


ROS2 설치 과정

[1] ROS2 humble 선택

ROS 2 Documentation: Humble



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You're reading the documentation for an older, but still supported, version of ROS 2. For information on the latest version, please have a look at [Jazzy](#).

Installation

Options for installing ROS 2 Humble Hawksbill:


Binary packages

Binaries are only created for the Tier 1 operating systems listed in [REP-2000](#). If you are not running any of the following operating systems you may need to build from source or use a [container solution](#) to run ROS 2 on your platform.

We provide ROS 2 binary packages for the following platforms:

- Ubuntu Linux - Jammy Jellyfish (22.04)
 - deb packages (recommended)
 - binary archive
- RHEL 8
 - RPM packages (recommended)
 - binary archive
- Windows 10
 - Windows Binary (VS 2019)

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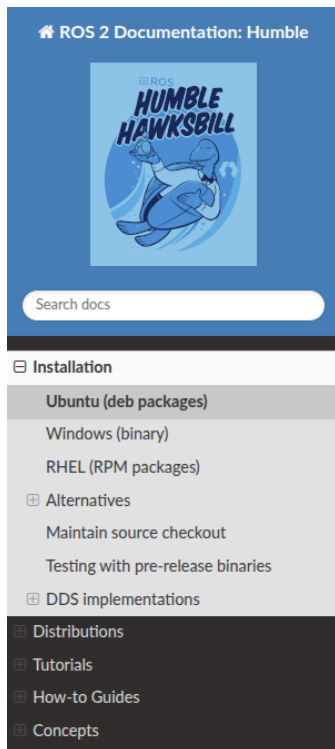
You're reading the documentation for an older, but still supported, version of ROS 2. For information on the latest version, please have a look at [Jazzy](#).

Ubuntu (deb packages)

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Deb packages for ROS 2 Humble Hawksbill are currently available for Ubuntu Jammy (22.04). The target platforms are defined in [REP 2000](#).



Set locale

Make sure you have a locale which supports `UTF-8`. If you are in a minimal environment (such as a docker container), the locale may be something minimal like `POSIX`. We test with the following settings. However, it should be fine if you're using a different UTF-8 supported locale.

```
locale # check for UTF-8

sudo apt update && sudo apt install locales
sudo locale-gen en_US en_US.UTF-8
sudo update-locale LC_ALL=en_US.UTF-8 LANG=en_US.UTF-8
export LANG=en_US.UTF-8

locale # verify settings
```

Setup Sources

You will need to add the ROS 2 apt repository to your system.

First ensure that the [Ubuntu Universe repository](#) is enabled.

```
sudo apt install software-properties-common
sudo add-apt-repository universe
```

Now add the ROS 2 GPG key with apt.

```
sudo apt update && sudo apt install curl -y
sudo curl -sSL https://raw.githubusercontent.com/ros/rosdistro/master/ros.key -o /usr/share/key
```

[2] 위에 설치내용을 참고하여 ROS2 humble 설치 진행 (복붙 하기)

```
cho@ubuntu-22: ~
cho@ubuntu-22: ~ 83x24

cho@ubuntu-22:~$ locale # check for UTF-8

sudo apt update && sudo apt install locales
sudo locale-gen en_US en_US.UTF-8
sudo update-locale LC_ALL=en_US.UTF-8 LANG=en_US.UTF-8
export LANG=en_US.UTF-8

locale # verify settings
LANG=en_US.UTF-8
LANGUAGE=
```

- universe 확인

```
cho@ubuntu-22:~$ sudo apt install software-properties-common
sudo add-apt-repository universe
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
software-properties-common is already the newest version (0.99.22.9).
software-properties-common set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 4 not upgraded.
Adding component(s) 'universe' to all repositories.
Press [ENTER] to continue or Ctrl-c to cancel.
Hit:1 https://packages.microsoft.com/repos/code stable InRelease
Hit:2 https://dl.google.com/linux/chrome/deb stable InRelease
Hit:3 http://kr.archive.ubuntu.com/ubuntu jammy InRelease
Hit:4 http://kr.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:5 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:6 http://kr.archive.ubuntu.com/ubuntu jammy-backports InRelease
Reading package lists... Done
cho@ubuntu-22:~$
```

- ROS2 GPG key 추가

```
cho@ubuntu-22:~$ ls /usr/share/keyrings/
ros-archive-keyring.gpg      ubuntu-pro-cis.gpg
ubuntu-archive-keyring.gpg  ubuntu-pro-esm-apps.gpg
ubuntu-archive-removed-keys.gpg  ubuntu-pro-esm-infra.gpg
ubuntu-cloudimage-keyring.gpg  ubuntu-pro-fips.gpg
ubuntu-cloudimage-removed-keys.gpg  ubuntu-pro-fips-preview.gpg
ubuntu-master-keyring.gpg      ubuntu-pro-realtime-kernel.gpg
ubuntu-pro-anbox-cloud.gpg     ubuntu-pro-ros.gpg
ubuntu-pro-cc-eal.gpg
```

- sources list에 Ubuntu repository 추가

```
cho@ubuntu-22:~$ echo "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/
keyrings/ros-archive-keyring.gpg] http://packages.ros.org/ros2/ubuntu $(. /etc/os-r
elease && echo $UBUNTU_CODENAME) main" | sudo tee /etc/apt/sources.list.d/ros2.list
> /dev/null
```

- 확인 한번 해주고

```
cho@ubuntu-22:~$ ls /etc/apt/sources.list.d/
google-chrome.list  ros2.list  vscode.list
cho@ubuntu-22:~$
```

