Preparing your SDEV Amazon Machine Image (AMI)

Overview:

This document describes how to use your existing AWS Educate account to create an EC2 server running the SDEV AMI. The SDEV AMI is required for this class and includes the needed Web, Database and programming software to be successful in this class. Once you create the instance you will use it for all of your labs and exercises in your class. **This is a critical component of your class and must be successfully completed.**

Prerequisites:

Prior to completing this exercise, you should have already successfully created your AWS Educate account. This is required as you must be able to login into an existing AWS account to be able to launch the SDEV AMI. AWS Educate provides grants to UMUC students supporting up to $100 a year of AWS services beyond the Free-tier services available. Additional documents describing how to set-up your AWS account and how to apply for the AWS Educate program are provided in the class content area. Please complete those exercises first.

High Level Steps:

If you are comfortable navigating your AWS environment, you can most likely quickly spin up the EC2 instance without the need of detailed steps or screen captures. This section provides the high-level steps to accomplish setting up your SDEV AMI. If you need more details, with associated screen captures, see the Detailed Steps section.

The steps to successfully set-up and test your SDEV AMI include:

1. Login into your AWS Educate account.
2. Navigate to the EC2 service menu.
3. Select Create Instance.
4. Search for the SDEV AMI in the community AMI's which is named: **ami-c62e92b9.**
5. Configure the Security Group for the Remote Desktop Protoctol (Port 3389) to your IP address.
6. Select Launch Instance.
7. Create a unique Key Pair for your instance.
8. Connect to your instance using Remote Desktop. The credentials are:
   Username: Administrator
   Password: sdev300UMUC99!!
9. Change your password!
10. Verify the AMI components are running properly including:
    - Apache server
    - MySQL
    - PHP
    - Upload and download of files

Detailed Steps:

This section provides detailed steps and current screen captures of the process. Keep in mind, AWS uses CI/CD (continuous integration/continuous development) to update their services and sometimes the screen capture may not be exactly what you see on your screen. However; the process and overall flow should be the same.

The steps to successfully set-up and test your SDEV AMI include:

1. Login into your AWS Educate account.

To login into your AWS Educate account, use your favorite browser and navigate to the AWS URL for your AWS account. Typically, the URL will include a 12-digit account number. The following is a typical login URL for AWS:

https://942661242513.signin.aws.amazon.com/console

Note that your 12-digit number will be different (and unique). You should always use your AWS educate account. **Work submitted from other AWS accounts will not be accepted as valid submissions for grading**.

As shown in figure 1, enter your non-root username and password and then click Sign-In to continue.

