WSL

WSL에서 우분투 22.04 GUI 버전을 D 드라이브에 설치하는 방법은 다음과 같습니다:

- WSL 및 우분투 22.04 설치

관리자 권한으로 PowerShell을 열고 다음 명령어를 실행합니다:

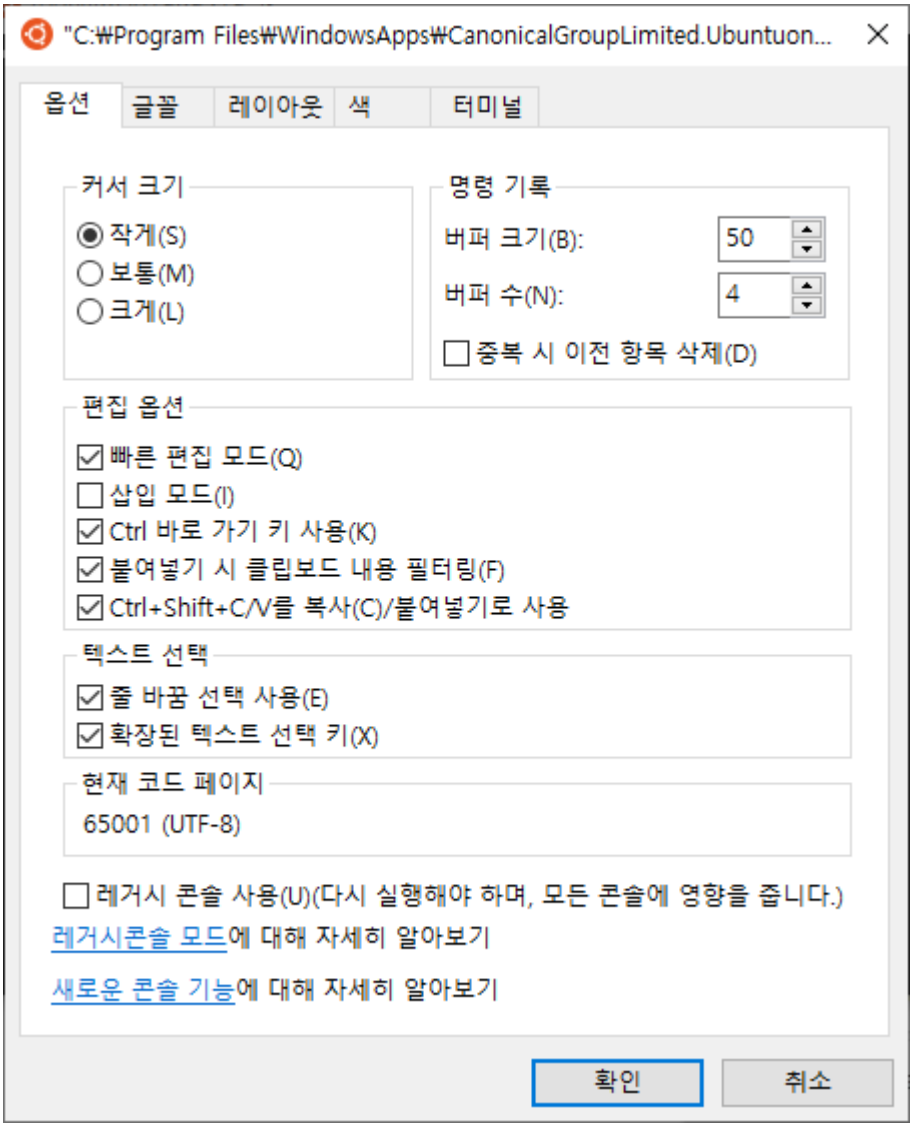
```
wsl --install -d Ubuntu-22.04
```

- 우분투를 D 드라이브로 이동

우분투가 설치되면, 다음 단계를 따라 D 드라이브로 이동합니다.

