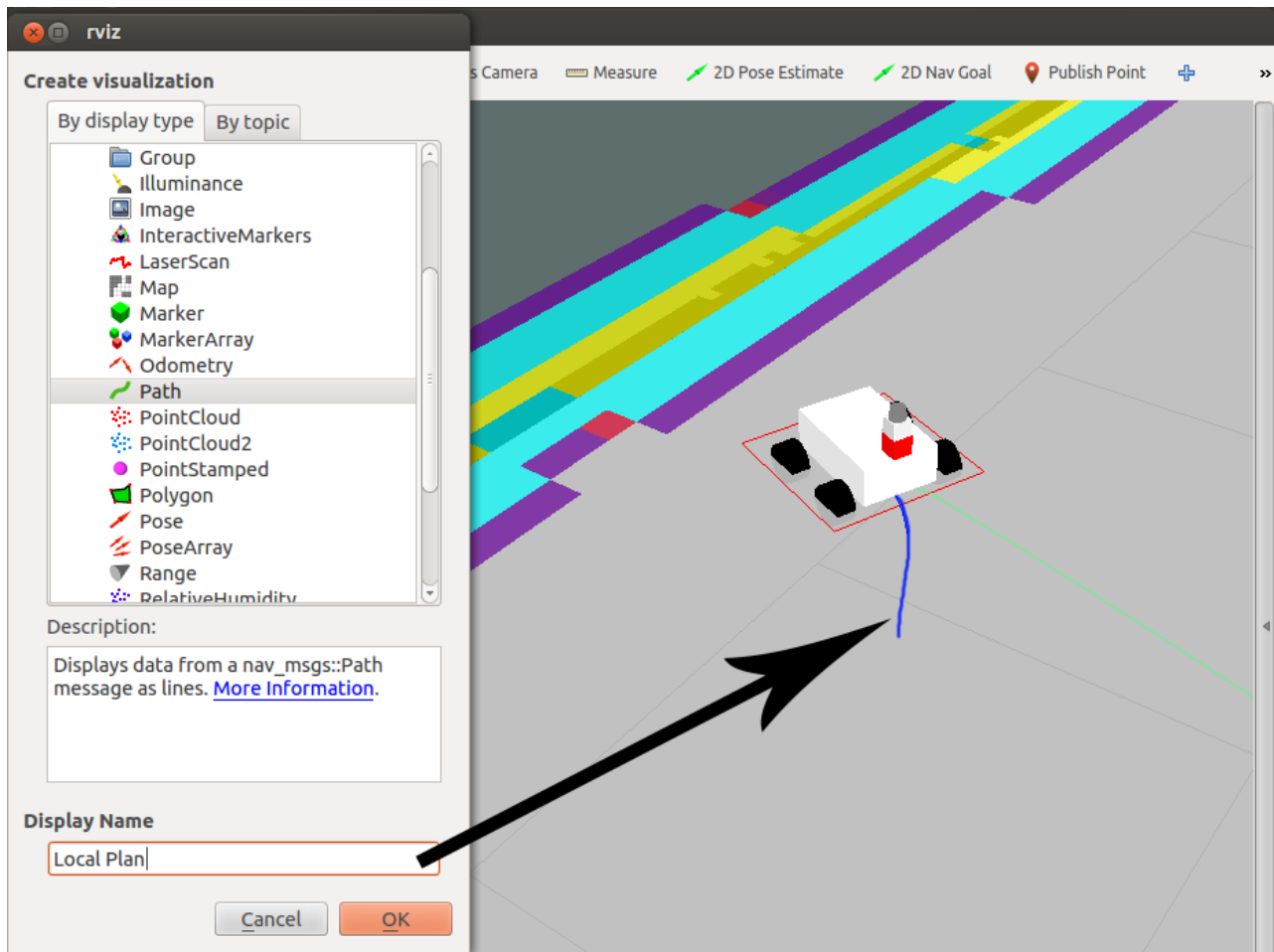
std_msgs/Header header
  uint32 seq
  time stamp
  string frame_id
  string child_frame_id
geometry_msgs/PoseWithCovariance pose
  geometry_msgs/Pose pose
    geometry_msgs/Point position
      float64 x
      float64 y
      float64 z
    geometry_msgs/Quaternion orientation
      float64 x
      float64 y
      float64 z
      float64 w
    float64[36] covariance
geometry_msgs/TwistWithCovariance twist
  geometry_msgs/Twist twist
    geometry_msgs/Vector3 linear
      float64 x
      float64 y
      float64 z
    geometry_msgs/Vector3 angular
      float64 x
      float64 y
      float64 z
    float64[36] covariance