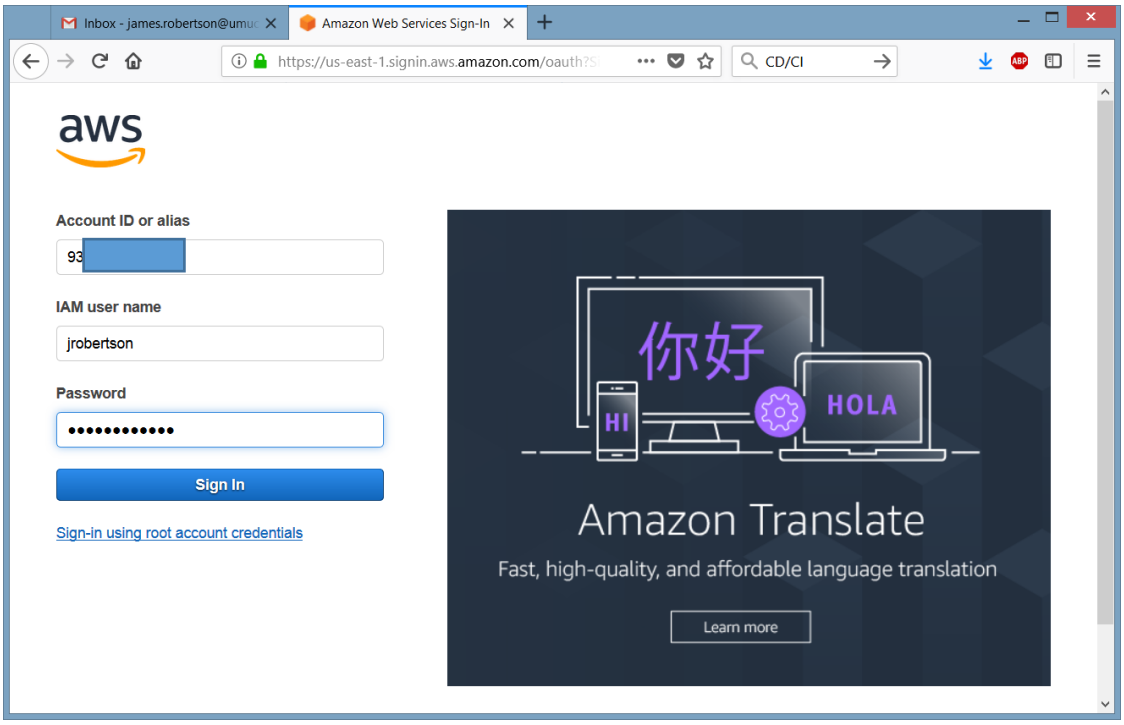

Figure 1 Login to the AWS Console

Upon successful login, you will see a splash page, similar to the screen shown in figure 2.

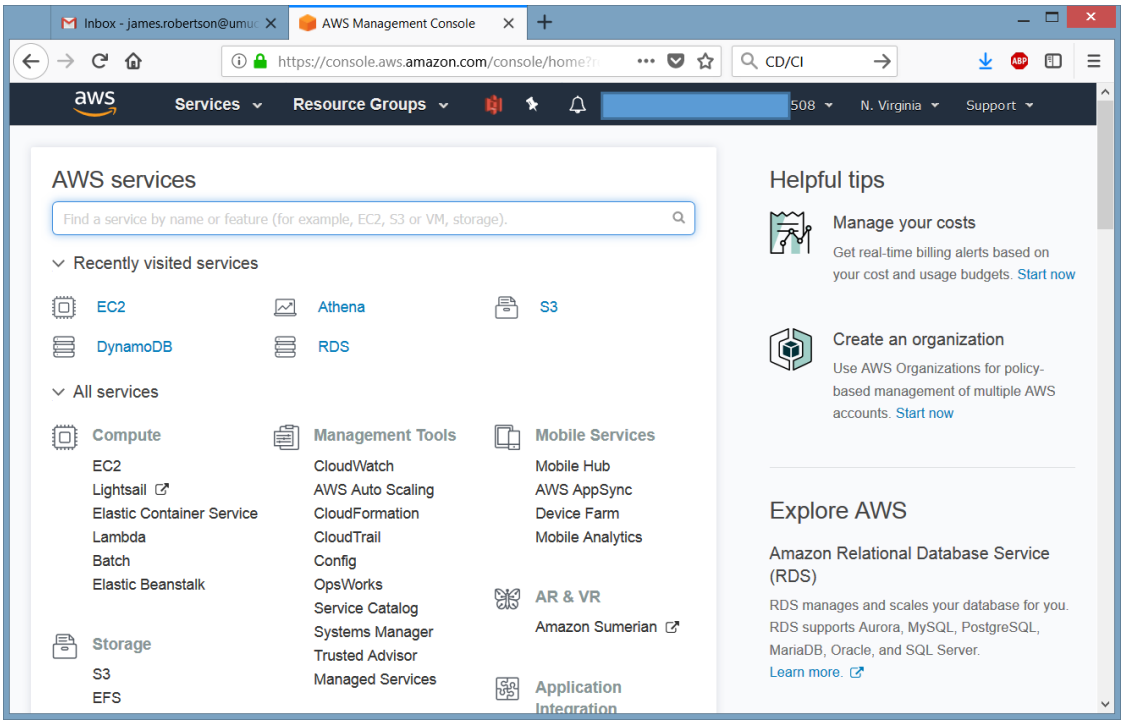

Figure 2 Successful Login to AWS

2. Navigate to the EC2 service menu.

The services menu, located at the top of the screen, allows you navigate to any of the available services in AWS. You can also use the search option at the top of the page, or, if you have recently visited the service, it will appear on the page as well.

Select the EC2 service to continue as shown in figure 3. The EC2 service is typically found under the Compute groups in the AWS service listings.

