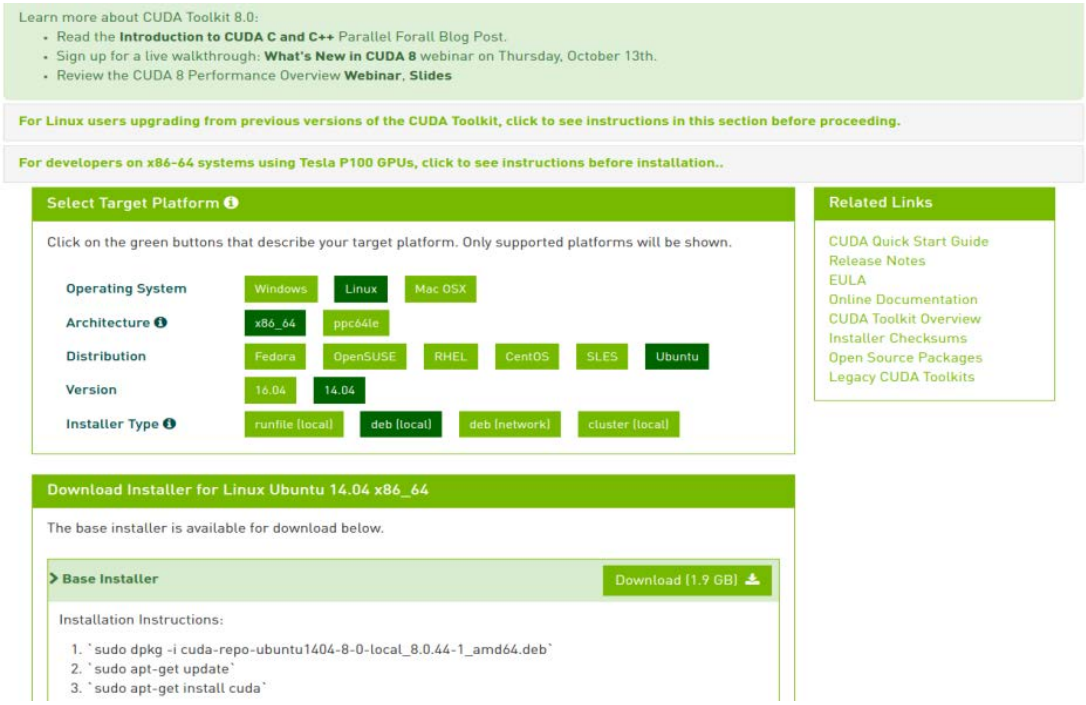
Instruction to set-up Tensorflow for deep learning with CUDA (Ubuntu 14.04 64bit.)

1, install CUDA

a, From the link below download CUDA tookit 8.0:

https://developer.nvidia.com/cuda-downloads

b, follow the instructions provided at the download page.



c, add path to “bashrc” file.

(Type in command line “gedit ~/.bashrc”, and then append the following to this bashrc file.

```
# add cuda libraries to library path
if [[ "${LD_LIBRARY_PATH}" != "" ]]
then
    export LD_LIBRARY_PATH=/usr/local/cuda/lib64:${LD_LIBRARY_PATH}
else
    export LD_LIBRARY_PATH=/usr/local/cuda/lib64
fi
```

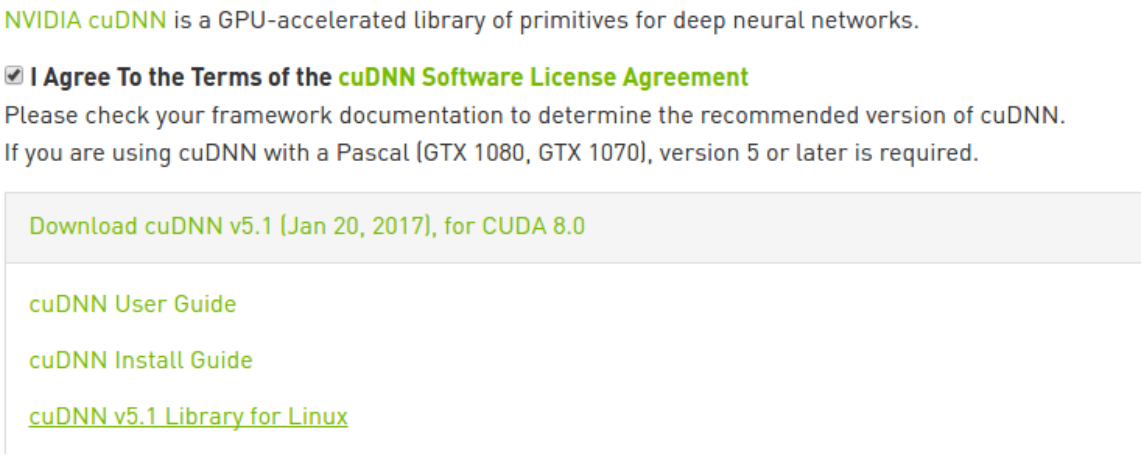
Test CUDA installation by typing nvcc --version in terminal, you should see something similar:

```
nvcc: NVIDIA (R) Cuda compiler driver
Copyright (c) 2005-2016 NVIDIA Corporation
Built on Sun_Sep__4_22:14:01_CDT_2016
Cuda compilation tools, release 8.0, V8.0.44
```

2, Install CuDNN

a, register and download CuDNN from following link.

https://developer.nvidia.com/cudnn



b, after download the cuDNN v5.1 Library, unzip the file and copy to CUDA libraries by doing

sudo cp lib64/* /usr/local/cuda/lib64/
sudo cp include/* /usr/local/cuda/include/
sudo chmod a+r /usr/local/cuda/lib64/libcudnn*
(make sure the package is downloaded completely and unzipped successfully.)

3, Install Tensorflow (I only show pip install which is the easiest one)
(https://www.tensorflow.org/get_started/os_setup#pip_installation)

Ubuntu/Linux 64-bit, CPU only, Python 2.7 (if you do not need GPU enabled, optional)

$ export TF_BINARY_URL=https://storage.googleapis.com/tensorflow/linux/cpu/tensorflow-0.12.1-cp27-none-linux_x86_64.whl

If you do not have CUDA, skip the following 4 lines and continue on page 3.

Ubuntu/Linux 64-bit, GPU enabled, Python 2.7

Requires CUDA toolkit 8.0 and CuDNN v5.

$ export TF_BINARY_URL=https://storage.googleapis.com/tensorflow/linux/gpu/tensorflow_gpu-0.12.1-cp27-none-linux_x86_64.whl

sudo pip install --upgrade $TF_BINARY_URL

pip install tensorflow (if no CUDA enabled)

or

pip install tensorflow-gpu

check GPU is enabled:

Open python environment by typing python in terminal, and type in import tensorflow as tf, you will see

```
>>> import tensorflow as tf
I tensorflow/stream_executor/dso_loader.cc:128] successfully opened CUDA library libcublas.so locally
I tensorflow/stream_executor/dso_loader.cc:128] successfully opened CUDA library libcudnn.so locally
I tensorflow/stream_executor/dso_loader.cc:128] successfully opened CUDA library libcufft.so locally
I tensorflow/stream_executor/dso_loader.cc:128] successfully opened CUDA library libcuda.so.1 locally
I tensorflow/stream_executor/dso_loader.cc:128] successfully opened CUDA library libcurand.so locally
>>>
```

Done!