

How to install and run TensorFlow on a Windows PC

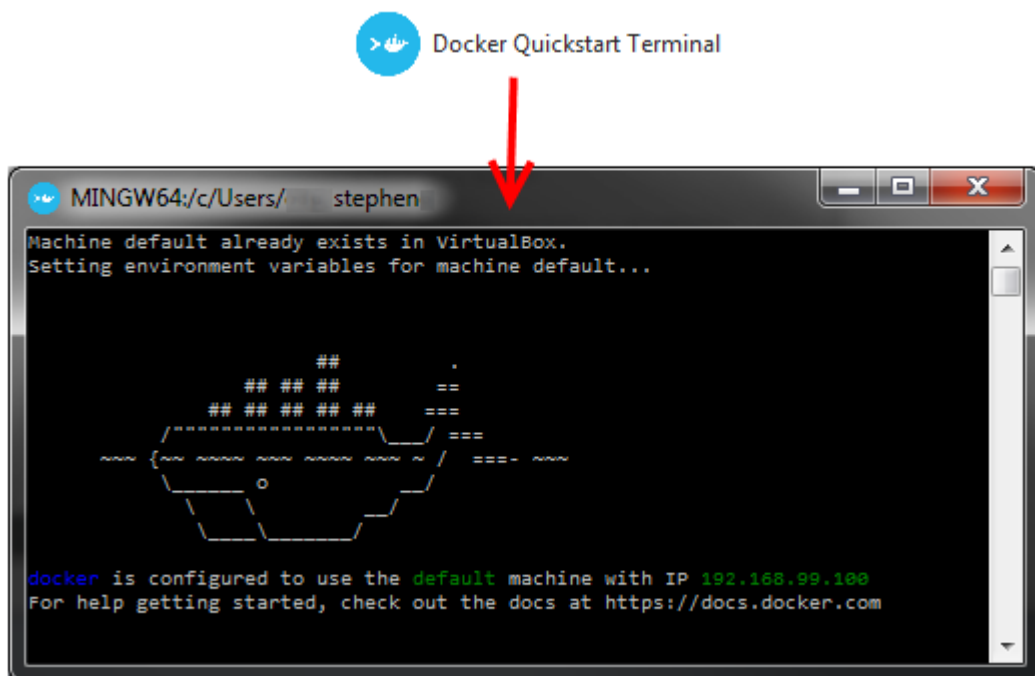
If you're involved with machine learning, you probably heard the news by now that Google open-sourced their machine learning library [TensorFlow](#) a few weeks ago. Excited to dive into TensorFlow, I went to their download and installation page and was disappointed to discover they didn't offer any support or instructions for Windows users.

But they did have a Docker image! In case you haven't heard, Docker is a container that wraps up a piece of software in a complete filesystem that contains everything it needs to run: code, runtime, system tools, and system libraries. And Docker is available on Windows.

How I was able to run TensorFlow on my Windows machine

First, I [installed the Docker toolbox for Windows](#).

Then I opened up the Docker Quickstart Terminal.



It created a default Docker machine for me. You can view the Docker machines available by typing `docker-machine ls`

I then created a second (new) Docker machine named `vdocker` by typing:

```
$ docker-machine create vdocker -d virtualbox
```

Because I was behind a corporate proxy, I had to connect to that machine and configure it to use my proxy. **This step may not be necessary for you.** If you're having other issues with Docker due to a firewall or web proxy, [see my post here](#)

```
$ docker-machine ssh vdocker
sudo -s
echo "export HTTP_PROXY=http://proxyhost:8080" >> /var/lib/boot2docker/profile
echo "export HTTPS_PROXY=http://proxyhost:8080" >> /var/lib/boot2docker/profile
exit
$ docker-machine restart vdocker
```

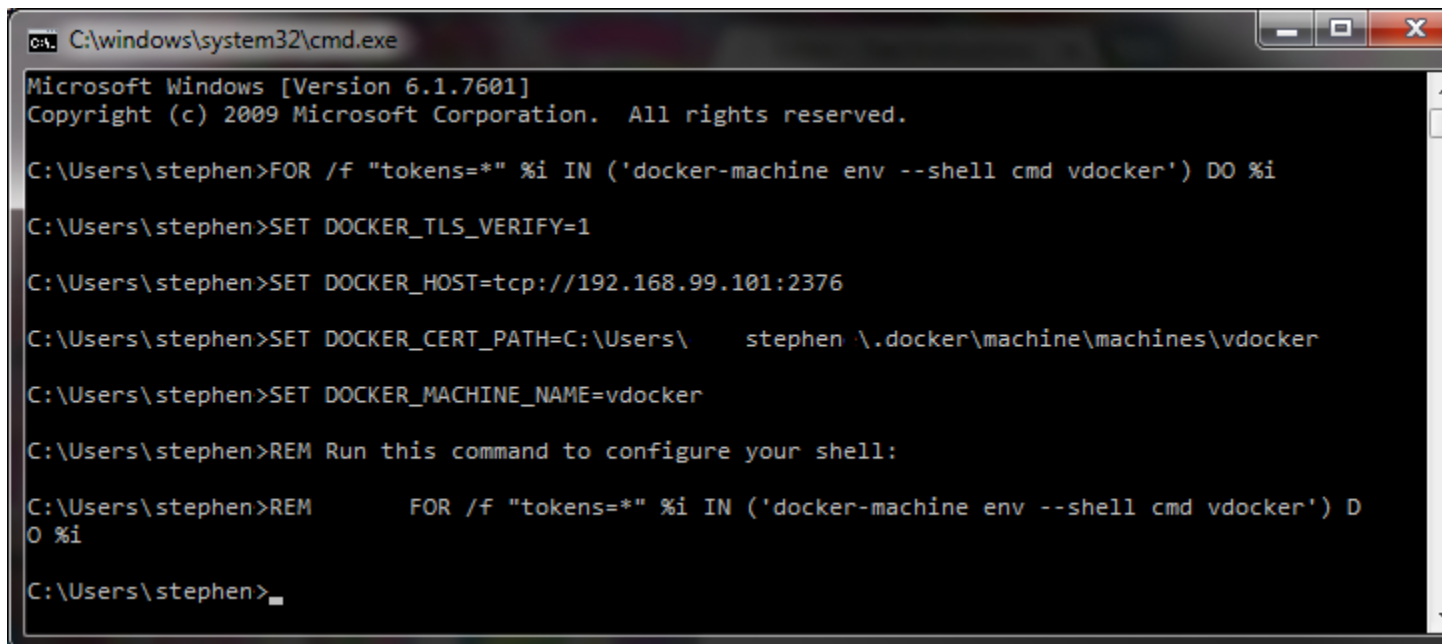
Now if you type `docker-machine ls` you should see your two Docker machines