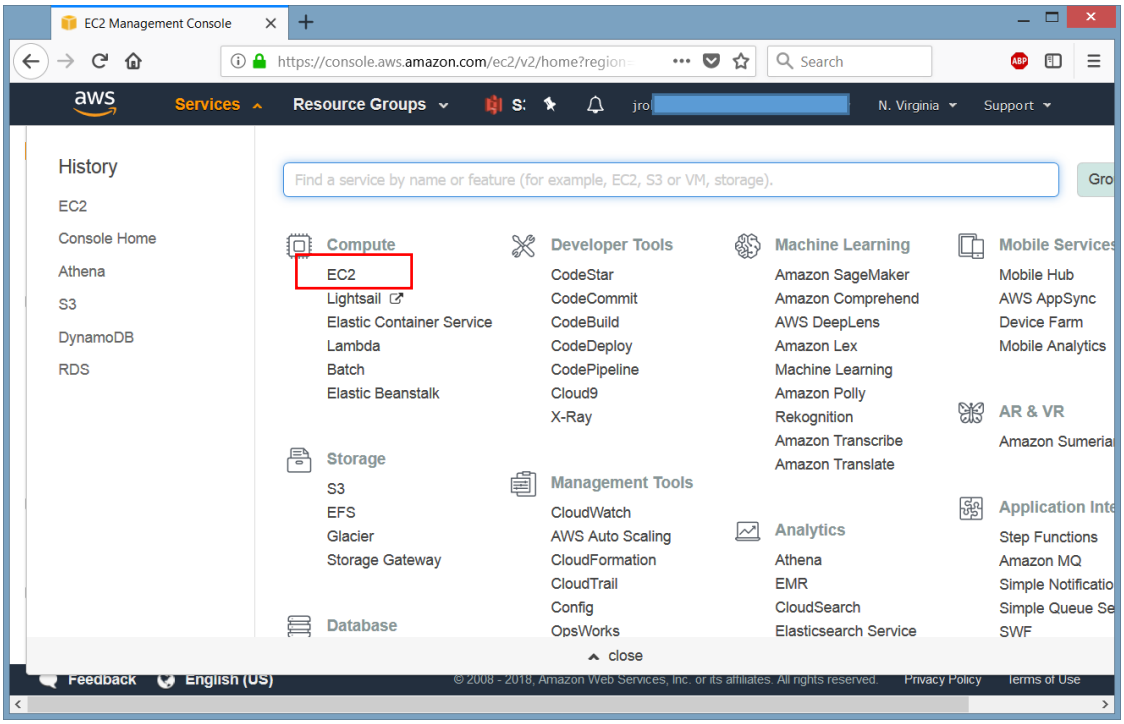

Figure 3 Select the EC2 Service

Clicking on the EC2 service will launch the EC2 dashboard as shown in figure 4.

