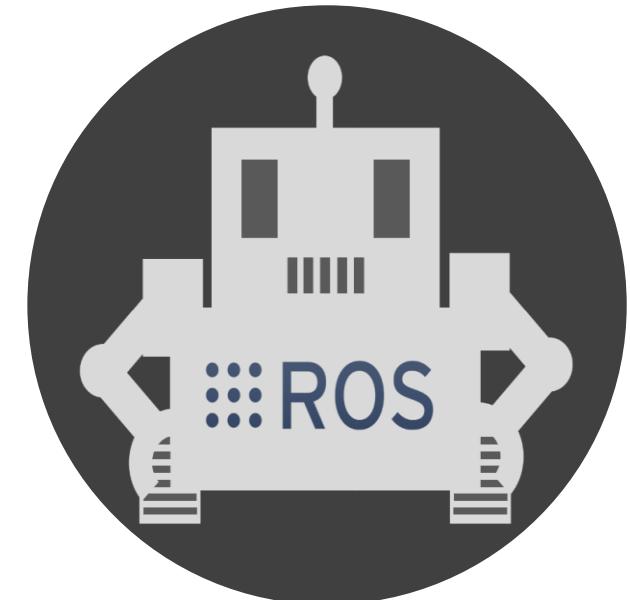


# ROS 기초 강의

## Chapter 1. ROS 개발환경 설정

구선생 로보틱스



# 강의 자료 다운로드

---



ROS 기초 강의 강의노트

[https://drive.google.com/drive/folders/1rRwS2j98HNyj5ls\\_yVXEGj30ILvMPtrz?usp=drive\\_link](https://drive.google.com/drive/folders/1rRwS2j98HNyj5ls_yVXEGj30ILvMPtrz?usp=drive_link)

1. 리눅스 설치

2. ROS 설치

3. ROS 개요

# 리눅스 설치

---

Ubuntu 20.04 듀얼부팅 설치



<https://www.youtube.com/watch?v=x7tpah6Tiqw>

Ubuntu 20.04 가상머신 설치



<https://www.youtube.com/watch?v=WidiOMUCeTM>

- 1. 리눅스 설치**
- 2. ROS 설치**
- 3. ROS 개요**

# ROS 설치

## 1) ROS noetic install 검색 후 사이트 이동

The screenshot shows a Google search results page. The search bar at the top contains the query "ROS noetic install". A red box highlights this query, and a red arrow labeled "1) 검색" points to it. Below the search bar are various navigation links: 전체 (All), 동영상 (Videos), 이미지 (Images), 뉴스 (News), 쇼핑 (Shopping), 더보기 (More), and 도구 (Tools). The search results section displays the number of results: "검색결과 약 105,000개 (0.26초)". A note below says "도움말: 한국어 검색결과만 검색합니다. 환경설정에서 검색 언어를 지정할 수 있습니다." A link to the ROS Wiki is shown: "http://wiki.ros.org › noetic › Installation › Ubuntu". This link is also highlighted with a red box, and a red arrow labeled "2) 클릭" points to it. The link text is "Ubuntu install of ROS Noetic - ROS Wiki". Below the link, a snippet of the page content is visible, starting with "2022. 5. 25. — Installation · First, make sure your Debian package index is up-to-date: · Now pick how much of ROS you would like to install. · There are even ...". Other visible links in the snippet include "Setup your sources.list", "Environment setup", and "Dependencies for building...".

# ROS 설치

## 2) 문서의 절차대로 진행

### 1. Installation

#### 1.1 Configure your Ubuntu repositories

Configure your Ubuntu repositories to allow "restricted," "universe," and "multiverse." You can [follow the Ubuntu guide](#) for instructions on doing this.