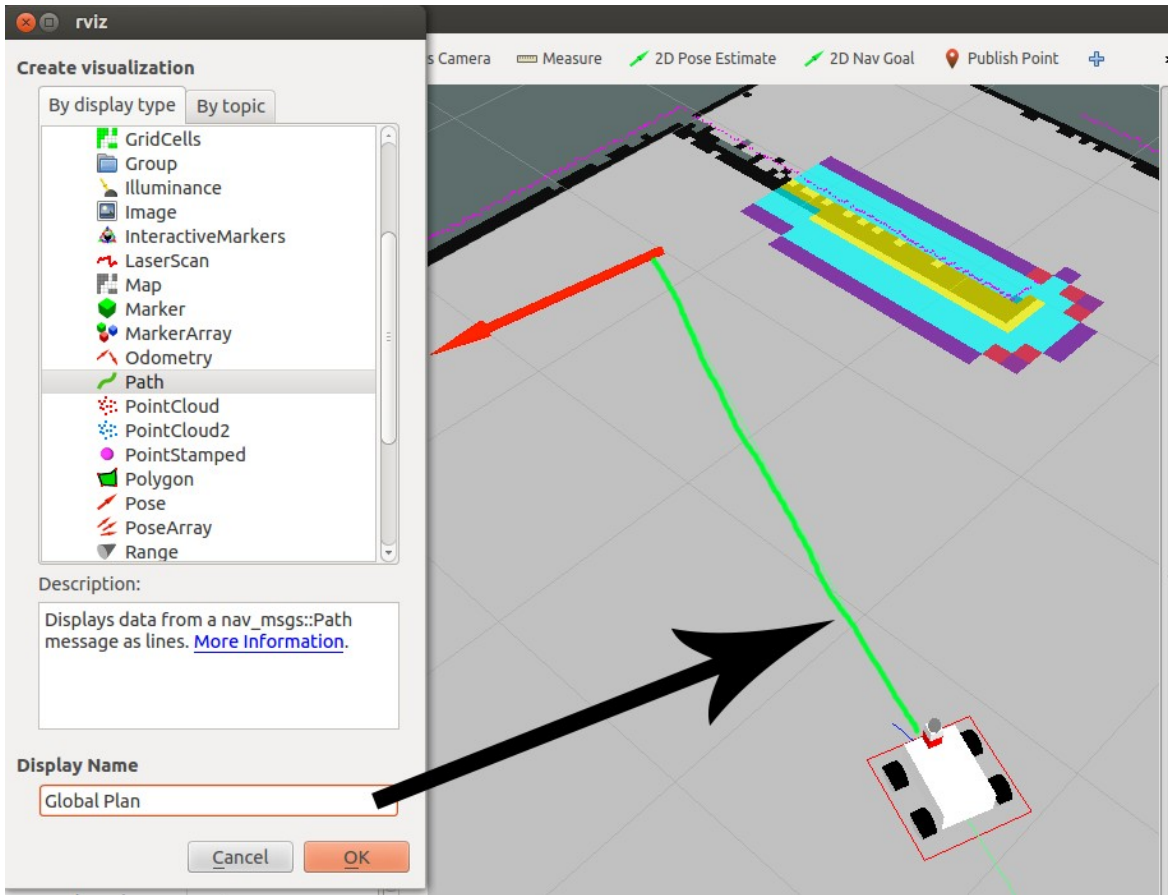
```

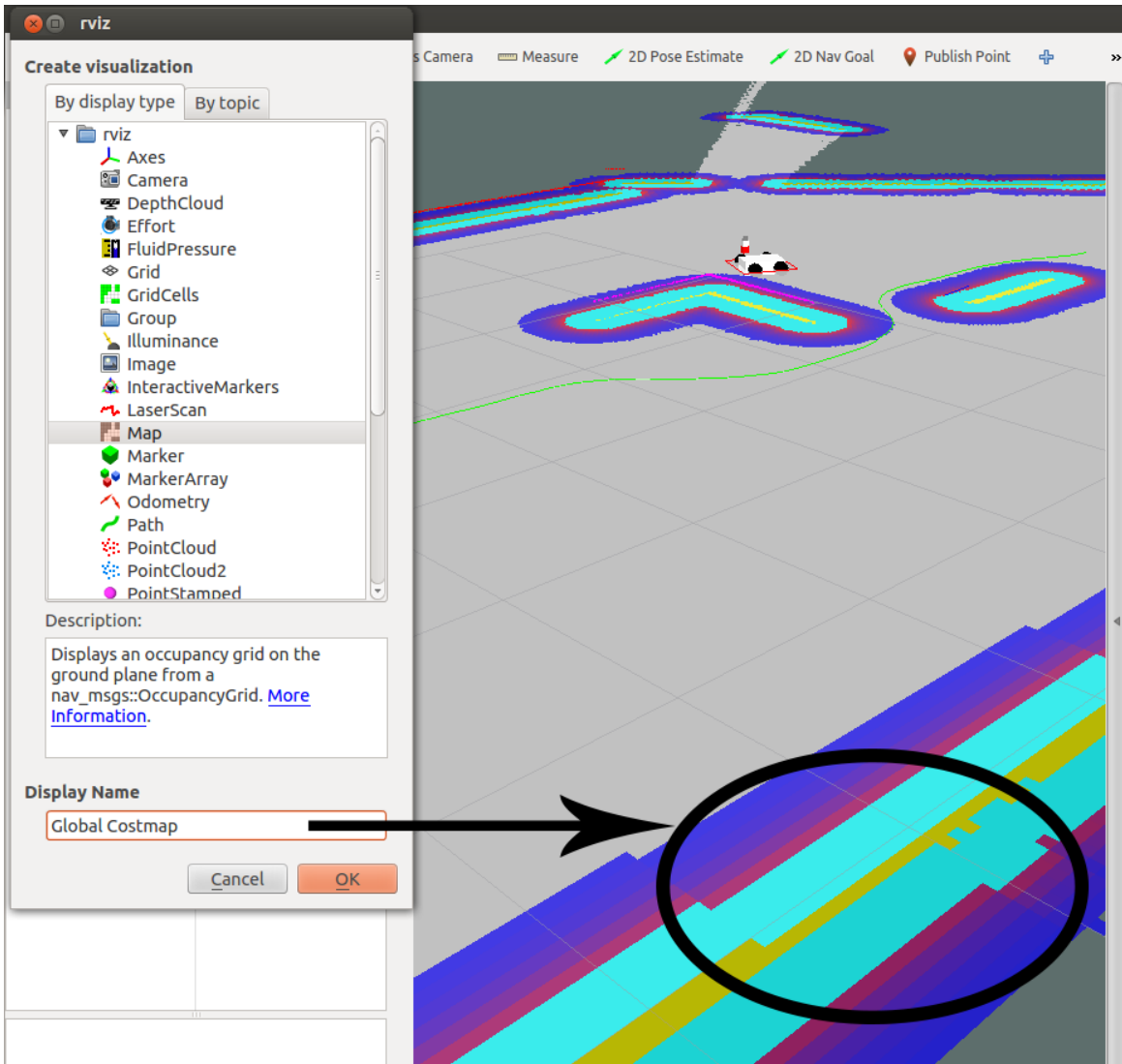


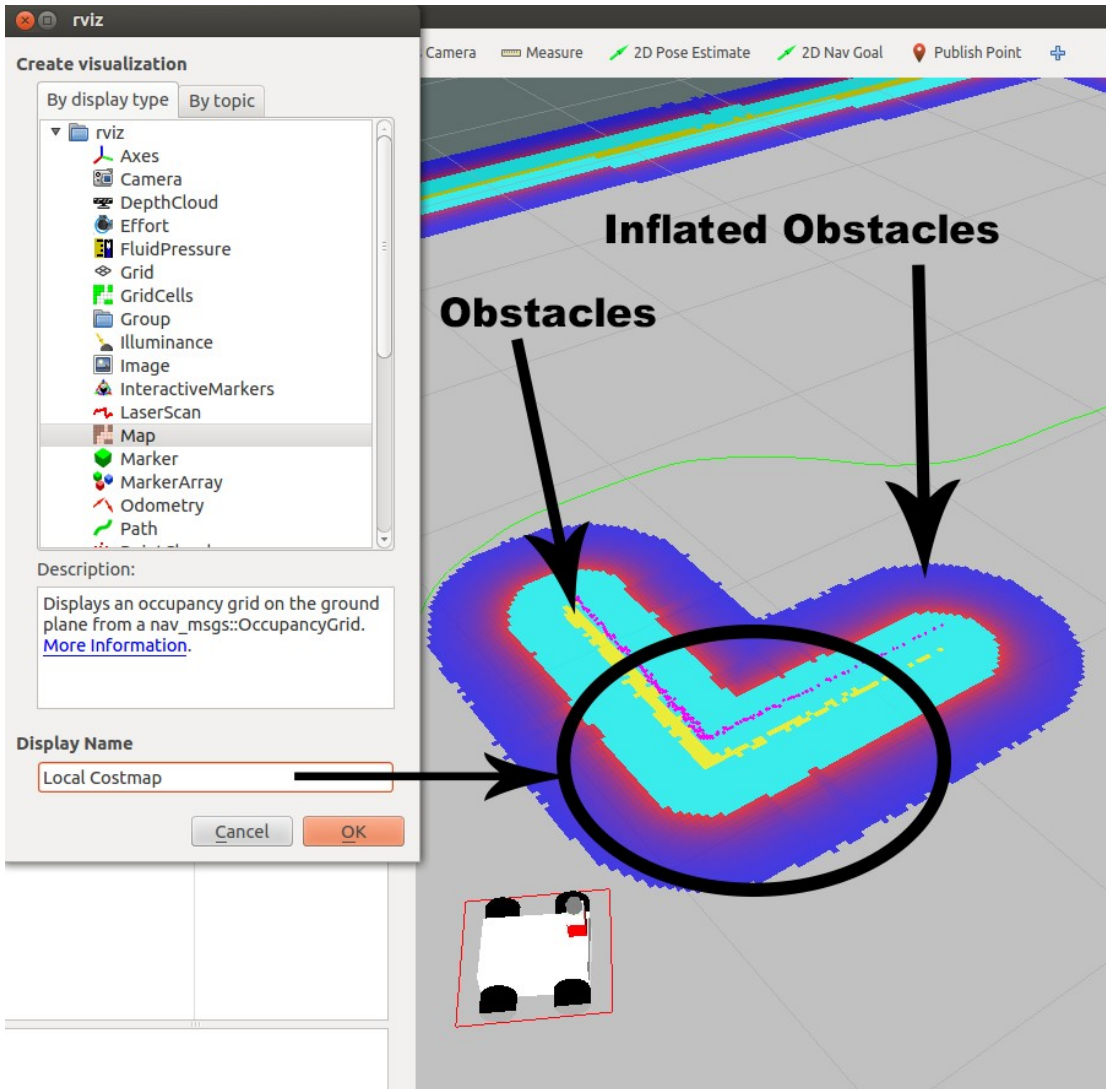
# Chapter 9

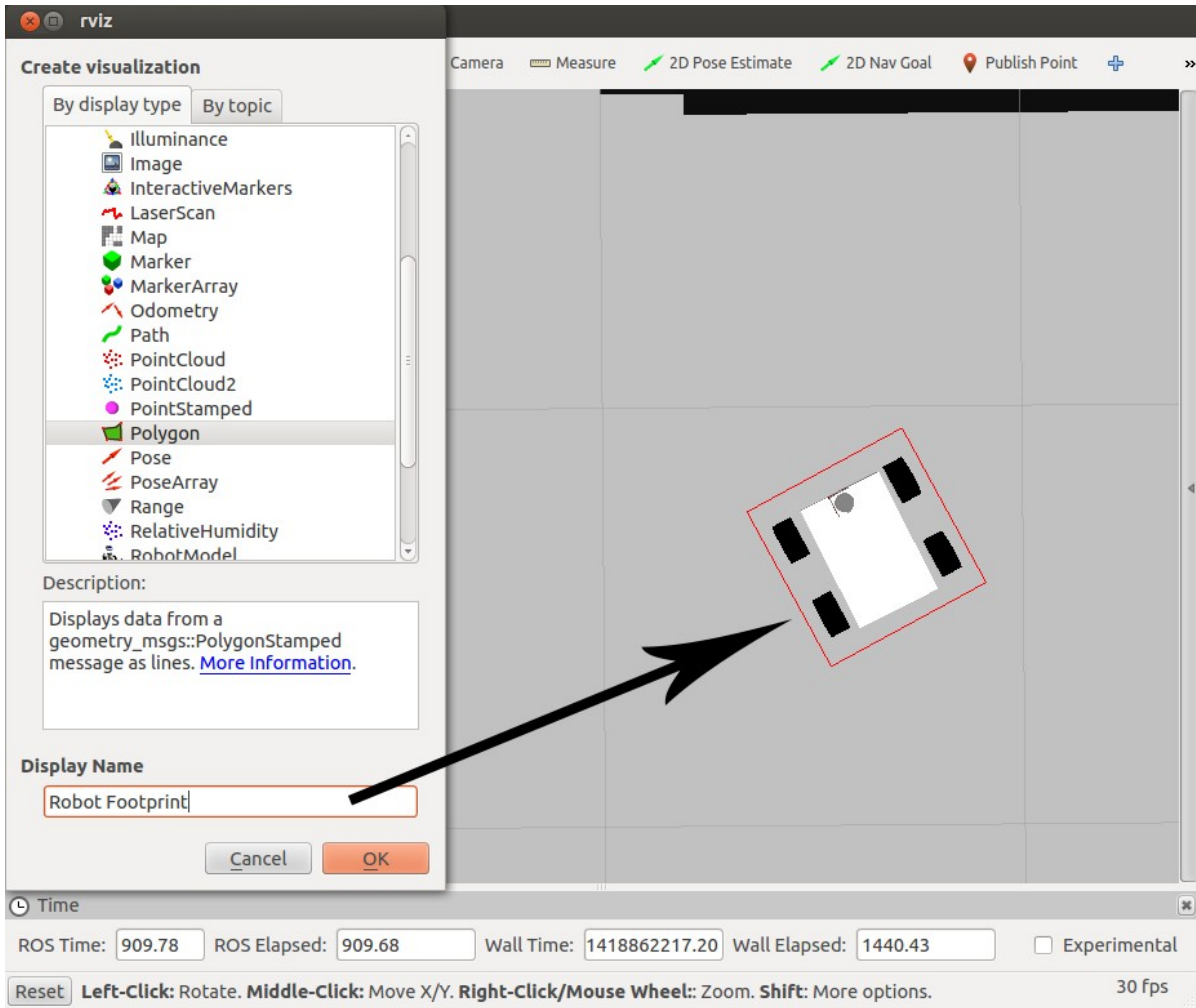














rviz

Camera Measure 2D Pose Estimate 2D Nav Goal Publish Point

### Create visualization

By display type By topic

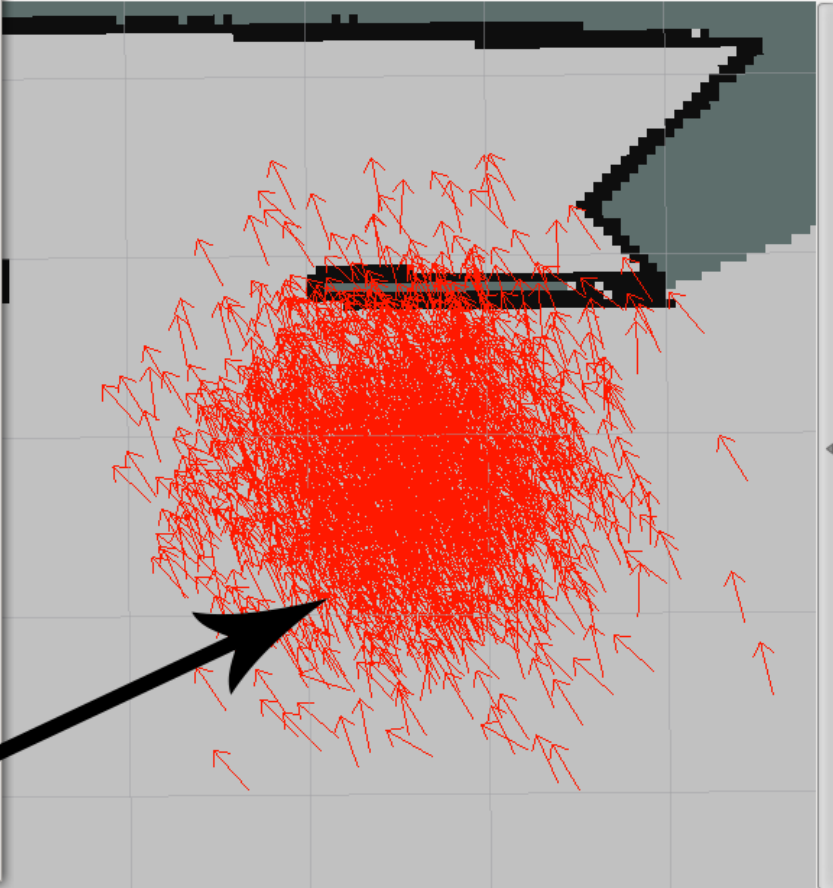
- Illuminance
- Image
- InteractiveMarkers
- LaserScan
- Map
- Marker
- MarkerArray
- Odometry
- Path
- PointCloud
- PointCloud2
- PointStamped
- Polygon
- Pose
- PoseArray
- Range
- RelativeHumidity

Description:

Displays the poses from a geometry\_msgs::PoseArray message as a cloud of arrows on the ground plane. [More Information](#)