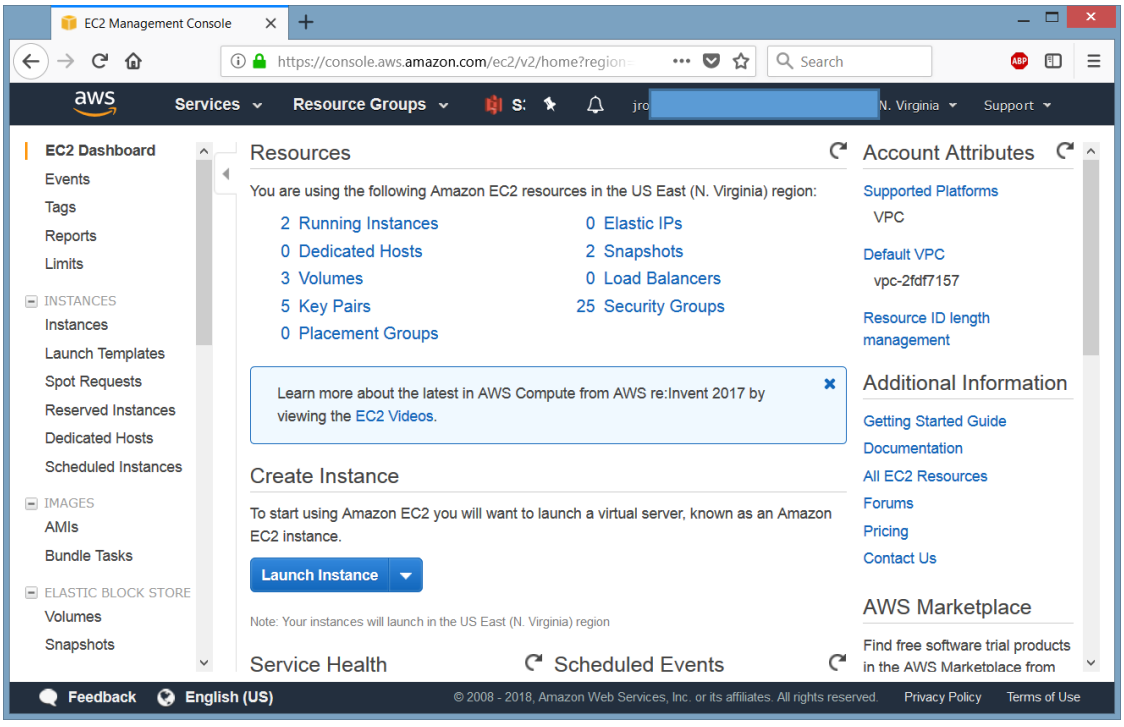

Figure 4 EC2 Dashboard

Your dashboard may look different depending upon the number of running instances, security groups, key pairs and other AWS resources you are currently using in your account.

3. Select Create Instance.

To launch an EC2 instance, click on the Launch Instance button as shown in figure 5.

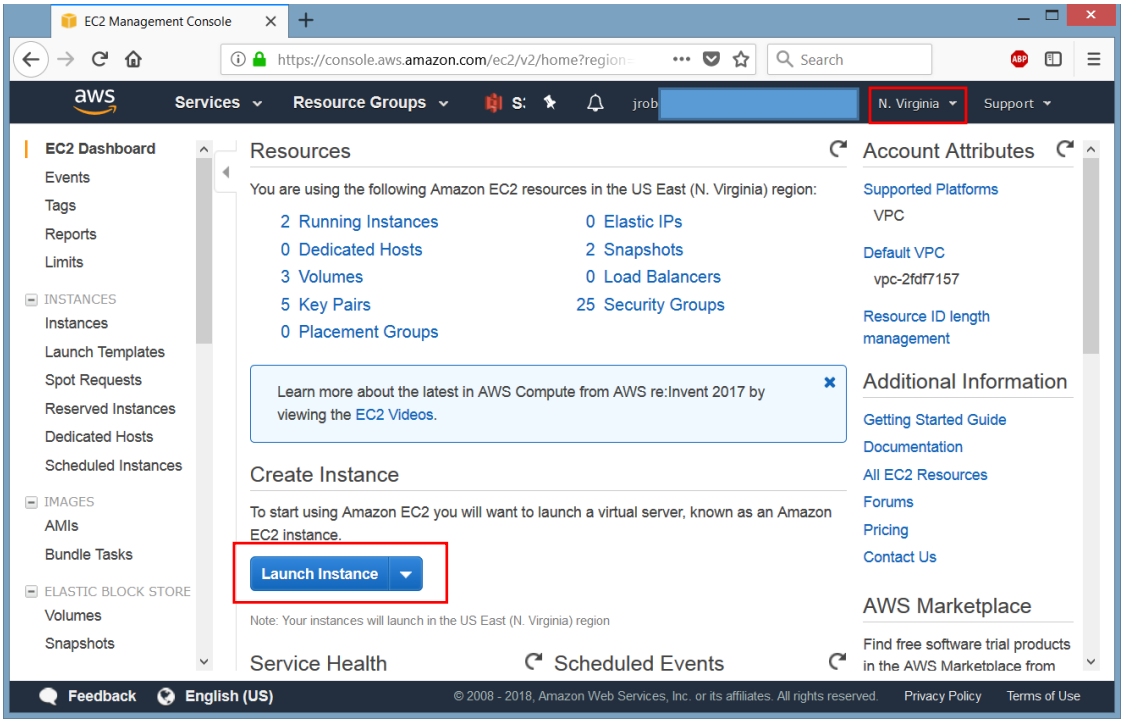

Figure 5 Select Launch Instance

4. Search for the SDEV AMI in the community AMI's which is named: **ami-c62e92b9. Note: Be sure you are using the N. Virginia region to search for the SDEV AMI. You won't find it any other regions. So click on the region drop down and select N. Virginia if you have not already done so.**

The next step is one of the most important parts of this exercise. An existing AMI was created specifically for this class. It has all of the web application and vulnerability tools needed for this course. So, it is critical you search for and launch the correct AMI.

To search for the AMI, select the Community AMI's option on the left side of the screen as shown in figure 6.