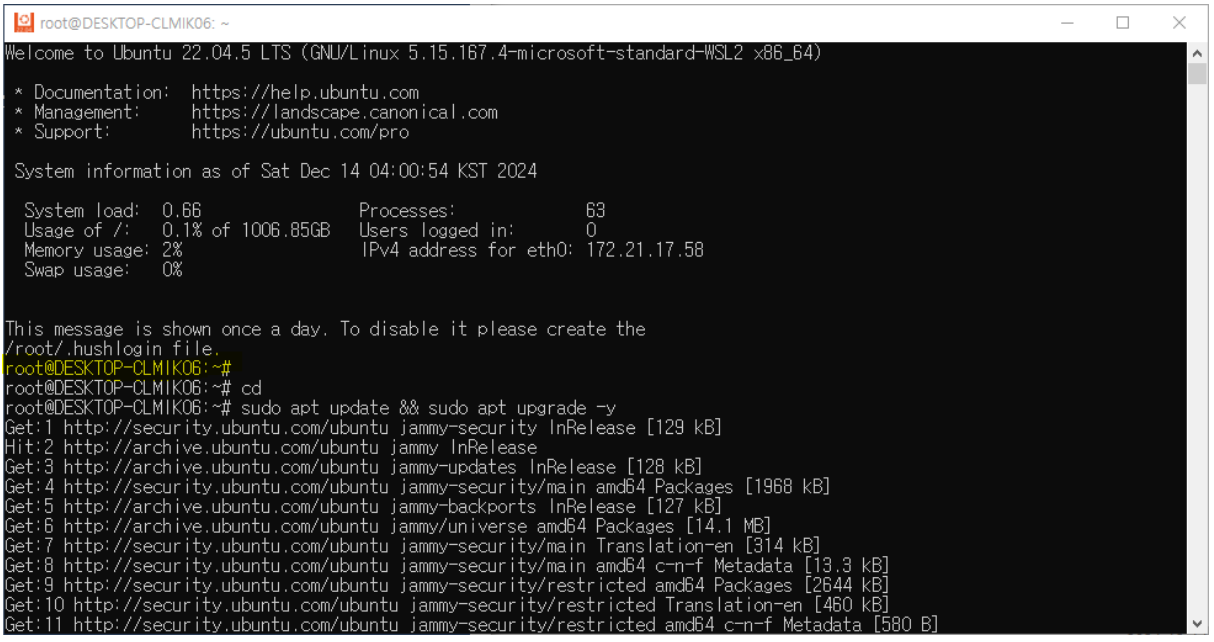
```
wsl --export Ubuntu-22.04 D:\ubuntu-22-04.tar # 설치한 우분투 내
wsl --unregister Ubuntu-22.04 # 우분투 지우기
wsl -l #설치되어 있는 우분투 확인
wsl --import Ubuntu-22.04 D:\wsl\ubuntu-22-04\ D:\ubuntu-22-0
```

복사 붙여넣기가 안된다면?

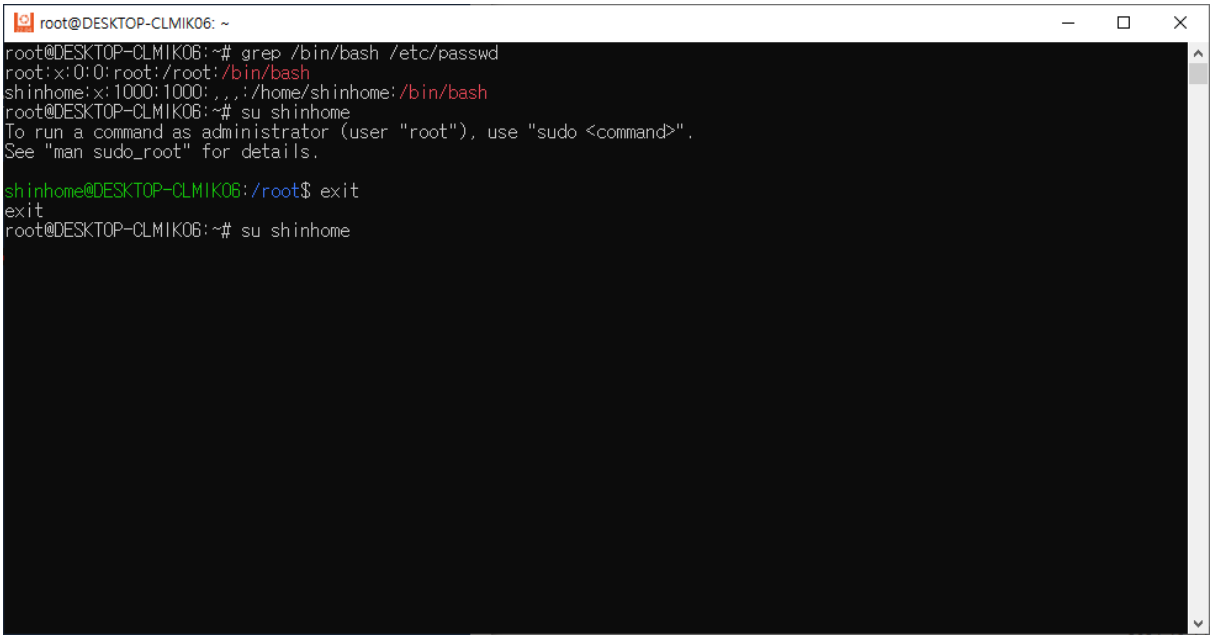


데이터 관리를 원활하게 하기 위해서 이러한 작업을 하는 것 같다.?

리눅스 설치과정에서 user은 없어지는 건가?




```
grep /bin/bash /etc/passwd
su shinhome
exit
```



