포팅 메뉴얼

▼ Ubuntu 18.04 세팅

- 패키지 키 업데이트

```
sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $
sudo apt-key adv --keyserver 'hkp://keyserver.ubuntu.com:8
sudo apt update
```

- 나머지 설치

```
# Ubuntu-18.04
sudo apt install ros-melodic-desktop-full

sudo apt-get install python-pip
sudo apt update && sudo apt install x11-apps

sudo pip install -U rosdep
sudo rosdep init
rosdep update

echo "source /opt/ros/melodic/setup.bash" >> ~/.bashrc
source ~/.bashrc
sudo apt-get install python-rosinstall python-rosinstall-g
mkdir -p catkin_ws/src
cd catkin_ws/
catkin_make

vim 세팅
sudo vim ~/.bashrc

아래에 복붙
```

```
source ~/catkin_ws/devel/setup.bash
export DISPLAY="`grep nameserver /etc/resolv.conf | sed 's

source ~/.bashrc
```

- XLaunch 설치

```
실행 시 `Native opengl` 체크 해제, `Disable access control` 체
```

- 종속 패키지 설치

```
sudo apt-get install python-pip
sudo apt-get install net-tools
sudo apt-get install ros-melodic-rosbridge-server
sudo apt-get install ros-melodic-velodyne
pip install pyproj
pip install scikit-learn
sudo apt install libvulkan1
```

▼ Ubuntu 20.04 세팅

```
sudo apt-get install python3-pipsudo apt-get install pytho
sudo apt-key adv --keyserver 'hkp://keyserver.ubuntu.com:8
sudo apt update


sudo apt install ros-noetic-desktop-full
sudo apt-get install python3-pip
sudo apt update && sudo apt install x11-apps
sudo pip3 install -U rosdep
sudo rosdep init
rosdep update
```

```
echo "source /opt/ros/noetic/setup.bash" >> ~/.bashrc
source ~/.bashrc
sudo apt-get install python3-rosinstall python3-rosinstall
mkdir -p catkin_ws/src
cd catkin_ws/
catkin_make


sudo vim ~/.bashrc

[Insert 누른 후 아래 내용 붙여넣기]
source ~/catkin_ws/devel/setup.bash
export DISPLAY="`grep nameserver /etc/resolv.conf | sed 's


source ~/.bashrc

[XLaunch 실행 후]
roscore   (roscore 확인)

rospack profile


sudo apt-get install git
cd src/
git clone https://github.com/MORAI-Autonomous/MORAI-ROS_mo
cd ~/catkin_ws
catkin_make


sudo apt-get install net-tools
sudo apt-get install ros-noetic-rosbridge-server
sudo apt-get install ros-noetic-velodyne
pip3 install pyproj
pip3 install numpy --upgrade
pip3 install scikit-learn
sudo apt install libvulkan1
```

```
cd ~/catkin_ws
catkin_make

* 혹시 안되면
sudo update-alternatives --install /usr/bin/python python
```

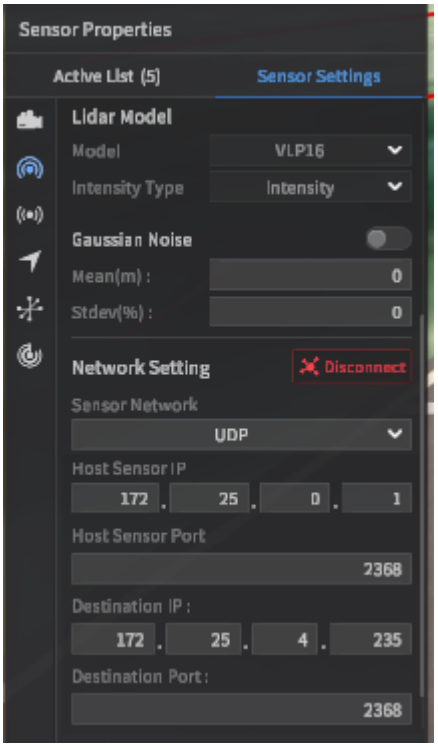
▼ 라이다 세팅

- VLP 16 드라이버 설치 (https://wiki.ros.org/velodyne/Tutorials/Getting Started with the Velodyne VLP16)

```
# Ubuntu 20.04
sudo apt-get install ros-noetic-velodyne
cd ~/catkin_ws/src/ && git clone https://github.com/ros
cd ~/catkin_ws
rosdep install --from-paths src --ignore-src --rosdistr
cd ~/catkin_ws/ && catkin_make
```

