

ROS Toolbox Release Notes



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ROS Toolbox Release Notes

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R2020b

Version: 1.2

New Features

Bug Fixes

Compatibility Considerations

Velodyne ROS Message Reader: Read Velodyne lidar messages from ROS in MATLAB

The `velodyneROSMessageReader` object reads ROS messages from a rosbag or ROS network and loads the point cloud data into MATLAB® as `pointCloud` objects. The `velodyneROSMessageReader` object supports the 'VLP16', 'VLP32C', 'HDL32E', and 'HDL64E' device models.

ROS Toolbox Interface for ROS Custom Messages add-on added to ROS Toolbox

The ROS Toolbox Interface for ROS Custom Messages add-on is now part of the ROS Toolbox installation. You no longer need to use the **Add-On Explorer** to install the `rosgenmsg` and `ros2genmsg` functions.

Also, you no longer need to restart MATLAB after adding custom message definitions.

To use custom messages, follow these steps:

- Use the `rosgenmsg` or `ros2genmsg` function with the path to the parent folder of your custom message packages as the input argument.
- Add the custom message folder to the MATLAB:

```
addpath('<folderpath>/matlab_msg_gen_ros1/<arch>/install/m')  
savepath
```

- Refresh all message class definitions, which requires clearing the workspace:

```
clear classes  
rehash toolboxcache
```

No MATLAB restart is required to see the updated ROS messages.

ROS Toolbox requires Python 2.7 for starting a ROS Master from MATLAB

When connecting to a ROS network, you must have Python version 2.7 or later. Download Python from the homepage and set the version using the `pyenv` function.

Compatibility Considerations

To connect to a ROS network using the `rosinit` function, set your Python version using the `pyenv` function. The selected version of Python will be used for all subsequent MATLAB operations, and is persistent across sessions.

ROS Melodic: Update ROS 1 version support to Melodic Morenia distribution

Starting this release, the ROS Toolbox supports the ROS Melodic Morenia distribution. A ROS distribution is a stable set of ROS packages that define the supported platforms, message definitions,

and new features for the release. In previous releases, the ROS Toolbox supported the Indigo Igloo distribution.

Sequence Numbers for Header Messages

Compatibility Considerations

Previously, when manually setting the `Seq` property of a ROS Header message (`std_msgs/Header`), a subscriber that receives this message would keep the given sequence number (from the published message) and not increment the value.

In R2020b, the subscriber always increments the sequence value whenever receiving a new message by adding one to the `Seq` property.

R2020a

Version: 1.1

Bug Fixes

ROS 2 Dashing: Update ROS 2 version support to Dashing Diademata distribution

Starting this release, the ROS Toolbox supports the Dashing Diademata distribution. A ROS distribution is a stable set of ROS packages that define the supported platforms, message definitions, and new features for the release. In previous releases, the ROS Toolbox supported the Bouncy Bolson distribution.

R2019b

Version: 1.0

New Features

Network Connection and Exploration: Communicate with ROS and ROS 2 nodes in a network using MATLAB and Simulink

Connect to ROS and ROS 2 to prototype robotics applications and access robotics hardware or simulators over a ROS network. You can create your own ROS network using MATLAB or connect to an existing ROS network. To set up a ROS network, start by calling `rosinit`. For ROS 2 networks, see `ros2node`.

For more information, see [Network Connection and Exploration](#).

Multiplatform Support: Access ROS functionality from Windows, Mac, and Linux

The ROS Toolbox enables you to connect to and run ROS and ROS 2 networks on Windows®, Mac, and Linux platforms.

Publishers and Subscribers: Send and receive ROS and ROS 2 messages with MATLAB and Simulink via a ROS network

ROS shares information using messages. Messages are a simple data structure for sharing data. To receive, or subscribe to, a message, use `rossubscriber` or `ros2subscriber`. To send, or publish, a message, use `rospublisher` or `ros2publisher`. For an example of sending and receiving messages, see [Exchange Data with ROS Publishers and Subscribers](#) or [Exchange Data with ROS 2 Publishers and Subscribers](#).

For more information, see [Publishers and Subscribers](#).

Custom Messages: Generate custom messages to use on both ROS and ROS 2 networks based on specified packages

You can create your own ROS custom messages and use them in MATLAB and Simulink® with ROS networks to transmit information. For ROS custom messages, use `rosAddons` to install the necessary addon, and then use the `rosgenmsg` function. To learn the requirements for generating custom messages, see [ROS Custom Message Support](#). For ROS 2, use `ros2genmsg` with your custom message packages and see the [ROS 2 Custom Message Support example](#).

Log File Playback: Import ROS log files (rosbags) to filter, visualize, and analyze logged data

ROS topics are stored in log files called rosbags. You can access and filter information from rosbags in MATLAB. For an example of working with rosbags, see [Work with rosbag Logfiles](#).

You can access transformations between coordinate systems as ROS topics and use them to transform data in MATLAB. For more information, see [Access the tf Transformation Tree in ROS](#).

For more information, see [ROS Log Files and Transformations](#)

Deployment of ROS Nodes: Deploy ROS and ROS 2 nodes to target hardware using Simulink Coder

For examples that generate code for standalone ROS nodes, see:

- [Generate a Standalone ROS Node from Simulink®](#)
- [Generate a Standalone ROS 2 Node from Simulink®](#)

ROS Toolbox Support Package for TurtleBot-Based Robots: Connect to TurtleBot hardware

For more information, see [ROS Toolbox Support Package for TurtleBot -Based Robots](#).