있구나

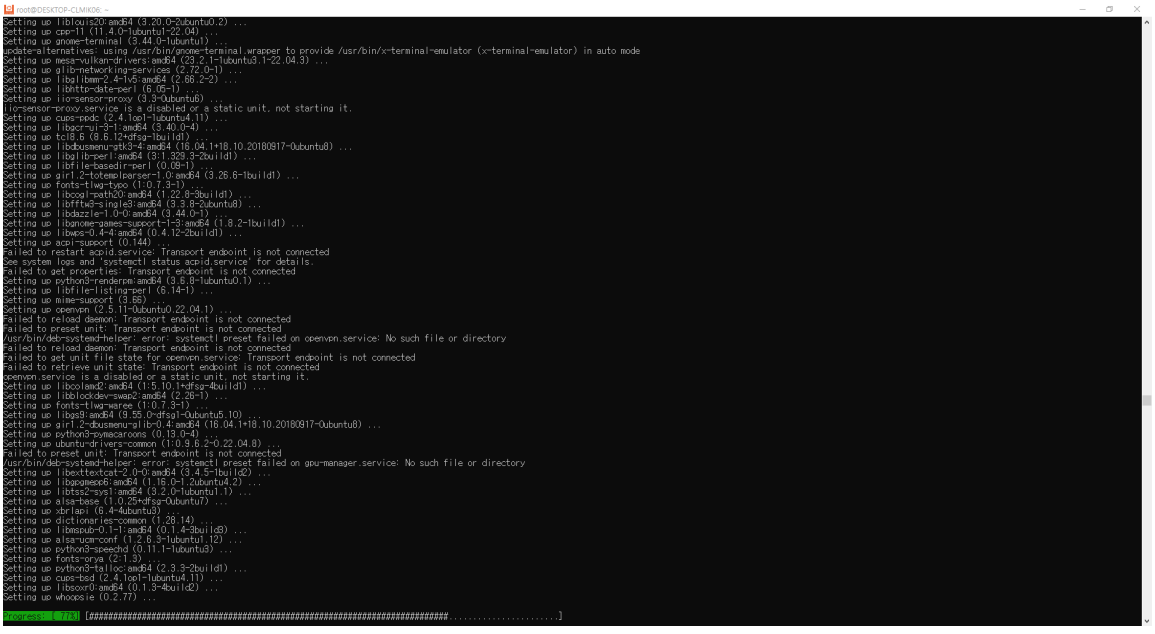
- GUI 패키지 설치

우분투 터미널에서 다음 명령어를 실행하여 GUI 패키지를 설치합니다:

```
sudo apt update && sudo apt upgrade -y
sudo apt install -y ubuntu-desktop
# -y는 설치 중에 발생할 수 있는 모든 확인 메시지에 대해 'yes'로 자동 응답
# Ubuntu 시스템에서 Ubuntu Desktop 환경을 설치하는 명령
```

▼ issue : Failed to preset unit: Transport endpoint is not connected

```
Failed to preset unit: Transport endpoint is not connected
/usr/bin/deb-systemd-helper: error: systemctl preset faile
Failed to reload daemon: Transport endpoint is not connect
Failed to start whoopsie.service: Transport endpoint is no
See system logs and 'systemctl status whoopsie.service' fo
invoke-rc.d: initscript whoopsie, action "start" failed.
Failed to get properties: Transport endpoint is not connec
dpkg: error processing package whoopsie (--configure):
```



https://github.com/microsoft/WSL/issues/8867

```
sudo ln -s /dev/null /etc/systemd/system/acpid.service
sudo ln -s /dev/null /etc/systemd/system/acpid.path
```

- XRDP 설치 및 설정

xrdp는 RDP를 사용하여 원격 클라이언트가 리눅스 시스템에 접속하여 GUI를 사용할 수 있도록 함

원격 데스크톱 접속을 위해 XRDP를 설치합니다:

```
sudo apt install -y xrdp
sudo cp /etc/xrdp/xrdp.ini /etc/xrdp/xrdp.ini.bak # 백업과정
sudo sed -i 's/3389/3390/g' /etc/xrdp/xrdp.ini
# Microsoft의 원격 데스크톱 프로토콜(RDP)의 기본포트3389
# 사용자가 원하는포트롤 변경 해킹방지
sudo sed -i 's/max_bpp=32/#max_bpp=32\nmax_bpp=128/g' /etc/xr
# xrdp의 최대 비트 깊이가 128로 설정
# xrdp의 최대 비트 깊이(max_bpp, bits per pixel)를 128로 설정하면 원
sudo sed -i 's/xserverbpp=24/#xserverbpp=24\nxserverbpp=128/g
```

스트림편집기(stream editor)텍스트를 대량으로 처리하고 편집가능

https://linuxstory1.tistory.com/entry/SED-명령어-사용법

- XRDP 서비스 시작

```
sudo /etc/init.d/xrdp start
```

- 사용자 설정

WSL에서 기본 사용자를 설정하기 위해 다음 단계를 수행합니다:

