

# Care and Usage of your Azure VM

1. go to “<http://portal.azure.com>”
2. Login with your Stanford e-mail and password

# Care and Usage of your Azure VM

The image shows the Microsoft Azure portal dashboard. On the left is a dark sidebar with navigation links: Microsoft Azure, New, All resources, Resource groups, App Services, SQL databases, SQL data warehouses, DocumentDB (NoSQL), Virtual machines, Load balancers, Storage accounts, Virtual networks, Azure Active Directory, Monitor, Security Center, Billing, Help + support, and More services. A red arrow points from a red callout box to the 'All resources' link. The callout box contains the text 'Click on “All resources”'. The main area of the dashboard has a blue header with 'Dashboard' and options to create or edit dashboards, share, fullscreen, clone, or delete. Below the header is a 'Get started' section with tiles for Virtual Machines, App Service, SQL Database, Storage, Azure Portal, and Marketplace. At the bottom left of the main area is a 'Service health' widget showing a world map with green checkmarks indicating service status across various regions.

Microsoft Azure

Search resources

Dashboard + New dashboard Edit dashboard Share Fullscreen Clone Delete

**Click on “All resources”**

All resources

Resource groups

App Services

SQL databases

SQL data warehouses

DocumentDB (NoSQL)

Virtual machines

Load balancers

Storage accounts

Virtual networks

Azure Active Directory

Monitor

Security Center

Billing

Help + support

More services >

Get started

Virtual Machines  
Provision Windows and Linux virtual machines in minutes

App Service  
Create web and mobile apps for any platform and device

SQL Database  
Managed relational database-as-a-service

Storage  
Durable, highly available and massively scalable storage

Azure Portal  
Learn about how to use the Azure Portal

Marketplace

Service health  
MY RESOURCES

# Care and Usage of your Azure VM

You will see the virtual machine for your group, click on it to look at the specifications.

All resources


akundajehotmail (Default Directory)

+

 Add  Columns  Refresh

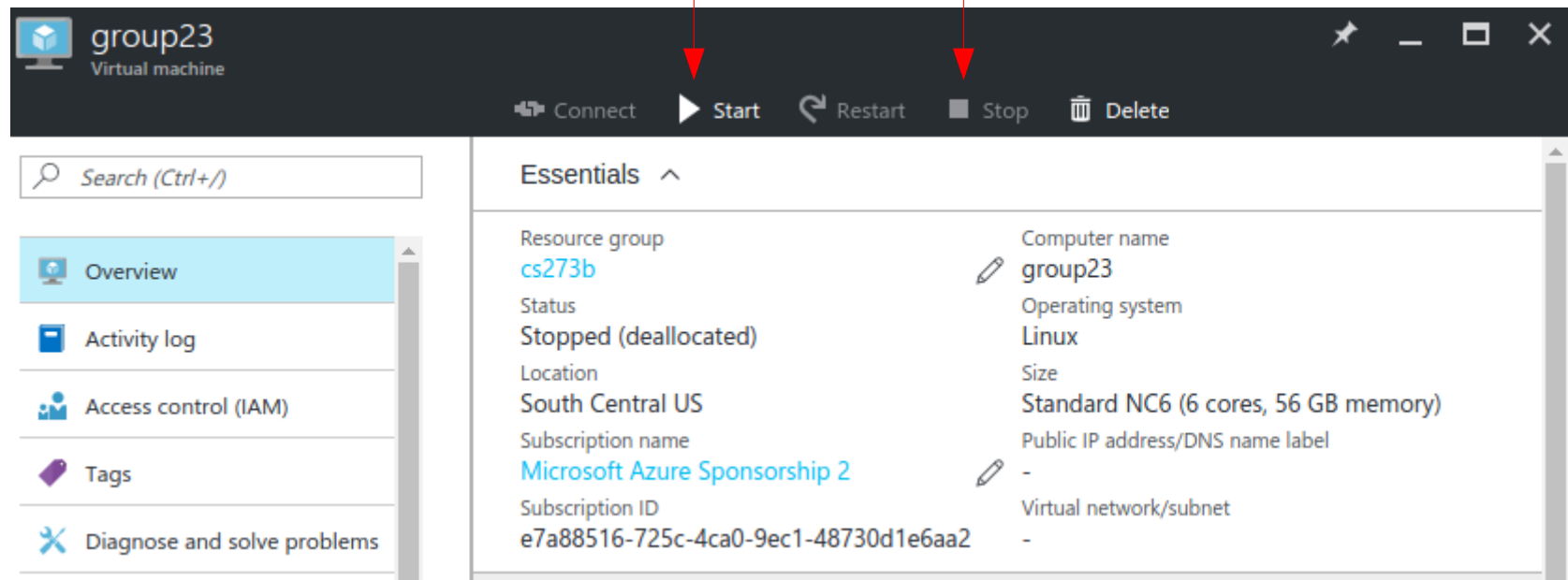
Subscriptions: Microsoft Azure Sponsorship 2

