Learn TurtleBot and ROS   About

Creating a Map

This lesson shows how to build a map which lets the robot remembers the environment. TurtleBot can autonomously navigate around using the map.

Creating a Map

1. Create a folder for maps.

```
mkdir ~/turtlebot_custom_maps
```

2. Launch Gazebo world.

```
roslaunch turtlebot_gazebo turtlebot_world.launch
```
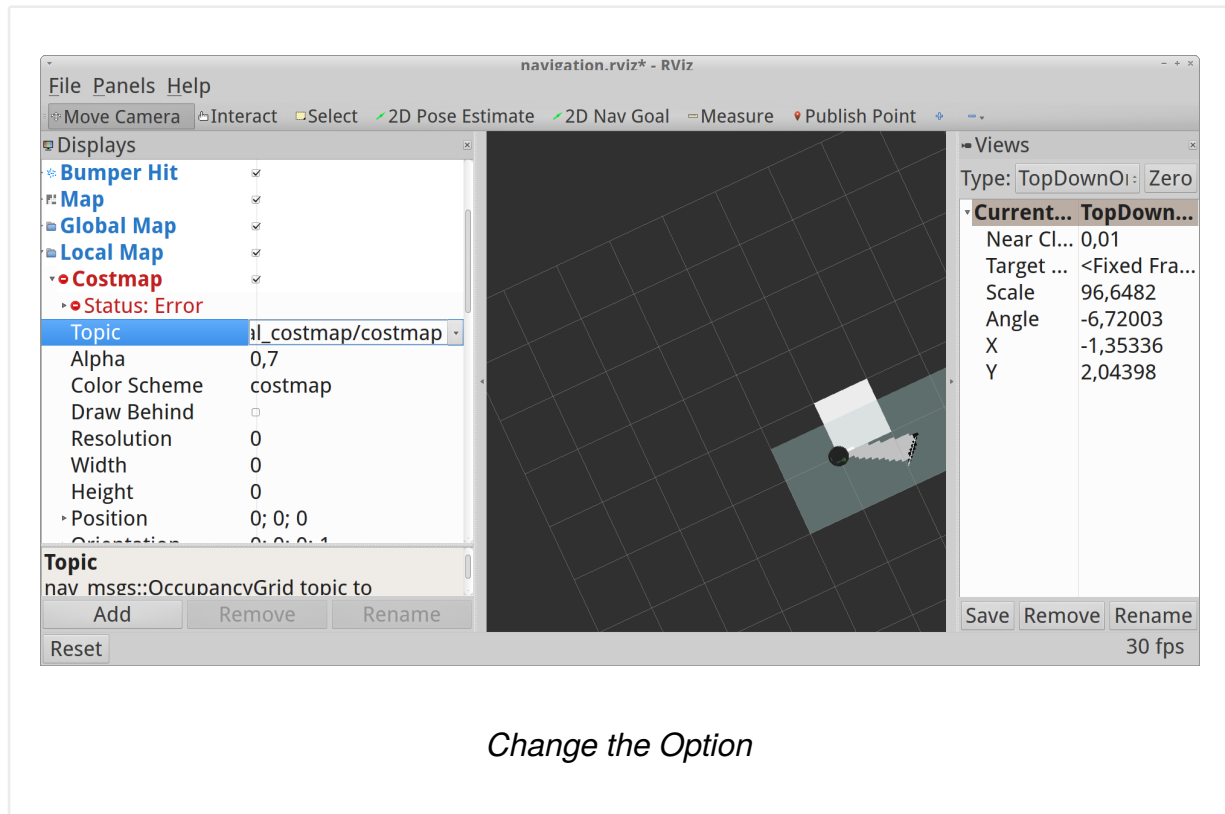
3. Start map building.

```
roslaunch turtlebot_gazebo gmapping_demo.launch
```

4. Use Rviz to visualize the map building process.

```
roslaunch turtlebot_rviz_launchers view_navigation.launch
```

5. Change the option.

`Local map` -> `Costmap` -> `Topic` (choose `/map` from drop-down list). See on the picture:

Change the Option

6. Change the option.

`Global map` -> `Costmap` -> `Topic` (choose `/map` from drop-down list).