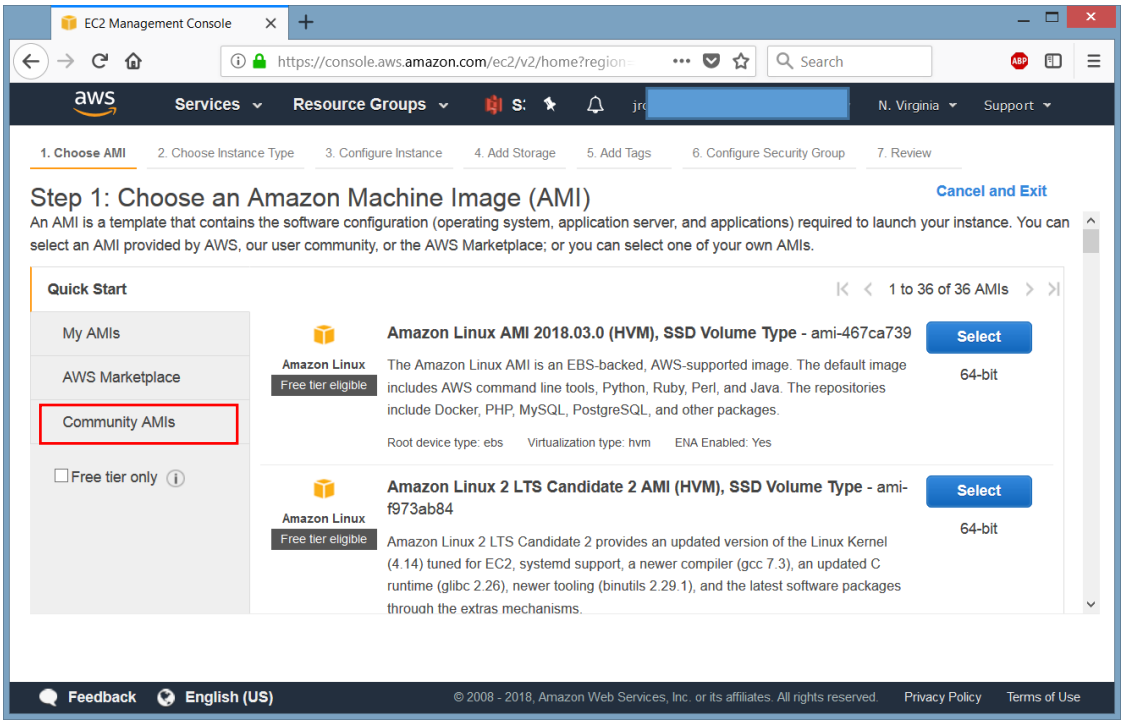

Figure 6 Selecting the Community AMIs Option

When the search box appears, enter the **ami-c62e92b9** and press return. As shown in figure 7, the AMI for the class will appear as the only option.