Filter items...

NAME	TYPE	RESOURCE GROUP	LOCATION	SUBSCRIPTION	
 group23	Virtual machine	cs273b	South Central US	Microsoft Azure Sponsorship 2	...

# Care and Usage of your Azure VM

- Make sure you always “stop” your VM when you are finished using it.
  - You will have access to about 1000 compute-hours on your VM.
  - We have set alarms that will send you an alert e-mail for every 6 hours you use to avoid any unfortunate situations of forgetting to turn off the VM.
    - As people get familiar with the VM's we can reduce/remove alarm frequency.
- 
- Click “Start” to turn on your VM
  - Click “Stop” to turn off your VM



# Specifications

These are the hardware specifications for your VM:

NC6	
Cores	6 (E5-2690v3)
GPU	1 x K80 GPU (1/2 Physical Card)
Memory	56 GB
Disk	380 GB SSD

If you find that you require more resources, please e-mail the course staff. We may be able to give you access to more than 1 VM, but the GPU resources for the individual VM's are fixed by Microsoft. Additional VM's will be distributed on a first-come first-serve basis.

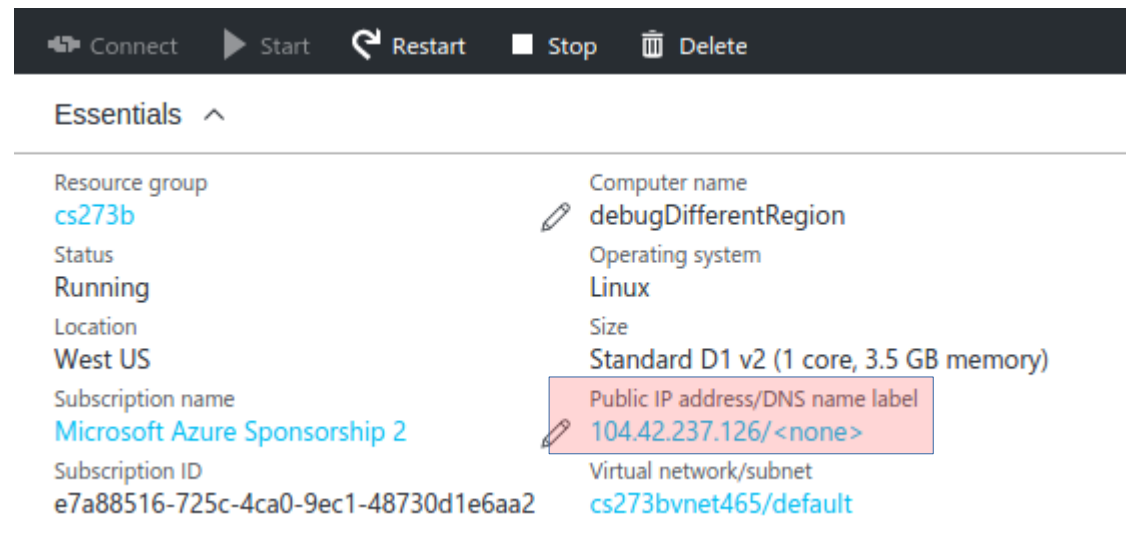
# Specifications

Your VM comes with the following software/drivers:

