AWS Tutorial

CS224D Spring 2016

April 17, 2016

1 Introduction

This tutorial explains how to set up your EC2 instance using our provided AMI which has TensorFlow installed. Our AMI is cs224d_tensorflow (ami-d8433cb8). We've installed on it:

- CUDA 7.0
- cuDNN 4.0
- TensorFlow 0.7

2 Create an AWS account and apply for AWS Educate Program

2.1 Create an AWS account

Go to AWS homepage `http://www.aws.amazon.com`. Click the *Sign In to Console* or *Create an AWS account* button on the top right corner. This will bring you to the sign in/sign up page. Create your account there with your email and password.

2.2 Apply for AWS Educate Program

AWS Educate Program gives $35 AWS credits per student. You can apply for it here: `https://aws.amazon.com/education/awseducate/`.

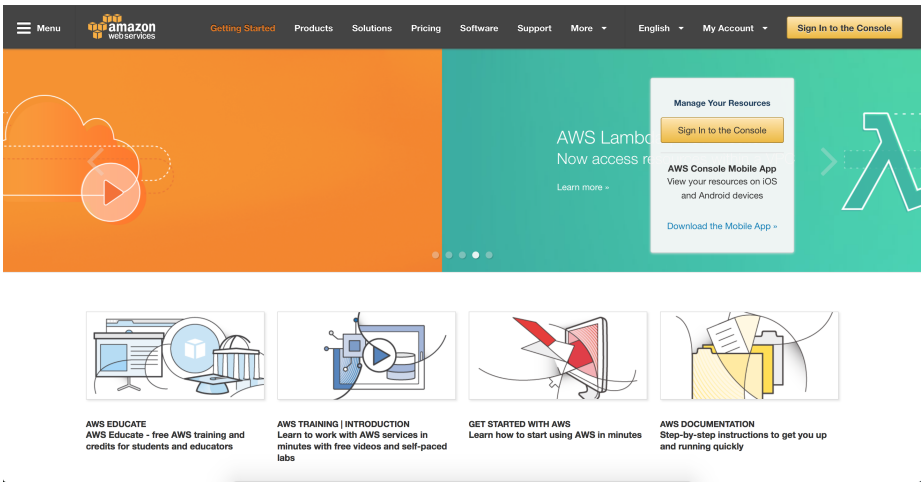

Figure 1: AWS homepage

3 Launch an EC2 instance using existing AMI

Note: You may need to wait for 2 hours after sign-up before you can launch instances.

Go to AWS homepage and sign in to your console. After you sign in, you should be able to see a page like this

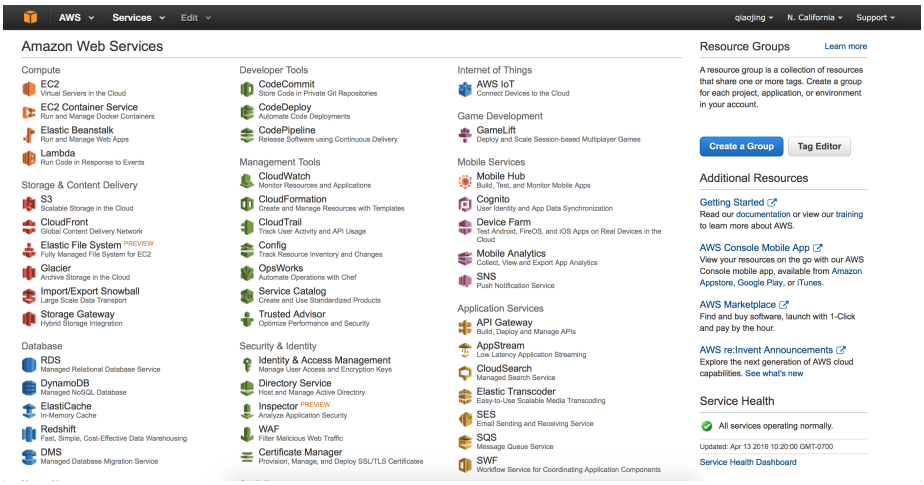

Figure 2: Console Home

You can see your region on the top right. Make sure it is N. California.

