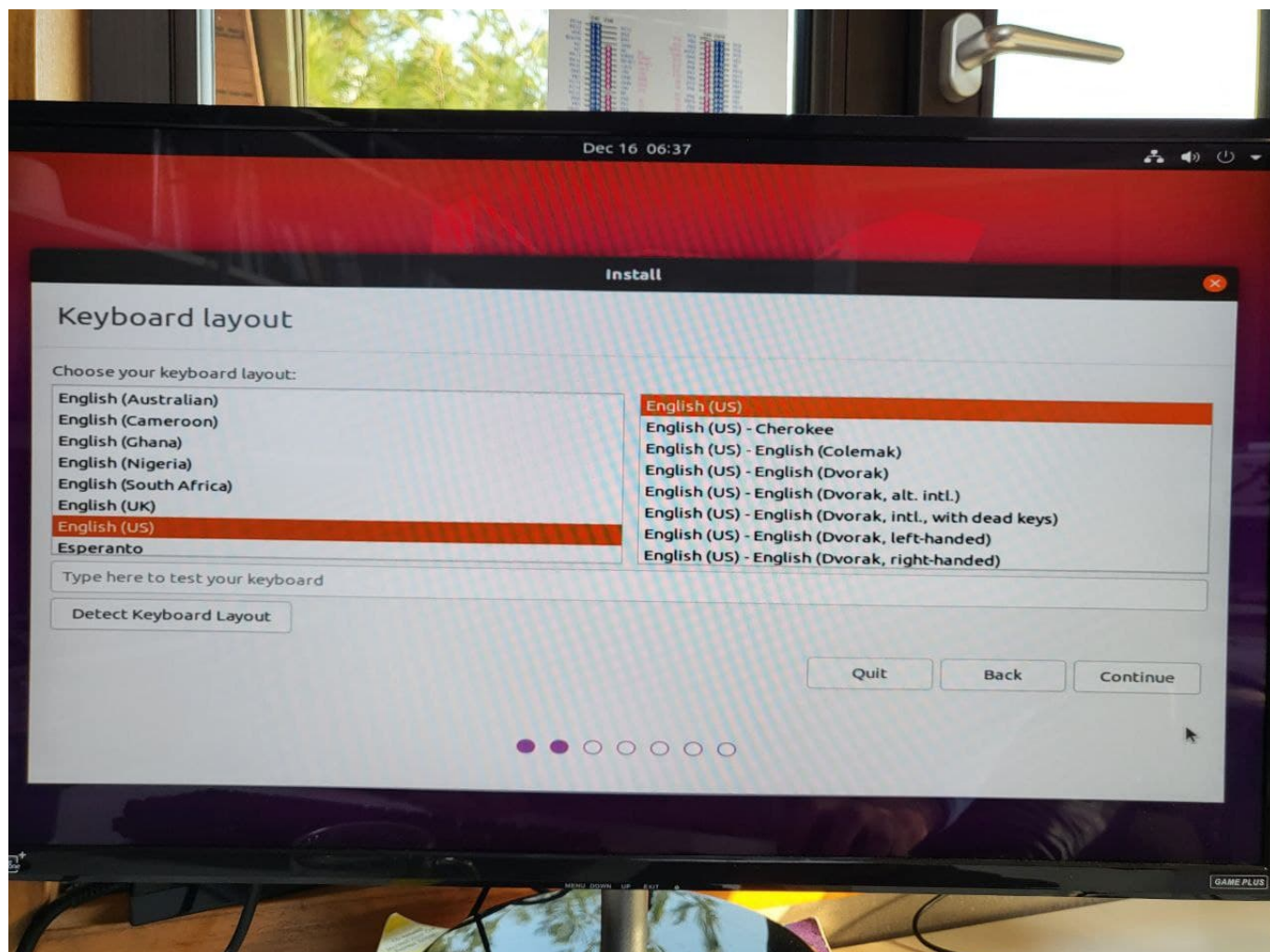
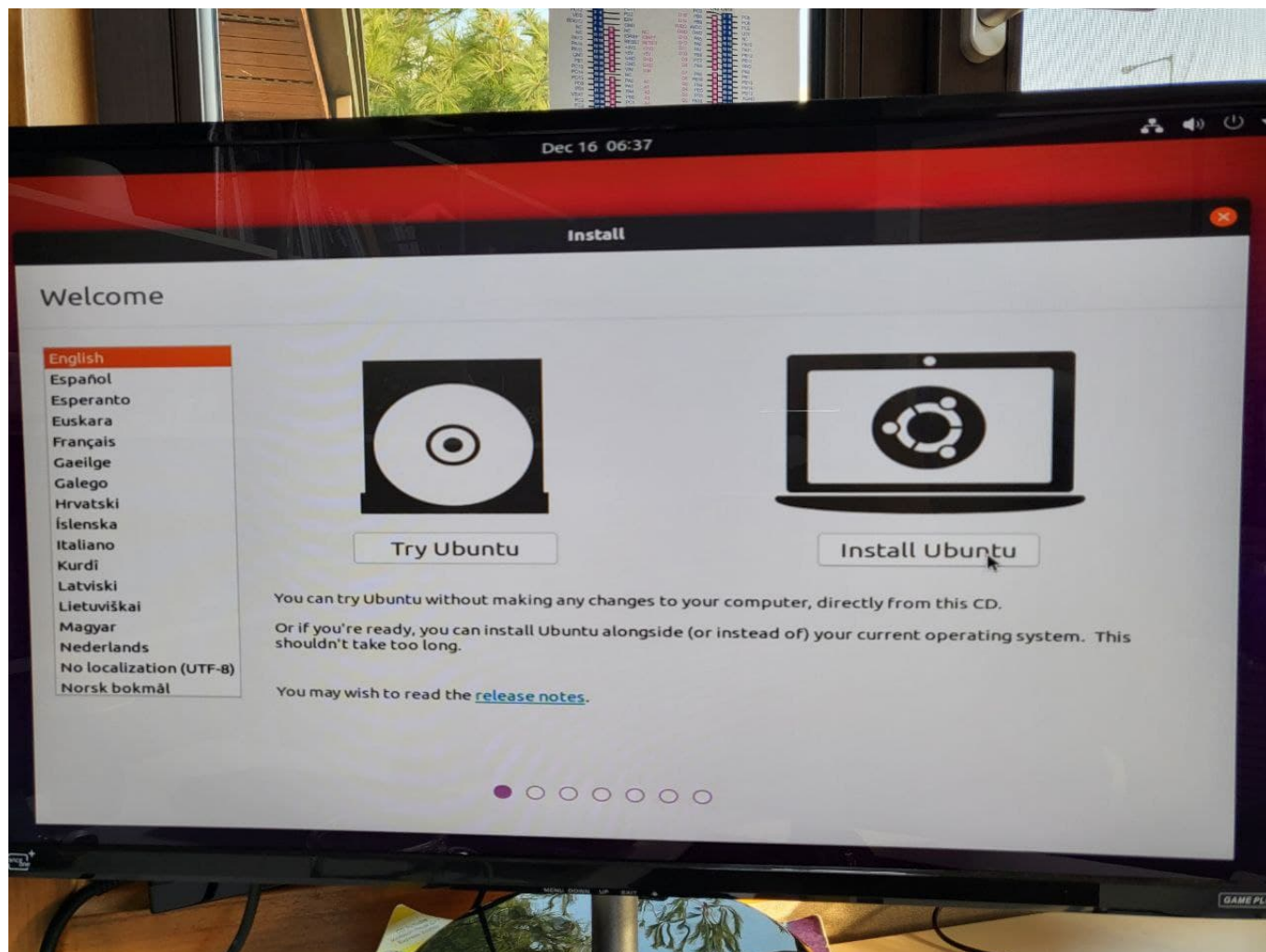
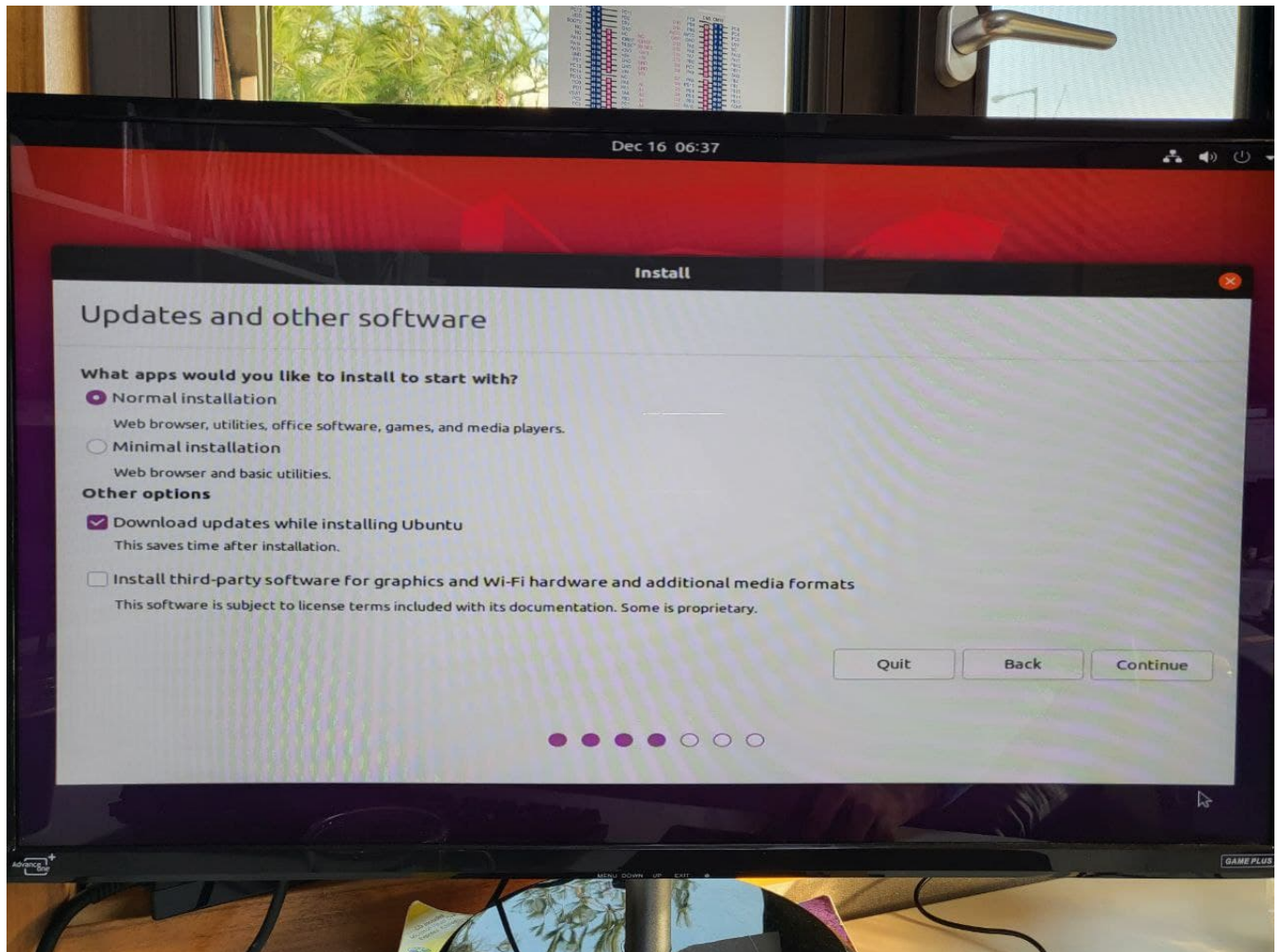


