**Instructions for CUDA v11.3 and cuDNN 8.2 installation on Ubuntu 20.04**

### Steps ###

# verify the system has a cuda-capable gpu

# download and install the nvidia cuda toolkit and cudnn

# setup environmental variables

# verify the installation

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### to verify your gpu is cuda enable check

lspci | grep -i nvidia

### If you have previous installation remove it first.

sudo apt-get purge nvidia\*

sudo apt remove nvidia-\*

sudo rm /etc/apt/sources.list.d/cuda\*

sudo apt-get autoremove && sudo apt-get autoclean

sudo rm -rf /usr/local/cuda\*

### system update

sudo apt-get update

sudo apt-get upgrade

### install other import packages

sudo apt-get install g++ freeglut3-dev build-essential libx11-dev libxmu-dev libxi-dev libglu1-mesa libglu1-mesa-dev

# first get the PPA repository driver

sudo add-apt-repository ppa:graphics-drivers/ppa

sudo apt update

# install nvidia driver with dependencies

sudo apt install libnvidia-common-470

sudo apt install libnvidia-gl-470

sudo apt install nvidia-driver-470

wget https://developer.download.nvidia.com/compute/cuda/repos/ubuntu2004/x86\_64/cuda-ubuntu2004.pin

sudo mv cuda-ubuntu2004.pin /etc/apt/preferences.d/cuda-repository-pin-600

wget https://developer.download.nvidia.com/compute/cuda/11.4.0/local\_installers/cuda-repo-ubuntu2004-11-4-local\_11.4.0-470.42.01-1\_amd64.deb

sudo dpkg -i cuda-repo-ubuntu2004-11-4-local\_11.4.0-470.42.01-1\_amd64.deb

sudo apt-key add /var/cuda-repo-ubuntu2004-11-4-local/7fa2af80.pub

sudo apt-get update

sudo apt-get -y install cuda

# installing CUDA-11.4

sudo apt install cuda-11-4

# setup your paths

echo 'export PATH=/usr/local/cuda-11.4/bin:$PATH' >> ~/.bashrc

echo 'export LD\_LIBRARY\_PATH=/usr/local/cuda-11.4/lib64:$LD\_LIBRARY\_PATH' >> ~/.bashrc

source ~/.bashrc

sudo ldconfig

# install cuDNN v11.4

CuDNN doesn't come with Cuda. To [download CuDNN](https://developer.nvidia.com/cudnn) you need to register to become a member of the NVIDIA Developer Program which is free.

# First register here: https://developer.nvidia.com/developer-program/signup

After registering in NVIDIA Developer Program you can download the latest version of cuDNN. Here I am downloading the cuDNN Library for Linux.

First, extract the cuDNN package:

tar -xzvf cudnn-11.4-linux-x64-v8.2.4.15.tgz

# copy the following files into the cuda toolkit directory.

sudo cp -P cuda/include/cudnn.h /usr/local/cuda-11.4/include

sudo cp -P cuda/lib64/libcudnn\* /usr/local/cuda-11.4/lib64/

sudo chmod a+r /usr/local/cuda-11.4/lib64/libcudnn\*

# Reboot the system

reboot

# Finally, to verify the installation, check

nvidia-smi

nvcc -V