

# 1. Tutorials Using Turtlesim

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## 1.1 ROS Tutorials

- [ROS/Tutorials/UsingRxconsoleRoslaunch \(/ROS/Tutorials/UsingRxconsoleRoslaunch\)](#)
- [ROS/Tutorials/UnderstandingNodes \(/ROS/Tutorials/UnderstandingNodes\)](#)
- [ROS/Tutorials/UnderstandingTopics \(/ROS/Tutorials/UnderstandingTopics\)](#)
- [ROS/Tutorials/UnderstandingServicesParams \(/ROS/Tutorials/UnderstandingServicesParams\)](#)
- [ROS/Tutorials/UsingRqtconsoleRoslaunch \(/ROS/Tutorials/UsingRqtconsoleRoslaunch\)](#)

## 1.2 Teleop Tutorials

- [ps3joy/Tutorials/WritingTeleopNode \(/ps3joy/Tutorials/WritingTeleopNode\)](#)
- [joy/Tutorials/WritingTeleopNode \(/joy/Tutorials/WritingTeleopNode\)](#)
- [wiimote/Tutorials/WritingTeleopNode \(/wiimote/Tutorials/WritingTeleopNode\)](#)
- [spacenv\\_node/Tutorials/WritingTeleopNode \(/spacenv\\_node/Tutorials/WritingTeleopNode\)](#)

## 1.3 TF Tutorials

Many of the tf tutorials are available for both C++ and Python. The tutorials are streamlined to complete either the C++ track or the Python track. If you want to learn both C++ and Python, you should run through the tutorials once for C++ and once for Python. Note that the general concept itself is explained directly on tf package (/tf).

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# 2. Workspace Setup

If you have not yet created a workspace in which to complete the tutorials, click [here](#) for some brief instructions () .

# 3. Learning tf

- [Introduction to tf \(/tf/Tutorials/Introduction%20to%20tf\)](#)

C++

Python

1. Writing a tf broadcaster (C++)  
(/tf/Tutorials/Writing%20a%20tf%20broadcaster%20%28C%2B%2B%29)  
This tutorial teaches you how to broadcast coordinate frames of a robot to tf.
2. Writing a tf listener (C++)  
(/tf/Tutorials/Writing%20a%20tf%20listener%20%28C%2B%2B%29)  
This tutorial teaches you how to use tf to get access to frame transformations.
3. Adding a frame (C++)  
(/tf/Tutorials/Adding%20a%20frame%20%28C%2B%2B%29)  
This tutorial teaches you how to add an extra fixed frame to tf.
4. Learning about tf and time (C++)  
(/tf/Tutorials/tf%20and%20Time%20%28C%2B%2B%29)  
This tutorial teaches you to use the `waitForTransform` function to wait for a transform to be available on the tf tree.
5. Time travel with tf (C++)  
(/tf/Tutorials/Time%20travel%20with%20tf%20%28C%2B%2B%29)  
This tutorial teaches you about advanced time travel features of tf

1. Writing a tf broadcaster (Python)  
(/tf/Tutorials/Writing%20a%20tf%20broadcaster%20%28Python%29)  
This tutorial teaches you how to broadcast the state of a robot to tf.
2. Writing a tf listener (Python)  
(/tf/Tutorials/Writing%20a%20tf%20listener%20%28Python%29)  
This tutorial teaches you how to use tf to get access to frame transformations.
3. Adding a frame (Python)  
(/tf/Tutorials/Adding%20a%20frame%20%28Python%29)  
This tutorial teaches you how to add an extra fixed frame to tf.
4. Learning about tf and time (Python)  
(/tf/Tutorials/tf%20and%20Time%20%28Python%29)  
This tutorial teaches you to use the `waitForTransform` function to wait for a transform to be available on the tf tree.
5. Time travel with tf (Python)  
(/tf/Tutorials/Time%20travel%20with%20tf%20%28Python%29)  
This tutorial teaches you about advanced time travel features of tf

Now that you have completed these tutorials please take the time to complete this short [questionnaire](#)  
(<http://spreadsheets.google.com/viewform?formkey=dHVTdXEwZU1QQ004TFBnbVh0MU9iLWc6MA..>).

## 4. Debugging tf

1. Debugging tf problems (/tf/Tutorials/Debugging%20tf%20problems)  
This tutorial gives a systematic approach for debugging tf related problems.

## 5. Using sensor messages with tf

1. Using Stamped datatypes with tf::MessageFilter (/tf/Tutorials/Using%20Stamped%20datatypes%20with%20tf%3A%3AMessageFilter)  
This tutorial describes how to use tf (/tf)::MessageFilter to process Stamped datatypes.

## 6. Setting up your robot with tf

1. Setting up your robot using tf (/navigation/Tutorials/RobotSetup/TF)  
This tutorial provides a guide to set up your robot to start using tf.
2. Using the robot state publisher on your own robot  
(/robot\_state\_publisher/Tutorials/Using%20the%20robot%20state%20publisher%20on%20your%20own%20robot)  
This tutorial explains how you can publish the state of your robot to tf (/tf), using the robot state publisher.
3. Using urdf with robot\_state\_publisher (/urdf/Tutorials/Using%20urdf%20with%20robot\_state\_publisher)  
This tutorial gives a full example of a robot model with URDF that uses robot\_state\_publisher. First, we create the URDF model with all the necessary parts. Then we write a node which publishes the JointState (/JointState) and transforms. Finally, we run all the parts together.

Create a new tutorial:

 Enter tutorial name

## 7. Video Tutorial (PR2 Beta Workshop)

TF ROS Tutorial: Part 1 of 4



TF ROS Tutorial: Part 2 of 4



TF ROS Tutorial: Part 3 of 4



TF ROS Tutorial: Part 4 of 4



## 8. Video Tutorials

[UDEMY COURSE] ROS Tutorial 4.1: Turtlesim Cleaner A...



[UDEMY COURSE] ROS Tutorial 4.2: Moving in a Straigh...



[UDEMY COURSE] ROS Tutorial 4.3: Rotation Left/Right ...



[UDEMY COURSE] ROS Tutorial 4.4: Go-To-Goal Locatio...



[UDEMY COURSE] ROS Tutorial 4.5: Grid/Spiral Cleaning..



## 8.1 rosbag Tutorials

1. How to export image and video data from a bag file (/rosbag/Tutorials/Exporting%20image%20and%20video%20data)

This tutorial explains how to export image messages from a bag file into a series of jpeg images and then goes on to show how to encode them into an OGG Theora video.

2. Producing filtered bag files (/rosbag/Tutorials/Producing%20filtered%20bag%20files)

This tutorial will cover using **rosviz** to filter bag files into new bag files using topic and data information

3. Recording and playing back data (/rosbag/Tutorials/Recording%20and%20playing%20back%20data)

This tutorial will teach you how to record data from a running ROS system into a .bag file, and then to play back the data to produce similar behavior in a running system

Create a new tutorial:

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## 9. Practicing Python with Turtlesim

### 1. Moving in a Straight Line (/turtlesim/Tutorials/Moving%20in%20a%20Straight%20Line)

This tutorial teaches you how to move your turtle in order to learn python.

### 2. Rotating Left/Right (/turtlesim/Tutorials/Rotating%20Left%20and%20Right)

This tutorial teaches you how to rotate your turtle.

### 3. Moving to goal (/turtlesim/Tutorials/Go%20to%20Goal)

Move the turtle to a specified location.

## 10. Create a new tutorial

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