[3] sudo apt update : 이때 ros 관련 파일이 설치됐는지 확인! (Get4, Get7)

```
cho@ubuntu-22:~$ sudo apt update
Hit:1 https://packages.microsoft.com/repos/code stable InRelease
Hit:2 https://dl.google.com/linux/chrome/deb stable InRelease
Hit:3 http://kr.archive.ubuntu.com/ubuntu jammy InRelease
Get:4 http://packages.ros.org/ros2/ubuntu jammy InRelease [4,682 B]
Hit:5 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:6 http://kr.archive.ubuntu.com/ubuntu jammy-updates InRelease
Get:7 http://packages.ros.org/ros2/ubuntu jammy/main amd64 Packages [1,650 kB]
Hit:8 http://kr.archive.ubuntu.com/ubuntu jammy-backports InRelease
Fetched 1,655 kB in 3s (541 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
4 packages can be upgraded. Run 'apt list --upgradable' to see them.
cho@ubuntu-22:~$
```

```
cho@ubuntu-22:~$ sudo apt update
Hit:1 https://packages.microsoft.com/repos/code stable InRelease
Hit:2 https://dl.google.com/linux/chrome/deb stable InRelease
Hit:3 http://kr.archive.ubuntu.com/ubuntu jammy InRelease
Get:4 http://packages.ros.org/ros2/ubuntu jammy InRelease [4,682 B]
Hit:5 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:6 http://kr.archive.ubuntu.com/ubuntu jammy-updates InRelease
Get:7 http://packages.ros.org/ros2/ubuntu jammy/main amd64 Packages [1,650 kB]
Hit:8 http://kr.archive.ubuntu.com/ubuntu jammy-backports InRelease
Fetched 1,655 kB in 3s (541 kB/s)
```

```

cho@ubuntu-22:~$ sudo apt update
Hit:1 https://packages.microsoft.com/repos/code stable InRelease
Hit:2 https://dl.google.com/linux/chrome/deb stable InRelease
Hit:3 http://kr.archive.ubuntu.com/ubuntu jammy InRelease
Get:4 http://packages.ros.org/ros2/ubuntu jammy InRelease [4,682 B]
Hit:5 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:6 http://kr.archive.ubuntu.com/ubuntu jammy-updates InRelease
Get:7 http://packages.ros.org/ros2/ubuntu jammy/main amd64 Packages [1,650 kB]
Hit:8 http://kr.archive.ubuntu.com/ubuntu jammy-backports InRelease
Fetched 1,655 kB in 3s (541 kB/s)

```

[4] ros-humble-desktop 설치 시작

```

cho@ubuntu-22:~$ sudo apt install ros-humble-desktop

```

```

Get:364 http://kr.archive.ubuntu.com/ubuntu jammy/main amd64 g++ amd64 4:11.2.0-1ub
untu1 [1,412 B]
Get:365 http://kr.archive.ubuntu.com/ubuntu jammy/main amd64 make amd64 4.3-4.1buil
d1 [180 kB]
Get:366 http://kr.archive.ubuntu.com/ubuntu jammy/main amd64 lto-disabled-list all
24 [12.5 kB]
Get:367 http://kr.archive.ubuntu.com/ubuntu jammy-updates/main amd64 dpkg-dev all 1
.21.1ubuntu2.3 [922 kB]
Get:368 http://kr.archive.ubuntu.com/ubuntu jammy/main amd64 build-essential amd64
12.9ubuntu3 [4,744 B]
Get:369 http://kr.archive.ubuntu.com/ubuntu jammy/main amd64 java-common all 0.72bu
ild2 [6,782 B]
Get:370 http://kr.archive.ubuntu.com/ubuntu jammy-updates/main amd64 openjdk-11-jre
-headless amd64 11.0.26+4-1ubuntu1~22.04 [42.5 MB]
23% [370 openjdk-11-jre-headless 7,270 kB/42.5 MB 17%] 12.1 MB/s 41s

```

[5] 설치 완료 후, 간단한 테스트 진행!

cho@ubuntu-22: ~ 71x23	cho@ubuntu-22: ~ 69x23
cho@ubuntu-22:~\$ source /opt/ros/humble/setup.bash	cho@ubuntu-22:~\$ source /opt/ros/humble/setup.bash
cho@ubuntu-22:~\$ ros2 run demo_nodes_cpp talker	cho@ubuntu-22:~\$ ros2 run demo_nodes_cpp listener
[INFO] [1741396863.609104820] [talker]: Publishing: 'Hello World: 1'	[INFO] [1741396874.609404235] [listener]: I heard: [Hello World: 12]
[INFO] [1741396864.609091262] [talker]: Publishing: 'Hello World: 2'	[INFO] [1741396875.609178341] [listener]: I heard: [Hello World: 13]
[INFO] [1741396865.609068468] [talker]: Publishing: 'Hello World: 3'	[INFO] [1741396876.609188214] [listener]: I heard: [Hello World: 14]
[INFO] [1741396866.609022566] [talker]: Publishing: 'Hello World: 4'	[INFO] [1741396877.609420527] [listener]: I heard: [Hello World: 15]
[INFO] [1741396867.608826923] [talker]: Publishing: 'Hello World: 5'	[INFO] [1741396878.609541976] [listener]: I heard: [Hello World: 16]
[INFO] [1741396868.608959300] [talker]: Publishing: 'Hello World: 6'	[INFO] [1741396879.609385757] [listener]: I heard: [Hello World: 17]
[INFO] [1741396869.608963765] [talker]: Publishing: 'Hello World: 7'	[INFO] [1741396880.609336088] [listener]: I heard: [Hello World: 18]
[INFO] [1741396870.608960199] [talker]: Publishing: 'Hello World: 8'	[INFO] [1741396881.609352120] [listener]: I heard: [Hello World: 19]