On the left you can find EC2 under Compute category. Click EC2, which will bring to the EC2 dashboard:

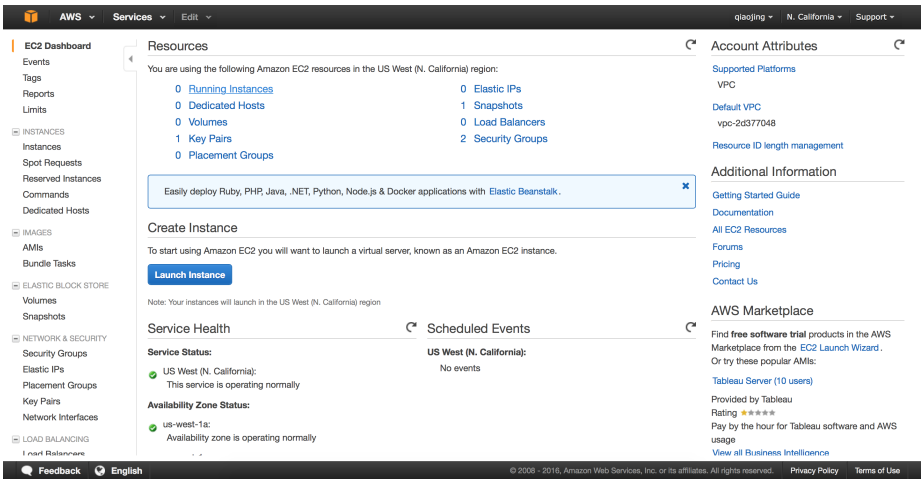

Figure 3: EC2 dashboard

We can find a blue *Launch Instance* button. Click it and we will see lists of AMIs that we can use. An AMI (Amazon Machine Image) is a pack of data which provides the information required to launch an instance. We can modify existing AMIs, such as installing softwares on it, and then save it as our own AMI. Here we will use the AMI created for CS224D which has TensorFlow installed.

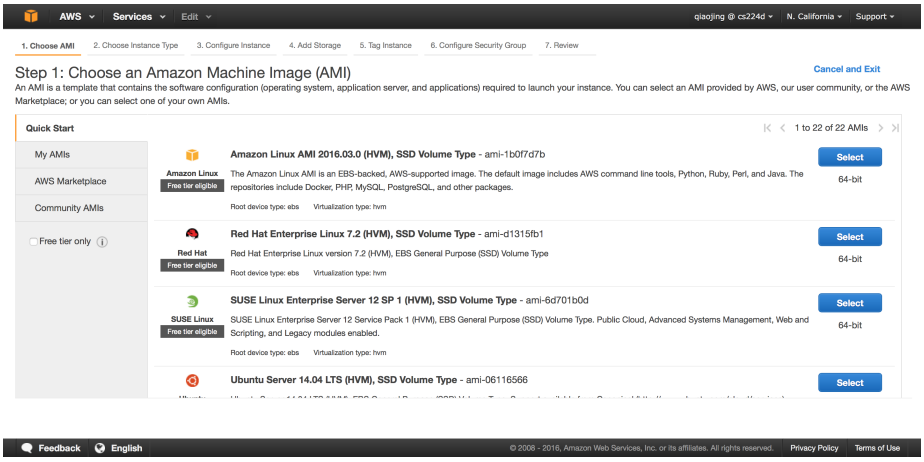

Figure 4: Lists of available AMIs

Click *Community AMIs* on the sidebar. Search for "cs224d". You will find an AMI named cs224d_tensorflow (ami-d8433cb8).