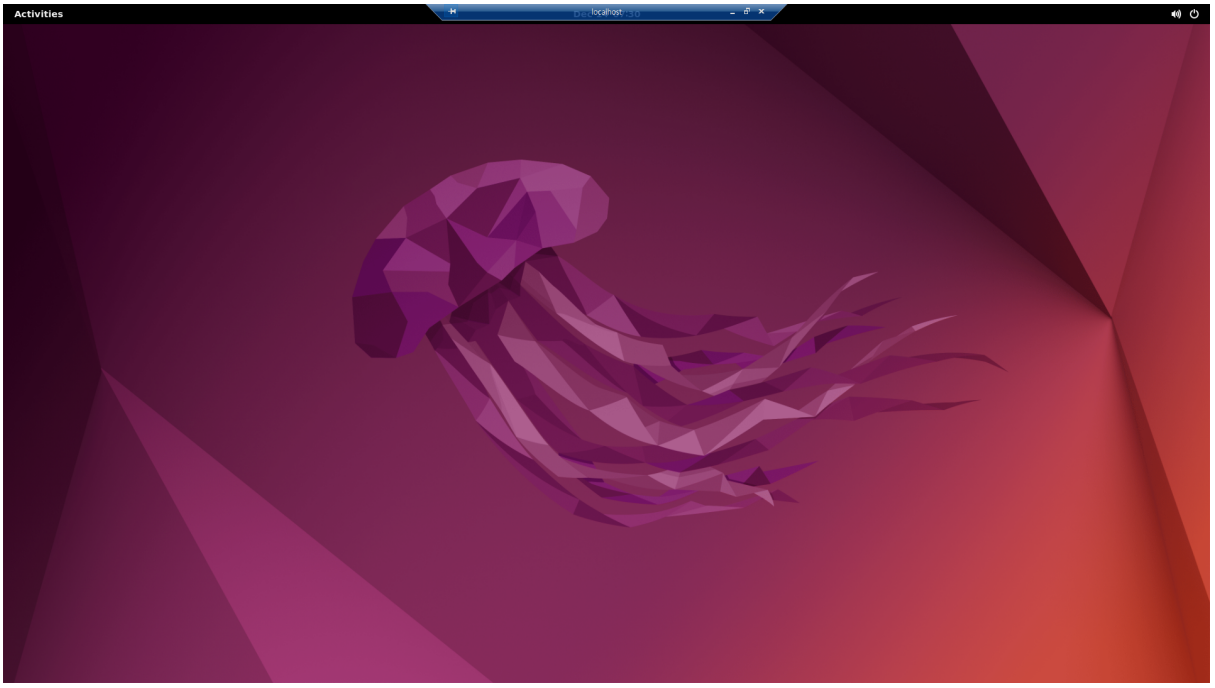
```
sudo touch /etc/wsl.conf #WSL의 설정을 구성파일 사용자 정의
echo "[user]" | sudo tee -a /etc/wsl.conf
echo "default=<your_username>" | sudo tee -a /etc/wsl.conf
```

<your_username>을 실제 사용자 이름으로 바꿔주세요.

- GUI 접속

Windows의 "원격 데스크톱 연결" 프로그램을 실행하고 "localhost:3390"에 연결합니다. 이 방법을 통해 WSL에서 우분투 22.04 GUI 버전을 D 드라이브에 설치하고 사용할 수 있습니다

접속 완!



oracle과 멀티부팅 WSL 장단점은 ?

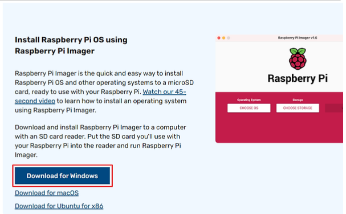
2 주차

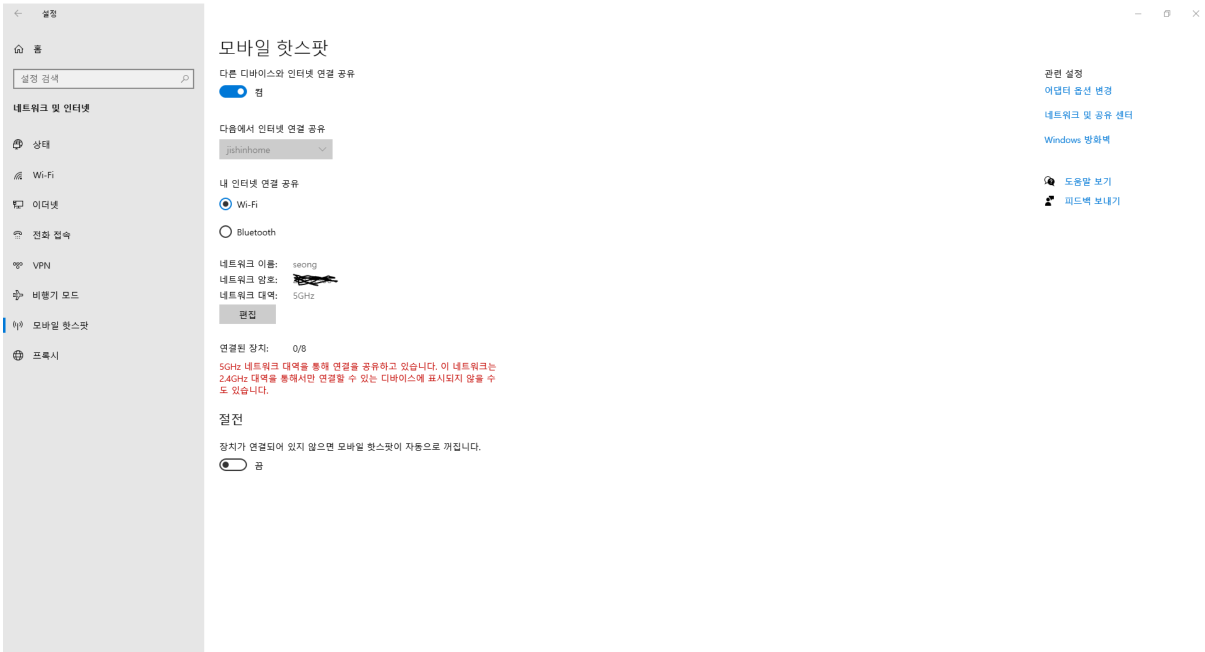
WSL

- 라즈베리파이에 우분투 22.04 설치

ROBOTIS e-Manual
e-Manual wiki
https://emanual.robotis.com/docs/en/platform/turtlebot3/sbc_setup/#sbc-setup

