

# Robot Operating System Expanded Security Maintenance



## Hardened and long-term supported ROS environment

[Robot Operating System Expanded Security Maintenance](#) (ROS ESM) is a service by Canonical that provides security maintenance for ROS Long Term Support (LTS) releases and the underlying Ubuntu distributions, starting with ROS Kinetic.

ROS ESM is part of Canonical's [Ubuntu Pro](#).

## ROS ESM key benefits

ROS ESM provides three key benefits:

- 10 year LTS release lifetime for ROS bringing the highest level of security and compliance
- Security patching for over 25,000 packages in ROS, Ubuntu Universe and Ubuntu main
- Better security KPIs as critical CVEs patches are applied on average in less than 24h

Plus access to all the tools, services, and features from Ubuntu Pro.

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## ROS ESM covers your robot's entire software stack

ROS ESM covers core packages for each supported ROS distribution (ROS 1 Kinetic and Melodic, and ROS 2 Foxy), Ubuntu Main and Ubuntu Universe.

### Ubuntu Main

As part of Ubuntu Pro, ROS ESM also gives you five years of extra security maintenance for over 2,300 packages in the Ubuntu Main repository. This is for Ubuntu LTS that have reach EOL.

### Core ROS packages

ROS ESM focuses on core ROS functionality. ROS ESM covers the REP-142 'ros\_base' for ROS 1 and its equivalent 'ros core' for ROS 2. We follow a process similar to the Ubuntu Main Inclusion Process to make sure that we can provide maintenance, security and support for the included ROS packages.

### Ubuntu Universe

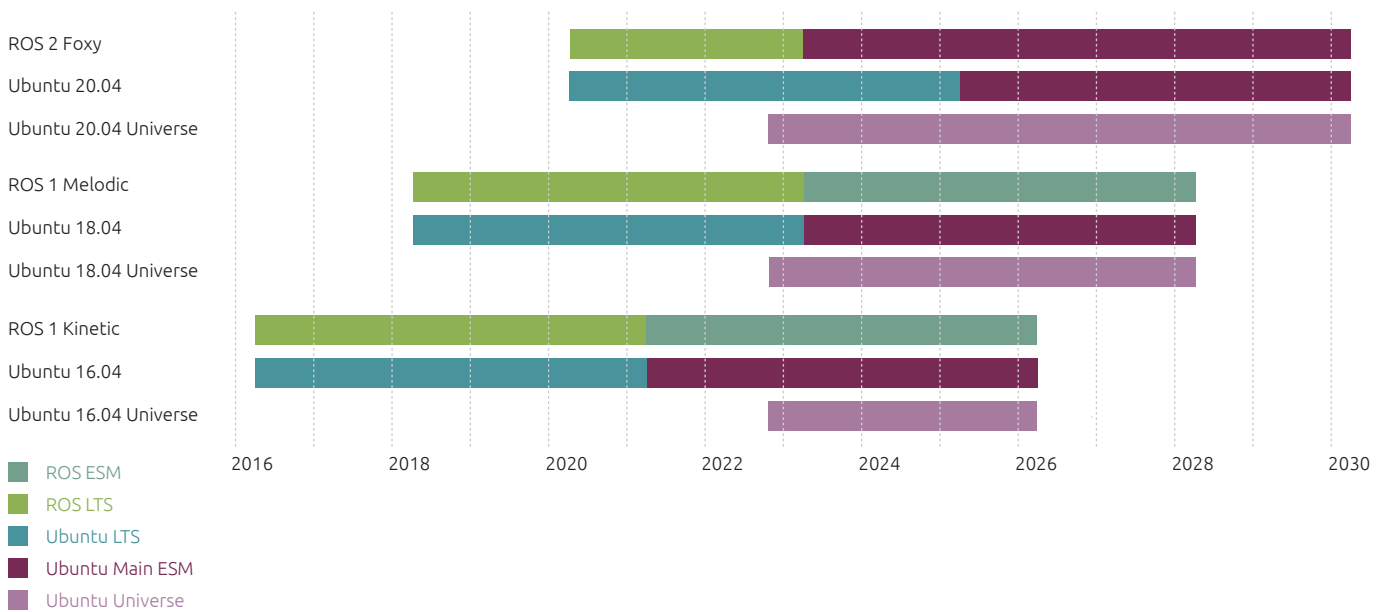
As part of Ubuntu Pro, ROS ESM also gives you access to security maintenance for Ubuntu Universe. There are more than 23,000 debs that ROS developers use but are not part of Ubuntu Main, and therefore not supported in the LTS window.