- Ubuntu Server 16.04
- Nvidia Driver v. 370
- Cuda toolkit 8.0
- Cudnn 5.0
  
- Anaconda
  - Conda environments 'py2', 'py3', 'dragonn'
  
- Keras v. 1.1.0
- Tensorflow r0.11
- Theano 0.8.2
  
- Jupyterhub (iPython notebook server)
  
- You have sudo, so feel free to install anything else you want

# Logging in to your VM

- When you “Start” your VM, it will reserve a public ip address:



- The admin username for your vm is **cs273b\_admin**
- The admin password is **cs273b\_admin**
- When you first connect to your vm, ssh in with these credentials:

ssh **cs273b\_admin@public\_ip\_address**

# Creating your user account

After you have logged in as the “cs273b\_admin” user, at the terminal, type the following to create your user account, replace “testuser” with your preferred username

**sudo adduser testuser**

*Adding user `testuser' ...*

*Adding new group `testuser' (1001) ...*

*Adding new user `testuser' (1001) with group `testuser' ...*

*Creating home directory `/home/testuser' ...*

*Copying files from `/etc/skel' ...*

**Enter new UNIX password:**

**Retype new UNIX password:**

*passwd: password updated successfully*

*Changing the user information for testuser*

*Enter the new value, or press ENTER for the default*

*Full Name []:*

*Room Number []:*

*Work Phone []:*

*Home Phone []:*

*Other []:*

*Is the information correct? [Y/n] Y*



# Prep your account

Still logged in as the cs273b\_admin user, type:

```
sudo usermod -aG sudo testuser
```

(replace testuser with your actual username)

Finally, use the su command to switch to the new user account:

```
su testuser
```

To make sure you have root privileges, try listing the contents of the /root directory:

```
sudo ls -la /root
```

Copy the file /opt/theanorc to your home directory – this is the theano configuration file for your account, more about it later.

```
cp /opt/theanorc ~/.theanorc
```

# GPU Sanity Check

**nvidia-smi** command gives a report of the GPU status:

GPU id →

NVIDIA-SMI 370.28					Driver Version: 370.28				
GPU Name		Persistence-M		Bus-Id	Disp.A	Volatile Uncorr. ECC			
Fan	Temp	Perf	Pwr:Usage/Cap	Memory-Usage		GPU-Util	Compute M.		
0	GeForce GTX 970	Off	0000:03:00.0	Off	N/A				
34%	33C	P0	58W / 250W	0MiB / 4036MiB	0%	Default			
1	GeForce GTX 970	Off	0000:04:00.0	Off	N/A				
37%	36C	P0	55W / 250W	0MiB / 4036MiB	0%	Default			
2	GeForce GTX 970	Off	0000:08:00.0	Off	N/A				
34%	33C	P0	55W / 250W	0MiB / 4036MiB	0%	Default			
3	GeForce GTX 970	Off	0000:09:00.0	Off	N/A				
0%	32C	P0	41W / 250W	0MiB / 4036MiB	0%	Default			
Processes:								GPU Memory	
GPU	PID	Type	Process name			Usage			
No running processes found									

List of all  
running GPU  
processes →

Percent of memory  
used by process →

# Git Clone

## Course Materials Repository

```
cd ~  
git clone https://github.com/kundajelab/cs273b.git
```

```
cd cs273b  
ls
```

You will see the following files:

- Introduction\_to\_Jupyter\_notebooks.ipynb
  - Go through this on your own if you are new to working with Jupyter and/or iPython notebooks
- keras\_tutorial.ipynb
- tensorflow\_tutorial.ipynb

We will add future tutorial files to this repository.