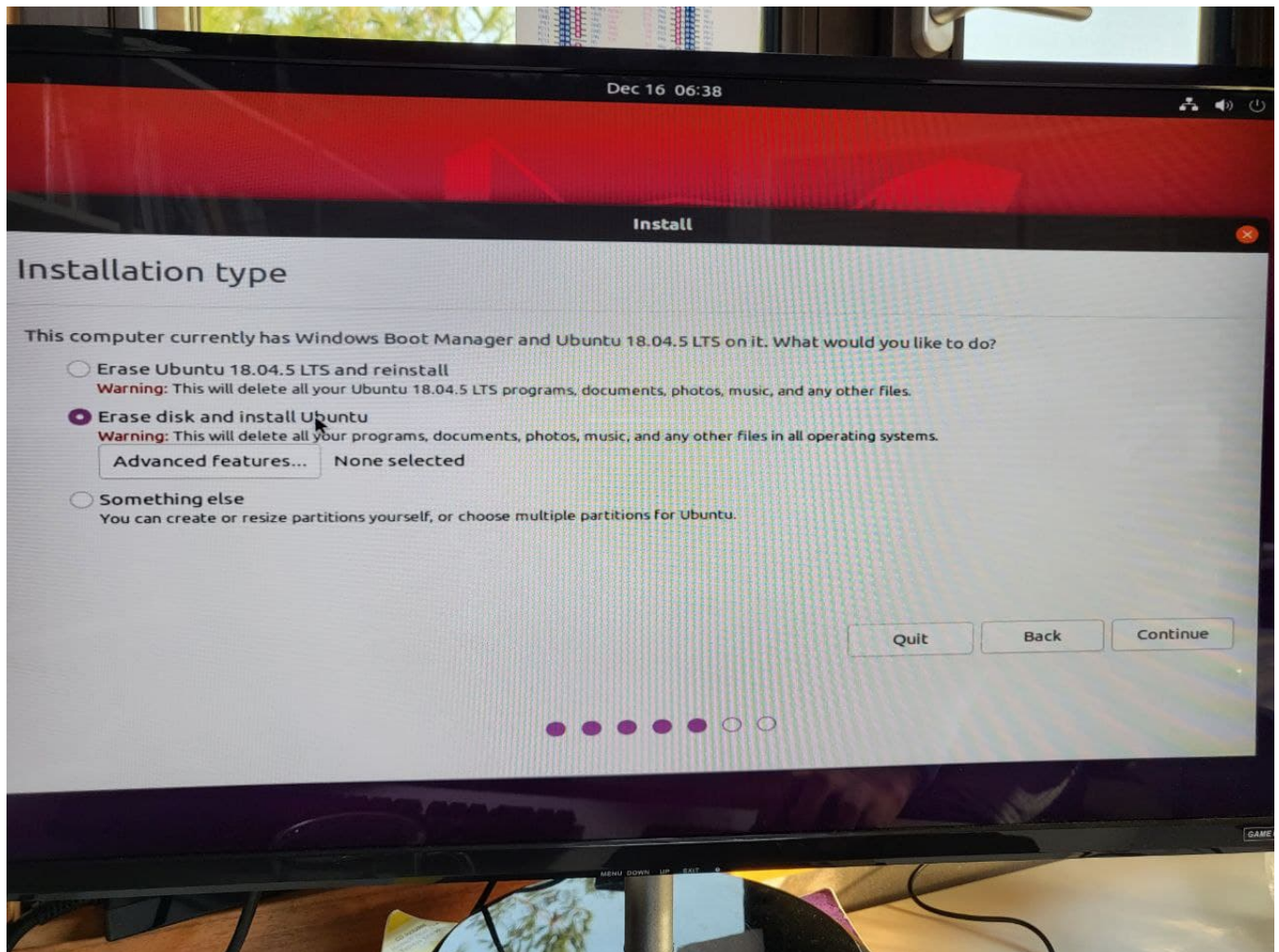
set ubuntu

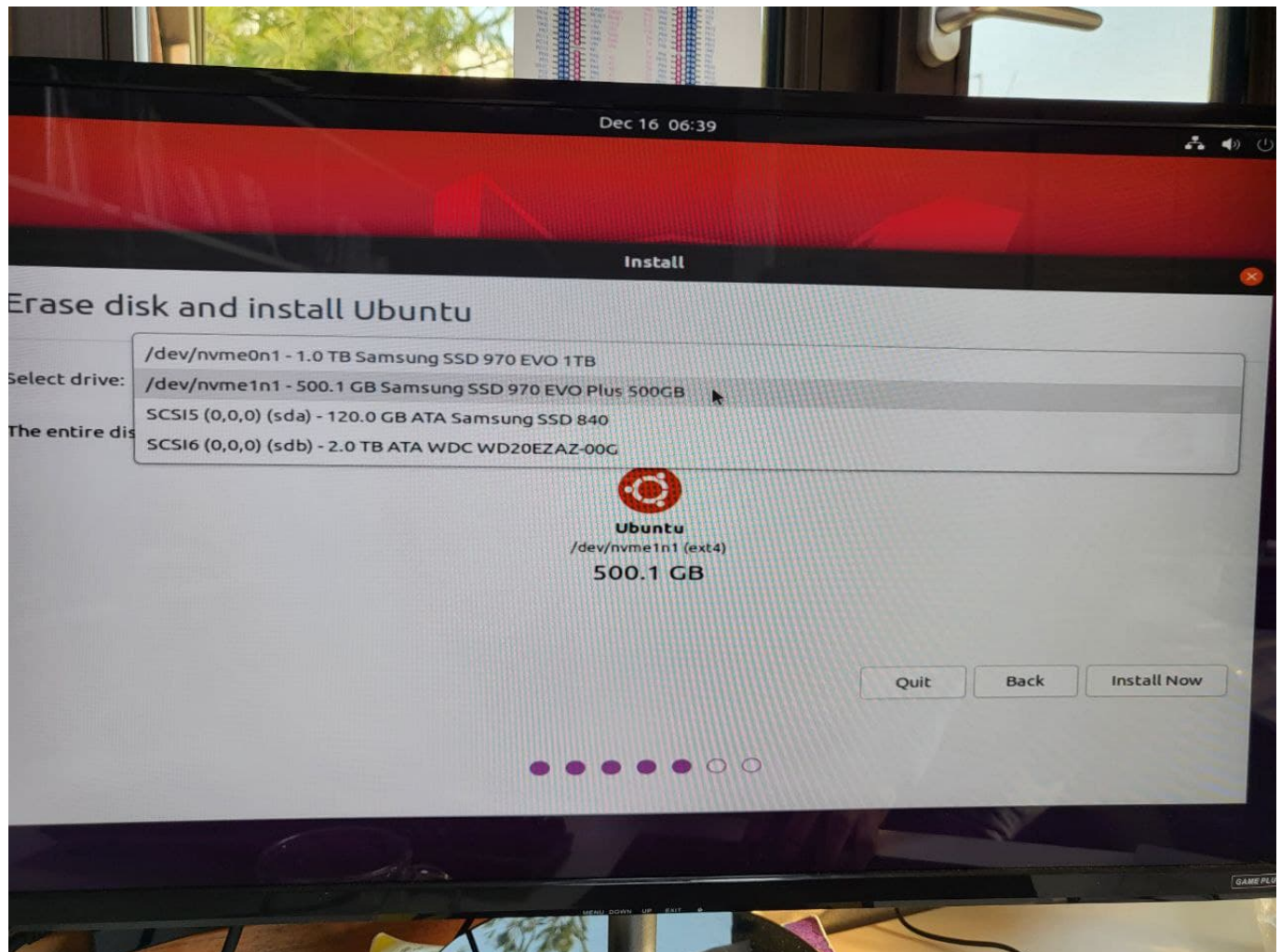
- 명령어 참고 `chmod`

ubuntu