[Raspberry Pi] 모니터 없이 Ubuntu 22.04 LTS 설치하기 (Raspberry Pi Imager)
Raspberry Pi에 별도의 모니터 없이 Ubuntu 를 설치한다. 준비물 1. Raspberry Pi 4B 4GB 2. Micro SD 카드 + 카드 리더기 3. Pi Imager 4. 컴퓨터 5. wifi + wifi 공유기 Ubuntu 이미지 다운로드 (Pi Imager 사용) 1. Raspberry Pi Imager 설치 파일을 다운로드한다.
https://main.tistory.com/278





외부에서 공유기가 및 모니터가 없을 경우 핫스팟을 이용한 ip 주소 확인 공유기 역할

```
sudo apt install net-tools # ifconfig를 위한
```

▼ ssh connect issue : ECDSA

```
shin@shin:~$ ssh shinpi@192.168.1.241
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@    WARNING: REMOTE HOST IDENTIFICATION HAS CHANGED!     @
```

```
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
IT IS POSSIBLE THAT SOMEONE IS DOING SOMETHING NASTY!
Someone could be eavesdropping on you right now (man-in-the-middle at
It is also possible that a host key has just been changed.
The fingerprint for the ECDSA key sent by the remote host is
SHA256:GmLMgXEfhQ6qSvg3O5nnIYSGD3P0sbGgIYNS5O9Fass.
Please contact your system administrator.
Add correct host key in /home/shin/.ssh/known_hosts to get rid of thi
Offending ECDSA key in /home/shin/.ssh/known_hosts:1
  remove with:
  ssh-keygen -f "/home/shin/.ssh/known_hosts" -R "192.168.1.241"
ECDSA host key for 192.168.1.241 has changed and you have requested s
Host key verification failed.
```

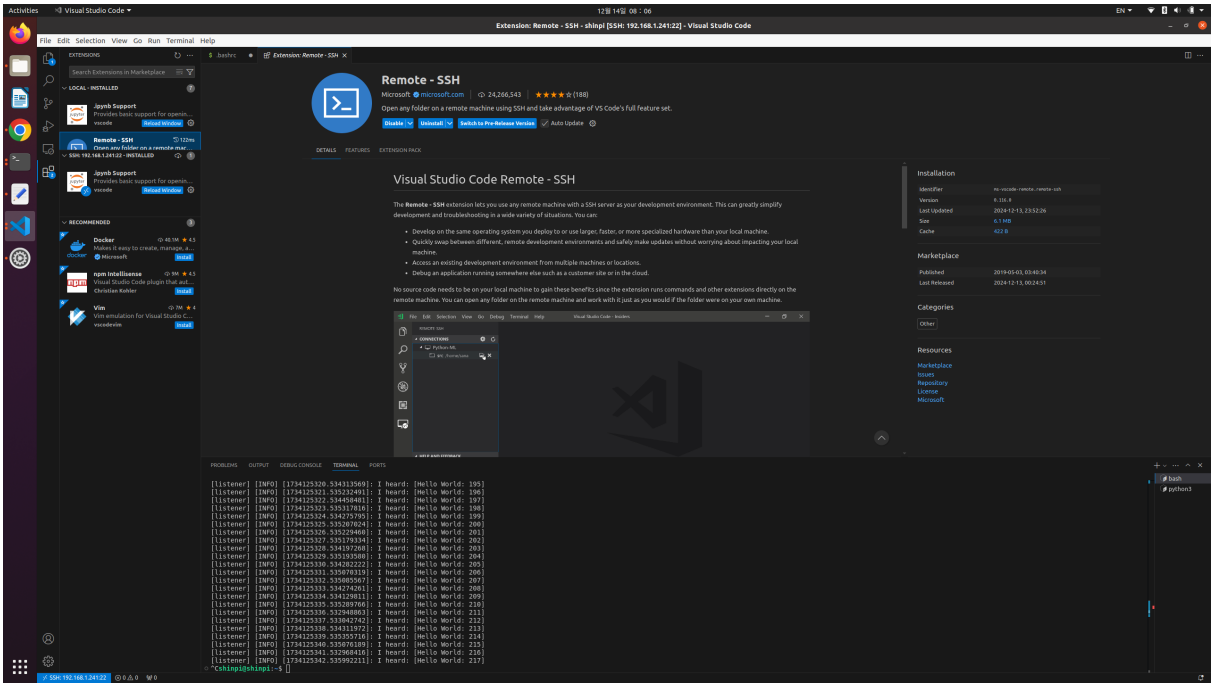
```
ssh-keygen -f "/home/shin/.ssh/known_hosts" -R "192.168.1.241"

해결가능
```

