Installing Tensorflow GPU on Ubuntu 18.04 LTS

I wanted to detail here what I did to get tensorflow-gpu working with my fresh Ubuntu 18.04 LTS install. NVIDIA doesn't have any official downloads for Ubuntu 18.04 yet, but you can get things to work with the available files for Ubuntu 17.04.

Check your NVIDIA driver version

The first thing you should check is that you have an Nvidia driver installed for your graphics card. Your graphics card must support at least Nvidia compute 3.0 to install tensorflow-gpu.

You can check what graphics driver you have installed with the `nvidia-smi` command. You should see some output like the following:

```
➜ nvidia-smi
Fri Apr 27 15:43:16 2018
+-----------------------------------------------------------------------------+
| NVIDIA-SMI 390.48                 Driver Version: 390.48                    |
|-------------------------------+----------------------+----------------------+
| GPU  Name        Persistence-M| Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp  Perf  Pwr:Usage/Cap|         Memory-Usage | GPU-Util  Compute M. |
|===============================+======================+======================|
|   0  GeForce GTX 1050    Off  | 00000000:01:00.0 Off |                  N/A |
| N/A   49C    P0    N/A /  N/A |    538MiB /  4042MiB |      1%      Default |
+-------------------------------+----------------------+----------------------+

+-----------------------------------------------------------------------------+
| Processes:                                                       GPU Memory |
|  GPU       PID   Type   Process name                             Usage      |
|=============================================================================|
|    0      1569      G   /usr/lib/xorg/Xorg                            28MiB |
```

The driver version you have installed is near the top left next to "NVIDIA-SMI". I've got nvidia-390 installed.

If you don't have a proper driver installed, go do that now.

```
$ sudo add-apt-repository ppa:graphics-drivers/ppa
$ sudo apt update
```

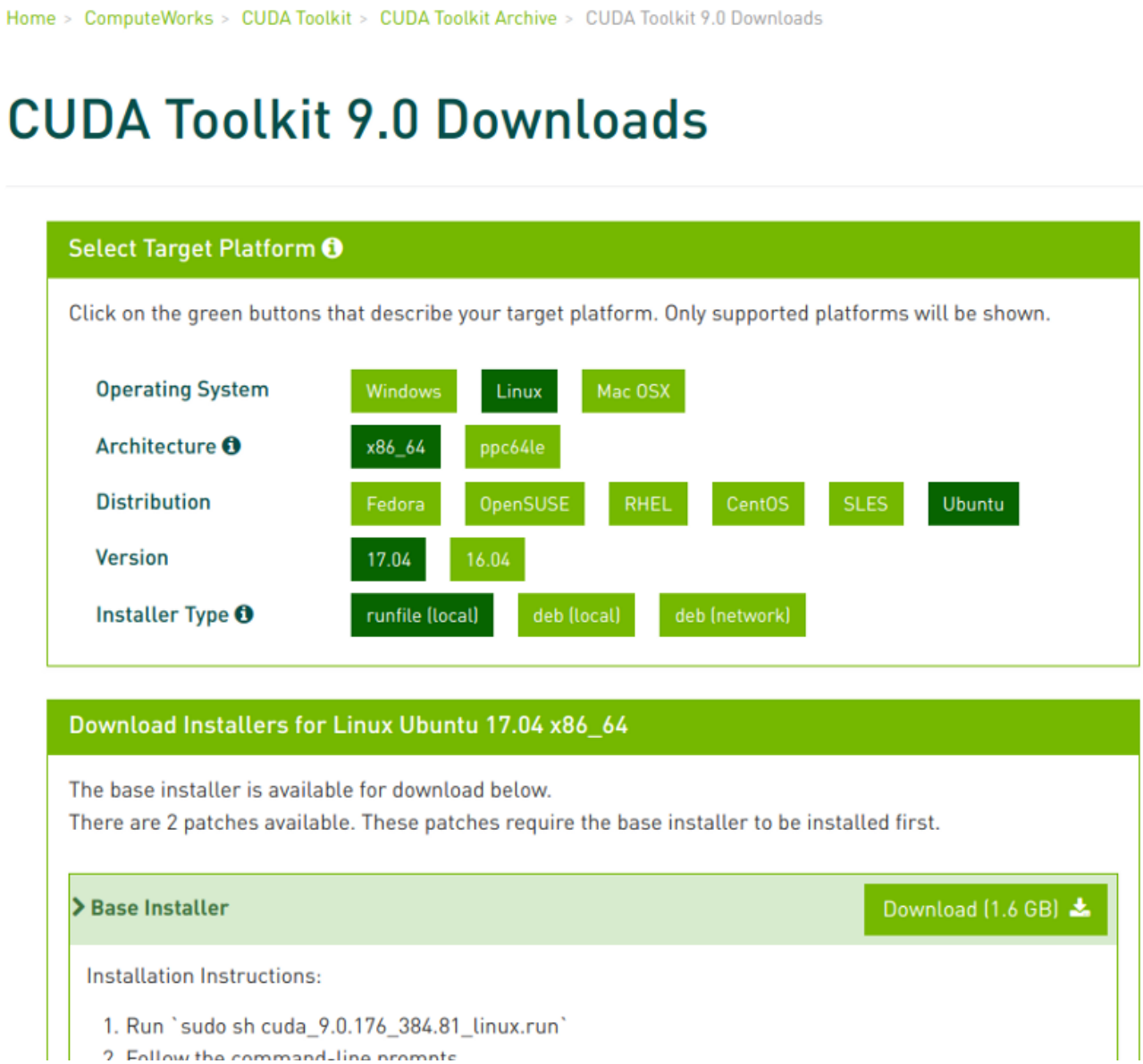
```
$ sudo apt install nvidia-390
```

```
$ reboot
```