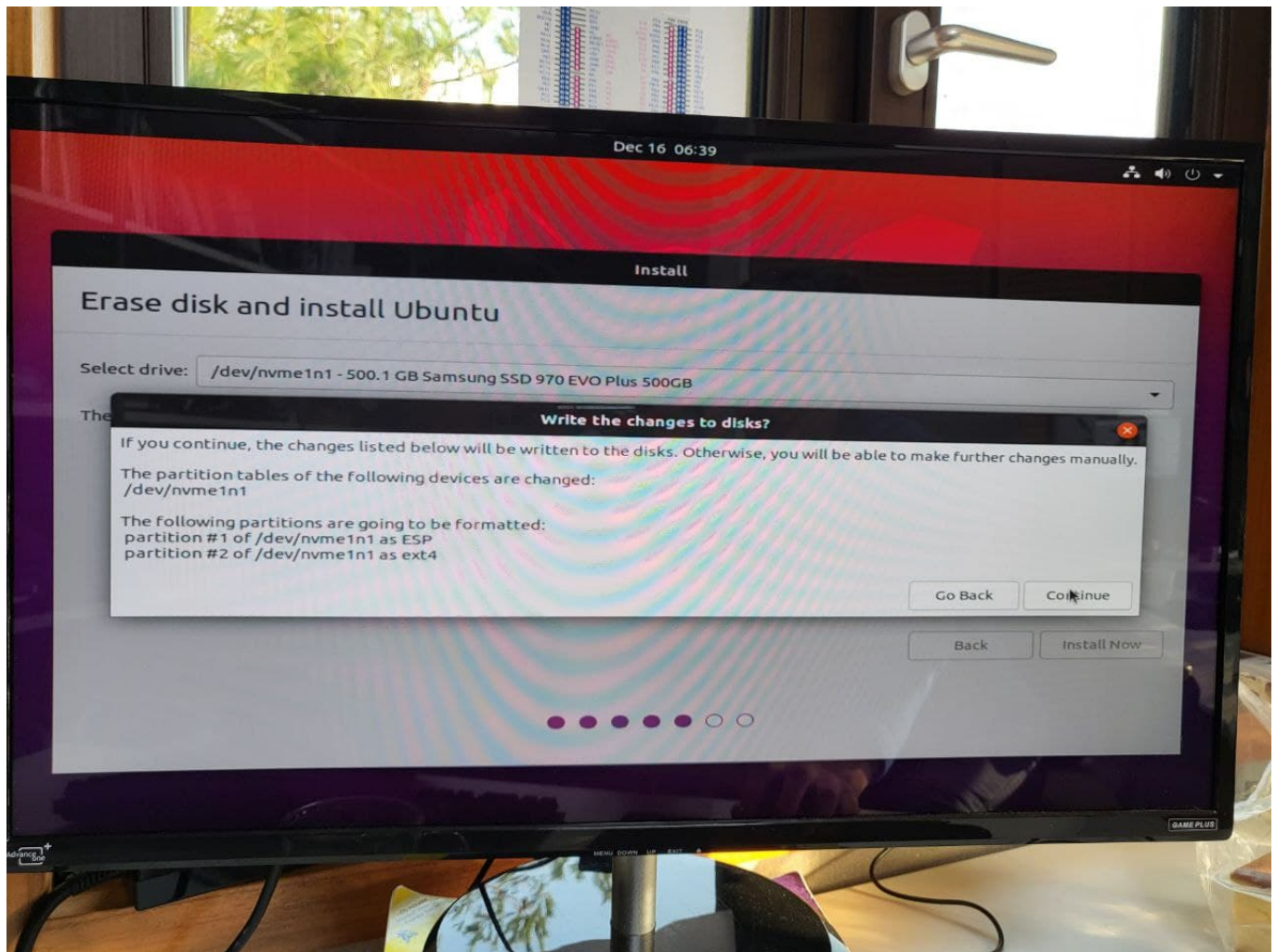




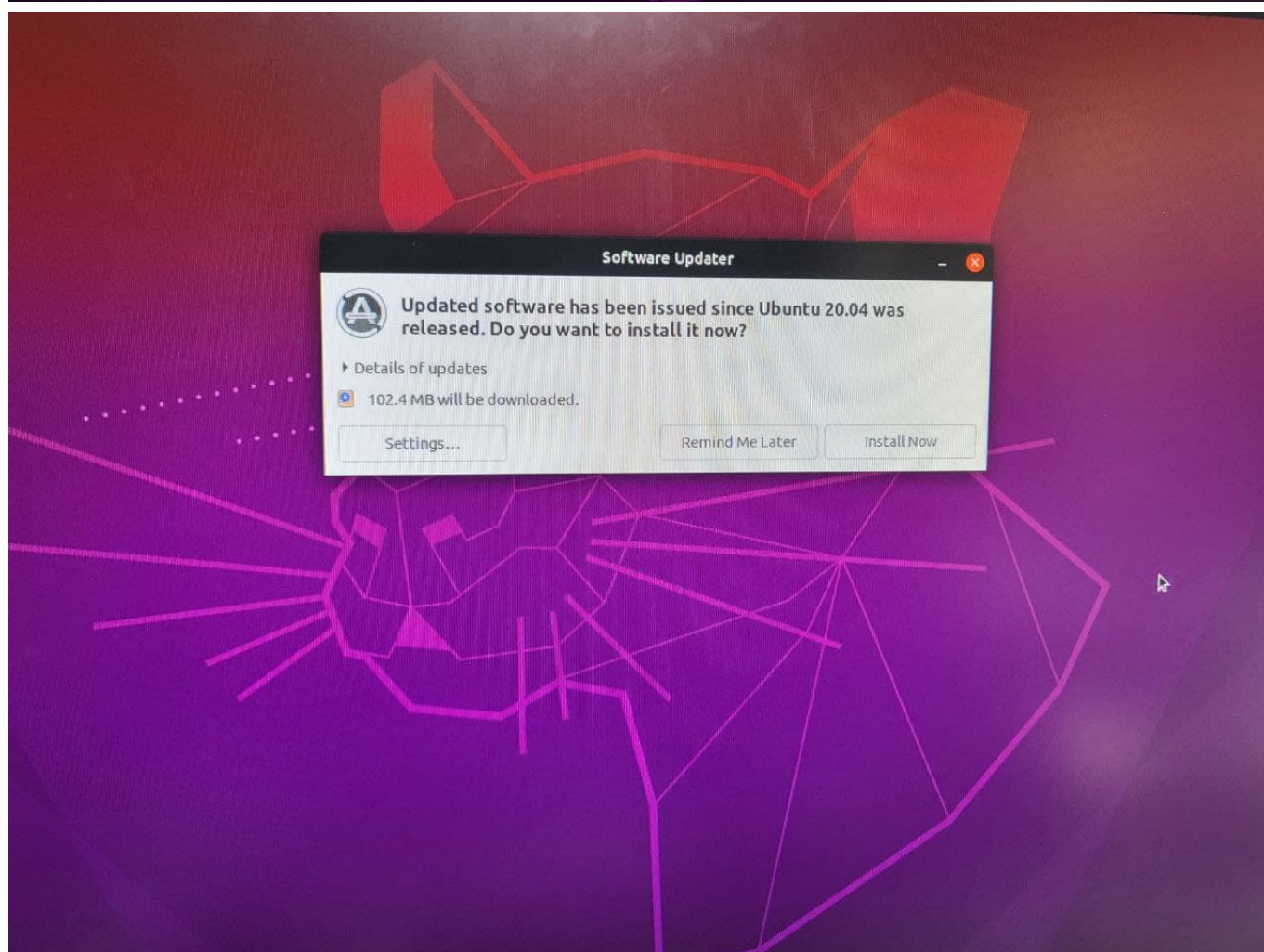
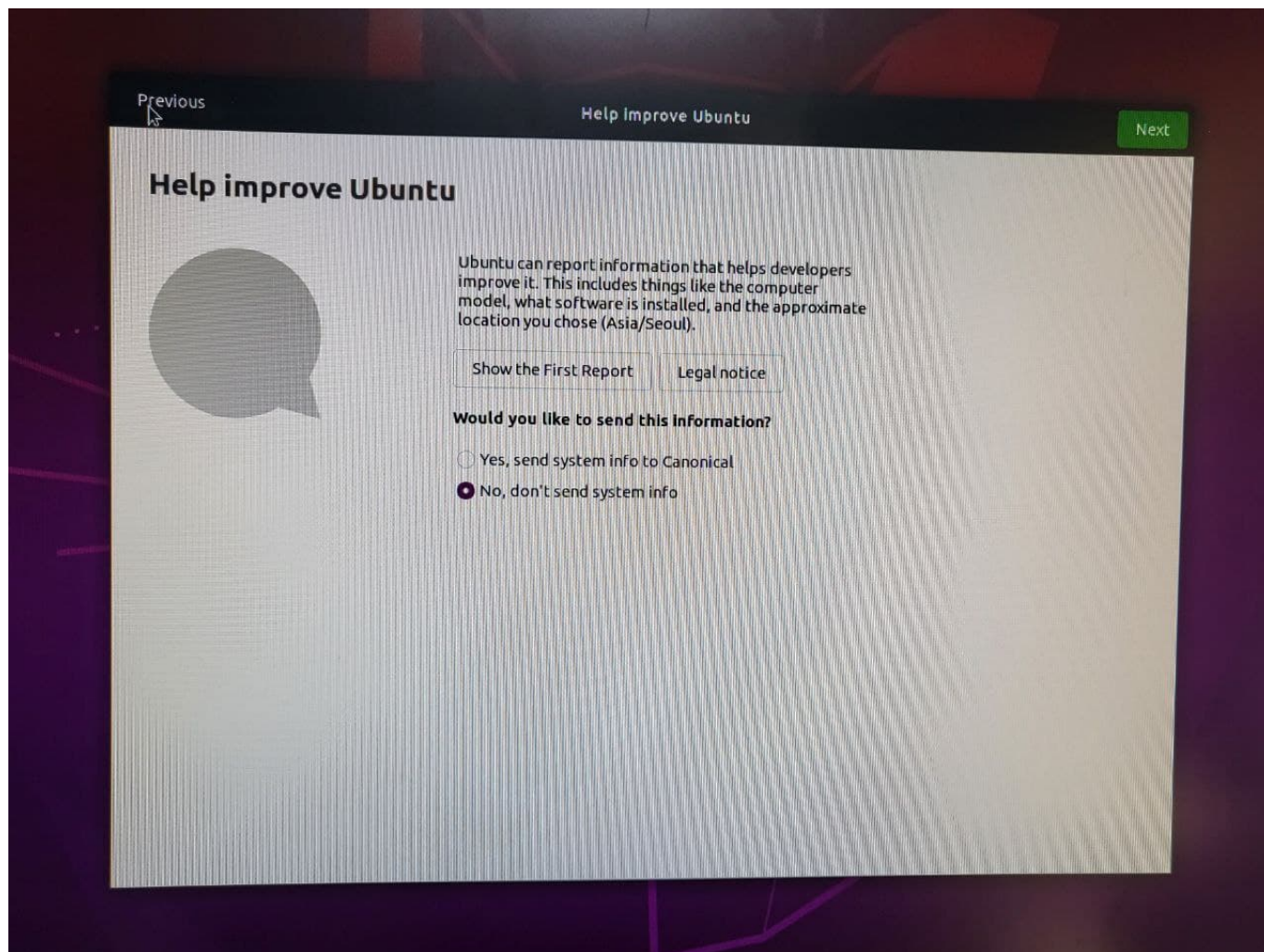