SSH접속 프로그램으로는 Xshell, PuTTY, MobaXterm 등

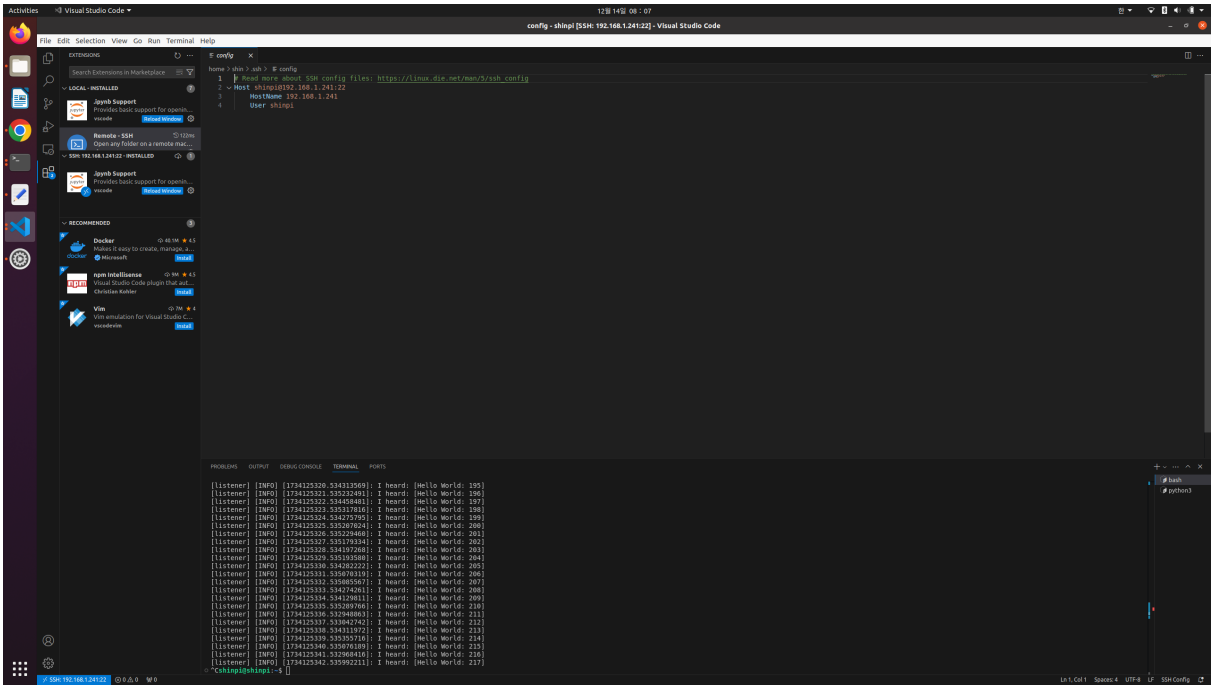
- VScode SSH 연결

```
sudo apt update
sudo apt install openssh-server
sudo systemctl status ssh
```

remote - ssh 설치

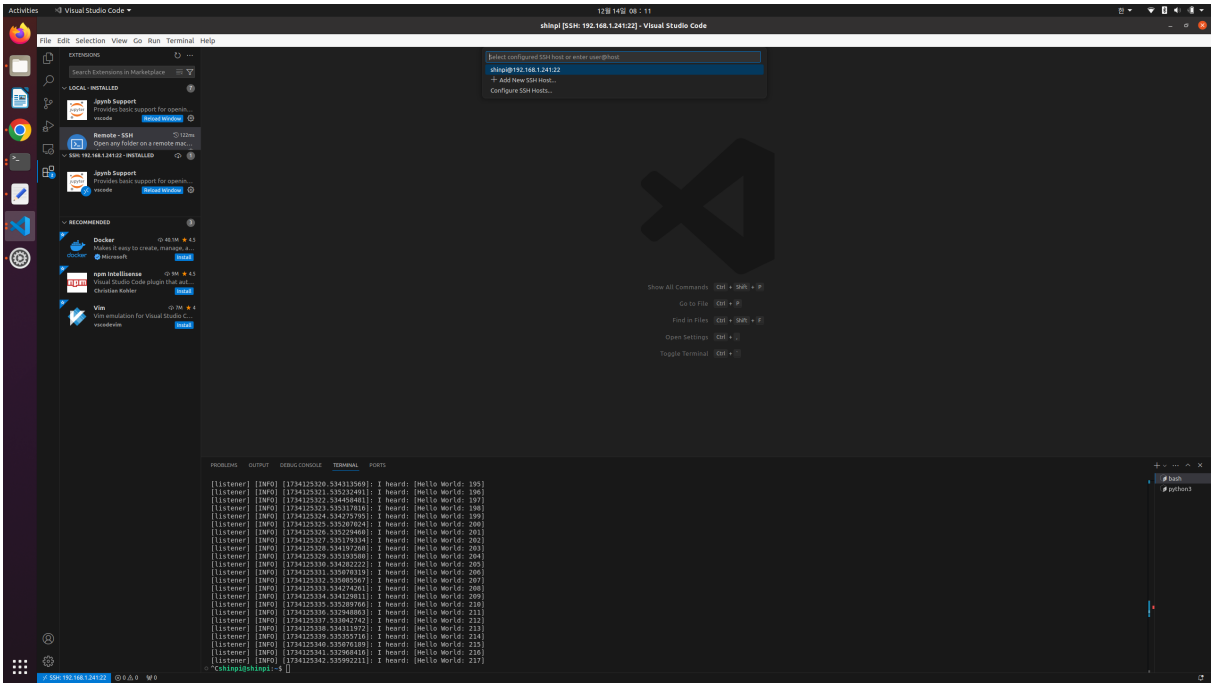


ssh: open ssh configuration file 수정



```
Host ros2
  HostName 192.168.20.8
  User ros2
  Port 22
```

remote-ssh: Connect to Host



- ROS2 Humble 설치

Ubuntu (deb packages) — ROS 2 Documentation: Humble documentation

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.