Display Name

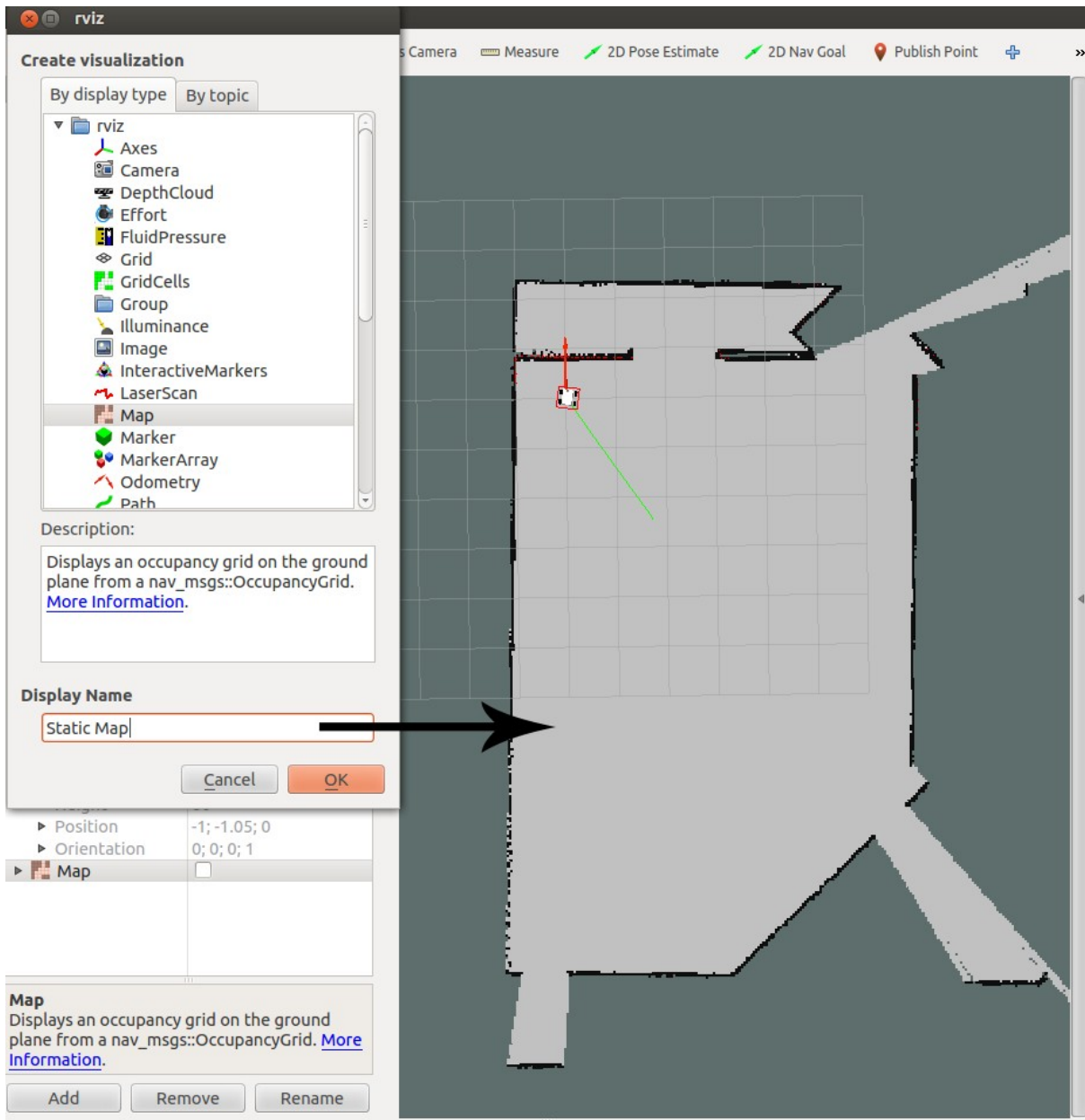
Cancel OK

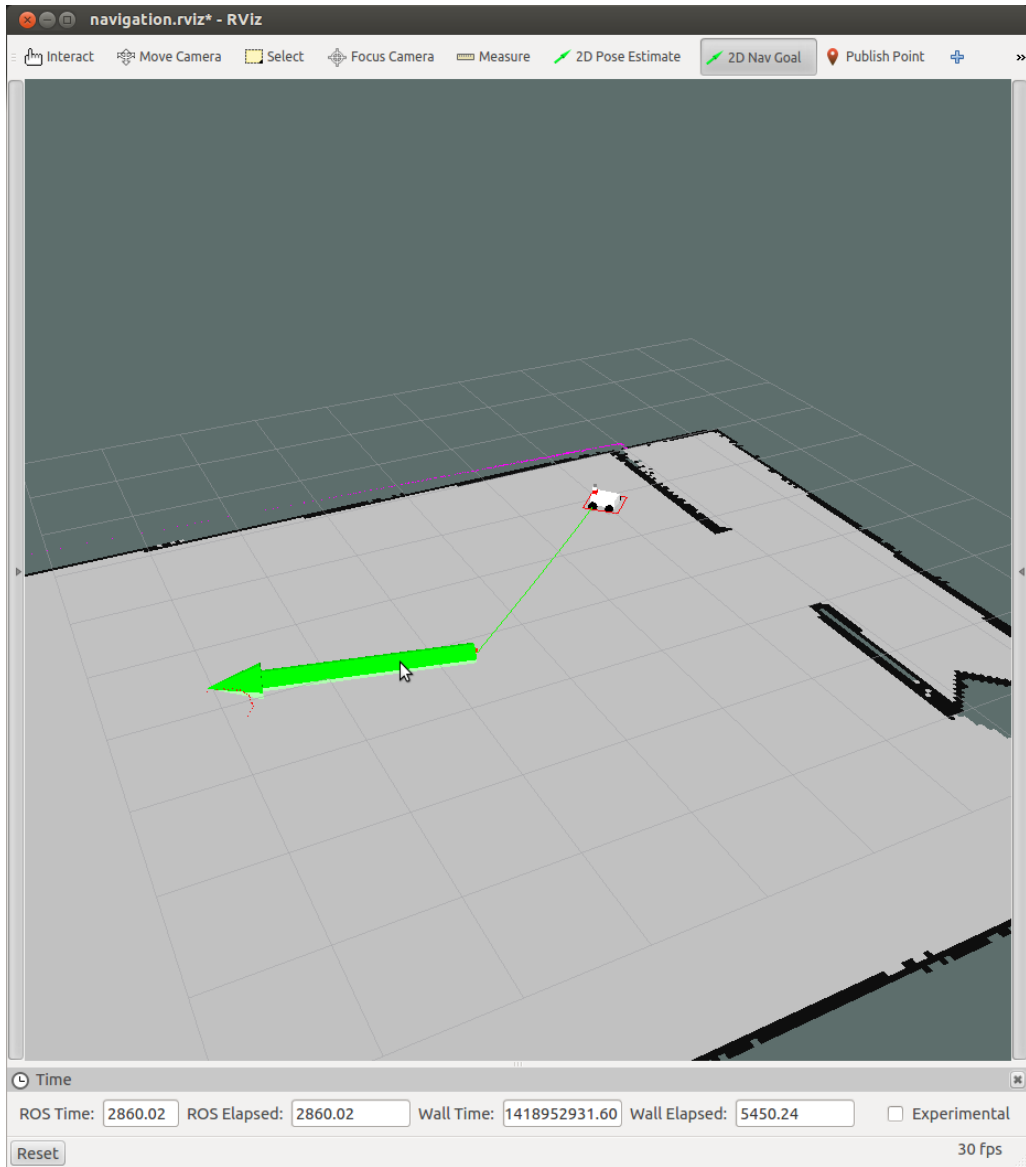


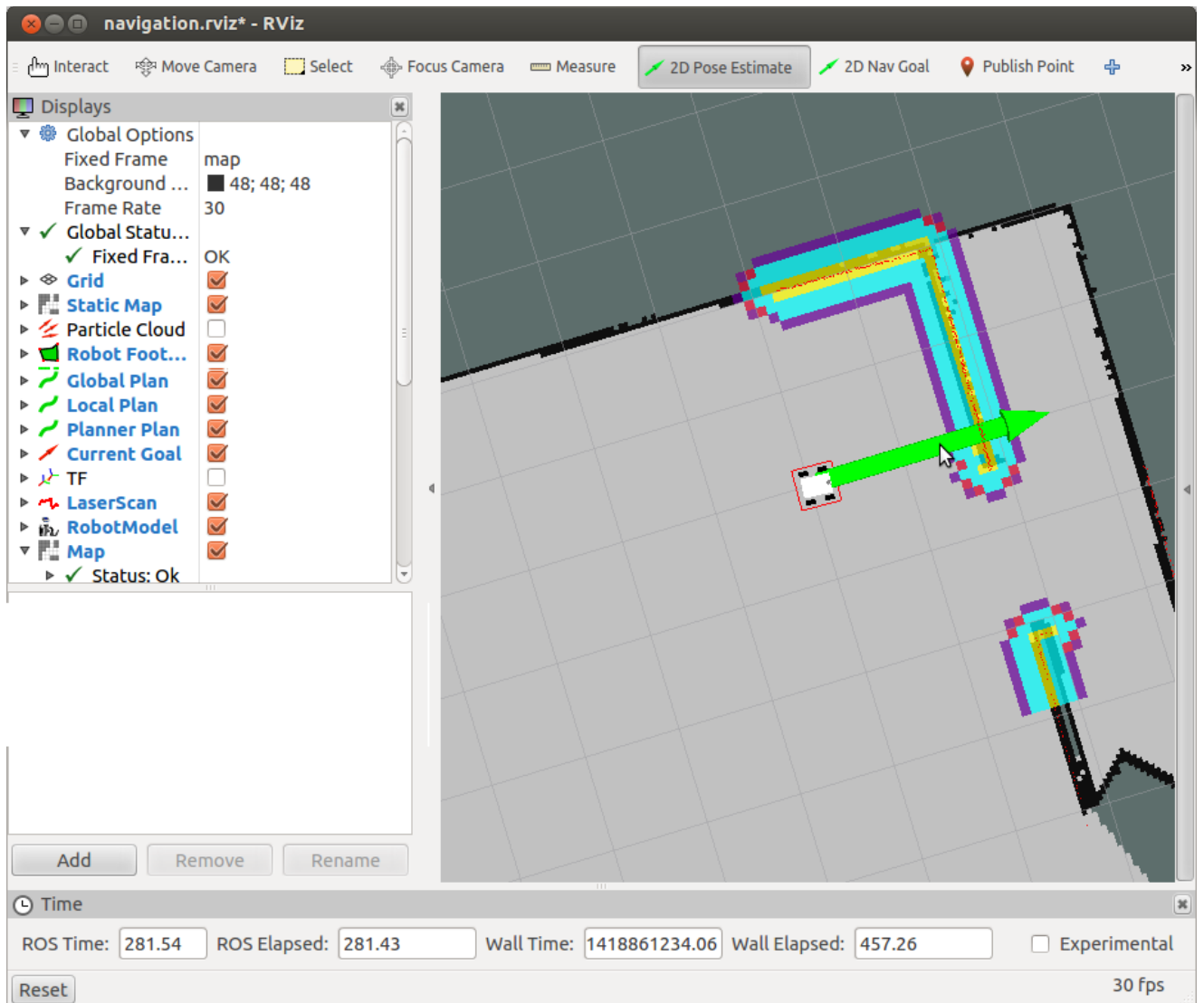
Time

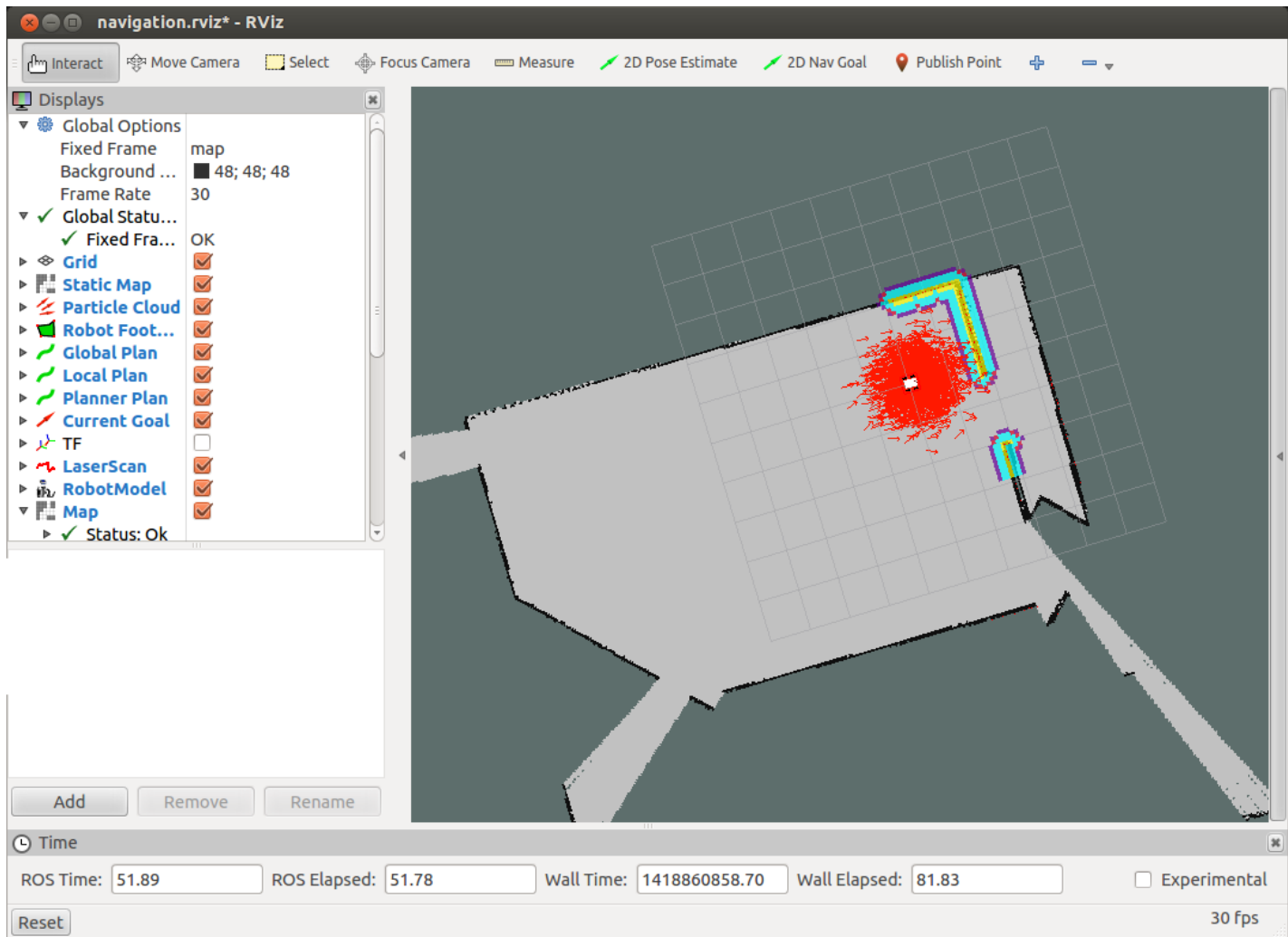
ROS Time: 874.34 ROS Elapsed: 874.23 Wall Time: 1418862165.54 Wall Elapsed: 1388.67  Experimental

Reset Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click/Mouse Wheel: Zoom. Shift: More options. 30 fps









navigation.rviz\* - RViz

Interact Move Camera Select Focus Camera Measure 2D Pose Estimate 2D Nav Goal

Displays

- Global Options
  - Fixed Frame: map
  - Background ...: 48; 48; 48
  - Frame Rate: 30
- Global Statu...
  - Fixed Fra...: Fixed Frame [map] ...