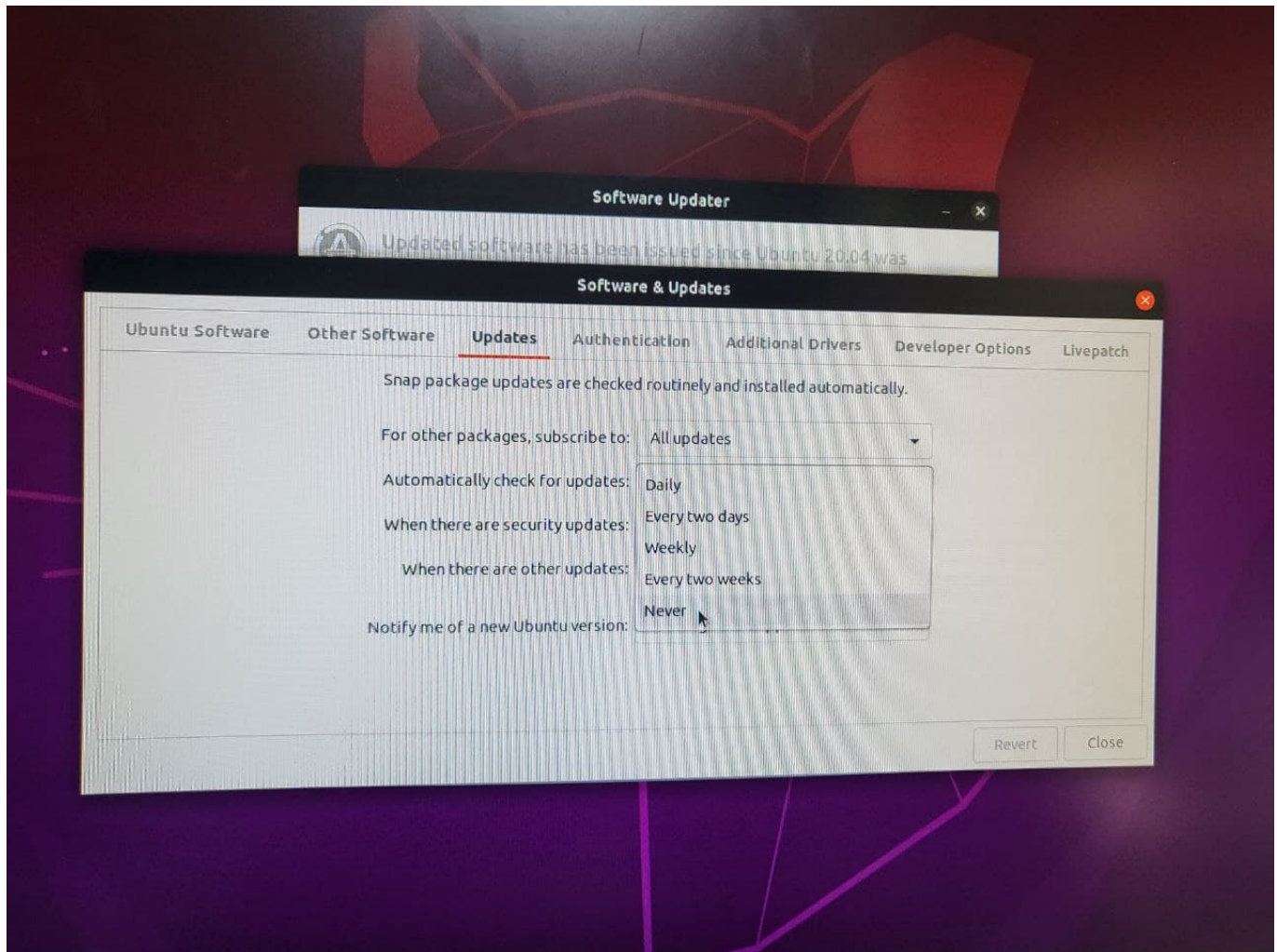


지울 부분 !! ubuntu 20.04로 바뀔 부분



after boot



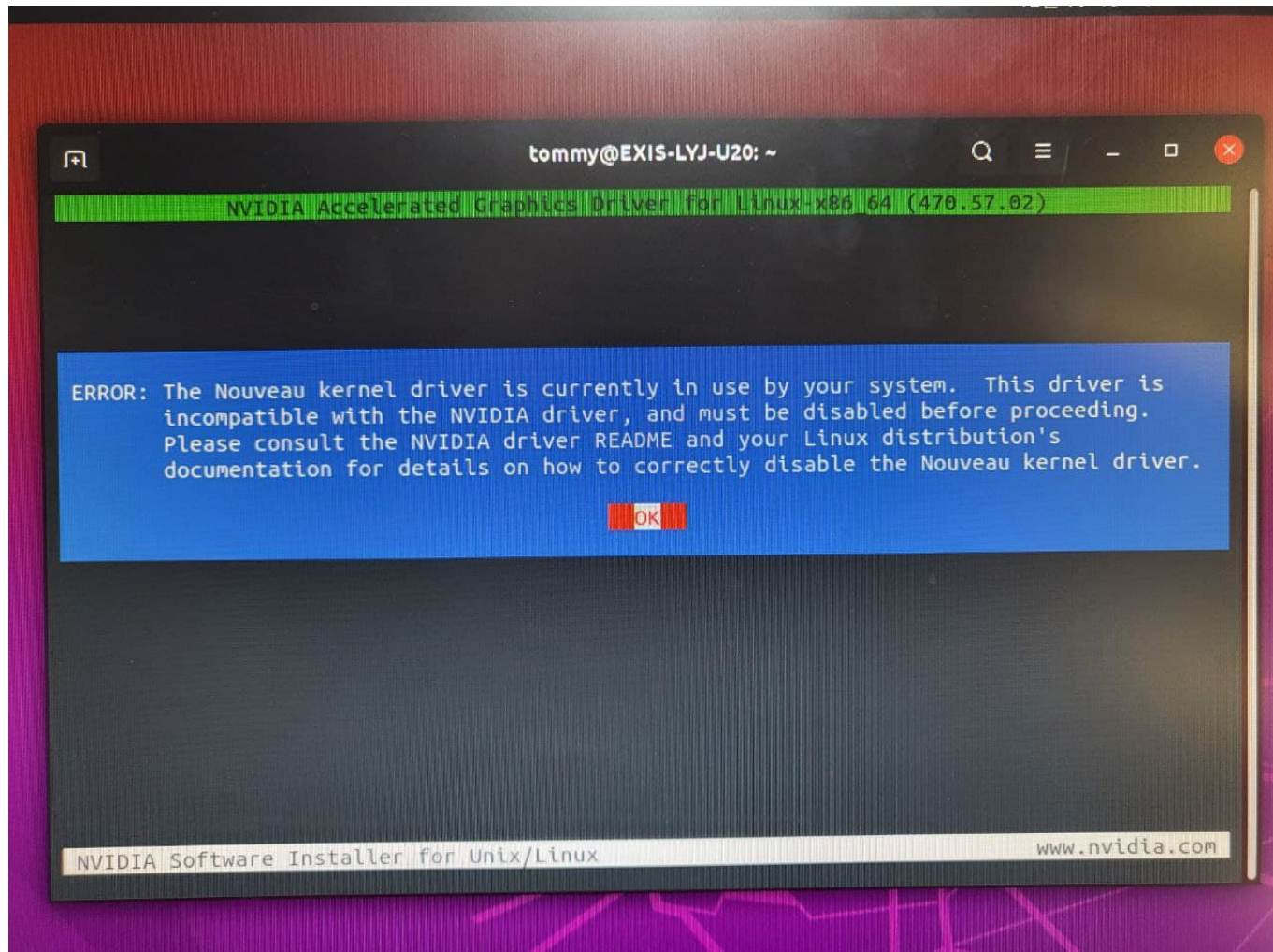
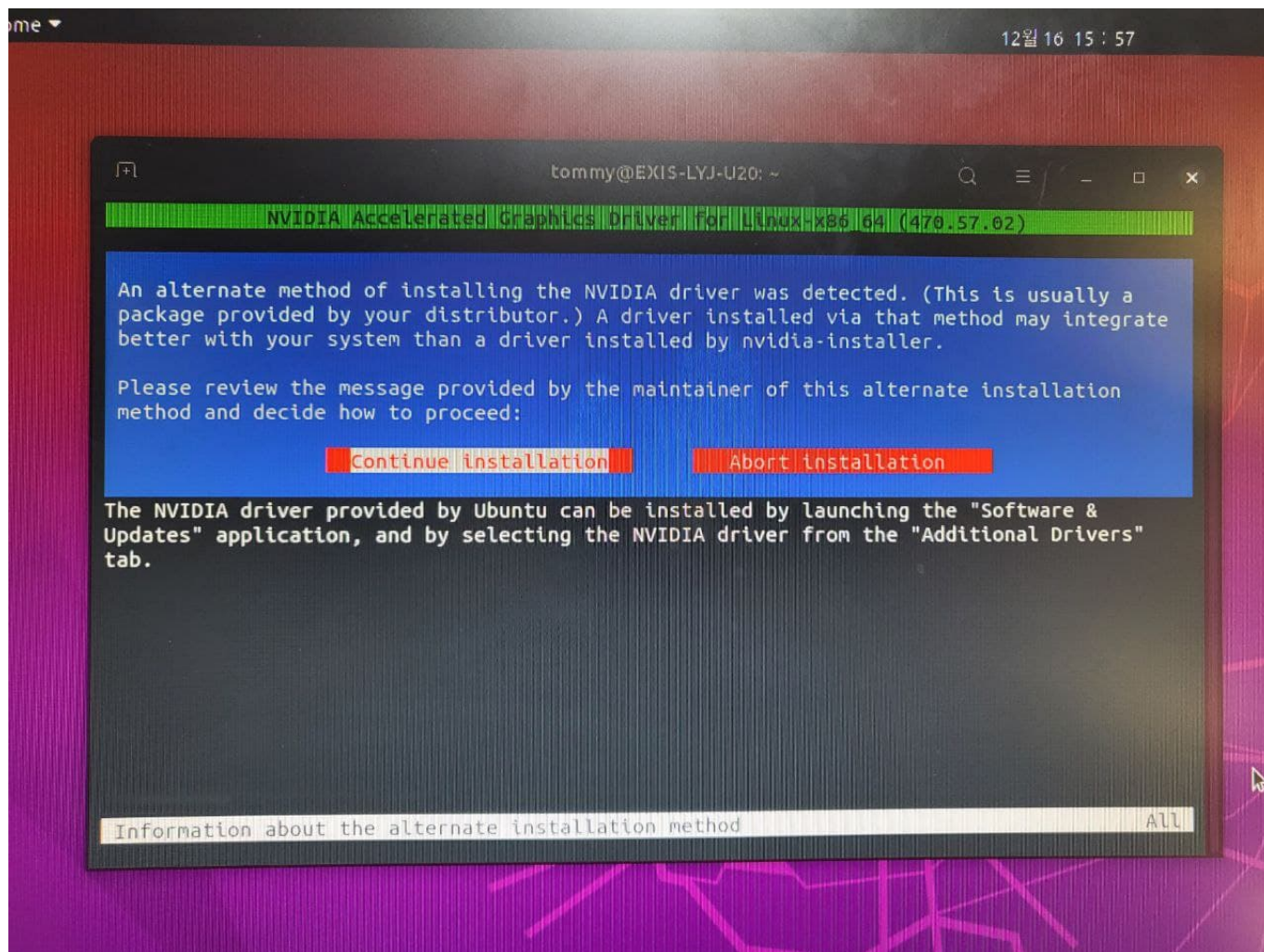


graphic driver

준비

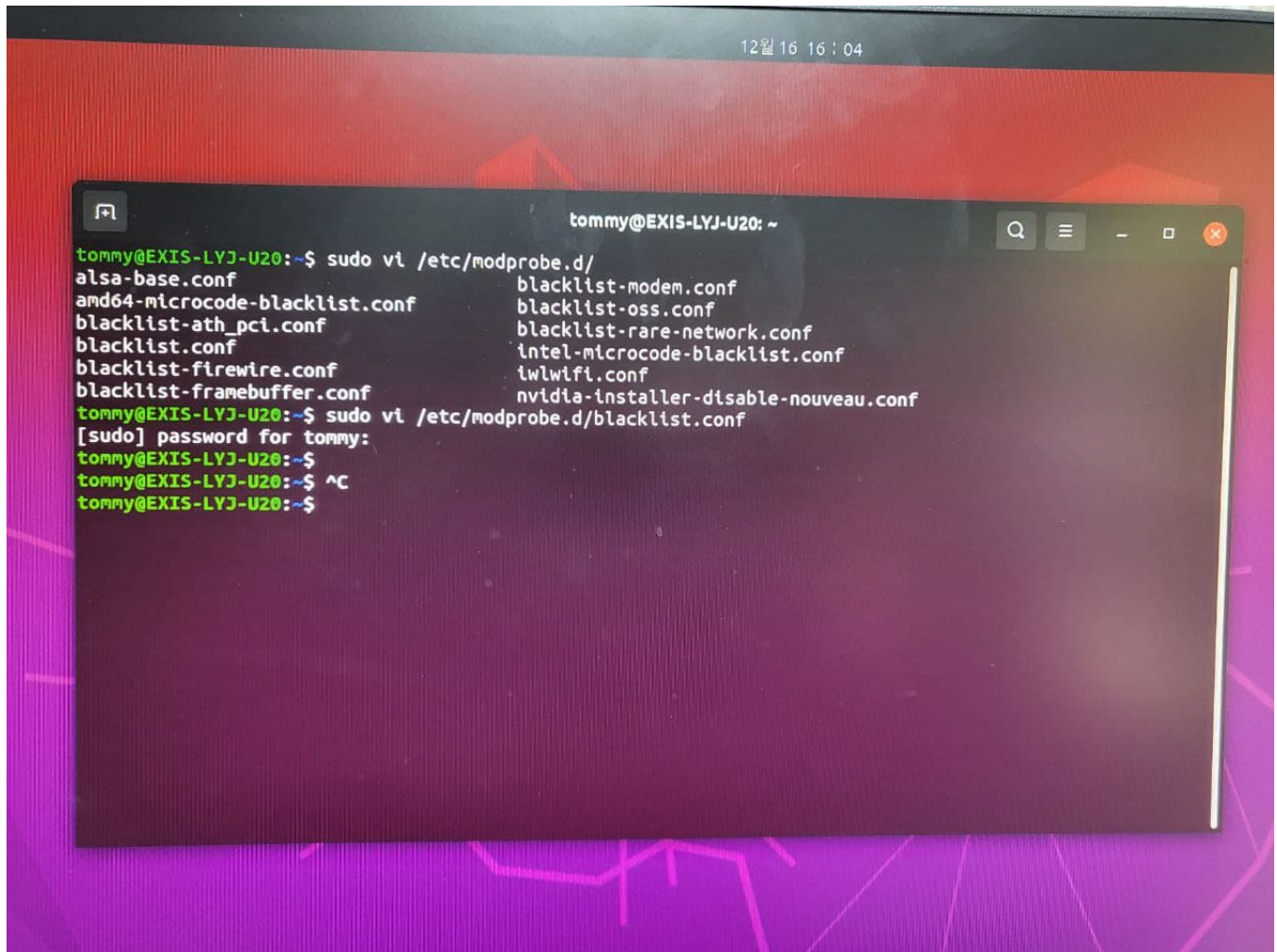
```
## graphic driver

$ sudo apt-get update
$ sudo apt-get install -y build-essential curl gcc ssh git net-tools vim
$ sudo bash -c "echo blacklist nouveau >> /etc/modprobe.d/blacklist.conf"
$ sudo bash -c "echo options nouveau modeset=0 >> /etc/modprobe.d/blacklist.conf"
# cat /etc/modprobe.d/blacklist-nvidia-nouveau.conf
# sudo bash -c "echo blacklist nouveau > /etc/modprobe.d/blacklist-nvidia-nouveau.conf"
# sudo bash -c "echo options nouveau modeset=0 >> /etc/modprobe.d/blacklist-nvidia-nouveau.conf"
$ sudo update-initramfs -u
```

이렇게 나오면 오류!