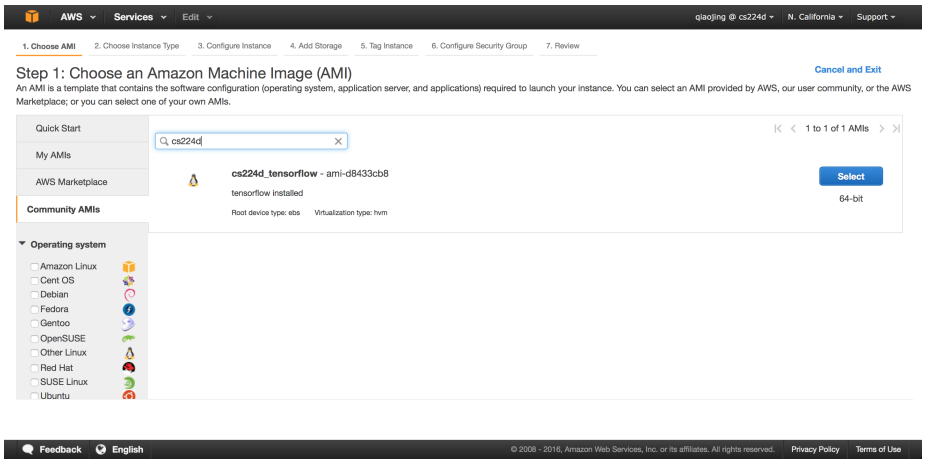

Figure 5: Select an AMI

Select the cs224d_tensorflow AMI. It then asks you to select an instance type. We need to select a GPU instance. Scroll down and find g2.2xlarge and click *Next*:

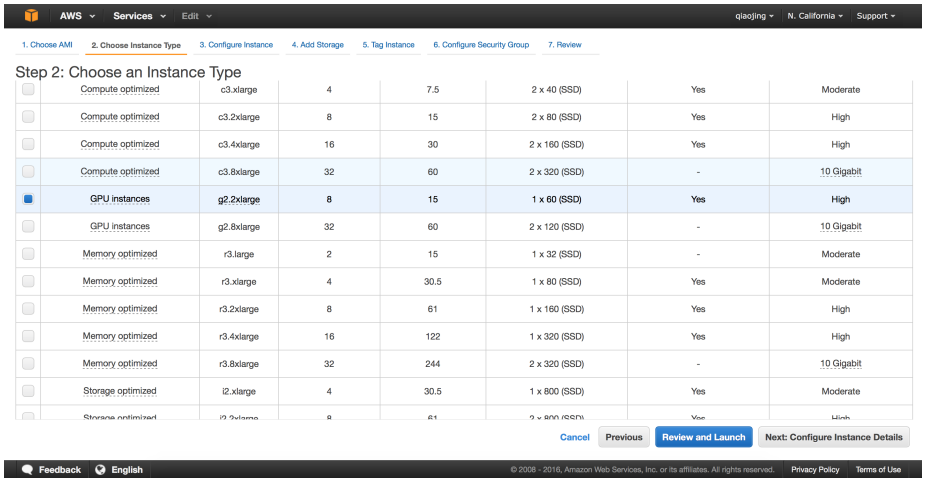

Figure 6: Choose instance type

After that, it asks you to configure instance details. We don't need to modify things here, simply click *Next*. Then we reach step 4: Add Storage. Make sure the size of Root is at least 16GB.

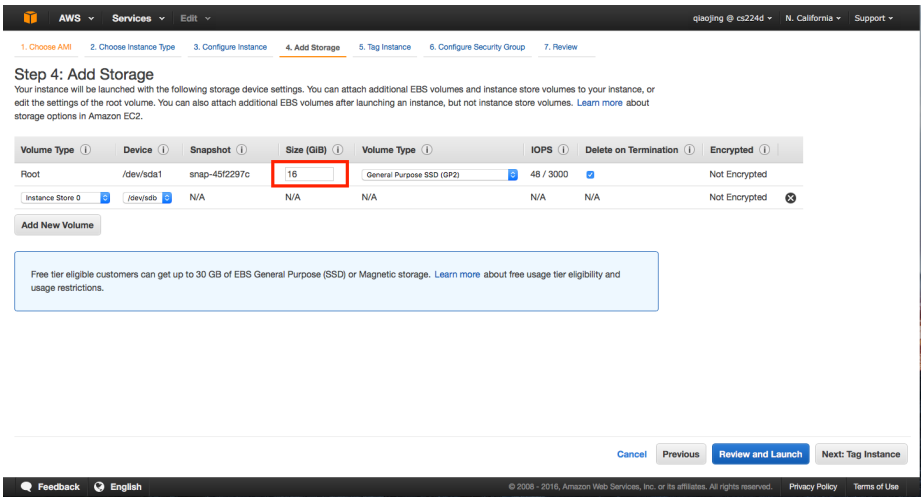

Figure 7: Add Storage

Click next and in Step 5: Tag Instance, we also click *Next*.