7. Launch teleop.

```
roslaunch turtlebot_teleop keyboard_teleop.launch
```

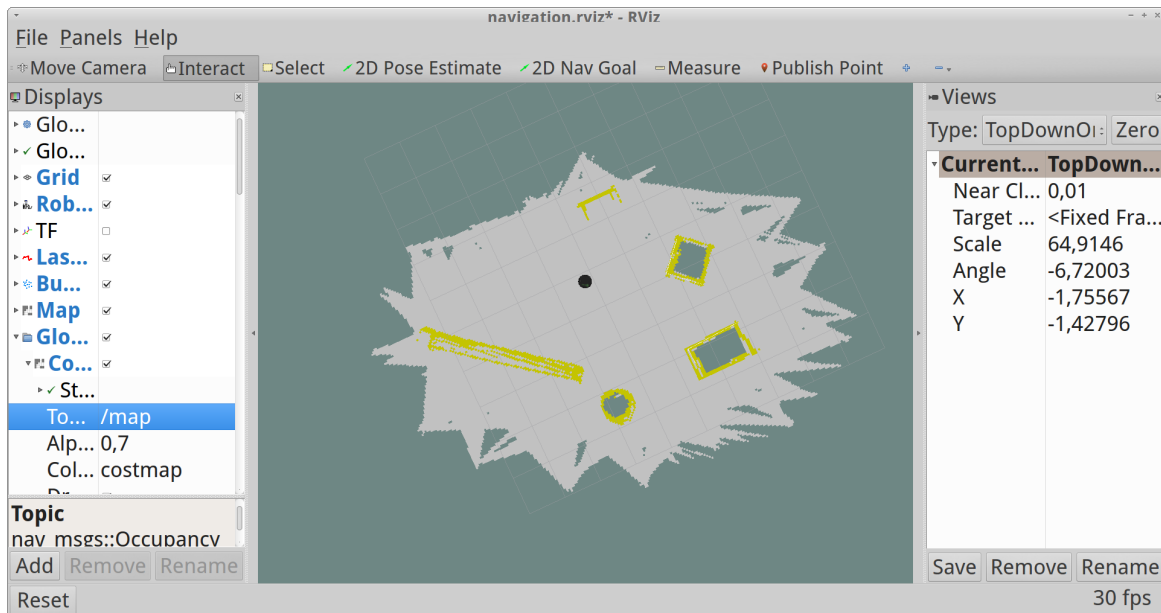*NOTE: If you want you can use other tools, for example interactive markers, find the information here.*

8. Drive the TurtleBot around.

NOTE: The terminal with teleop launching has to be active all the time otherwise you won't be able to operate the TurtleBot.

This is a picture of 360-degrees turn:

360-degrees Turn
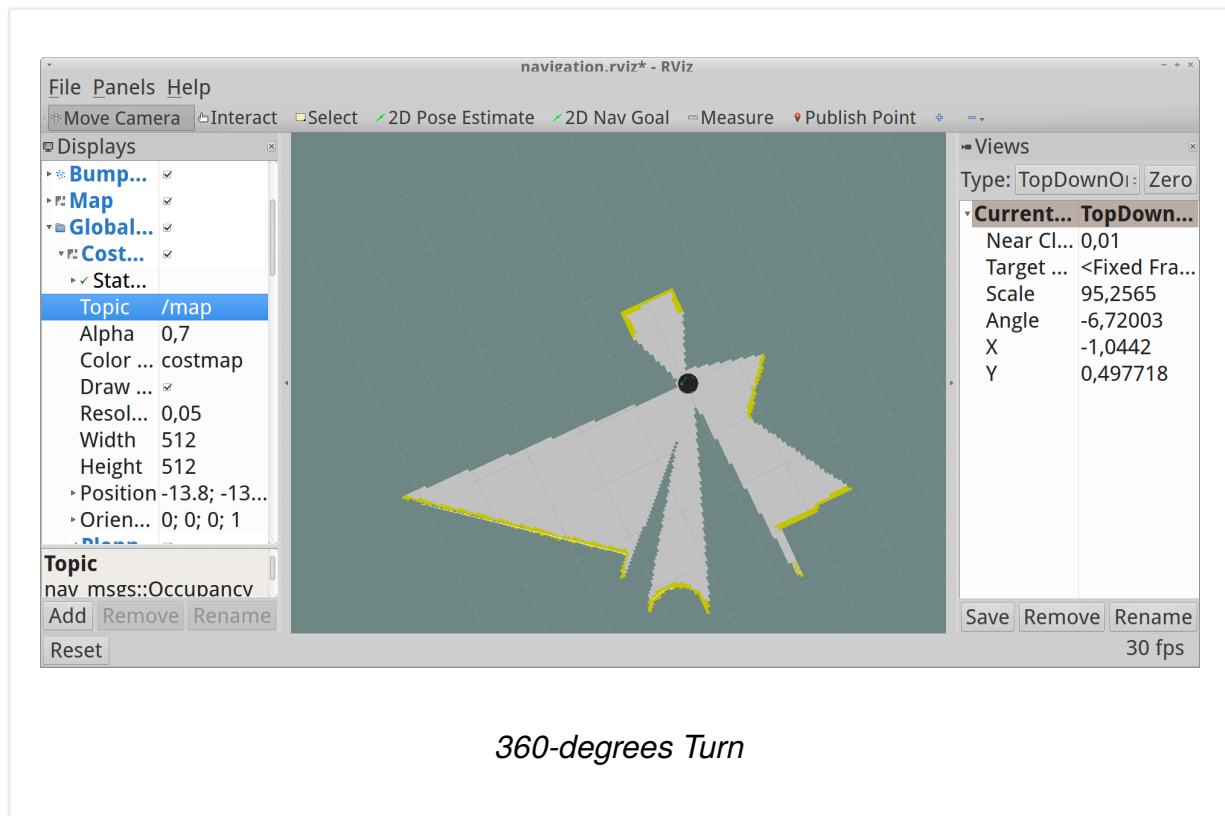
9. Save a map when your picture is good enough (like this).