cat /etc/modprobe.d/blacklist.conf 에서 맨 마지막에



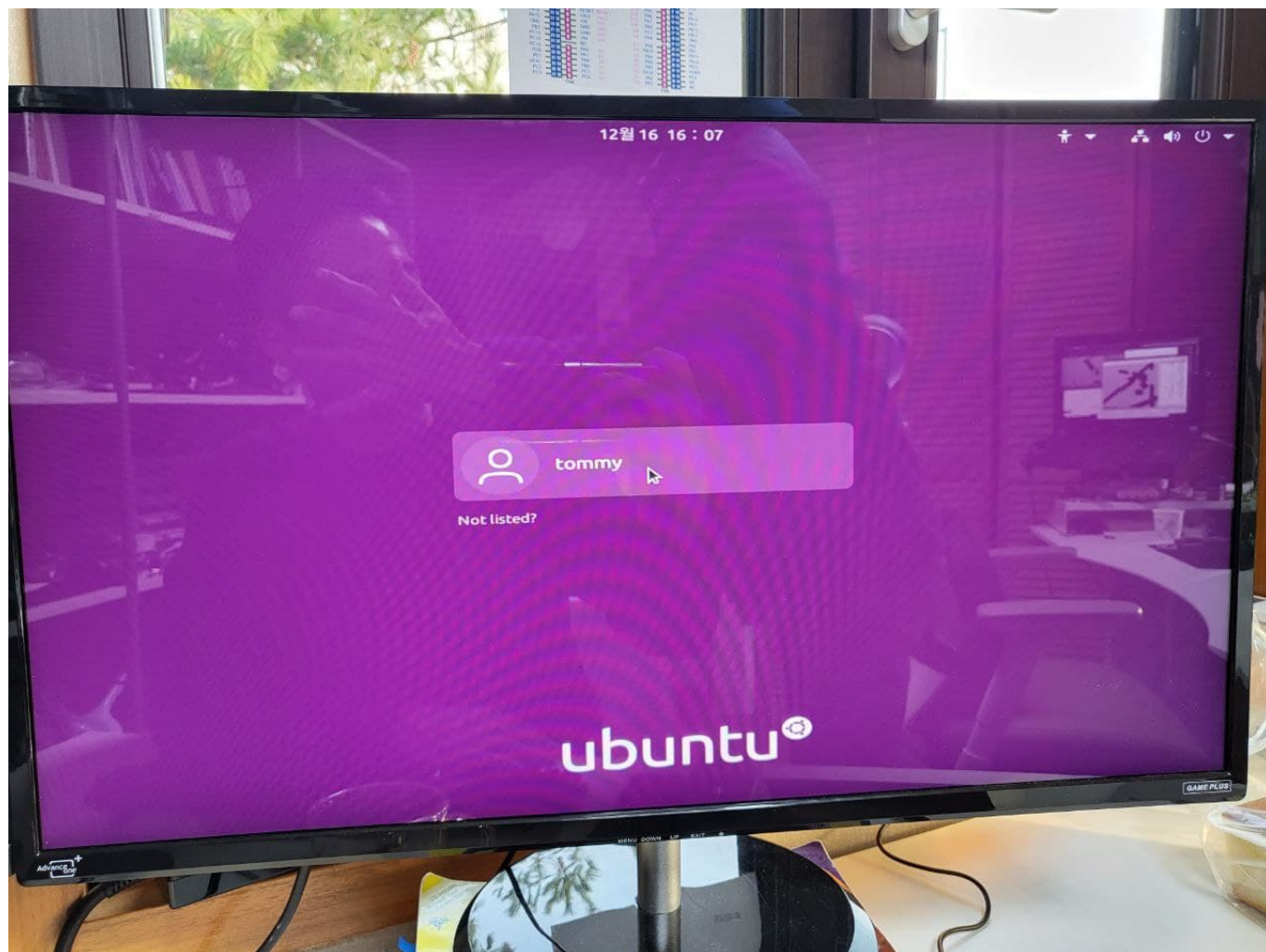
```
# /etc/modprobe.d/blacklist.conf  
blacklist nouveau  
options nouveau modeset=0
```

이 내용이 들어가고 `sudo update-initramfs -u` 재시작 끝나고 나면 이상없이 설치 가능


```
tommy@EXIS-LYJ-U20: ~  
blacklist prism54  
# replaced by b43 and ssb.  
blacklist bcm43xx  
# most apps now use garmin usb driver directly (Ubuntu: #114565)  
blacklist garmin_gps  
# replaced by asus-laptop (Ubuntu: #184721)  
blacklist asus_acpi  
# low-quality, just noise when being used for sound playback, causes  
# hangs at desktop session start (Ubuntu: #246969)  
blacklist snd_pcspp  
# ugly and loud noise, getting on everyone's nerves; this should be done by a  
# nice pulseaudio bing (Ubuntu: #77010)  
blacklist pcspkr  
# EDAC driver for amd76x clashes with the agp driver preventing the aperture  
# from being initialised (Ubuntu: #297750). Blacklist so that the driver  
# continues to build and is installable for the few cases where its  
# really needed.  
blacklist amd76x_edac  
blacklist nouveau  
options nouveau modeset=0  
"/etc/modprobe.d/blacklist.conf" 54L, 1562C
```