- Grid:
- Static Map:
- Particle Cloud:
- Robot Foot...:
- Global Plan:
- Local Plan:
- Planner Plan:
- Current Goal:
- TF:

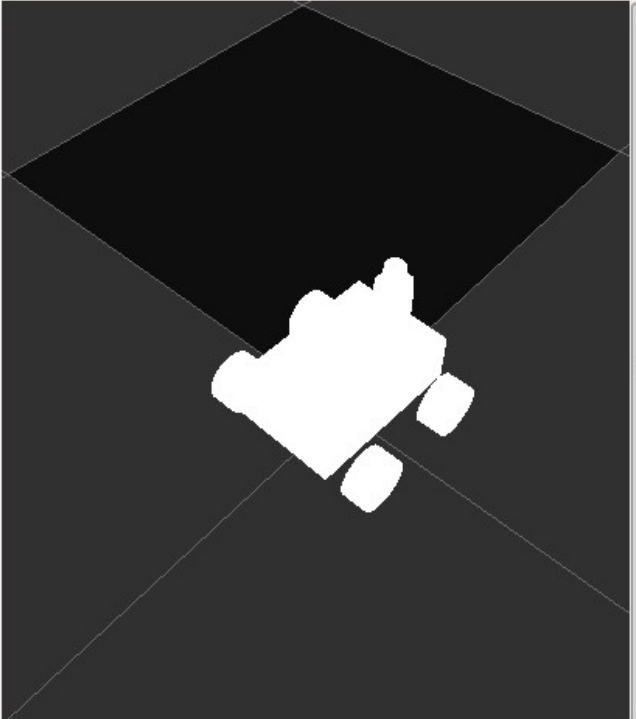
Fixed Frame  
Frame into which all data is transformed before being displayed.

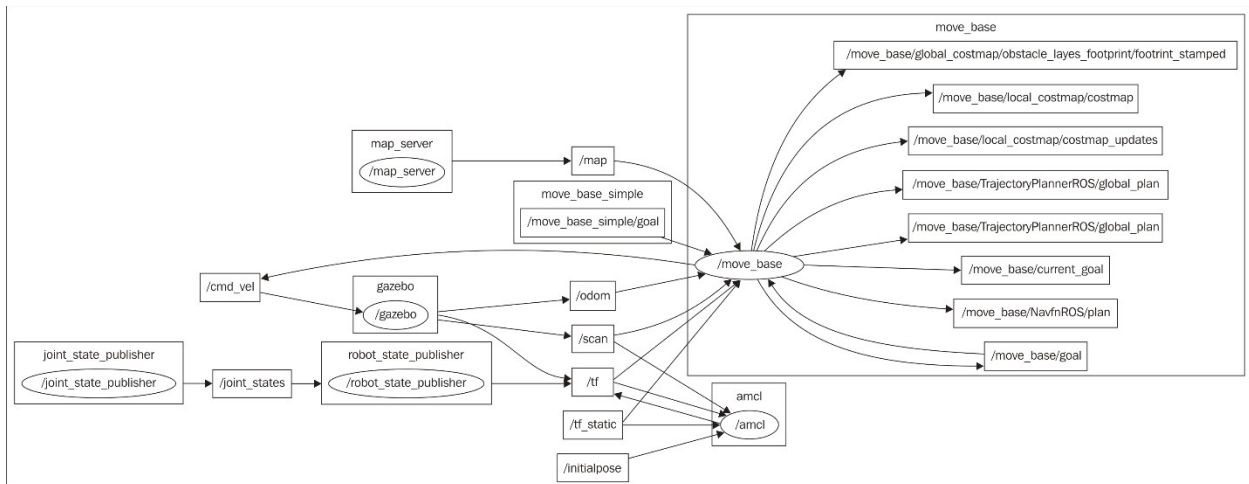
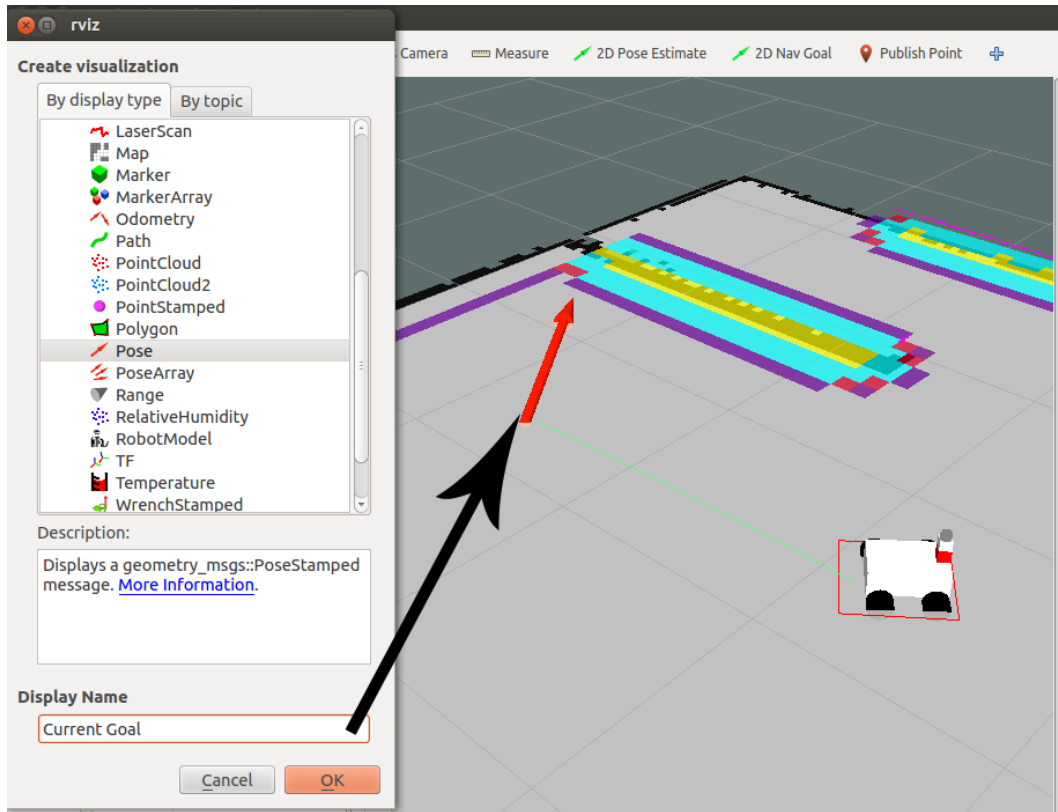
Add Remove Rename

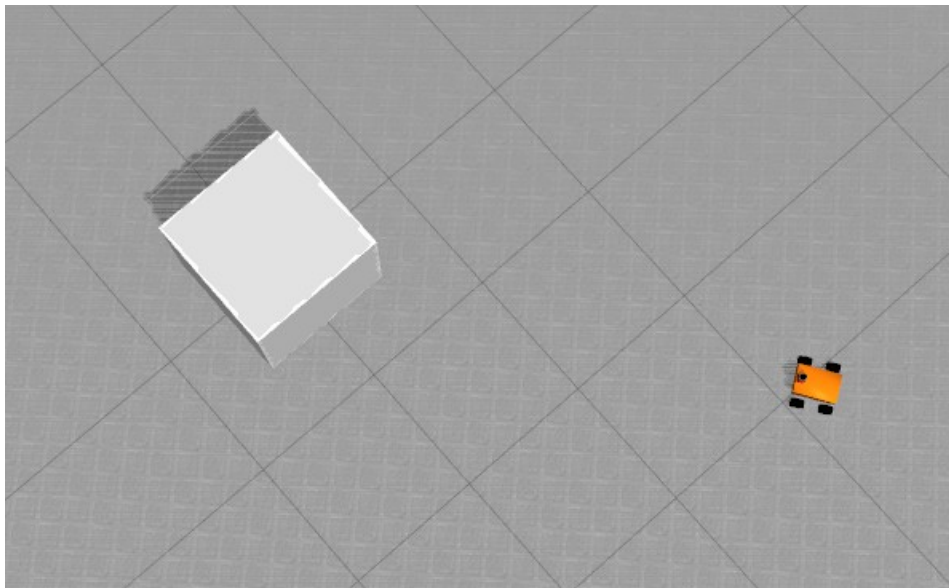
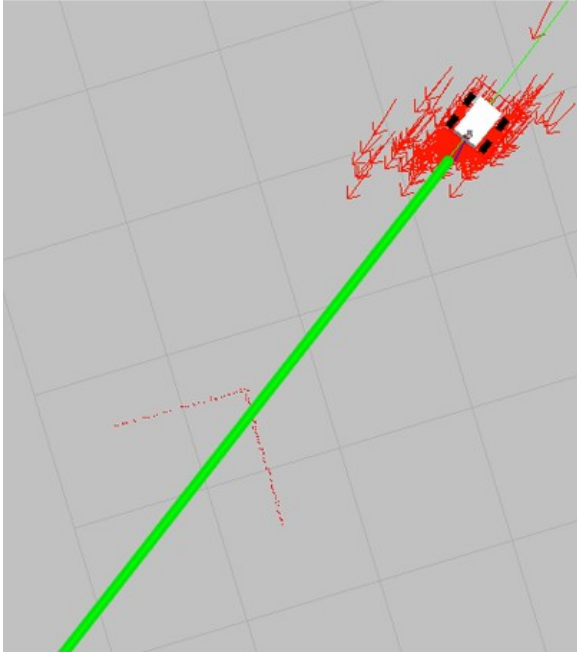
Time

ROS Time: 275.62 ROS Elapsed: 275.62 Wall Time: 1226.91 Wall Elapsed: 398.53  Experimental

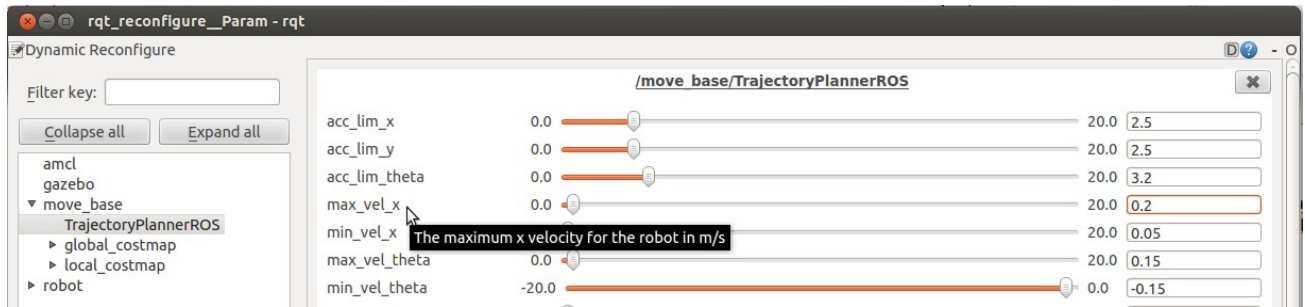
Reset 30 fps

The RViz window displays a 2D navigation environment. The main view is a dark gray map with a white robot footprint in the center. The robot footprint is a white, irregular shape representing the robot's current position and orientation. The map is overlaid with a grid of light gray lines. The interface includes a toolbar at the top with icons for Interact, Move Camera, Select, Focus Camera, Measure, 2D Pose Estimate, and 2D Nav Goal. On the left, the 'Displays' panel lists various visualization elements, most of which are checked. Below the displays panel is a 'Fixed Frame' section with a description. At the bottom, the 'Time' panel shows performance metrics for ROS and wall time, along with a 'Reset' button and a '30 fps' indicator.









