

# Why ROS 2?



**ROS 2 (Robot Operating System 2)** is an open source software development kit for robotics applications. The purpose of ROS 2 is to offer a standard software platform to developers across industries that will carry them from research and prototyping through to deployment and production. ROS 2 builds on the success of ROS 1, which is used today in myriad robotics applications around the world.

## » Shorten time to market

ROS 2 provides the robotics tools, libraries, and capabilities that you need to develop your applications, allowing you to spend your time on the work that is important for your business. Because it is open source, you have the flexibility to decide where and how to use ROS 2, as well as the freedom to customize it for your needs.

## » Designed for production

Drawing on a decade of experience in establishing ROS 1 as the de facto global standard for robotics R&D, ROS 2 was built from the ground up to be industry-grade and used in production, including high reliability and safety critical systems. Design choices, development practices, and project governance for ROS 2 are based on requirements from industry stakeholders.

## » Multi-platform

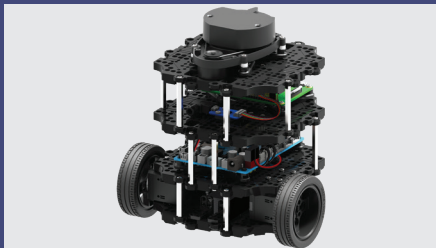
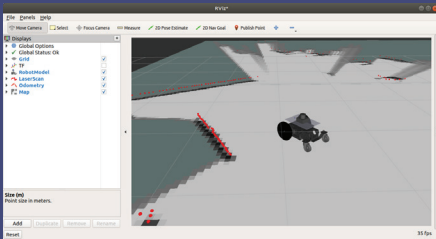
ROS 2 is supported and tested on Linux, Windows, and macOS, allowing seamless development and deployment of on-robot autonomy, back-end management, and user interfaces. The tiered support model allows for ports to new platforms, such as real-time and embedded OSs, to be introduced and promoted as they gain interest and investment.

## » Multi-domain

Like ROS 1 before it, ROS 2 is ready for use across a wide array of robotics applications, from indoor to outdoor, home to automotive, underwater to space, and consumer to industrial.

 **ROS**

[www.openrobotics.org](http://www.openrobotics.org) [www.ros2.org](http://www.ros2.org)



## » No vendor lock-in

ROS 2 is built on an abstraction layer that insulates the robotics libraries and applications from the communication technologies. Below the abstraction are multiple implementations of the communications code, including both open source and proprietary solutions. Above the abstraction, core libraries and user applications are portable.

## » Built on open standards

The default communications method in ROS 2 uses industry standards like IDL, DDS, and DDS-I RTPS, which are already widely deployed in a variety of industrial applications, from factories to aerospace.

## » Permissive open source license

ROS 2 code is licensed under Apache 2.0 License, with ported ROS 1 code under the 3-clause (or “new”) BSD License. Both licenses allow permissive use of the software, without implications on the user’s intellectual property.

## » Global community

Over 10+ years the ROS project has produced a vast ecosystem of software for robotics by nurturing a global community of hundreds of thousands of developers and users who contribute to and improve that software. ROS 2 is developed by and for that community, who will be its stewards into the future.

## » Industry support

As demonstrated by the membership of the ROS 2 Technical Steering Committee, industry support for ROS 2 is strong. Companies large and small from around the world are committing their resources to making open source contributions to ROS 2, in addition to developing products on top.

## » Interoperability with ROS 1

ROS 2 includes a bridge to ROS 1 that handles bidirectional communication between the two systems. If you have an existing ROS 1 application, you can start experimenting with ROS 2 via the bridge and port your application incrementally according to your requirements and available resources.