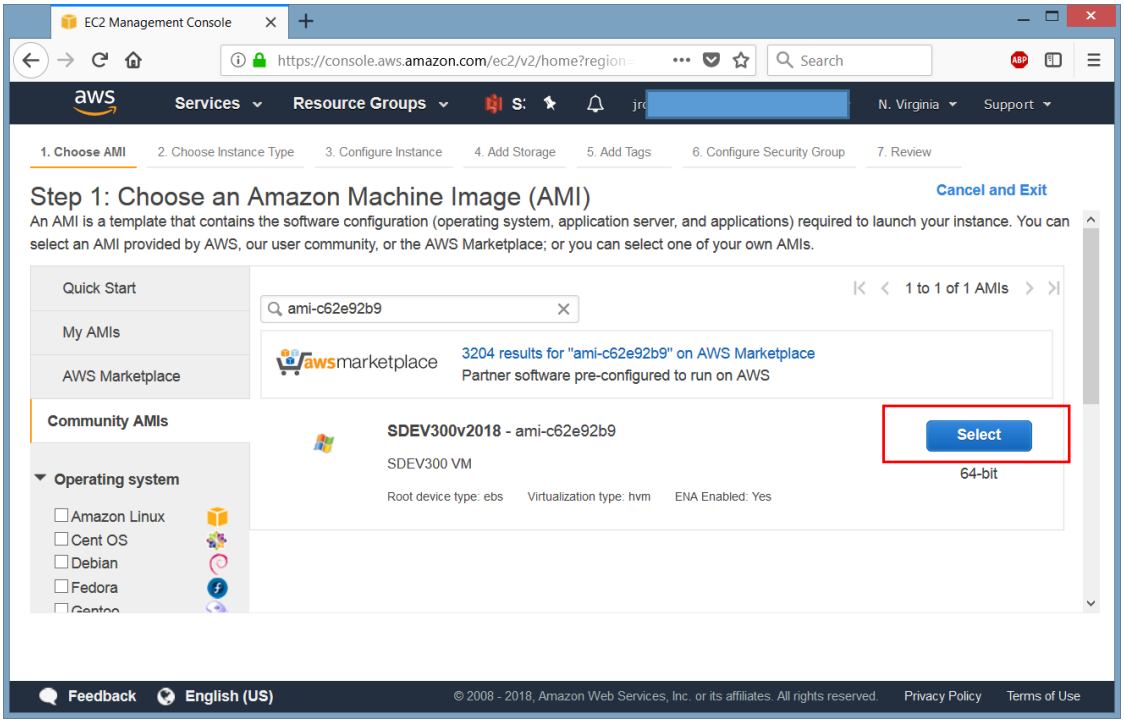

Figure 7 Selecting the SDEV AMI

Click the Select button to continue.

After the Select button is pressed, click on the “Review and Launch” button as shown in figure 8.

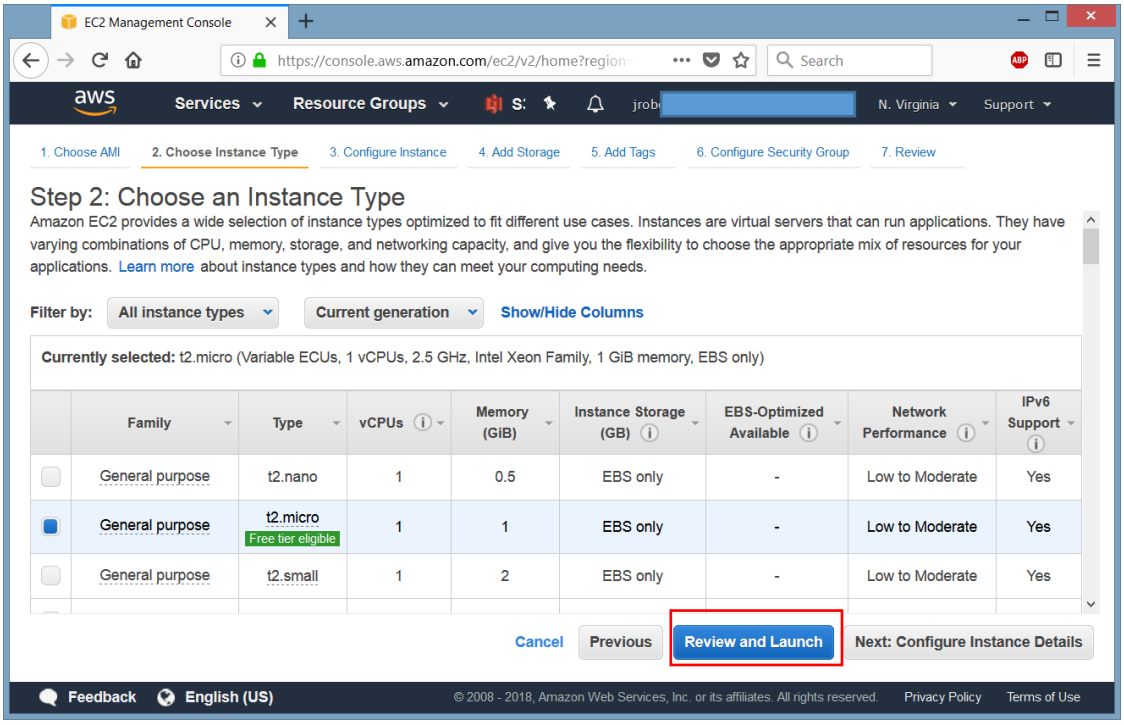

Figure 8 Select Review and Launch

When preparing the instance launch, be sure to not modify any of the parameters beyond what is describe in this document. The settings are preconfigured and will work for the applications you will be running in your class.

5. Configure the Security Group for the Remote Desktop Protoctol (Port 3389) to your IP address.

After clicking the Review and Launch button from the previous step, you will be presented with options for editing. The only option to edit is the Security Groups option. This is where you will configure the security group to allow you to remote desktop (remotely connect) into the AMI from your home machine. This is a critical step. If you don’t add the IP address of the machine you want to connect from, you will not be able to access your AMI.

Figure 9 shows the screen allowing the security group to be configured.