navigation.rviz\* - RViz

Interact Move Camera Select Focus Camera Measure 2D Pose Estimate 2D Nav Goal Publish Point

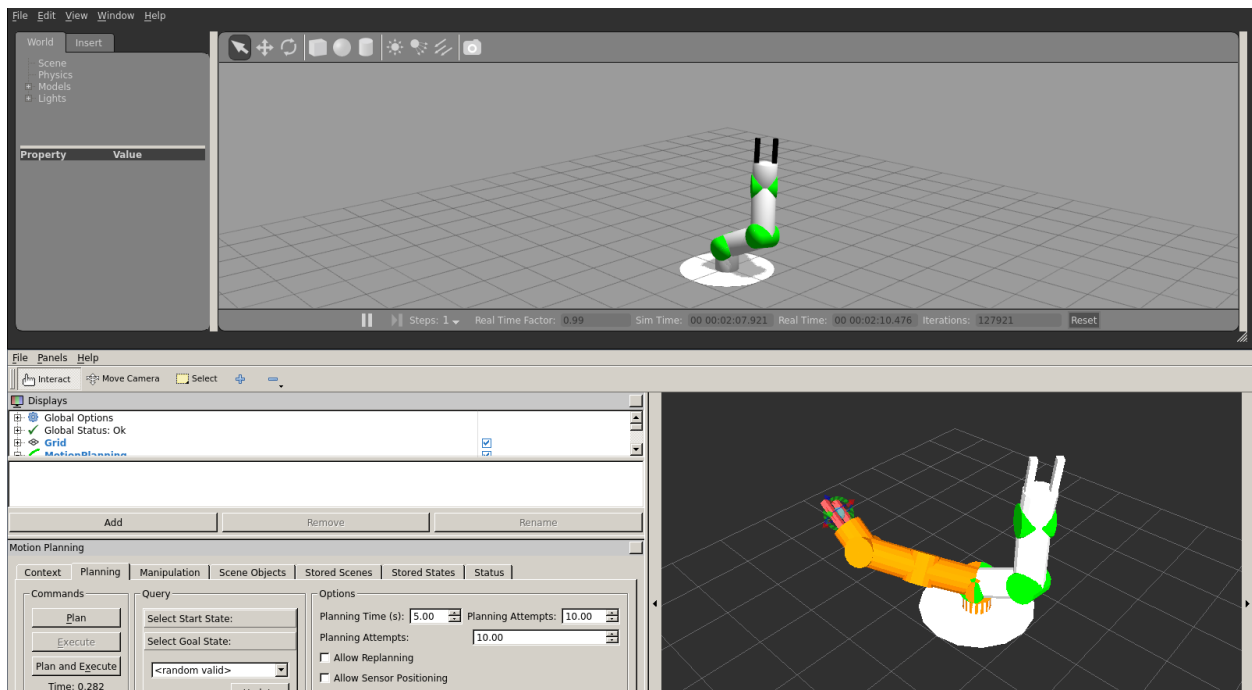
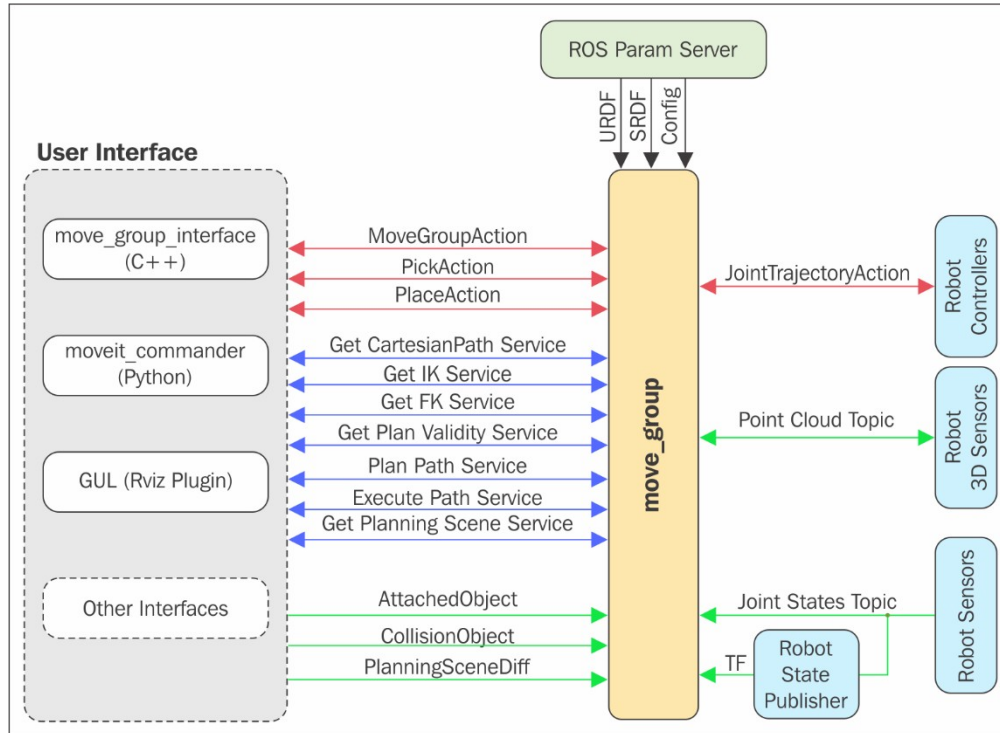
Time

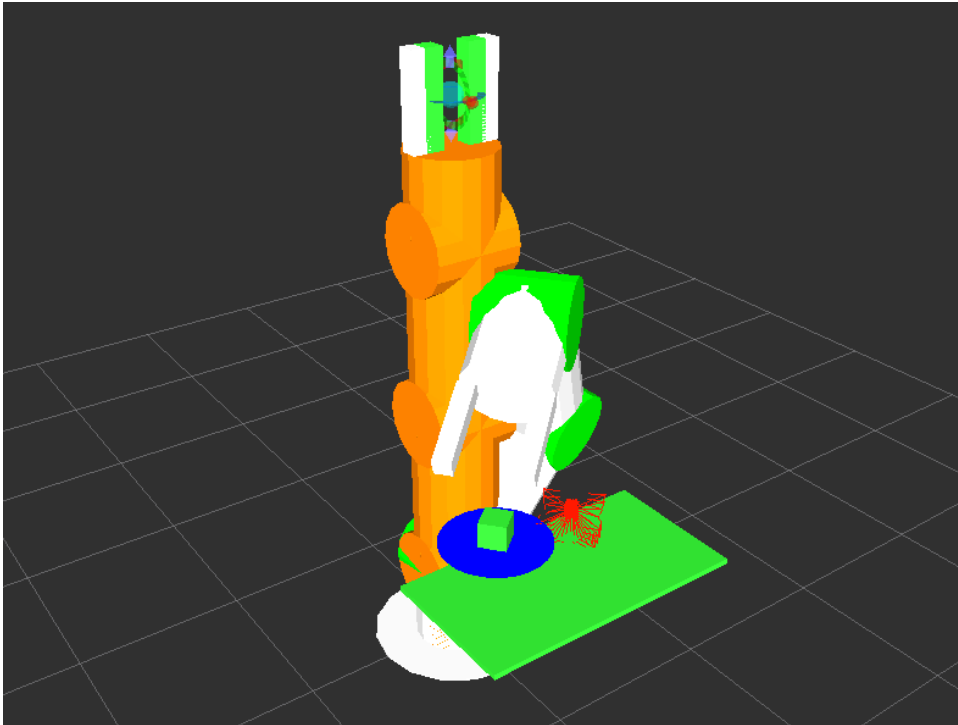
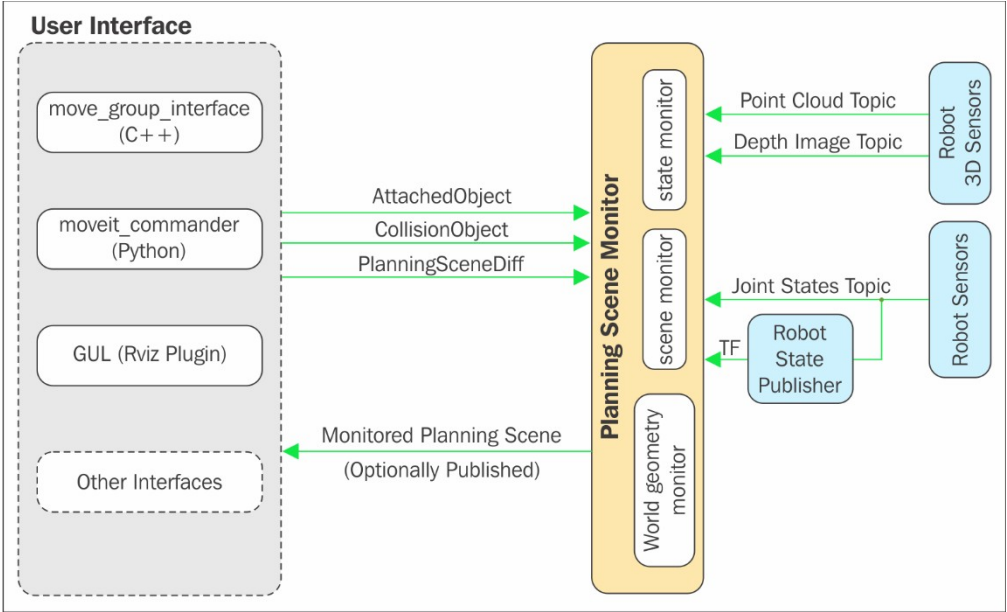
ROS Time: 2051.36 ROS Elapsed: 2051.36 Wall Time: 1418951277.32 Wall Elapsed: 3796.02  Experimental

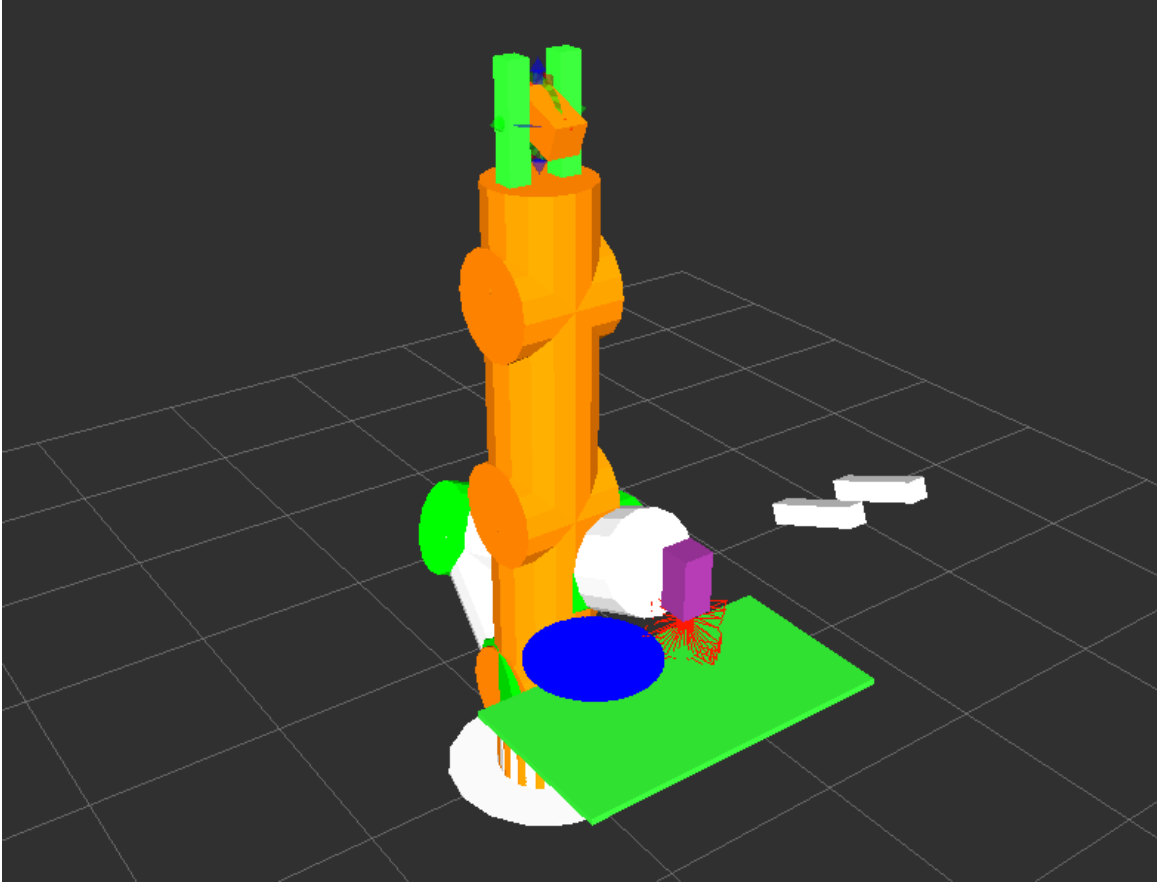
Reset 30 fps

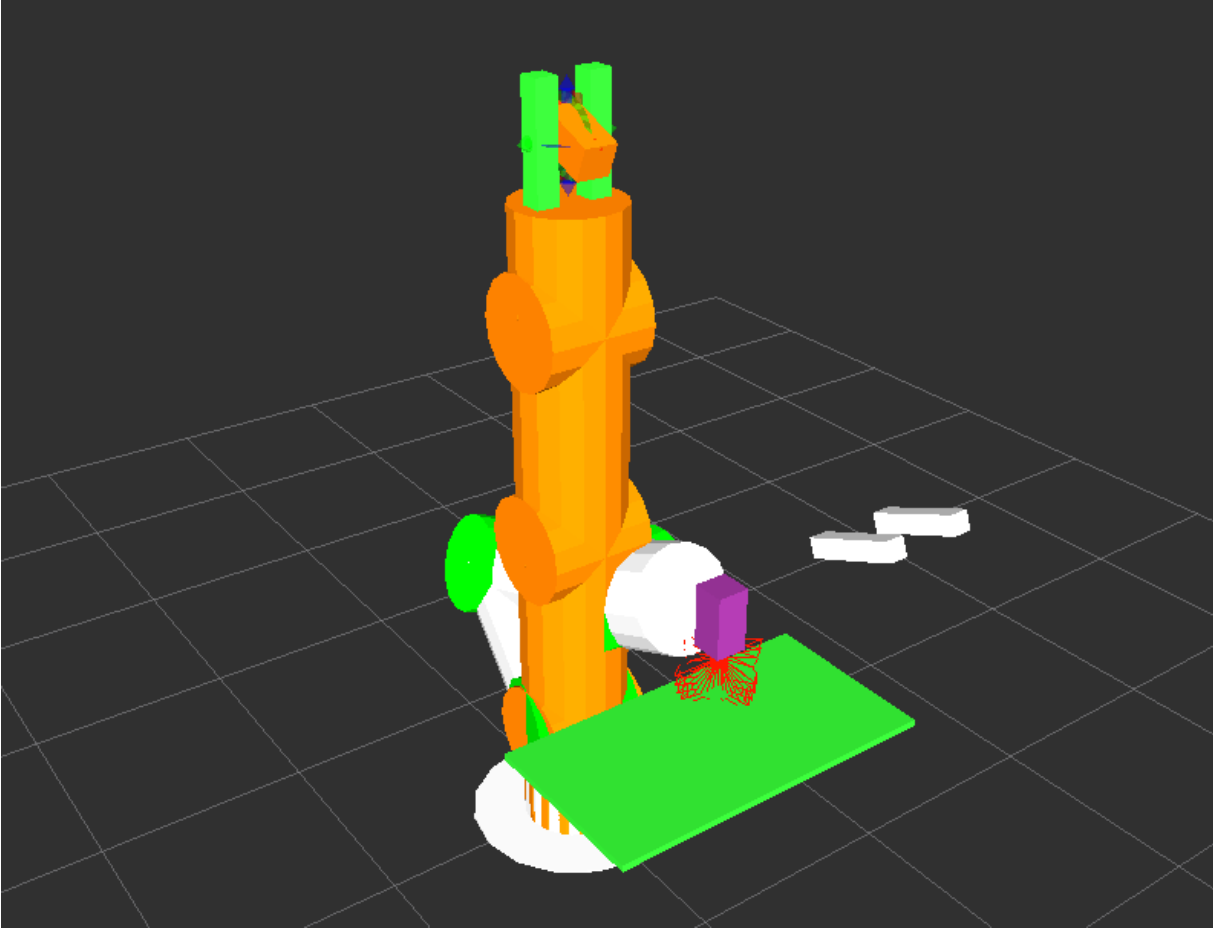
Detailed description: The image shows a screenshot of the RViz navigation interface. At the top, the window title is 'navigation.rviz\* - RViz'. Below the title bar is a toolbar with icons for 'Interact', 'Move Camera', 'Select', 'Focus Camera', 'Measure', '2D Pose Estimate', '2D Nav Goal', and 'Publish Point'. The main area is a 2D grid representing a floor plan. A robot, depicted as a small white and black vehicle, is positioned in the lower-left quadrant. A green line represents the robot's path, starting from its current position and moving towards a red arrow in the upper-right quadrant. The map includes black obstacles and a grid. At the bottom, a 'Time' panel displays ROS Time: 2051.36, ROS Elapsed: 2051.36, Wall Time: 1418951277.32, Wall Elapsed: 3796.02, and an unchecked 'Experimental' checkbox. A 'Reset' button and '30 fps' are also visible.