2 https://docs.ros.org/en/humble/Installation/Ubuntu-Install-Debs.html

```
$ mkdir -p ~/robot_ws/src\
$ cd ~/robot_ws/
$ colcon build --symlink-install
Summary: 0 packages finished [0.41s]
$ ls
build  install  log  src
```

```
$ nano ~/.bashrc
source /opt/ros/humble/setup.bash
source ~/robot_ws/install/local_setup.bash
$ source ~/.bashrc
```

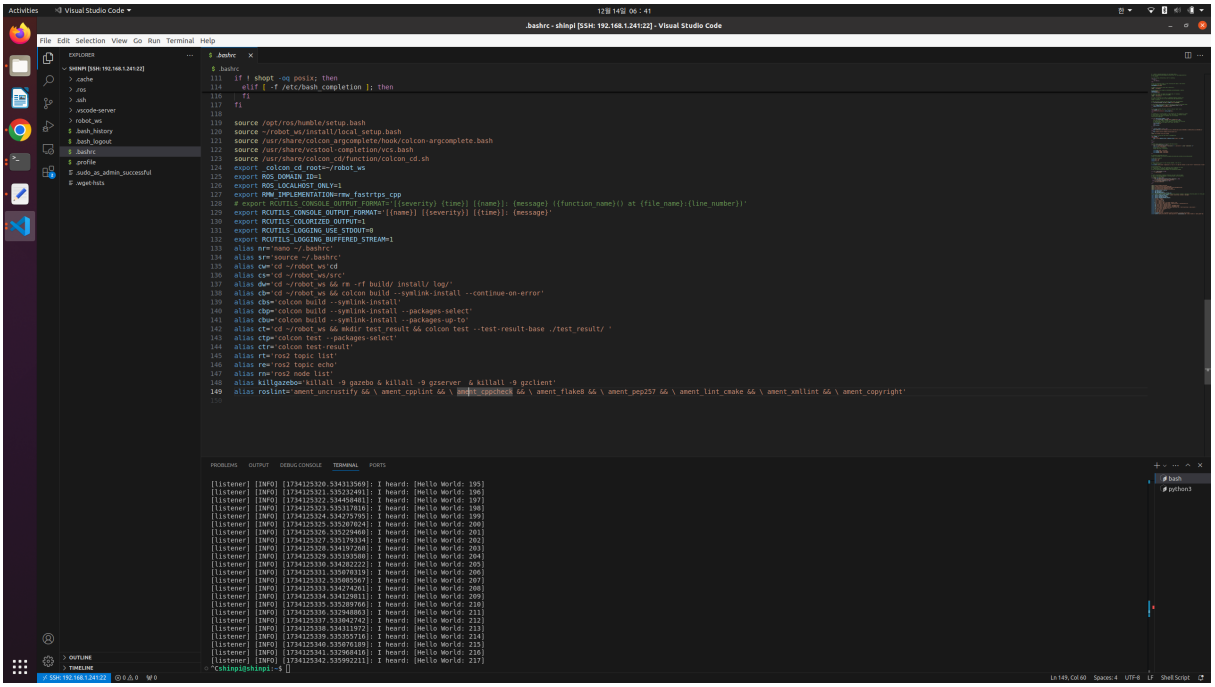
```
$ printenv | grep -i ROS
ROS_VERSION=2
ROS_PYTHON_VERSION=3
```

```
ROS_DISTRO=humble
…
```

- bashrc는 alias와 bash가 수행될 때 실행되는 함수를 제어하는 지역적인 시스템 설정 관련 파일

https://leechangyo.github.io/programming/2021/03/22/리눅스에서-Setup,Source,Export의미/

```
$ nano ~/.bashrc
source /opt/ros/humble/setup.bash
source ~/robot_ws/install/local_setup.bash
source /usr/share/colcon_argcomplete/hook/colcon-argcomplete.bash
source /usr/share/vcstool-completion/vcs.bash
source /usr/share/colcon_cd/function/colcon_cd.sh
export _colcon_cd_root=~/robot_ws
export ROS_DOMAIN_ID=1
export ROS_LOCALHOST_ONLY=1
export RMW_IMPLEMENTATION=rmw_fastrtps_cpp
# export RCUTILS_CONSOLE_OUTPUT_FORMAT='[{severity} {time}] [{name}]: {m
export RCUTILS_CONSOLE_OUTPUT_FORMAT='[{name}] [{severity}] [{time}]: {m
export RCUTILS_COLORIZED_OUTPUT=1
export RCUTILS_LOGGING_USE_STDOUT=0
export RCUTILS_LOGGING_BUFFERED_STREAM=1
alias nr='nano ~/.bashrc'
alias sr='source ~/.bashrc'
alias cw='cd ~/robot_ws'cd
alias cs='cd ~/robot_ws/src'
alias dw='cd ~/robot_ws && rm -rf build/ install/ log/'
alias cb='cd ~/robot_ws && colcon build --symlink-install --continue-on-
alias cbs='colcon build --symlink-install'
alias cbp='colcon build --symlink-install --packages-select'
alias cbu='colcon build --symlink-install --packages-up-to'
alias ct='cd ~/robot_ws && mkdir test_result && colcon test --test-resul
alias ctp='colcon test --packages-select'
alias ctr='colcon test-result'
alias rt='ros2 topic list'
alias re='ros2 topic echo'
alias rn='ros2 node list'
alias killgazebo='killall -9 gazebo & killall -9 gzserver  & killall -9
alias roslint='ament_uncrustify && \ ament_cpplint && \ ament_cppcheck &

$ source ~/.bashrc
```