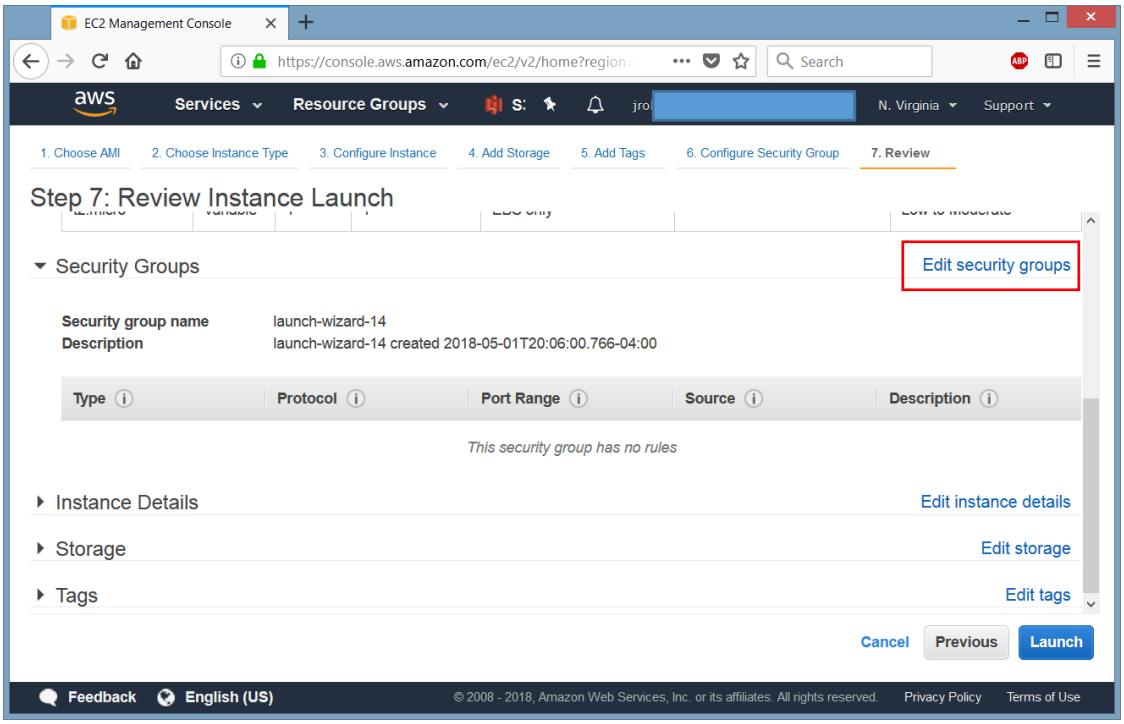

Figure 9 Edit Security Groups

You should only open up one port that will allow your home machine to connect to the AMI. Click on the "Edit security groups" link found on the right side of the screen. As shown in figure 10, using the Source drop down menu, select My IP and your current IP address will automatically appear.