Now we are at Step 6: Configure Security Group. If you hadn't created a security group before, choose *Create a new security group*. Otherwise, choose *Select an existing security group* and then choose the security group that you had created. Make sure SSH is included in the type column. After you've done this, click *Review and Launch*.

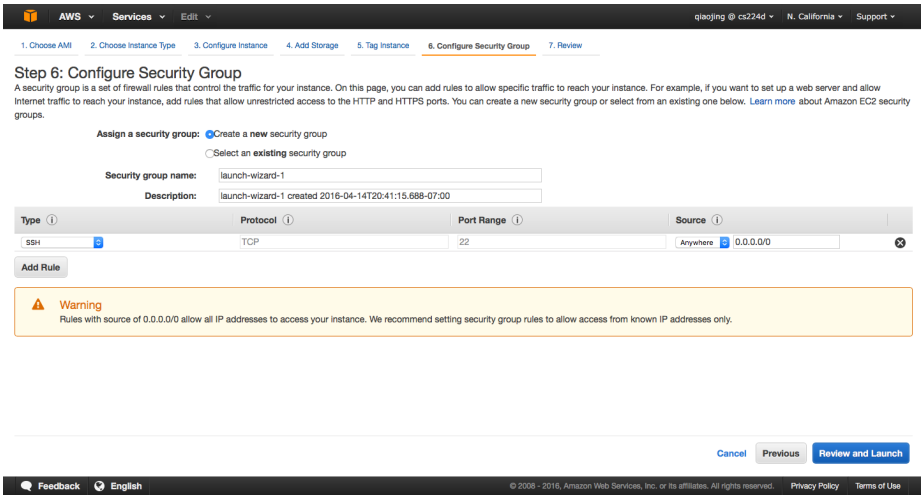

Figure 8: Configure Security Group

In Step 7: Review Instance Launch, click *Launch* and we reach the final step: *Select an existing key pair or create a new key pair*. This key pair would be needed when you SSH into your instance. If you hadn't created a key pair before, select *create a new key pair* and give the key pair a name, such as cs224d. Then click *Download Key Pair* and save it as a .pem file. Make sure to store it at somewhere you can find. We will need it later.

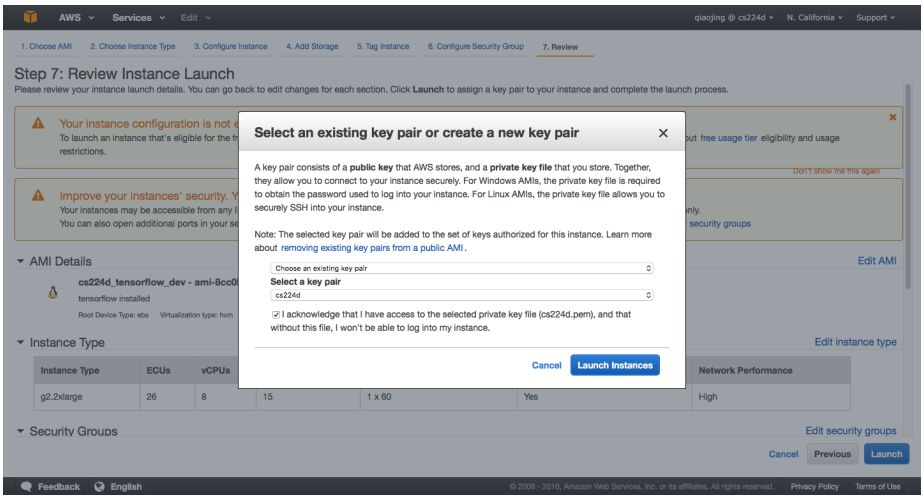

Figure 9: Select an existing key pair or create a new key pair

The last step is to click *Launch Instance*. Congratulations! You now have a running EC2 instance! (Note: Be sure to read section 4 to learn how to close an instance. Amazon would charge you for every running instance.) You can view status of instances in the EC2 dashboard when you click instances. You will see the *Instance State* goes from pending to running. You can also see the *Public IP* of your instance, as shown in figure 10.

