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Google Cloud Deep Learning Kit Ubuntu 16.04 Software Installation GPU

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Contents

1	Manual installation	3
1.1	Chromium	3
1.2	CUDA 9.0 and CUDA-Toolkit	3
1.3	cuDNN 6.0	4
1.4	Phyton 3.5	4
1.5	Phyton 2.7	4
1.6	Additional Python Packages	5
1.7	Pycharm	5
1.8	Deep Learning Frameworks	5
1.8.1	Torch and ZeroBraneStudio	5
1.8.2	Caffe	6
1.8.3	Tensorflow	7
1.8.4	Theano	7
1.8.5	Keras	8
1.8.6	Pytorch	8
1.8.7	Caffe2	8

1 Manual installation

1.1 Chromium

1. Log in to your google cloud console.
2. Choose compute engine and create an instance.
3. Customize the VM and get an instance with 1 GPU.
4. Set up your SSH key and then create instance.
5. After the instance is created you can log in couple of ways, SSH browser, Terminal or MobaXterm.
6. In this tutorial we used MobaXterm.
7. Now you setup your MobaXterm and use the external IP address as host and your username that you set up for public key.
8. Log in to your Linux terminal and lets install chromium. Click on the hyperlink below and enter all the commands in the not Notepad one by one.

Chromium

1.2 CUDA 9.0 and CUDA-Toolkit

9. Open your chromium browser in VM by chromium in terminal.
10. Lets log in to Nvidia developer [website](#)
11. Choose Linux, x86_64, Ubuntu, 16.04 and click on debfile.
12. Download the deb file and its patch.
13. Click on the hyperlink below and enter all the commands in the not Notepad one by one.

CUDA

14. Once nano is open edit the PATH variable to include /usr/local/cuda-9.0/bin folder.
15. It should be like this:

16. `PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/usr/local/cuda-9.0/bin"`
17. After editing this line press Ctrl + X to exit the editor and press Y when prompted whether you want to save it.
18. Click on the hyperlink below and enter all the commands in the not Notepad one by one.

CUDA-Continue

1.3 cuDNN 6.0

19. Now, we need to install cuDNN to complete the GPU installation build for frameworks.
20. Open your chromium browser in VM by typing chromium in terminal.
21. Lets log in to Nvidia developer [website](#).
22. Next, download the cuDNN 7.5 for Cuda 9.0 for ubuntu 16.04 (cuDNN v7.0 Library for Linux).
23. Click on the hyperlink below and enter all the commands in the not Notepad one by one.

cuDNN

1.4 Python 3.5

24. Install Python 3

Python3

1.5 Python 2.7

25. Install Python 2.7

Python2.7

1.6 Additional Python Packages

26. Install Additional python packages.

Additional python packages

1.7 Pycharm

27. Open your chromium browser in VM by typing chromium in terminal.
28. Lets log [website](#).
29. Download pycharm-community_2016.3.3-1_all.deb file.
30. Click on the hyperlink below and enter all the commands in the not Notepad one by one.

Pycharm

31. You can run the editor by entering pycharm-community.

1.8 Deep Learning Frameworks

1.8.1 Torch and ZeroBraneStudio

32. Lets install torch.

Torch

33. Open your chromium browser in VM by typing chromium in terminal.
34. Lets log in to ZeroBraneStudio [website](#).
35. Download the Linux version.
36. Click on the hyperlink below and enter all the commands in the not Notepad one by one.

ZeroBraneStudio

37. You can run the editor by entering zbstudio.
38. To test that the Torch is working. Download gputest.lua from [here](#).
39. Click on the hyperlink below and enter all the commands in the not Notepad one by one.

Torch Test

1.8.2 Caffe

40. Lets install Caffe. Run the following command in the hyperlink below
41. Disregard the next 2 steps if you did not get any error.
42. You could have "TypeError: 'NoneType' object is not callable" error when installing pillow, then try:
43. `sudo apt-get install pypy-dev`

Caffe

44. Edit the following command after the vi Makefile.config.
45. Uncomment the line: `USE_CUDNN := 1`
46. Make sure the `CUDA_DIR` correctly points to our CUDA installation.
47. If you want the Matlab wrapper, uncomment the appropriate `MATLAB_DIR` line.
48. Now we build Caffe. Set X to the number of CPU threads (or cores) on your machine (in the Notepad jX). Use the command `htop` to check how many CPU threads you have.
49. Click on the hyperlink below and enter all the commands in the not Notepad one by one.


```
PYTHON_INCLUDE := /usr/include/python2.7 /usr/local/lib/python2.7/dist-packages/numpy/core/include/ /usr/lib/python2.7/dist-packages/numpy/core/include
WITH_PYTHON_LAYER := 1
INCLUDE_DIRS := $(PYTHON_INCLUDE) /usr/local/include /usr/include/hdf5/serial
LIBRARY_DIRS := $(PYTHON_LIB) /usr/local/lib /usr/lib /usr/lib/x86_64-linux-gnu /usr/lib/x86_64-linux-gnu/hdf5/serial
CUDA_DIR := /usr/local/cuda-9.0
```

50. Comment all the compute 20 and compute 30.

Caffe Continue 1

51. After you did the `sudo nano ~/.bashrc`. At the end of the script add the following command. `Ctrl+x` and hit the `y` key on your keyboard and enter.
52. `export PYTHONPATH=/home/ajafari/caffe/python`
53. Now run the all the commands in the Notepad and Caffe should point to directory to python path.

Caffe Continue 2

54. Open python and import Caffe to test everything is working.

1.8.3 Tensorflow

55. Lets install tensorflow gpu.

Tensorflow GPU

56. To activate the tensorflow for python 2.7 enter `source ~/tensorflow2/bin/activate`.
57. To activate the tensorflow for python 3.5 enter `source ~/tensorflow3/bin/activate`.
58. Then you can open up pycharm and choose the interpreter based on the python that you choosed.

1.8.4 Theano

59. Lets install theano.

Theano

60. To check theano work on gpu, you need to set the flags.
61. Follow the instruction on the website [website](#)

1.8.5 Keras

62. Lets install keras.

Keras

1.8.6 Pytorch

63. Lets install Pytorch.

Pytorch

1.8.7 Cafffe2

64. Lets install Cafffe2.

Caffe2