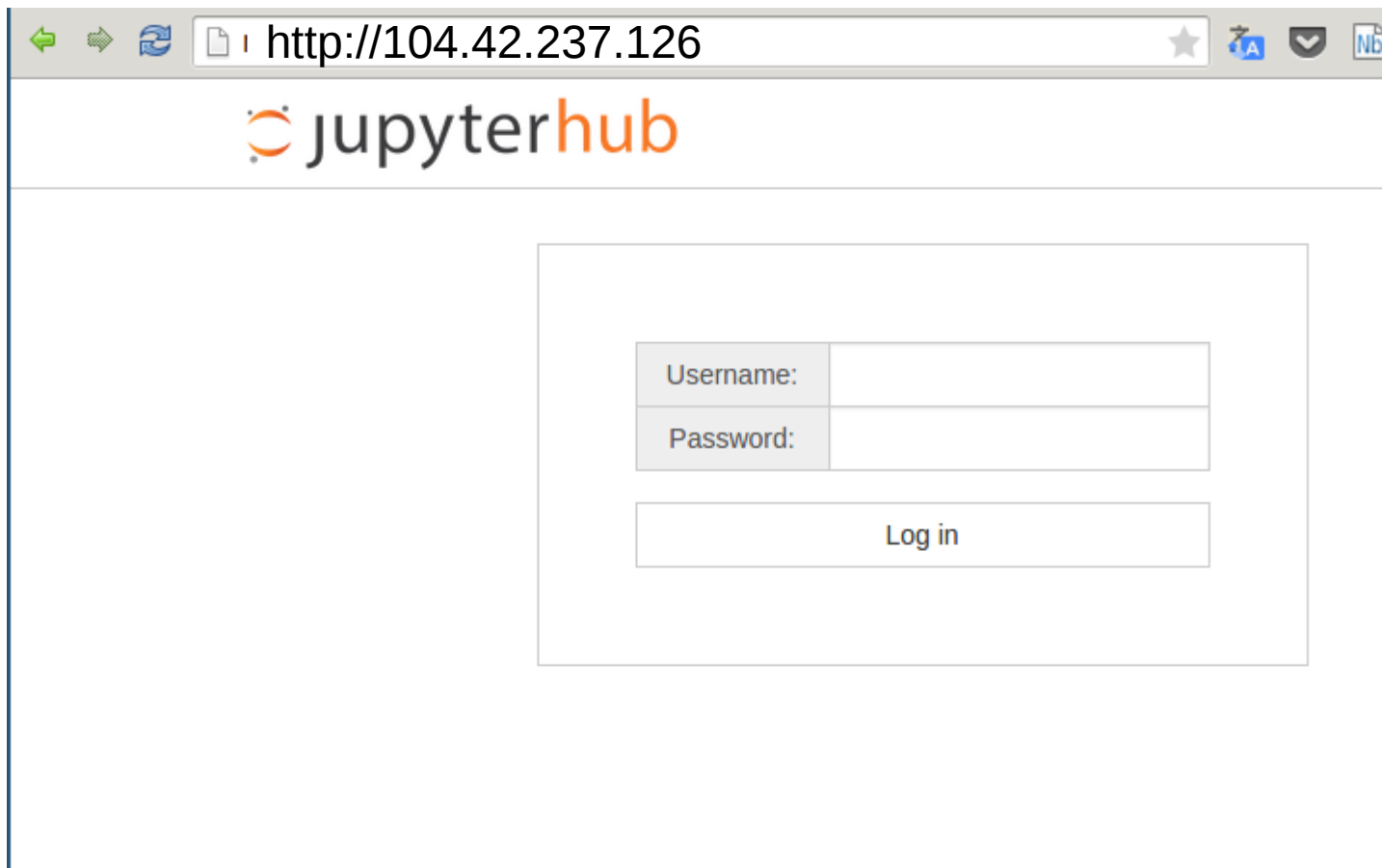
# Launching Jupyterhub

```
cd /opt  
sudo su  
sh launch.sh &
```

- These commands launch the Jupyterhub server as a background process
- Make sure you don't skip “sudo su” – the launch command must be run as the root user.
- Jupyterhub provides a way for multiple users to access their iPython notebooks simultaneously.

# Launching Jupyterhub

- Once you have launched Jupyterhub, navigate to the Azure VM's public IP in your browser
- Login with your newly-created user account
- You will see a file system rooted in your home directory



The screenshot shows a web browser window with the address bar displaying `http://104.42.237.126`. The page features the Jupyterhub logo at the top. Below the logo, there is a login form with two input fields: "Username:" and "Password:". Below these fields is a "Log in" button.

Username:	<input type="text"/>
Password:	<input type="password"/>
<input type="button" value="Log in"/>	

# Launching Jupyterhub

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