#### 1.2 Setup your sources.list

Setup your computer to accept software from packages.ros.org.

```
sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main" > /etc/apt/sources.list.d/roslatest.list'
```

**Mirrors** [Source Debs](#) are also available

#### 1.3 Set up your keys

```
sudo apt install curl # if you haven't already installed curl  
curl -s https://raw.githubusercontent.com/ros/rosdistro/master/ros.asc | sudo apt-key add -
```

#### 1.4 Installation

First, make sure your Debian package index is up-to-date:

```
sudo apt update
```

순서대로 진행

# ROS 설치

## 3) 설치 확인

\$ roscore 명령어 입력시 아래 화면이 출력되어야 함

```
roscore http://ubuntu:11311/
ubuntu@ubuntu:~$ roscore
... logging to /home/ubuntu/.ros/log/09c34d02-30f0-11ee-a6d7-39c151f3ecd1/roslau
nch-ubuntu-7946.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://ubuntu:35739/
ros_comm version 1.16.0

SUMMARY
=====

PARAMETERS
* /rosdistro: noetic
* /rosversion: 1.16.0

NODES

auto-starting new master
process[master]: started with pid [7954]
ROS_MASTER_URI=http://ubuntu:11311/

setting /run_id to 09c34d02-30f0-11ee-a6d7-39c151f3ecd1
process[rosout-1]: started with pid [7964]
```