Map

```
rosrun map_server map_saver -f /home/<user_name>/turtlebot_custom_ma
```

10. Interrupt processes and close the terminals.

You can see all these steps in the video:

Lesson 8: Creating a Map

Creating a Map

Testing the New Map

We can test the result of our work.

1. Launch Gazebo.

```
roslaunch turtlebot_gazebo turtlebot_world.launch
```

2. Launch navigation demo.

```
roslaunch turtlebot_gazebo amcl_demo.launch map_file:=/home/<user_na
```

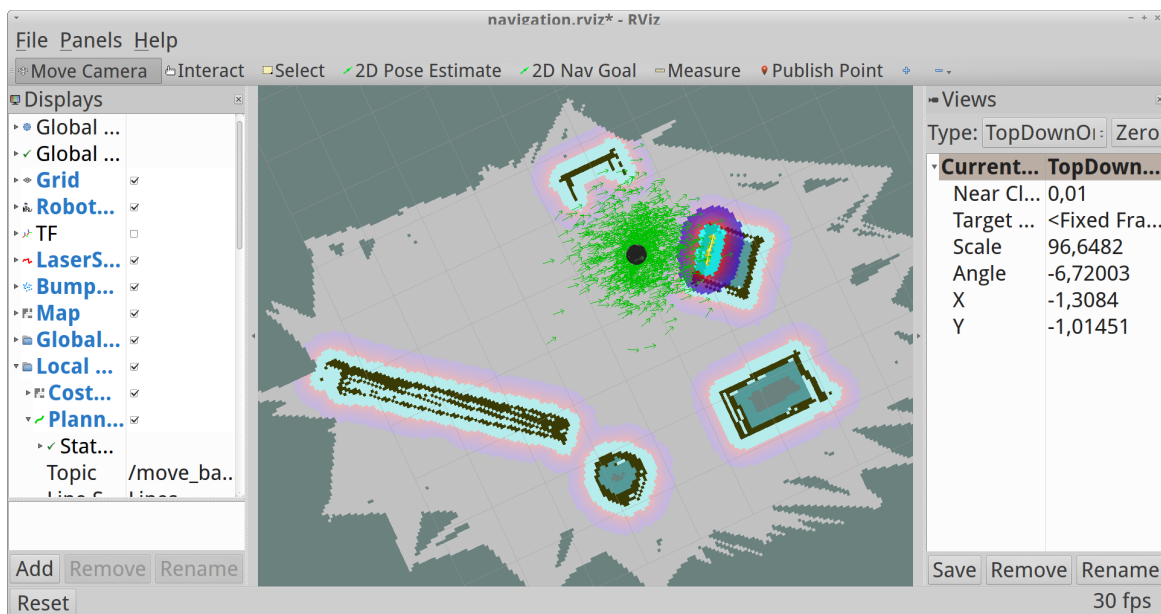You can launch the default map for playground world if you have not your own map.
Run this command:

```
roslaunch turtlebot_gazebo amcl_demo.launch
```

3. Launch Rviz.

```
roslaunch turtlebot_rviz_launchers view_navigation.launch
```

4. If you see a picture like this then creating the map has been realized successfully.

Testing the Map

NOTE: We will explain you the meaning of new elements in the next tutorial.

5. Interrupt processes and close the terminals.

You can see all these steps in the video:

Lesson 8: Testing the New Map

Testing the New Map

We have just checked that everything works good. We will learn how to use the map for autonomous navigation in the next lesson.

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Developed with TurtleBot.com & ROS.org.

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