- Lidar 위치
  - x : 0.2 y : 0 z : 1.61

- MORAI 연결

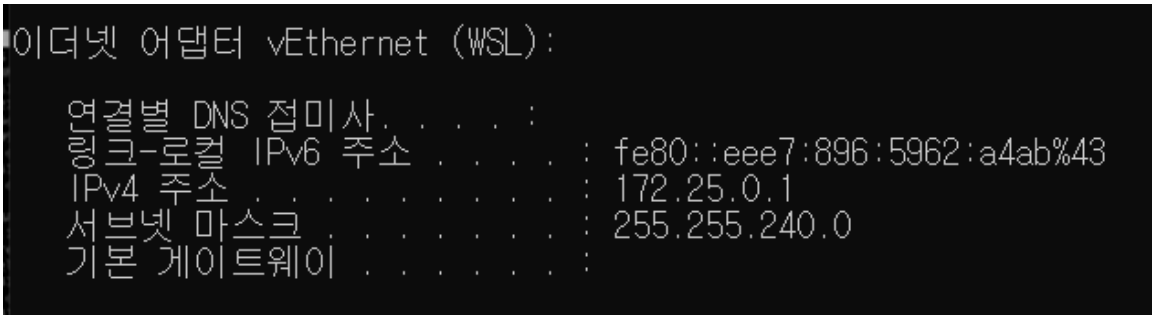


3d LiDAR 선택

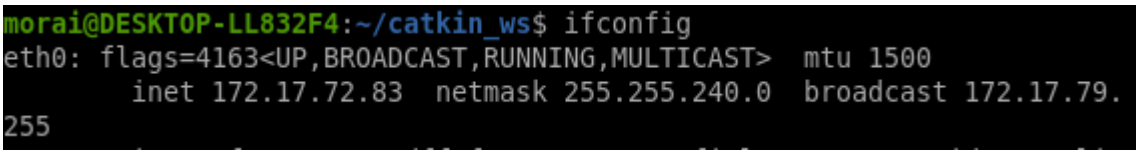
UDP 연결 !!! (ROS 아님)

IP는 각자 확인하고 수정

- IP 재부팅 하면 바뀌니까 확인하고 넣기

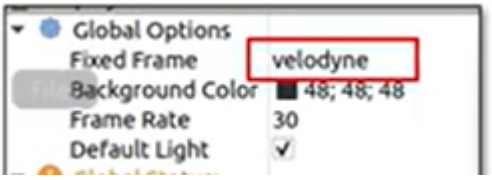


host IP : pc cmd에서 확인 (WSL)



destination IP : 우분투 IP (inet)

- rviz



Fixed Frame : velodyne으로 변경(map 아님)

▼ 센서 세팅

Lidar
x : 0.2 y : 0 z : 1.61

GPS
x : -0.35 y : 0.02 z : 1.29

IMU
x : -0.37 y : 0 z : 1.29

Camera
x: 3.3 y 0.0 z: 1.3
roll: 0 pitch: 30 yaw 0

▼ 애플리케이션 세팅

```
npm install
//package.json
```

▼ 개발 환경

- App
  - React-Native : 0.73.6

    - Node.js : 20.11.1
    - typescript : 5.0.4
    - Kotlin :
- DB
    - Firebase Cloud Firestore
- AD
    - ▼ Linux os : Ubuntu 20.04.6 LTS

      yolo 사용 패키지를 위해 python2 → python3, Ubuntu 18.04.6 LTS →Ubuntu 20.04.6 LTS
    - Simulator : MORAI SIM ver22.R2.1
    - Python : 3.8.10
    - ROS : noetic
    - NVDIA Driver : 551.86
    - CUDA Version: 12.1
- AI
    - rospy : 1.16.0
    - numpy : 1.24.4
    - cv-bridge(cv2) : 1.16.2
    - opencv-python : 4.9.0.80
    - cudnn : 9
    - pandas : 2.0.3
    - scikit-learn : 1.3.2
    - torch : 2.4.0.dev20240331+cu121
    - torchaudio : 2.2.0.dev20240331+cu121
    - torchvision : 0.19.0.dev20240331+cu121