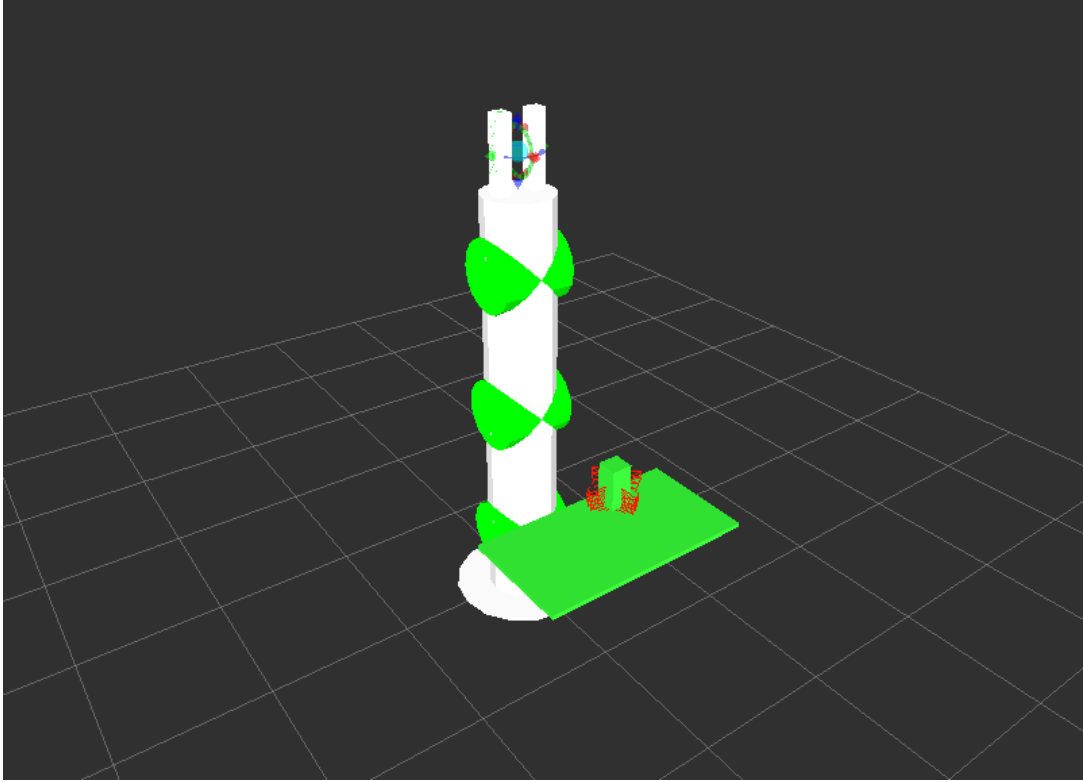
# Chapter 10

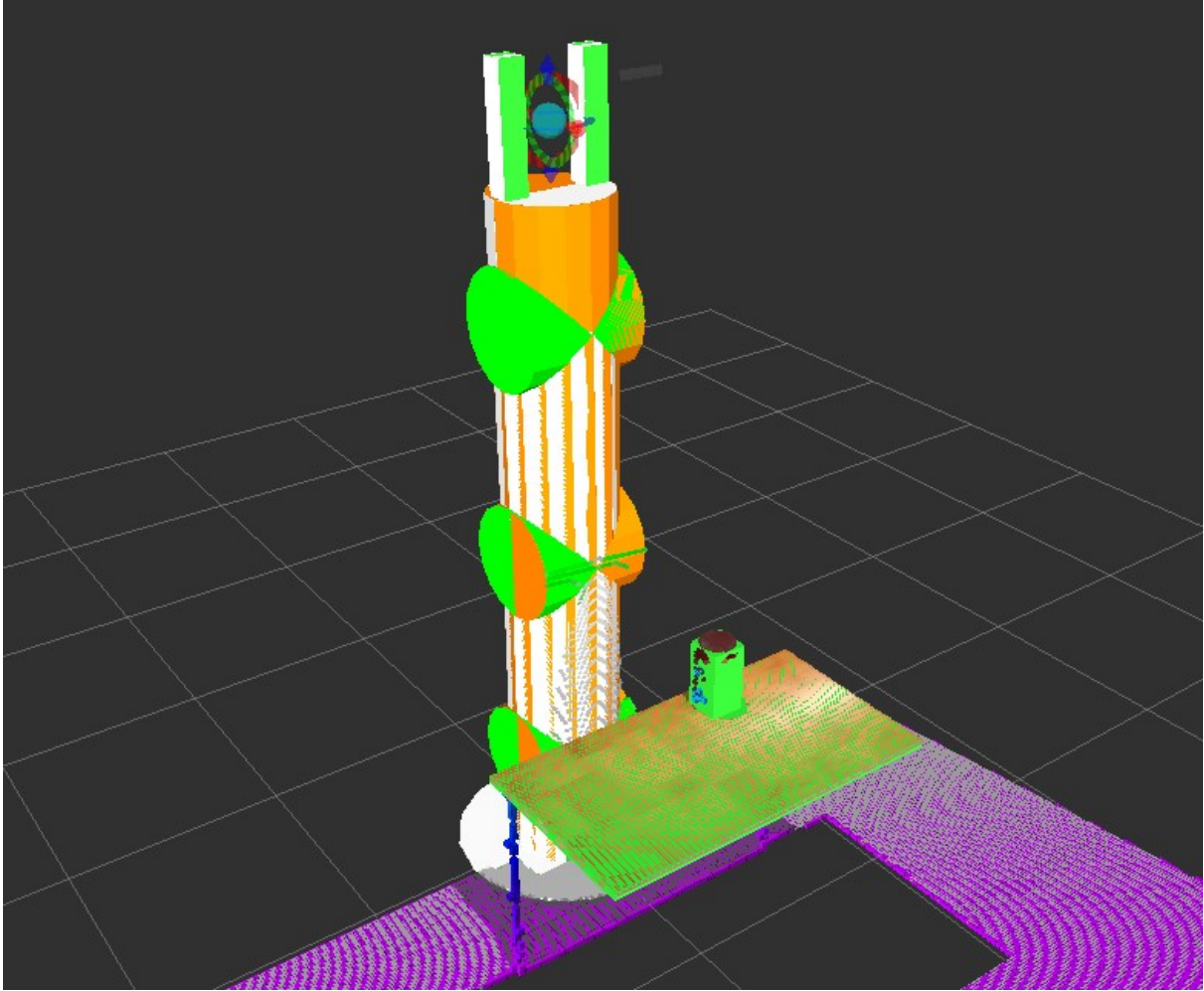




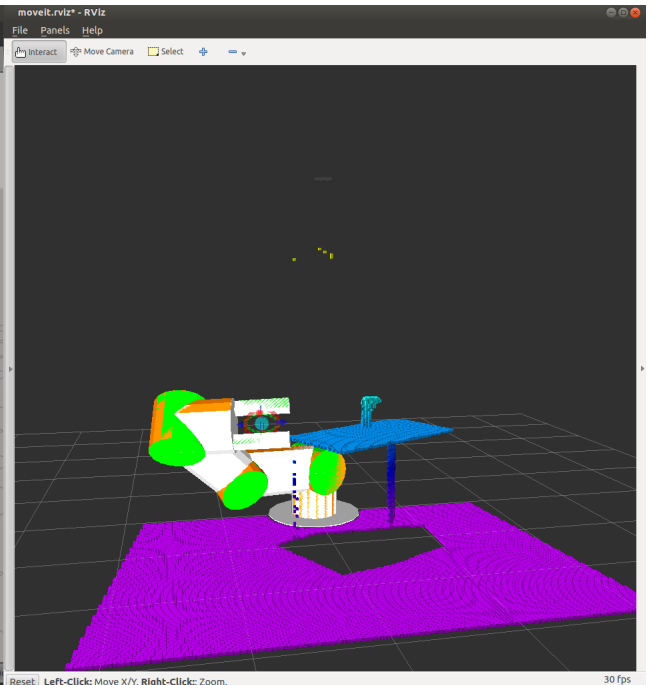
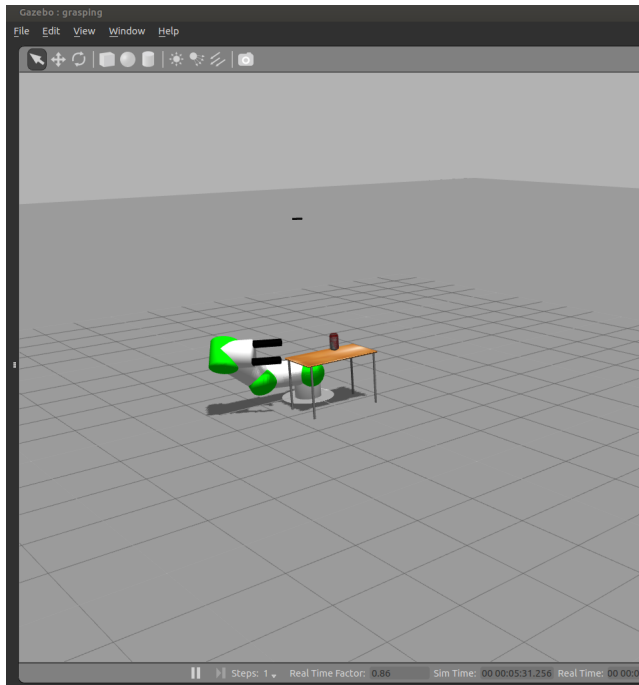
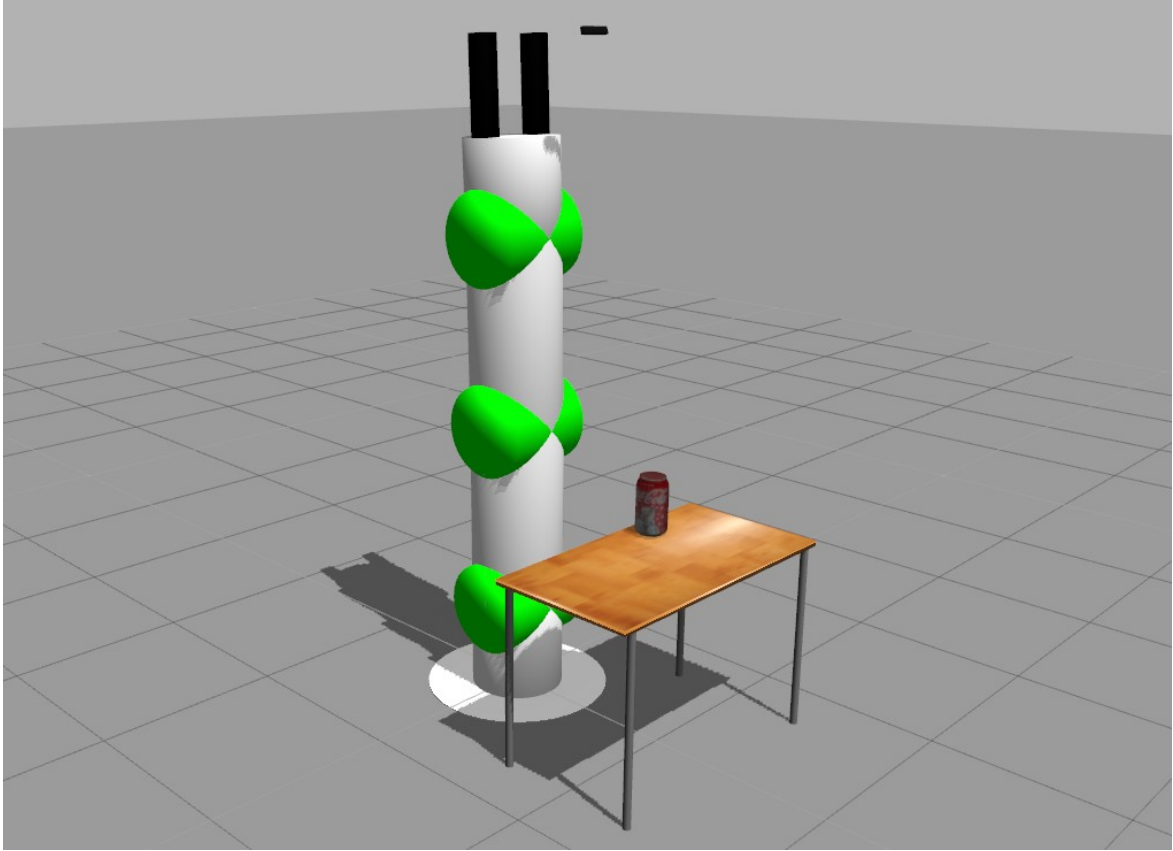


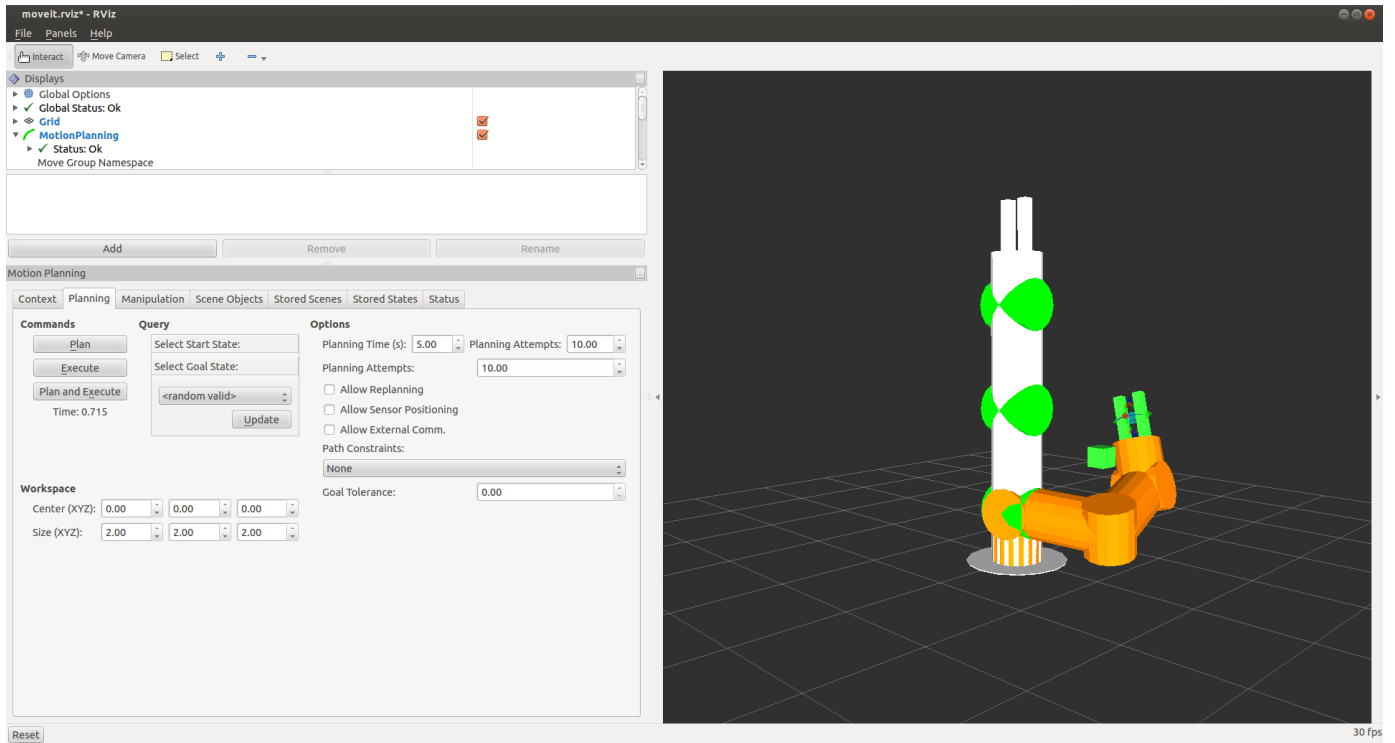






