

# 在ubuntu 16.04 LTS上安裝CUDA與cuDNN

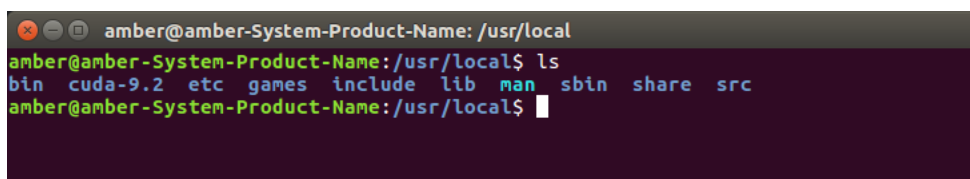
## 安裝CUDA Toolkit 9.0 及 cuDNN v7

- TensorFlow GPU support 連結 (<https://reurl.cc/rlzvO>)
- NVIDIA CUDA Installation Guide for Linux 連結 (<https://reurl.cc/pDqvb>)
- Ubuntu安裝和卸載CUDA和CUDNN (<https://reurl.cc/e50MQ>)

如先前有安裝過不同版本的CUDA請先解除安裝（參考步驟1）,若沒有則直接跳至步驟2

1. 解安裝CUDA 9.2 連結 (<https://reurl.cc/LEyA>)

```
1 | sudo apt-get autoremove --purge cuda
```

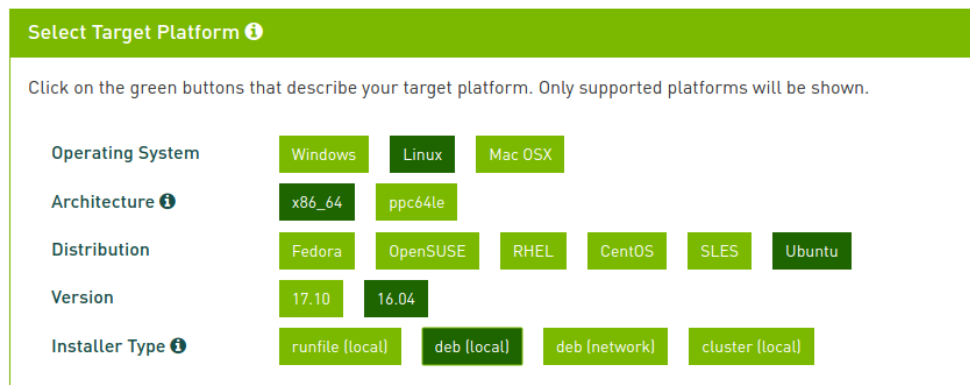


切換到cuda的安裝路徑,一般為/usr/local/

刪除殘留資料夾 連結 ([https://blog.csdn.net/qq\\_33200967/article/details/80689543#%E5%8D%B8%E8%BD%BDcuda](https://blog.csdn.net/qq_33200967/article/details/80689543#%E5%8D%B8%E8%BD%BDcuda))

```
1 | cd /usr/local/  
2 | rm -rf cuda-9.2/
```

2. 安裝CUDA 9.0 下載連結 (<https://reurl.cc/VaGMY>)



在 ~/Downloads 下,執行下列指令：

```
1 | sudo dpkg -i cuda-repo-ubuntu1604-9-0-local_9.0.176-1_amd64.deb  
2 | sudo apt-key add /var/cuda-repo-9-0-local/7fa2af80.pub  
3 | sudo apt-get update  
4 | sudo apt-get install cuda-9-0
```

安裝結束後,需要將cuda的路徑新增到環境變數,開啟 ~/.bashrc

```
1 | vi ~/.bashrc
```

vi操作說明 [連結] (<https://reurl.cc/Na5IQ>)

如何修改環境變數 [連結1] (<https://reurl.cc/EKq6R>) [連結2] (<https://reurl.cc/4gkd3>)

將下列指令放到 ~/.bashrc 的最後面

```

1 export CUDA_HOME=/usr/local/cuda-9.0
2 export LD_LIBRARY_PATH=${CUDA_HOME}/lib64
3 export PATH=${CUDA_HOME}/bin:${PATH}

```

執行 :wq 存檔離開

最後使用下列指令使其生效,並查看CUDA的版本

```

1 sudo ldconfig #使環境變數生效
2 cat /usr/local/cuda/version.txt #查看CUDA的版本

```

顯示 CUDA Version 9.0.176

### 3. 安裝cuDNN 下載連結 (<https://developer.nvidia.com/cudnn>)

備註：需要註冊帳號才能下載

找其他版本,選擇**Archived cuDNN Releases**

NVIDIA cuDNN is a GPU-accelerated library of primitives for deep neural networks.

☒ I Agree To the Terms of the [cuDNN Software License Agreement](#)

Note: Please refer to the [Installation Guide](#) for release prerequisites, including supported GPU architectures and compute capabilities, before downloading.

For more information, refer to the cuDNN Developer Guide, Installation Guide and Release Notes on the [Deep Learning SDK Documentation](#) web page.

[Download cuDNN v7.1.4 \[May 16, 2018\], for CUDA 9.2](#)

[Download cuDNN v7.1.4 \[May 16, 2018\], for CUDA 9.0](#)

[Download cuDNN v7.1.4 \[May 16, 2018\], for CUDA 8.0](#)

[Archived cuDNN Releases](#)

我下載的是 **cuDNN v7.0.5 Library for Linux**

[Download cuDNN v7.0.5 \[Dec 5, 2017\], for CUDA 9.0](#)

[cuDNN Developer Guide](#)

[cuDNN Install Guide](#)

[cuDNN Release Notes](#)

[cuDNN v7.0.5 Library for Linux](#)

[cuDNN v7.0.5 Library for Linux \(Power8\)](#)

[cuDNN v7.0.5 Library for Windows 7](#)

[cuDNN v7.0.5 Library for Windows 10](#)

[cuDNN v7.0.5 Runtime Library for Ubuntu16.04 \(Deb\)](#)

[cuDNN v7.0.5 Developer Library for Ubuntu16.04 \(Deb\)](#)

[cuDNN v7.0.5 Code Samples and User Guide for Ubuntu16.04 \(Deb\)](#)

[cuDNN v7.0.5 Runtime Library for Ubuntu14.04 \(Deb\)](#)

[cuDNN v7.0.5 Developer Library for Ubuntu14.04 \(Deb\)](#)

[cuDNN v7.0.5 Code Samples and User Guide for Ubuntu14.04 \(Deb\)](#)

下載之後是一個壓縮檔,到Downloads下對其解壓縮

```
tar -zxvf cudnn-9.0-linux-x64-v7.tgz
```

解壓縮後得到下列文件

```

1 cuda/include/cudnn.h
2 cuda/NVIDIA_SL_A_cuDNN_Support.txt
3 cuda/lib64/libcudnn.so
4 cuda/lib64/libcudnn.so.7
5 cuda/lib64/libcudnn.so.7.0.5
6 cuda/lib64/libcudnn_static.a

```

接著複製這些文件到CUDA下

```

1 sudo cp cuda/lib64/* /usr/local/cuda-9.0/lib64/
2 sudo cp cuda/include/* /usr/local/cuda-9.0/include/

```

之後可用下列指令查看cuDNN版本資訊

```
1 | cat /usr/local/cuda/include/cudnn.h | grep CUDNN_MAJOR -A 2
```