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Data Science

Jupyter notebooks the easy way! (with GPU support)

How to setup a GPU-powered Jupyter Notebook on the cloud via Paperspace.

5 years ago • 2 min read

 By Dillon

1. Create a Paperspace GPU machine

You can choose any of our GPU types (GPU+/P5000/P6000). For this tutorial we are just going to pick the default Ubuntu 16.04 base template.

important: you will need to add a public IP address to be able to access to Jupyter notebook that we are creating. Make sure to select that option. If you forgot, you can always add it later through the console

2. Install CUDA / Docker / nvidia-docker

Here's a really simple script. Once you have SSH'ed in to your new machine, just run the script by pasting in the following to your terminal:

```
wget -O - -q 'https://gist.githubusercontent.com/dte/8954e405590a360614dcc6acdb7baa74/raw/d1b5a01ed0b9252654016d2a9a435dc8b4c045e7/install-CUDA-docker-n
```

For the curious: you can find the script here https://gist.github.com/dte/8954e405590a360614dcc6acdb7baa74

When it is done you will need to restart the machine by typing:

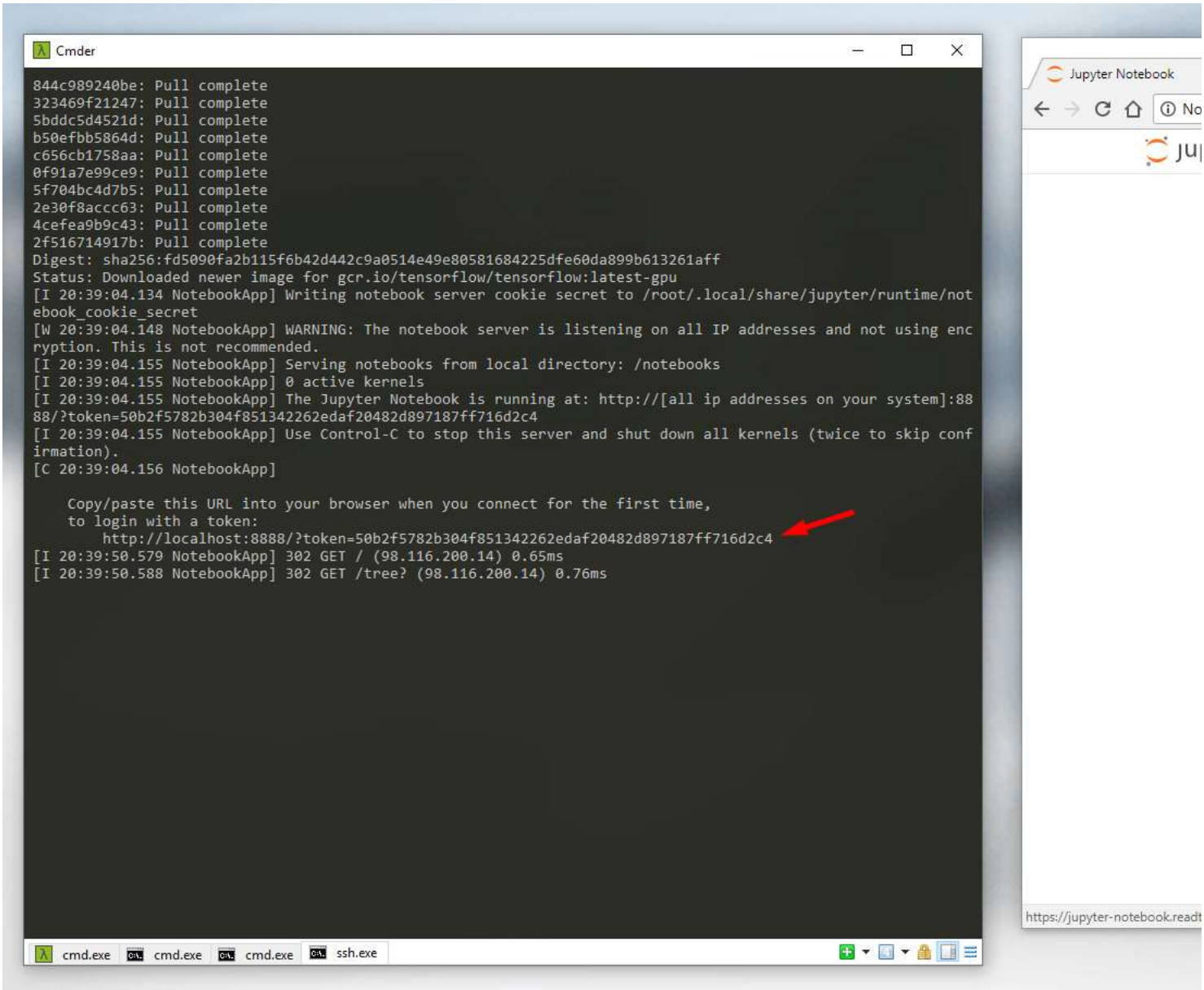
```
sudo shutdown -r now
```

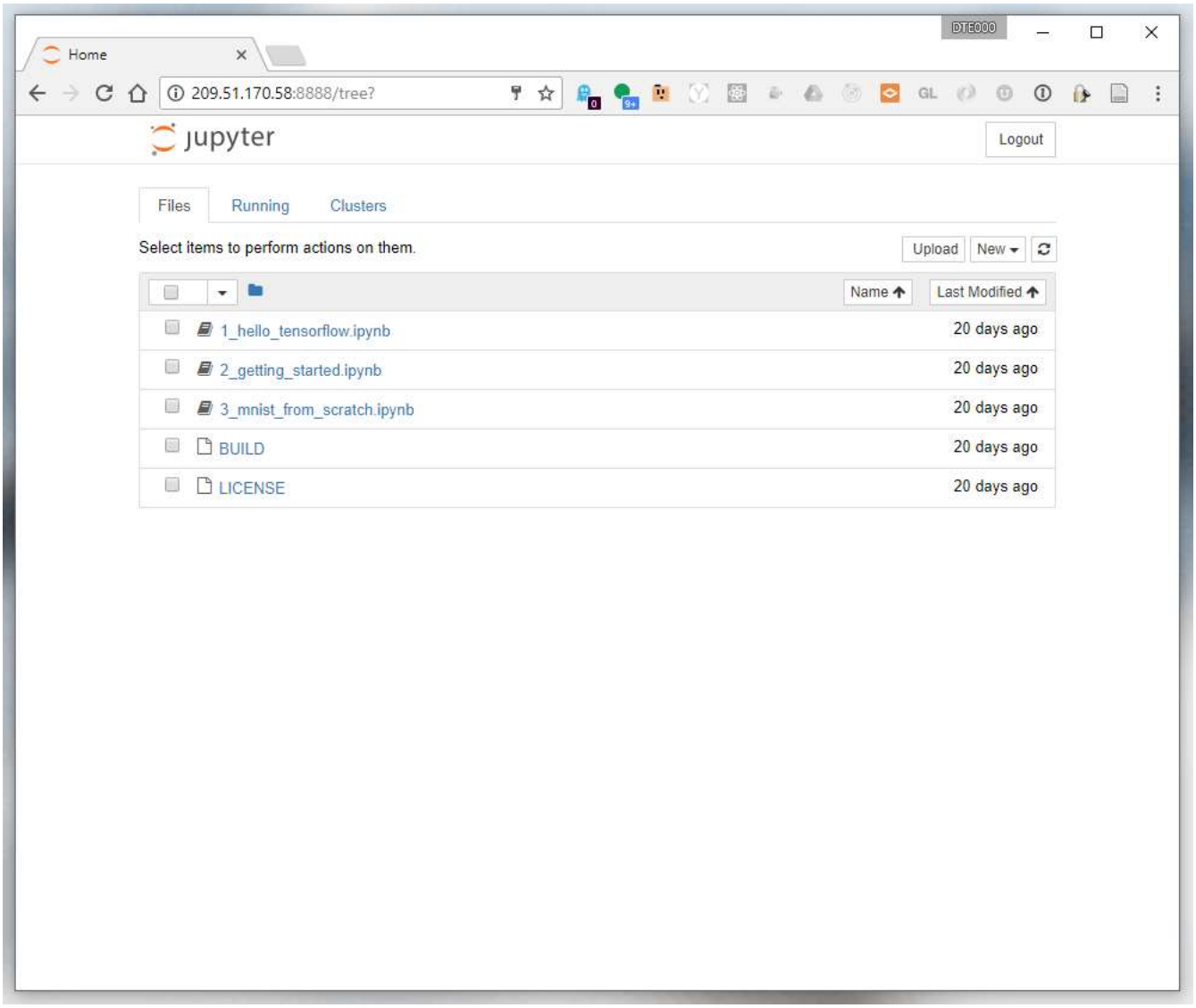
3. Run jupyter

When the machine is back up you should be good to go! Type the following to run a docker container that includes Jupyter. It will run a server on port **8888** of your machine.

```
sudo nvidia-docker run --rm --name tf-notebook -p 8888:8888 -p 6006:6006 gcr.io/tensorflow/tensorflow:latest-gpu jupyter notebook --allow-root
```

Your notebook will be accessible from any computer but going to a web browser and entering in your machine's public IP address and the port : `http://PUBLIC_IP:8888/`