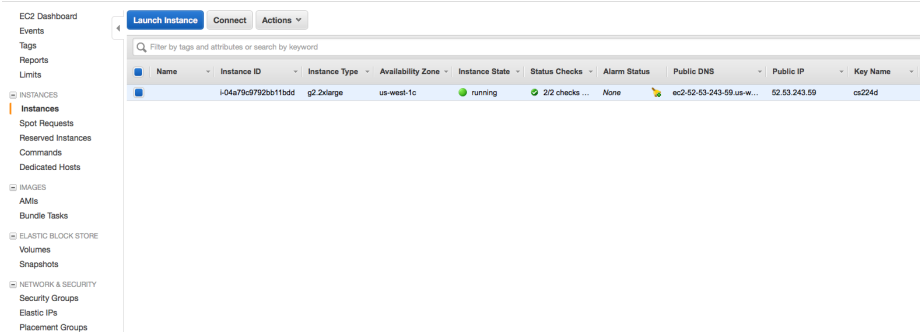

Figure 10: Inspect the status of your EC2 instance

After the instance is running, we can now ssh into our instance to do our programming assignments and projects. But first, we need to change the permission of the previous .pem that you've downloaded. Open terminal and type the command:

```
$ chmod 400 path-to-pem-file
```

Now we ssh into our instance use:

```
$ ssh -i path-to-pem-file ubuntu@ip-address
```

We can check that TensorFlow is working by following the steps here:
`https://www.tensorflow.org/versions/r0.8/get_started/os_setup.html#test-the-tensorflow-installation`

4 Close a running instance

Amazon charges you for each running instance, so make sure to close them when you've finished. In the page where you inspect your instance, right click your instance and in *Instance State*, select *Terminate* or *Stop*. For information on their differences, you can look at
`http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ec2-instance-lifecycle.html#lifecycle-differences`.

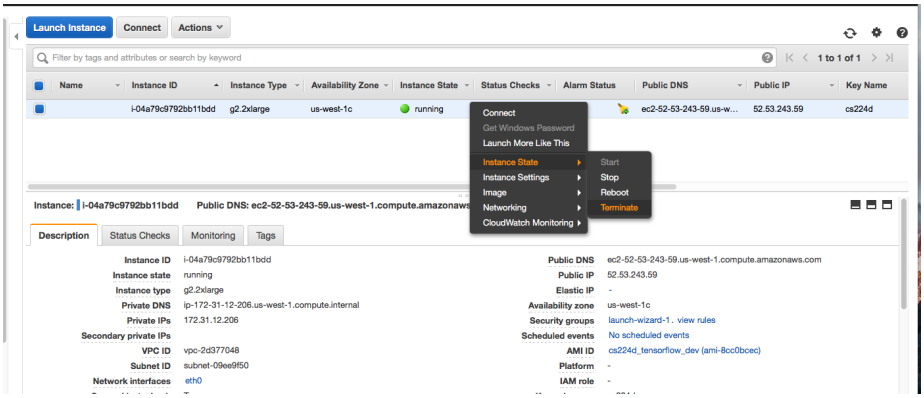

Figure 11: Close a running instance

5 Other topics

Here are some topics and related links that you may need for doing your assignments/project:

1. Amazon Machine Image:
   `http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/AMIs.html`
2. AWS Identity and Access Management (IAM):
   `http://docs.aws.amazon.com/IAM/latest/UserGuide/introduction.html`
   This is very useful when you do project in group.
3. Exchange file between EC2 and S3:
   `http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/AmazonS3.html`