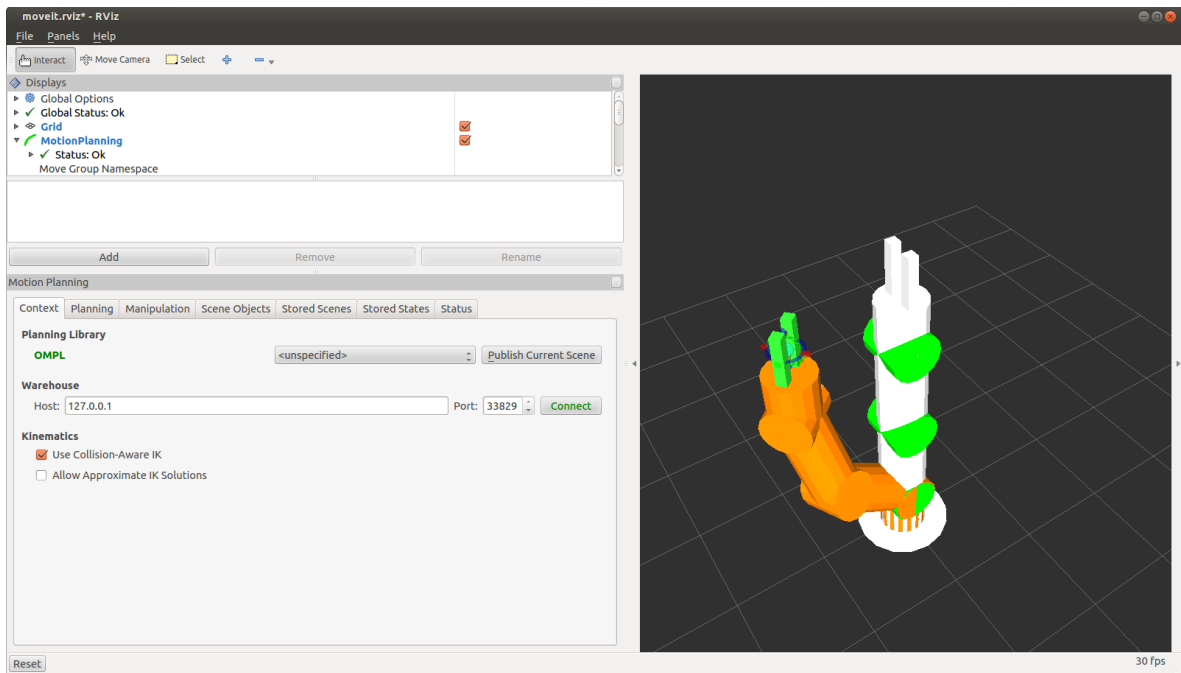
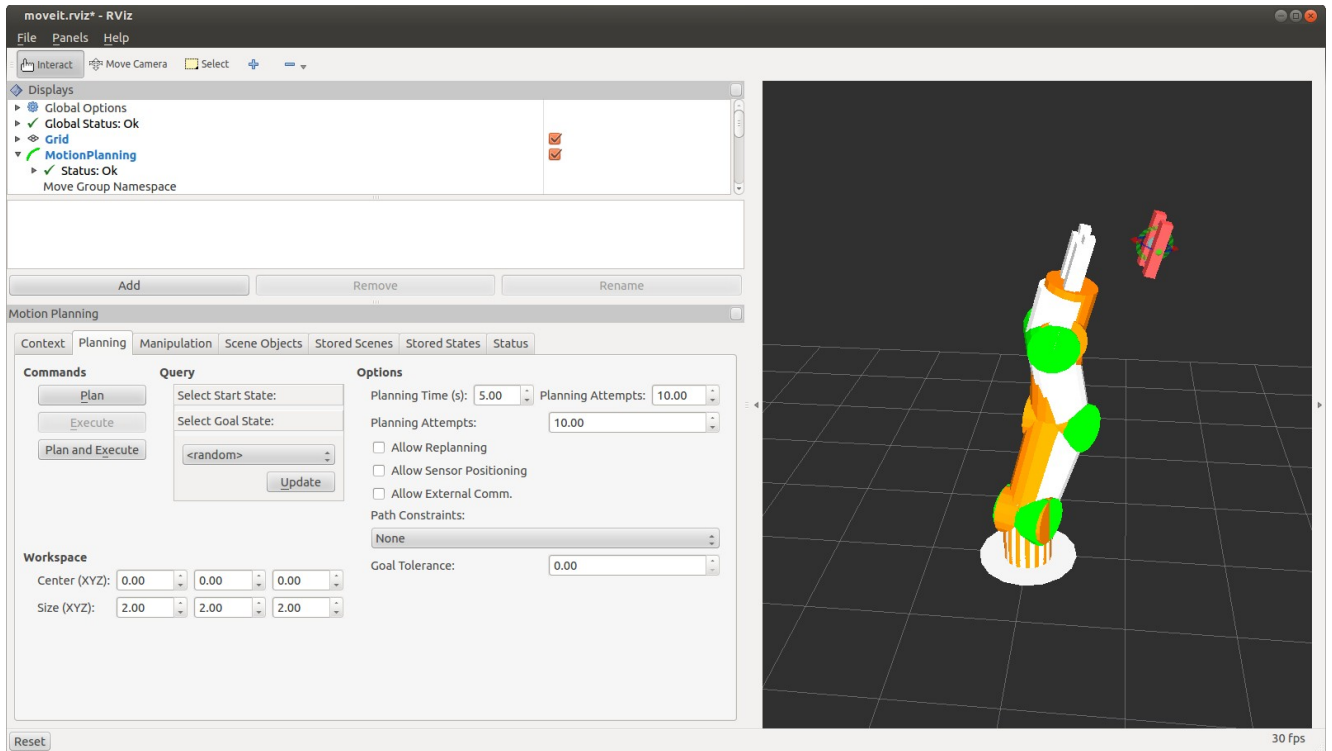


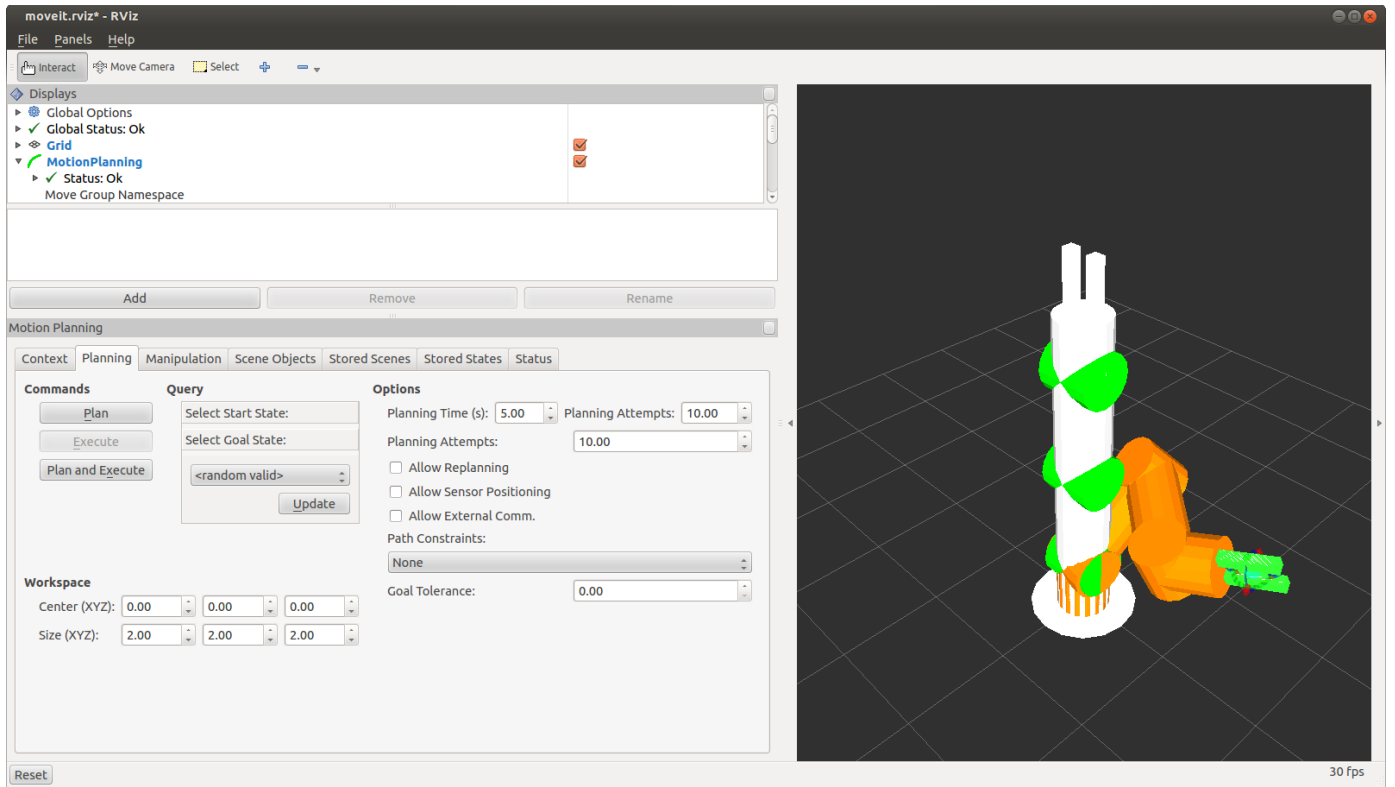




Displays

- ▶ Global Options
- ▶ ✓ Global Status: Ok
- ▶ Grid
  - robot\_description
  - /move\_group/monitored\_plan...
