

set ubuntu

- 명령어 참고 `chmod`

graphic driver

설치

```
## graphic driver

$ sudo apt-get update
$ sudo apt-get install -y build-essential curl gcc ssh git net-tools vim
$ 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

```

들

여기서 이상 없어야 통과. 안되면 다시

CUDA

- [CUDA 10.2](#)
- [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 10.2

```
# ~/.bashrc
export PATH=/usr/local/bin:$PATH
export PATH=/usr/local/cuda-10.2/bin${PATH:+:${PATH}}
export LD_LIBRARY_PATH=/usr/local/cuda-
10.2/lib64:${LD_LIBRARY_PATH:+:${LD_LIBRARY_PATH}}
```

```
source ~/.bashrc
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
$ 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](#)