With Ubuntu Pro, your whole software stack is covered and supported for 10 years. Gain API stability thanks to patches backporting for all Ubuntu debs for ten years on every Ubuntu LTS.

Repository	Main	Universe	ROS ES
Size	+2,400 packages	+23,000 packages	+600 packages
Scope	Essential system packages, language runtimes and most commonly used critical workloads	Language ecosystems and legacy runtime versions; domain-specific libraries, extensions and utilities	REP-142 'ros_base' for ROS 1 Kinetic and Melodic and its equivalent 'ros core' for ROS 2 Foxy.
Example components	<ul style="list-style-type: none"> <li>Linux kernel, C library and compiler</li> <li>Python, Java, PHP &amp; Go runtimes</li> <li>PostgreSQL &amp; MySQL</li> <li>Apache &amp; nginx</li> </ul>	<ul style="list-style-type: none"> <li>Python, Java, JS, Rust, Go, Perl &amp; Erlang ecosystems</li> <li>Boost, Qt, OpenCV, PCL, python-(argcomplete, opencv, pybind11, png...), cython, eigen, GTK, FFMPEG...</li> </ul>	<ul style="list-style-type: none"> <li>Python-catkin, python-rosdep, ros-<math>\{ROS\_DISTR\}</math>-ros-core..., ros-<math>\{ROS\_DISTR\}</math>-genmsg/rosbag..., per supported ROS distribution.</li> </ul>
Security coverage	5 years free with LTS, 5 additional years with Ubuntu Pro	10 years with Ubuntu Pro	10 years with Ubuntu Pro

## 10 years of security

ROS ES gives you ten years of support for the whole stack. This service provides IT with the confidence to run open-source workloads in mission-critical environments for a decade. Stop working with unmaintained forks and unpatched robots. Increase the lifetime of your device, plan for your migration or comply with security regulations with ROS ES.



## Using ROS ESM

ROS ESM enables access to a new Personal Package Archive (PPA) for you to consume updates for all our supported ROS distributions. ROS ESM customers have the option of consuming both security-related and non-security-related updates. This minimises downtime and reduces the resources needed to migrate to ROS ESM.

Once you have access to that PPA you just need to 'apt update && apt upgrade' your environment, and recompile your stack.

If you are using packages not available in ROS ESM, you must build from source against ESM. The `rosinstall_generator` makes this straightforward. It generates a `rosinstall` file containing the desired package(s) and all dependencies not already satisfied.

For more information read the [ROS ESM User introduction guide](#).

## Ubuntu Security Notices and CVE scoring

Canonical's Open Source Security division is responsible for discovering and tracking CVEs — whether shared under embargo or made public — and for scanning upstream repositories for patches. The security team then applies, tests, backports and integrates fixes into package updates.

For each security update issued by Canonical, a matching [Ubuntu Security Notice](#) (USN) is issued. The USN has the final severity score for the vulnerability, which at times [may differ from the original CVE score](#) given [the level of exploitability](#) when used on Ubuntu. This takes into account default configurations and the effect of [hardening features](#).

## Enjoy all the benefits of Ubuntu Pro with our Embedding Programme

Treat every device on your fleet as a first-class server-grade managed asset, with monitoring, security, role-based access controls, and application lifecycle management.

Canonical's Embedding Programme gives you access to all the benefits of Ubuntu Pro, including:

- Ubuntu systems management with [Landscape](#)
- Kernel [Livepatch](#) service to avoid reboots
- [Security certification](#) (e.g. FIPS and CIS)
- Real-time kernel
- 24/7, open-source software support for the full stack

In addition, you get these extra advantages from the Embedding Program:

- Transparent pricing model for fleets that grow over time
- Regular shipment reporting to ensure device coverage
- Discounted pricing compared to the [enterprise priced offering](#)

Get ROS ESM now

For full plan and pricing details visit [ubuntu.com/support/plans-and-pricing](https://ubuntu.com/support/plans-and-pricing).