- ▼ MotionPlanning
  - ▶ ✓ Status: Ok
  - Move Group Namespace
  - Robot Description
  - Planning Scene Topic
  - ▶ Scene Geometry
  - ▼ Scene Robot
    - Show Robot Visual
    - Show Robot Collision
    - Robot Alpha 0.5
    - Attached Body Color  150; 50; 150
  - ▶ Links
  - ▼ Planning Request
    - Planning Group
    - Show Workspace
    - Query Start State
    - Query Goal State
    - Interactive Marker Size 0
    - Start State Color  0; 255; 0
    - Start State Alpha 1
    - Goal State Color  250; 128; 0
    - Goal State Alpha 1
    - Colliding Link Color  255; 0; 0
    - Joint Violation Color  255; 0; 255
  - ▼ Planning Metrics
    - Show Weight Limit
    - Show Manipulability Index
    - Show Manipulability
    - Show Joint Torques
    - Payload 1
    - TextHeight 0.08
  - ▼ Planned Path
    - Trajectory Topic
    - Show Robot Visual
    - Show Robot Collision
    - Robot Alpha 0.5
    - State Display Time 0.05 s
    - Loop Animation
    - Show Trail
    - ▶ Links





**MoveIt Setup Assistant**

**Generate Configuration Files**

Create or update the configuration files package needed to run your robot with MoveIt. Uncheck files to disable them from being generated - this is useful if you have made custom changes to them. Files in orange have been automatically detected as changed.

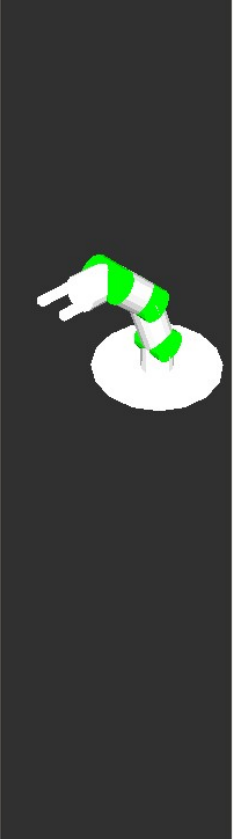
**Configuration Package Save Path**

Specify the desired directory for the MoveIt configuration package to be generated. Overwriting an existing configuration package directory is acceptable. Example: `/u/robot/ros/pr2_moveit_config`

Files to be generated: (checked)

- package.xml
- CMakeLists.txt
- config/
- config/rosbook\_arm.srdf
- config/ompl\_planning.yaml
- config/kinematics.yaml
- config/joint\_limits.yaml
- config/fake\_controllers.yaml
- launch/
- launch/move\_group.launch
- launch/planning\_context.launch
- launch/moveit\_rviz.launch
- launch/ompl\_planning\_pipeline.launch.xml
- launch/planning\_pipeline.launch.xml
- launch/warehouse\_settings.launch.xml
- launch/warehouse.launch
- launch/default\_warehouse\_db.launch

Defines a ROS package



- Start
- Self-Collisions
- Virtual Joints
- Planning Groups
- Robot Poses
- End Effectors
- Passive Joints**
- Configuration Files

## Passive Joints

Specify the set of passive joints (not actuated). Joint state is not expected to be published for these joints.

### Active Joints

	Joint Names
1	shoulder_joint
2	rotor_0_joint
3	upper_arm_joint
4	rotor_1_joint
5	forearm_joint
6	rotor_2_joint
7	tool_joint
8	finger_1_joint
9	finger_2_joint

### Passive Joints

Joint Names
-------------



- Start
- Self-Collisions
- Virtual Joints
- Planning Groups
- Robot Poses
- End Effectors**
- Passive Joints
- Configuration Files

## End Effectors

Setup grippers and other end effectors for your robot

	End Effector Name	Group Name	Parent Link	Parent Group
1	gripper_eef	gripper	grasping_frame	





Start

Self-Collisions

Virtual Joints

Planning Groups

Robot Poses

End Effectors

Passive Joints

Configuration Files

## Robot Poses

Create poses for the robot. Poses are defined as sets of joint values for particular planning groups. This is useful for things like *folded arms*.

	Pose Name	Group Name
1	home	arm
2	grasp	arm

Show Default Pose

MoveIt!

Edit Selected

Delete Selected

Add Pose



MoveIt Setup Assistant

Start  
Self-Collisions  
Virtual Joints  
**Planning Groups**  
Robot Poses  
End Effectors  
Passive Joints  
Configuration Files

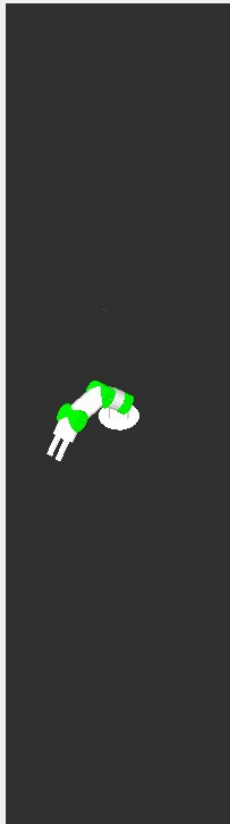
## Planning Groups

Create and edit planning groups for your robot based on joint collections, link collections, kinematic chains and subgroups.

Current Groups

- ▼ **arm**
  - ▼ *Joints*
    - shoulder\_joint - Revolute
    - rotor\_0\_joint - Revolute
    - upper\_arm\_joint - Revolute
    - rotor\_1\_joint - Revolute
    - forearm\_joint - Revolute
    - rotor\_2\_joint - Revolute
    - tool\_joint - Revolute
    - grasping\_frame\_joint - Fixed
  - Links*
  - Chain*
  - Subgroups*
- ▼ **gripper**
  - ▼ *Joints*
    - finger\_1\_joint - Prismatic
    - finger\_2\_joint - Prismatic
  - Links*
  - Chain*
  - Subgroups*

[Expand All](#) [Collapse All](#)



MoveIt Setup Assistant

Start

Self-Collisions

**Virtual Joints**

Planning Groups

Robot Poses

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Passive Joints


Configuration Files

### Virtual Joints

Define a virtual joint between a robot link and an external frame of reference (considered fixed with respect to the robot).

Virtual Joint Name	Child Link	Parent Frame	Type
--------------------	------------	--------------	------

Delete Selected Add Virtual Joint



Start

Self-Collisions

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## Optimize Self-Collision Checking

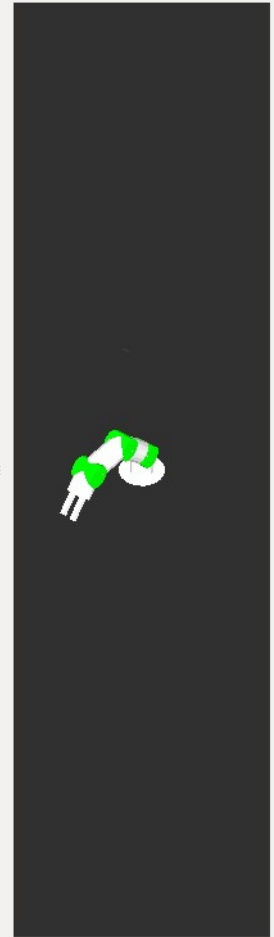
The Default Self-Collision Matrix Generator will search for pairs of links on the robot that can safely be disabled from collision checking, decreasing motion planning processing time. These pairs of links are disabled when they are always in collision, never in collision, in collision in the robot's default position or when the links are adjacent to each other on the kinematic chain. Sampling density specifies how many random robot positions to check for self collision. Higher densities require more computation time.

Sampling Density: Low  High 10000

Regenerate Default Collision Matrix

	Link A	Link B	Disabled	Reason To Disable
1	base_link	rotor_0_link	<input checked="" type="checkbox"/>	Never in Collision
2	base_link	rotor_1_link	<input checked="" type="checkbox"/>	Never in Collision
3	base_link	rotor_2_link	<input checked="" type="checkbox"/>	Never in Collision
4	base_link	shoulder_link	<input checked="" type="checkbox"/>	Adjacent Links
5	base_link	upper_arm_link	<input checked="" type="checkbox"/>	Never in Collision
6	finger_1_link	finger_2_link	<input checked="" type="checkbox"/>	Never in Collision
7	finger_1_link	forearm_link	<input checked="" type="checkbox"/>	Never in Collision
8	finger_1_link	rotor_0_link	<input checked="" type="checkbox"/>	Never in Collision
9	finger_1_link	rotor_1_link	<input checked="" type="checkbox"/>	Never in Collision
10	finger_1_link	rotor_2_link	<input checked="" type="checkbox"/>	Never in Collision
11	finger_1_link	shoulder_link	<input checked="" type="checkbox"/>	Never in Collision
12	finger_1_link	tool_link	<input checked="" type="checkbox"/>	Adjacent Links
13	finger_1 link	upper_arm link	<input checked="" type="checkbox"/>	Never in Collision

Show Non-Disabled Link Pairs Min. collisions for "always"-colliding pai 95%




**Movelt Setup Assistant**

**Start**

- Self-Collisions
- Virtual Joints
- Planning Groups
- Robot Poses
- End Effectors
- Passive Joints
- Configuration Files


## Movelt Setup Assistant

Welcome to the Movelt Setup Assistant! These tools will assist you in creating a Movelt configuration package that is required to run Movelt. This includes generating a Semantic Robot Description Format (SRDF) file, kinematics configuration file and OMPL planning configuration file. It also involves creating launch files for move groups, OMPL planner, planning contexts and the planning warehouse.



**Choose mode:**

All settings for Movelt are stored in a Movelt configuration package. Here you have the option to create a new configuration package, or load an existing one. Note: any changes to a Movelt configuration package outside this setup assistant will likely be overwritten by this tool.



**ROS**  
Movelt Setup Assistant