다 되면 재시작

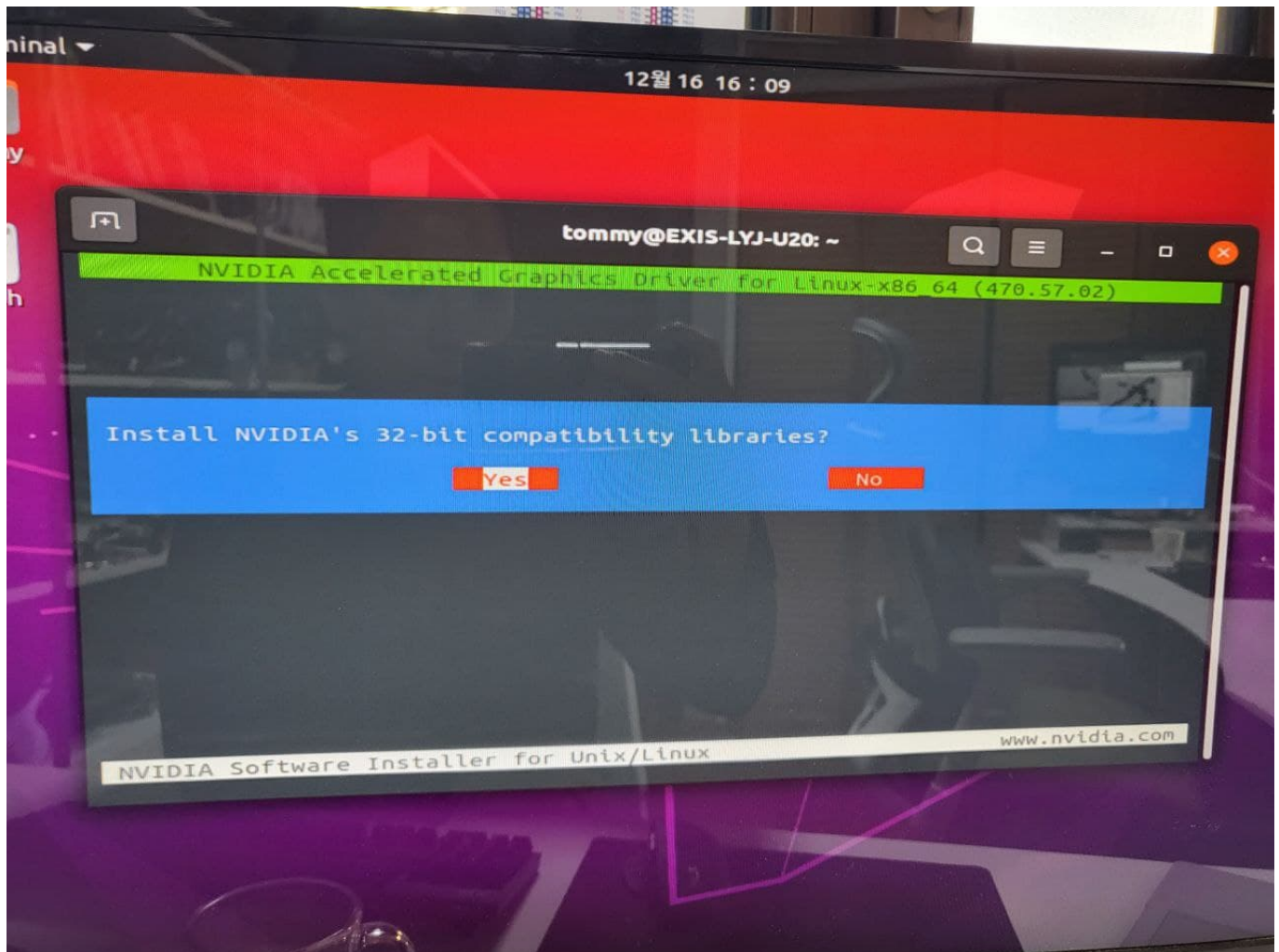
sudo reboot

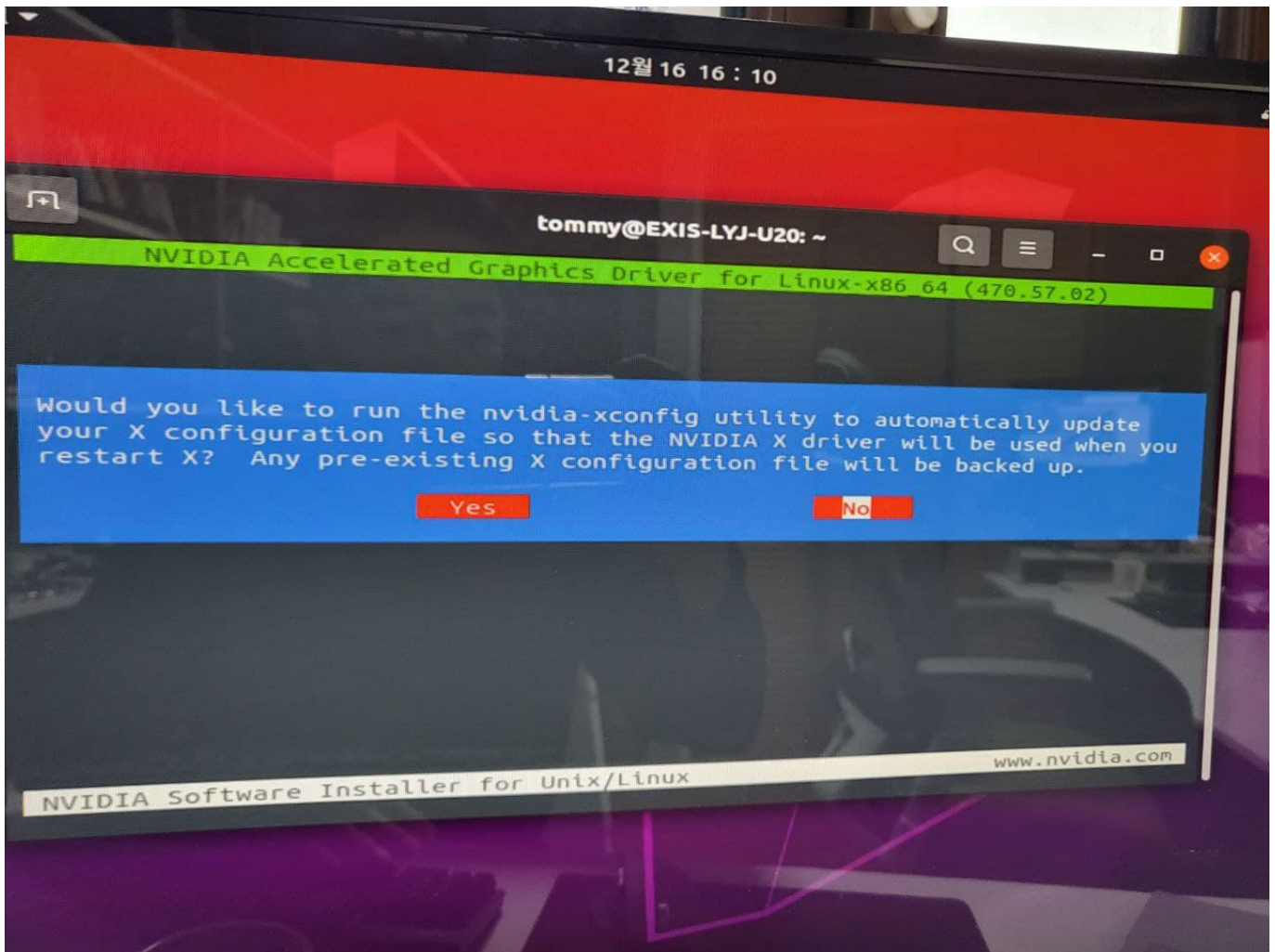


처음 해서 그래픽 좋게 보일때 보다 다시 안좋게 보이면 잘 되고 있는것.

설치

```
$ wget https://us.download.nvidia.com/XFree86/Linux-x86_64/470.57.02/NVIDIA-Linux-x86_64-470.57.02.run
$ chmod +x NVIDIA-Linux-x86_64-470.57.02.run
$ sudo ./NVIDIA-Linux-x86_64-470.57.02.run
```





확인

```
$ nvidia-smi
```

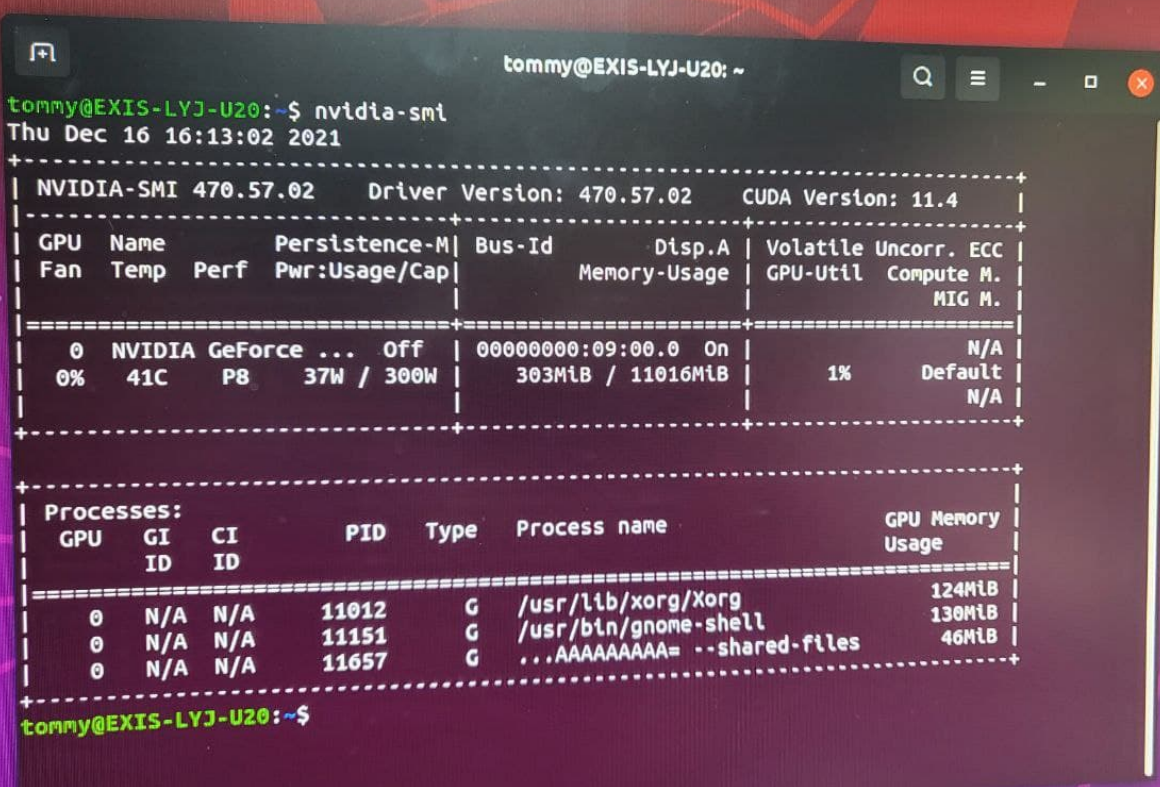


```

~ | fish
~ | fish 86x38
(~) >>> nvidia-smi
Wed Dec 15 22:52:13 2021
22:52:08
+-----+
| NVIDIA-SMI 470.57.02      Driver Version: 470.57.02      CUDA Version: 11.4      |
+-----+-----+-----+
| GPU   Name                Persistence-M| Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp  Perf  Pwr:Usage/Cap|      Memory-Usage | GPU-Util  Compute M. |
|                                           MIG M. |
+-----+-----+-----+
|  0  NVIDIA RTX A6000      Off          | 00000000:01:00.0 On  |          Off         |
| 30%   39C   P8     31W / 300W | 2262MiB / 48662MiB |      2%    Default   |
|                                           N/A               |
+-----+-----+-----+

+-----+
| Processes: |
| GPU   GI    CI          PID    Type    Process name                        GPU Memory |
|      ID    ID              |              |                     Usage            |
+-----+-----+-----+
|  0   N/A   N/A         1424     G   /usr/lib/xorg/Xorg                   526MiB |
|  0   N/A   N/A         1643     G   /usr/bin/gnome-shell                 112MiB |
|  0   N/A   N/A         2126     G   ...mviewer/tv_bin/TeamViewer         48MiB |
|  0   N/A   N/A         4789     G   ...AAAAAAAA= --shared-files          48MiB |
|  0   N/A   N/A         8626     G   ...wnloads/Telegram/Telegram        72MiB |
|  0   N/A   N/A        10032     G   ...b/virtualbox/VirtualBoxVM        880MiB |
|  0   N/A   N/A        13934     G   ...token=8635800768795608059        81MiB |
|  0   N/A   N/A        14021     G   .../2020.3.11f1/Editor/Unity        280MiB |
|  0   N/A   N/A        16622     G   Unity                               4MiB |
|  0   N/A   N/A        32393     G   ...AAAAAAAA= --shared-files        198MiB |
+-----+
(~) >>> 
22:52:13

```



```

tommy@EXIS-LYJ-U20: ~
tommy@EXIS-LYJ-U20:~$ nvidia-smi
Thu Dec 16 16:13:02 2021

+-----+
| NVIDIA-SMI 470.57.02   | Driver Version: 470.57.02   | CUDA Version: 11.4   |
+-----+-----+
| GPU  Name            Persistence-M| Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp  Perf    Pwr:Usage/Cap|      Memory-Usage | GPU-Util  Compute M. |
|====+=====+===+=====+=====+=====+=====+
| 0 NVIDIA GeForce ...  Off      | 00000000:09:00.0 On  |          N/A         |
| 0%   41C    PB      37W / 300W   | 303MiB / 11016MiB |      1%    Default   |
|                                  |                      | N/A             |
+-----+-----+

+-----+
| Processes:                 |
| GPU  GI    CI          PID  Type  Process name                  | GPU Memory |
|      ID    ID                         |            | Usage       |
+-----+-----+
| 0     N/A   N/A       11012   G     /usr/lib/xorg/Xorg            | 124MiB     |
| 0     N/A   N/A       11151   G     /usr/bin/gnome-shell          | 130MiB     |
| 0     N/A   N/A       11657   G     ...AAAAAAAA= --shared-files   | 46MiB      |
+-----+

tommy@EXIS-LYJ-U20:~$

```

여기서 이상 없어야 통과. 안되면 다시

CUDA

Ubuntu 18.04 일땐

- [CUDA 10.2](#)

ubuntu 20.04 일땐

- [CUDA 11.1](#)

CUDA Toolkit 10.2 Download

Select Target Platform

Click on the green buttons that describe your target platform. Only supported platforms will be shown.