Activities
Visual Studio Code
.bashrc - shinpi [SSH: 192.168.1.241:22] - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
SHINPI [SSH: 192.168.1.241:22]
.cache
.ros
.ssh
.vscode-server
robot_ws
.bash_history
.bash_logout
.bashrc
.profile
.sudo_as_admin_successful
.wget-hsts
.bashrc
if ! shopt -oq posix; then
elif [-f /etc/bash_completion]; then
fi
fi
source /opt/ros/humble/setup.bash
source ~/robot_ws/install/local_setup.bash
source /usr/share/colcon_argcomplete/hook/colcon-argcomplete.bash
source /usr/share/vcstool-completion/vcs.bash
source /usr/share/colcon_cd/function/colcon_cd.sh
export _colcon_cd_root=~/robot_ws
export ROS_DOMAIN_ID=1
export ROS_LOCALHOST_ONLY=1
export RMW_IMPLEMENTATION=rmw_fastrtps_cpp
export RCUTILS_CONSOLE_OUTPUT_FORMAT='[{severity} {time}] [{name}]: {message} ({function_name}() at {file_name}:{line_number})'
export RCUTILS_CONSOLE_OUTPUT_FORMAT='[{name}] [{severity}] [{time}]: {message}'
export RCUTILS_COLORIZED_OUTPUT=1
export RCUTILS_LOGGING_USE_STDOUT=0
export RCUTILS_LOGGING_BUFFERED_STREAM=1
alias nr='nano ~/.bashrc'
alias sr='source ~/.bashrc'
alias cw='cd ~/robot_ws'cd
alias cs='cd ~/robot_ws/src'
alias dw='cd ~/robot_ws && rm -rf build/ install/ log/'
alias cb='cd ~/robot_ws && colcon build --symlink-install --continue-on-error'
alias cbs='colcon build --symlink-install'
alias cbp='colcon build --symlink-install --packages-select'
alias cbu='colcon build --symlink-install --packages-up-to'
alias ct='cd ~/robot_ws && mkdir test_result && colcon test --test-result-base ./test_result/ '
alias ctp='colcon test --packages-select'
alias ctr='colcon test-result'
alias rt='ros2 topic list'
alias re='ros2 topic echo'
alias rn='ros2 node list'
alias killgazebo='killall -9 gazebo & killall -9 gzserver & killall -9 gzclient'
alias roslint='ament_uncrustify && \ ament_cpplint && \ ament_cppcheck && \ ament_flake8 && \ ament_pep257 && \ ament_lint_cmake && \ ament_xmllint && \ ament_copyright'
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
[listener] [INFO] [1734125320.534313569]: I heard: [Hello World: 195]
[listener] [INFO] [1734125321.535232491]: I heard: [Hello World: 196]
[listener] [INFO] [1734125322.534458481]: I heard: [Hello World: 197]
[listener] [INFO] [1734125323.535317016]: I heard: [Hello World: 198]
[listener] [INFO] [1734125324.534275795]: I heard: [Hello World: 199]
[listener] [INFO] [1734125325.535207624]: I heard: [Hello World: 200]
[listener] [INFO] [1734125326.535229468]: I heard: [Hello World: 201]
[listener] [INFO] [1734125327.535179334]: I heard: [Hello World: 202]
[listener] [INFO] [1734125328.534197268]: I heard: [Hello World: 203]
[listener] [INFO] [1734125329.535193580]: I heard: [Hello World: 204]
[listener] [INFO] [1734125330.534282222]: I heard: [Hello World: 205]
[listener] [INFO] [1734125331.535070319]: I heard: [Hello World: 206]
[listener] [INFO] [1734125332.535005567]: I heard: [Hello World: 207]
[listener] [INFO] [1734125333.534274261]: I heard: [Hello World: 208]
[listener] [INFO] [1734125334.534129811]: I heard: [Hello World: 209]
[listener] [INFO] [1734125335.535289766]: I heard: [Hello World: 210]
[listener] [INFO] [1734125336.532948863]: I heard: [Hello World: 211]
[listener] [INFO] [1734125337.533042742]: I heard: [Hello World: 212]
[listener] [INFO] [1734125338.534311972]: I heard: [Hello World: 213]
[listener] [INFO] [1734125339.535355716]: I heard: [Hello World: 214]
[listener] [INFO] [1734125340.535076189]: I heard: [Hello World: 215]
[listener] [INFO] [1734125341.532968416]: I heard: [Hello World: 216]
[listener] [INFO] [1734125342.535992211]: I heard: [Hello World: 217]
^Cshinpi@shinpi:~$
bash
python3
OUTLINE
TIMELINE
SSH: 192.168.1.241:22
Ln 149, Col 60
Spaces: 4
UTF-8
LF
Shell Script