- 1. 리눅스 설치**
- 2. ROS 설치**
- 3. ROS 개요**

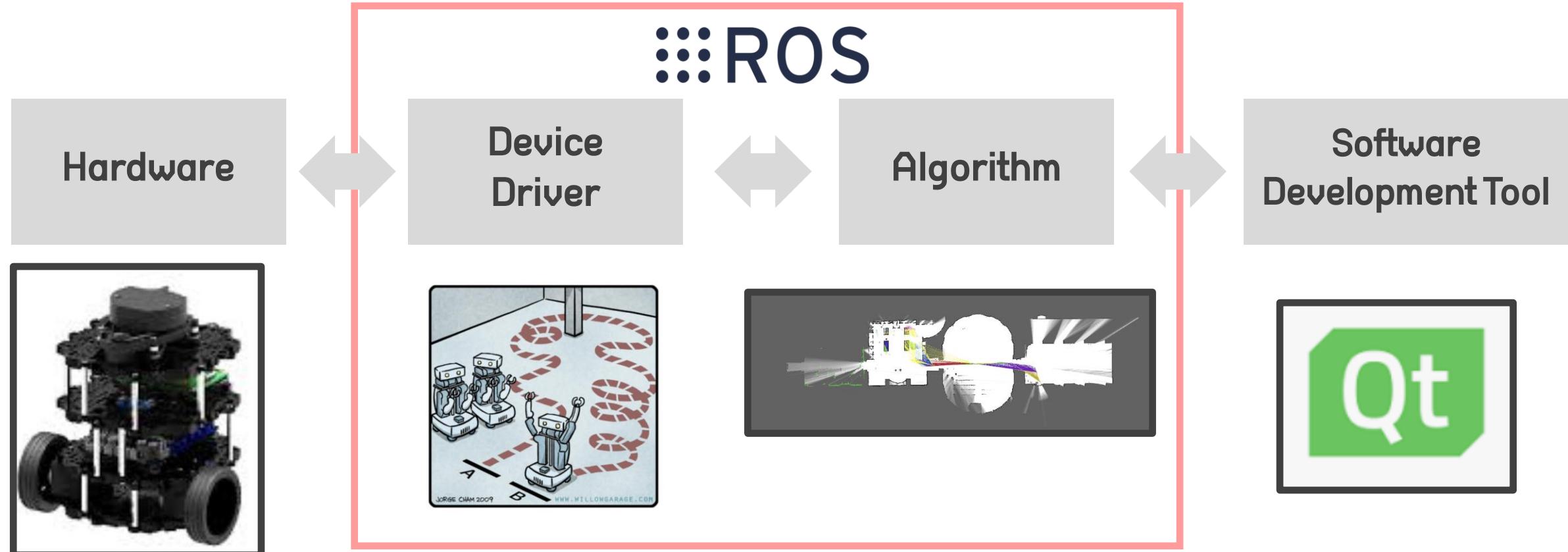
# ROS 개요

## ROS란 무엇인가?

- Robot Operating System의 약자
- 로봇 소프트웨어를 구축하는데 도움이 되는 라이브러리



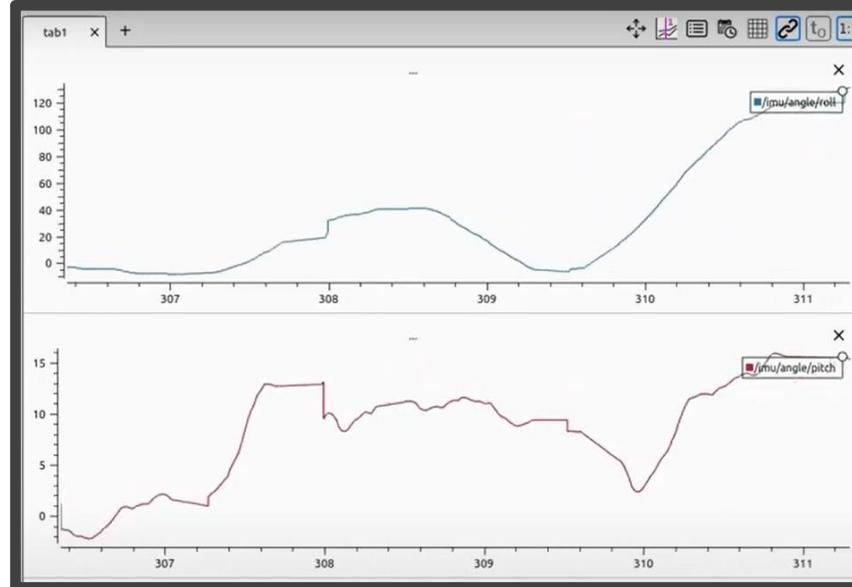
동영상 강의 - ROS란 무엇인가?  
<https://youtu.be/1UGs5PML5Ag?si=gC5KgjmvtOHi-JRB>



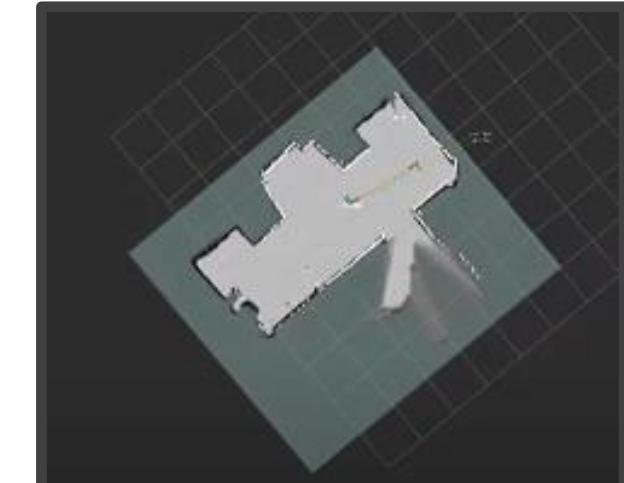
# ROS 개요

## 왜 ROS를 사용해야 하는가?

- 모듈화의 이점
- 개발 및 유지보수 시간 단축
- SLAM 및 Navigation 등 다양한 오픈소스 제공



	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI
0	2.1	0	0	0	0	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2.4	0	0	0	0	27.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3.3	0	0	0	0	37.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3.6	0	0	0	0	36.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3.9	0	0	0	0	39.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	4.2	0	0	0	0	42.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	4.5	0	0	0	0	43.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	4.8	0	0	0	0	44.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	5.1	0	0	0	0	51.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	5.4	0	0	0	0	54.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	5.7	0	0	0	0	57.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	6	0	0	0	0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	6.3	0	0	0	0	63.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	6.6	0	0	0	0	66.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	6.9	0	0	0	0	69.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	7.2	0	0	0	0	72.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	7.5	0	0	0	0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	7.8	0	0	0	0	78.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	8.1	0	0	0	0	81.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	8.4	0	0	0	0	84.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	8.7	0	0	0	0	87.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	9	0	0	0	0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	9.3	0	0	0	0	93.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	9.6	0	0	0	0	96.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	9.9	0	0	0	0	99.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.3	0	0	0	0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.6	0	0	0	0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.9	0	0	0	0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	1.2	0	0	0	0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	1.5	0	0	0	0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	1.8	0	0	0	0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	2.1	0	0	0	0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	2.4	0	0	0	0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	2.7	0	0	0	0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	3	0	0	0	0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	3.3	0	0	0	0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	3.6	0	0	0	0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	3.9	0	0	0	0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	4.2	0	0	0	0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



위의 기능을 모듈형태로 오픈소스로 제공하고 있어 쉽게 적용 가능

# 감사합니다

구선생 로보틱스