Operating System

Windows Linux Mac OSX

Architecture

x86_64 ppc64le

Distribution

Fedora OpenSUSE RHEL CentOS SLES Ubuntu

Version

18.04 16.04

Installer Type

runfile (local) deb (local) deb (network) cluster (local)

Download Installers for Linux Ubuntu 18.04 x86_64

The base installer is available for download below.

There are 2 patches available. These patches require the base installer to be installed first.

Base Installer

Installation Instructions:

```
$ wget https://developer.download.nvidia.com/compute/cuda/10.2/Prod/local_installers/cuda_10.2.89_440.33.01_linux.run
$ sudo sh cuda_10.2.89_440.33.01_linux.run
```

Patch 1 (Released Aug 26, 2020)

Download (121.5 MB) 

This patch fixes an issue in the cuBLAS library bundled in CUDA 10.2 which caused silent corruption of data in uncommon edge cases.

Patch 2 (Released Nov 17, 2020)

Download (121.5 MB) 

This patch fixes an issue in cuBLAS library batched GEMM APIs which caused silent corruption of data in uncommon cases with large batch counts in mixed precision and fast math.

CUDA Toolkit 11.1.0

Please Note: Due to an incompatibility issue, we advise users to defer updating to Linux Kernel 5.9+ until mid-November when an NVIDIA Linux GPU driver update with Kernel 5.9+ support is expected to be available.

Select Target Platform

Click on the green buttons that describe your target platform. Only supported platforms will be shown. By downloading and using the software, you agree to fully comply with the terms and conditions of the [CUDA EULA](#).

Operating System

Linux Windows

Architecture

x86_64 ppc64le sbsa

Distribution

CentOS Debian Fedora OpenSUSE RHEL SLES Ubuntu WSL-Ubuntu

Version

20.04 18.04 16.04

Installer Type

runfile (local) deb (local) deb (network)

Download Installer for Linux Ubuntu 20.04 x86_64

The base installer is available for download below.

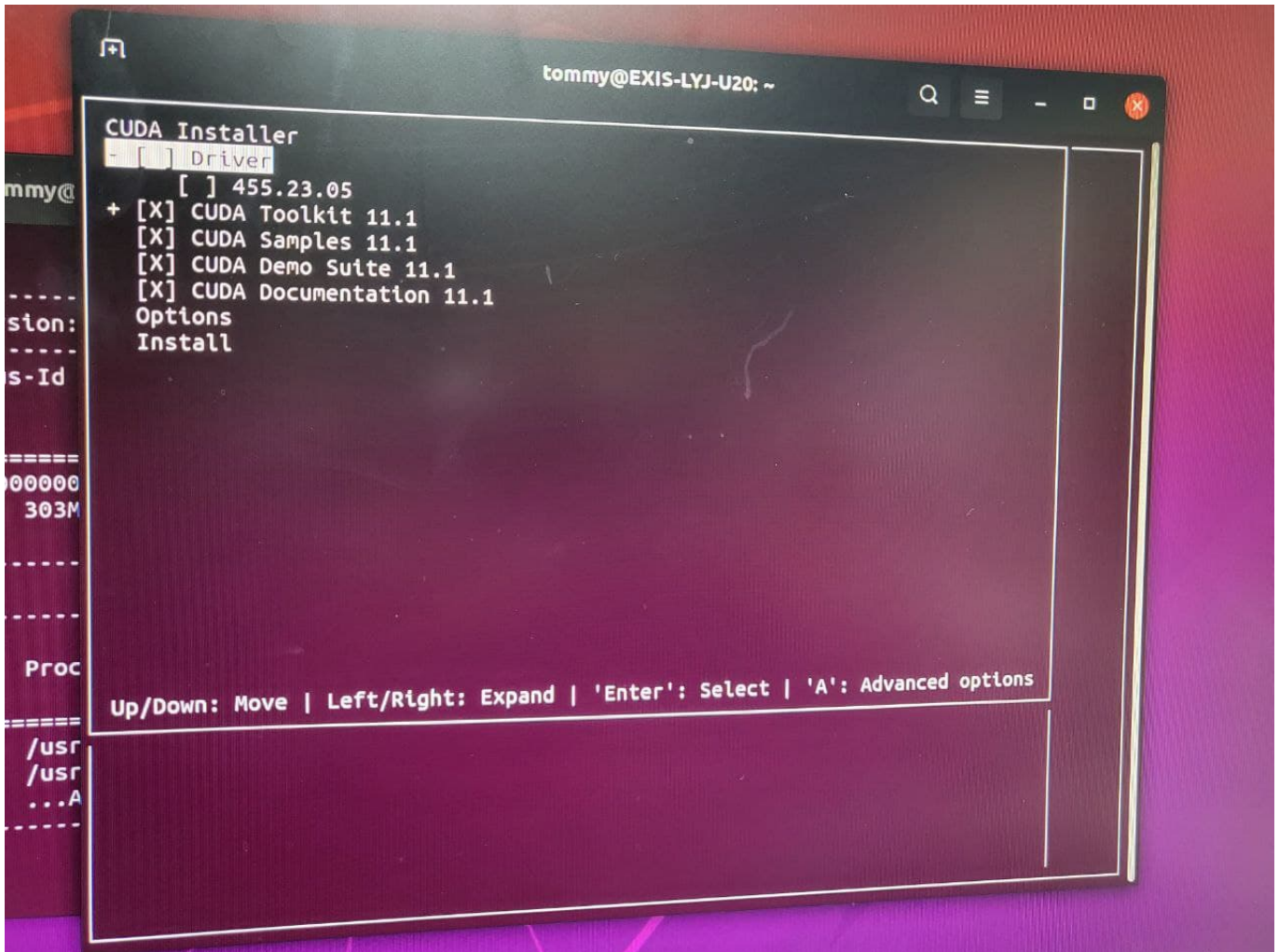
Base Installer

Installation Instructions:

```
$ wget https://developer.download.nvidia.com/compute/cuda/11.1.0/local_installers/cuda_11.1.0_455.23.05_linux.run
$ sudo sh cuda_11.1.0_455.23.05_linux.run
```



```
# cuda install
$ sudo apt-get update
$ wget
https://developer.download.nvidia.com/compute/cuda/11.1.0/local_installers/
cuda_11.1.0_455.23.05_linux.run
$ sudo sh ./cuda_11.1.0_455.23.05_linux.run
```



- CUDA 버전에 맞춰서 경로지정 11.1
- CUDA 버전에 맞춰서 경로지정 10.2

```
# ~/.bashrc
$ sudo bash -c "echo export PATH=/usr/local/bin:$PATH >> ~/.bashrc"
$ sudo bash -c "echo export PATH=/usr/local/cuda-11.1/bin${PATH:+:${PATH}}
>> ~/.bashrc"
$ sudo bash -c "echo LD_LIBRARY_PATH=/usr/local/cuda-
11.1/lib64:${LD_LIBRARY_PATH:+:${LD_LIBRARY_PATH}} >> ~/.bashrc"
$ source ~/.bashrc
```

-->

```
# ~/.bashrc
export PATH=/usr/local/bin:$PATH
export PATH=/usr/local/cuda-11.1/bin${PATH:+:${PATH}}
export LD_LIBRARY_PATH=/usr/local/cuda-11.1/lib64:${LD_LIBRARY_PATH:+:${LD_LIBRARY_PATH}}
```

-->

여기까지 설정 완료 시

```
nvcc --version
```

완료된 모습

```
nw@hpc01:~$ nvcc --version
nvcc: NVIDIA (R) Cuda compiler driver
Copyright (c) 2005-2019 NVIDIA Corporation
Built on Wed_Oct_23_19:24:38_PDT_2019
Cuda compilation tools, release 10.2, V10.2.89
nw@hpc01:~$
```

PyTorch

```
# install torch
$ sudo apt-get update
$ sudo apt-get install python3-pip -y
$ pip3 install torch==1.8.0+cu111 torchvision==0.9.0+cu111
torchaudio==0.8.0 -f https://download.pytorch.org/whl/torch_stable.html
```

(optional)

dotnet

```
# dotnet
$ sudo apt-get update
$ sudo apt-get install -y apt-transport-https
$ sudo apt-get update
$ sudo apt-get install -y dotnet-sdk-6.0
$ sudo apt-get update
$ sudo apt-get install -y apt-transport-https
$ sudo apt-get update
$ sudo apt-get install -y aspnetcore-runtime-6.0
```

[다시 # Home main 으로](#)