Cmder
844c989240be: Pull complete
323469f21247: Pull complete
5bddc5d4521d: Pull complete
b50efbb5864d: Pull complete
c656cb1758aa: Pull complete
0f91a7e99ce9: Pull complete
5f704bc4d7b5: Pull complete
2e30f8accc63: Pull complete
4cefea9b9c43: Pull complete
2f516714917b: Pull complete
Digest: sha256:fd5090fa2b115f6b42d442c9a0514e49e80581684225dfe60da899b613261aff
Status: Downloaded newer image for gcr.io/tensorflow/tensorflow:latest-gpu
[I 20:39:04.134 NotebookApp] Writing notebook server cookie secret to /root/.local/share/jupyter/runtime/notebook_cookie_secret
[W 20:39:04.148 NotebookApp] WARNING: The notebook server is listening on all IP addresses and not using encryption. This is not recommended.
[I 20:39:04.155 NotebookApp] Serving notebooks from local directory: /notebooks
[I 20:39:04.155 NotebookApp] 0 active kernels
[I 20:39:04.155 NotebookApp] The Jupyter Notebook is running at: http://[all ip addresses on your system]:8888/?token=50b2f5782b304f851342262edaf20482d897187ff716d2c4
[I 20:39:04.155 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 20:39:04.156 NotebookApp]
Copy/paste this URL into your browser when you connect for the first time,
to login with a token:
http://localhost:8888/?token=50b2f5782b304f851342262edaf20482d897187ff716d2c4
[I 20:39:50.579 NotebookApp] 302 GET / (98.116.200.14) 0.65ms
[I 20:39:50.588 NotebookApp] 302 GET /tree? (98.116.200.14) 0.76ms
cmd.exe
cmd.exe
cmd.exe
ssh.exe
Jupyter Notebook
https://jupyter-notebook.readt

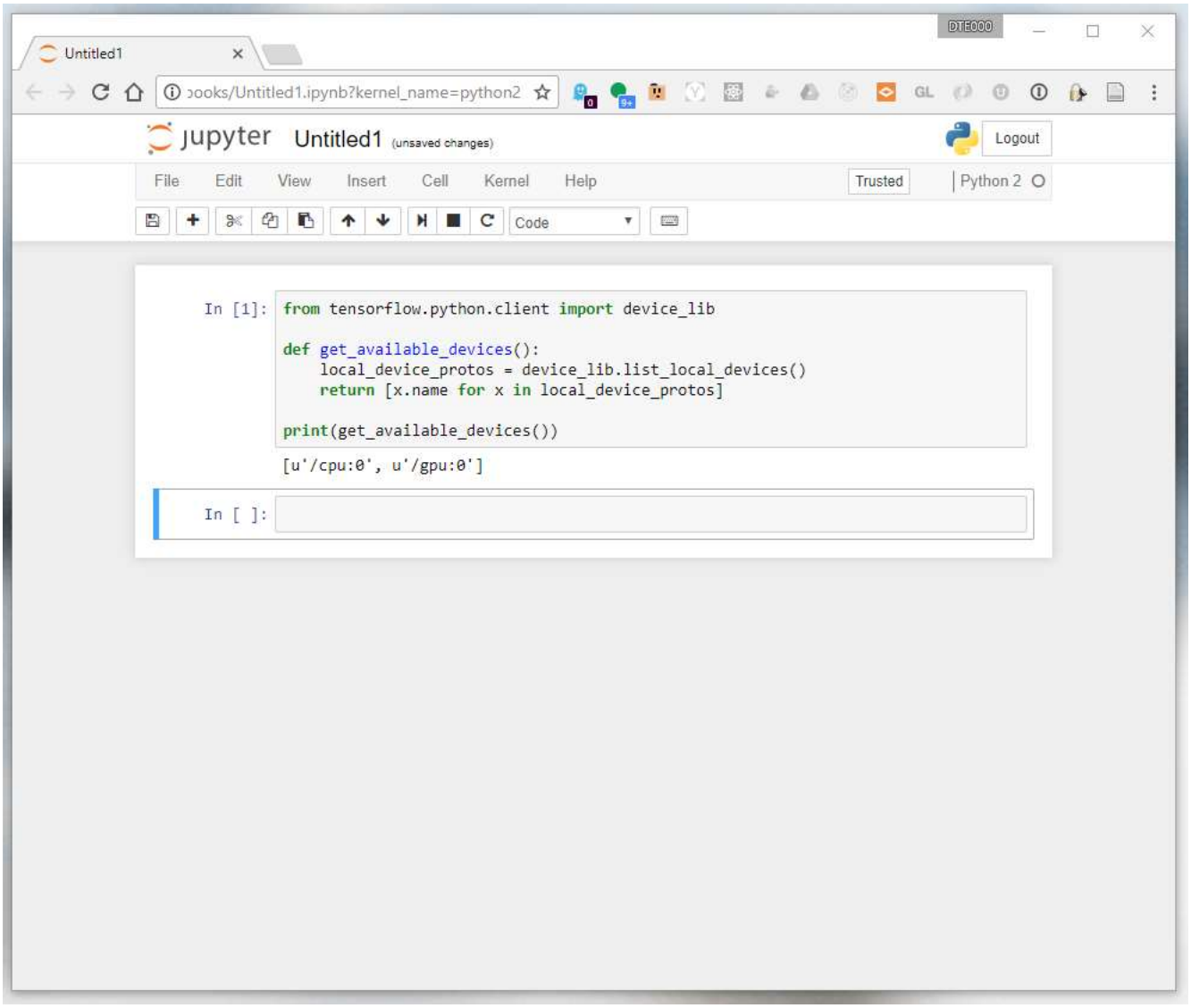


You can confirm that the GPU is working by opening a notebook and typing:

```
from tensorflow.python.client import device_lib

def get_available_devices():
    local_device_protos = device_lib.list_local_devices()
    return [x.name for x in local_device_protos]

print(get_available_devices())
```



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