NAME	ACTIVE	DRIVER	STATE	URL	SWARM
default	*	virtualbox	Running	tcp://192.168.99.100:2376	
vdocker	-	virtualbox	Running	tcp://192.168.99.101:2376	

Okay, now the Docker machine called 'vdocker' has been created and configured. Now to actually install TensorFlow. Open a **Windows cmd prompt** (not the Docker terminal) and enter the following:

```
FOR /f "tokens=*" %i IN ('docker-machine env --shell cmd vdocker') DO %i
```

You should see some output from the Docker machine like the following screenshot



```
C:\windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\stephen>FOR /f "tokens=*" %i IN ('docker-machine env --shell cmd vdocker') DO %i
C:\Users\stephen>SET DOCKER_TLS_VERIFY=1
C:\Users\stephen>SET DOCKER_HOST=tcp://192.168.99.101:2376
C:\Users\stephen>SET DOCKER_CERT_PATH=C:\Users\stephen\.docker\machine\machines\vdocker
C:\Users\stephen>SET DOCKER_MACHINE_NAME=vdocker
C:\Users\stephen>REM Run this command to configure your shell:
C:\Users\stephen>REM      FOR /f "tokens=*" %i IN ('docker-machine env --shell cmd vdocker') DO %i
C:\Users\stephen>_
```

Then type the following line (from the [Docker install page](#)):

```
docker run -it b.gcr.io/tensorflow/tensorflow
```

And it should start downloading the image which looks like

```
C:\windows\system32\cmd.exe - docker run -it b.gcr.io/tensorflow/tensorflow

C:\Users\stephen>docker run -it b.gcr.io/tensorflow/tensorflow
Unable to find image 'b.gcr.io/tensorflow/tensorflow:latest' locally
latest: Pulling from tensorflow/tensorflow
c63fb41c2213: Extracting 56.26 MB/65.67 MB
99fcaefe76ef: Download complete
5a4526e952f0: Download complete
1d073211c498: Download complete
fc3b69d5428a: Download complete
51666ff792cc: Download complete
934fbda38a19: Download complete
bcb5994d8a18: Download complete
f67a15164dd5: Download complete
c906b2184874: Download complete
957340752397: Download complete
55b545f9baa4: Download complete
e9bc6354df37: Download complete
da34eb7f1273: Download complete
217daf2537d2: Download complete
```

After it's done pulling the files and uncompressing them you should get a linux shell. Go ahead and type `python` and try out TensorFlow on your Windows machine*!

```
C:\windows\system32\cmd.exe - docker run -it b.gcr.io/tensorflow/tensorflow

root@b630c86b3831:/# python
Python 2.7.6 (default, Jun 22 2015, 17:58:13)
[GCC 4.8.2] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> import tensorflow as tf
>>> hello = tf.constant('Hello, TensorFlow!')
>>> sess = tf.Session()
I tensorflow/core/common_runtime/local_device.cc:25] Local device intra op parallelism threads: 1
I tensorflow/core/common_runtime/local_session.cc:45] Local session inter op parallelism threads: 1
>>> print sess.run(hello)
Hello, TensorFlow!
>>> a = tf.constant(10)
>>> b = tf.constant(32)
>>> print sess.run(a + b)
42
>>>
```

*Technically you're running TensorFlow in a Docker container in a VirtualBox Linux virtual machine running in a Windows PC.

Here's the code from the above image:

```
$ python
...
>>> import tensorflow as tf
>>> hello = tf.constant('Hello, TensorFlow!')
>>> sess = tf.Session()
>>> print sess.run(hello)
```

```
Hello, TensorFlow!  
>>> a = tf.constant(10)  
>>> b = tf.constant(32)  
>>> print sess.run(a + b)  
42  
>>>
```

Enjoy using TensorFlow on your Windows computer!