Install CUDA Toolkit 9.0

- gcc/g++ --version 확인 후 6 이하로 설정할 것

Head over to https://developer.nvidia.com/cuda-toolkit and grab the the runfile download for Ubuntu 17.04. While this is for a different version of Ubuntu, you can get it to install what you need. You'll have to go to the legacy downloads archive page to find version 9.0.



Runfile download page. Grab the file from the Base Installer link.

Once you've got that file, navigate to where the file was downloaded in your terminal and do

```
sudo chmod +x cuda_9.0.176_384.81_linux.run
./cuda_9.0.176_384.81_linux.run --override
```

Accept the terms and conditions, say `yes` to installing with an unsupported configuration, and `no` to "Install NVIDIA Accelerated Graphics Driver for Linux-x86_64 384.81?". **Make sure you don't agree to install the new driver.** In my experience, doing so often leads to system instability issues. Follow the prompts to install the toolkit using the default install locations.

Install CUDNN 7.0

Next, head to https://developer.nvidia.com/cudnn to get CUDNN 7.0. Go to the downloads archive page again and find version 7.0 for CUDA 9.0 that you just installed. Download the link that says "cuDNN v7.0.5 Library for Linux". This will download an archive that you can unpack and move the contents the correct locations.

There are lots of options on the archive downloads page for CUDNN. Get the Library for Linux file for CUDA 9.0.

Once downloaded, unpack the archive and move it the contents into the directory where you install CUDA 9.0:

```
# Unpack the archive
tar -zxvf cudnn-9.0-linux-x64-v7.tgz
```

```
# Move the unpacked contents to your CUDA directory
sudo cp -P cuda/lib64/libcudnn* /usr/local/cuda-9.0/lib64/
sudo cp  cuda/include/cudnn.h /usr/local/cuda-9.0/include/
```

```
# Give read access to all users
sudo chmod a+r /usr/local/cuda-9.0/include/cudnn.h /usr/local/cuda/lib64/libcudnn*
```

Install libcupti

This one is easy.

```
sudo apt-get install libcupti-dev
```

Do the CUDA post-install actions

So Tensorflow can find your CUDA installation and use it properly, you need to add these lines to the end of you `~/.bashrc` or `~/.zshrc`.

```
export PATH=/usr/local/cuda-9.0/bin${PATH:+:${PATH}}
export LD_LIBRARY_PATH=/usr/local/cuda/lib64:${LD_LIBRARY_PATH:+:${LD_LIBRARY_PATH}}
```

Restart your terminal before proceeding to the next step.

```
$ nvcc --version
```

Install Tensorflow GPU

Finally, to install tensorflow-gpu run

```
pip install --upgrade tensorflow-gpu


sess = tf.Session(config=tf.ConfigProto(log_device_placement=True))
```

I recommend installing tensorflow in a virtualenv to prevent having to muck around with your system Python packages. The official Tensorflow install instructions give various options, so you can choose what works best for you. If you choose the virtualenv route, I highly recommend using virtualenvwrapper, which makes using virtualenv far easier.

https://medium.com/@taylordenouden/installing-tensorflow-gpu-on-ubuntu-18-04-89a142325138