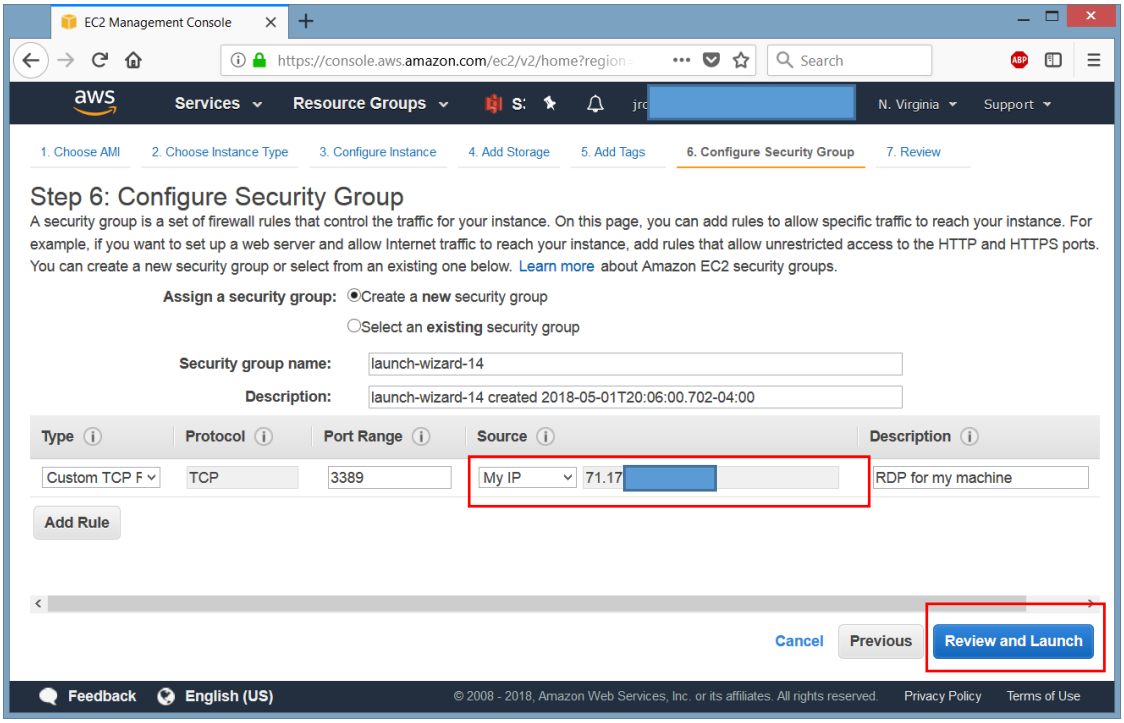

Figure 10 Add your IP address

Note: Once this is configured, if the IP address changes, you will need to go back into the AWS console and update the IP to match your new IP. It is possible that you would want to access this from home or possibly work if that is allowed. Be aware you would need to add the additional IP addresses to have access.

Click “Review and Launch” to continue.

6. Select Launch Instance.

You will then be presented with the option to launch the instance. As shown in figure 11, click “Launch” to continue.

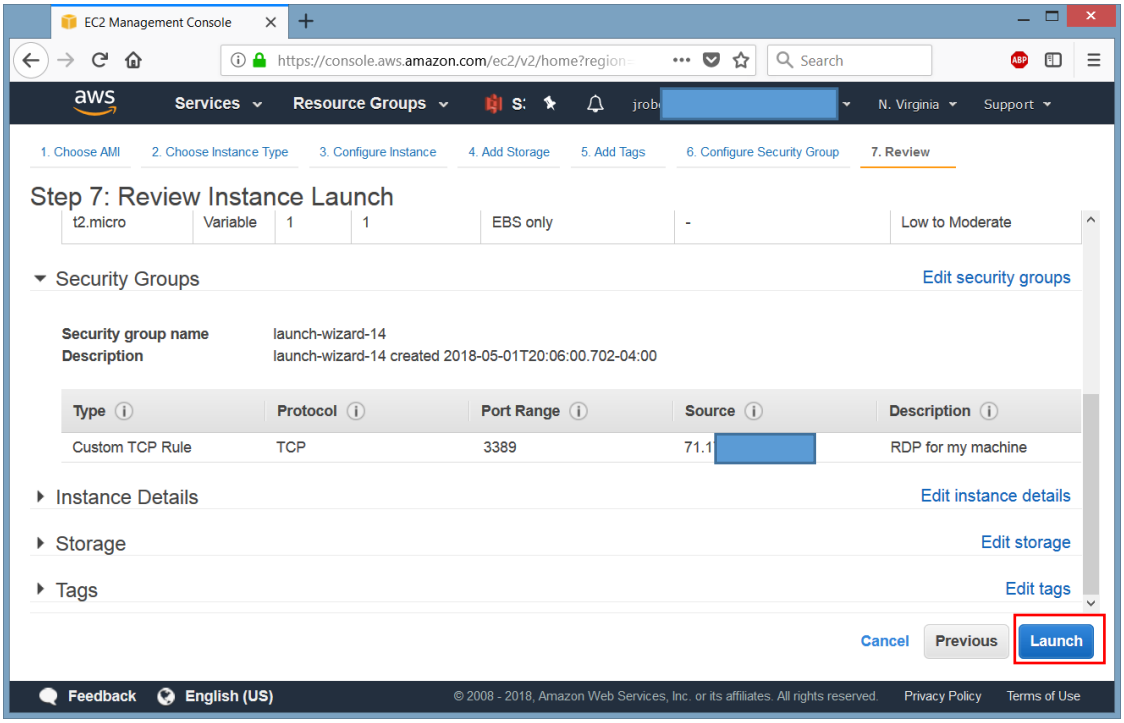

Figure 11 Launch the EC2 instance

7. Create a unique Key Pair for your instance.

Although not really used for the SDEV AMI, you will then be prompted to create (or use an existing) key pair. As shown in figure 12, create a new key pair and save it on your desktop. You can name the key pair a name of your choice. Click on the “Download Key Pair” button to save it on your desktop in a location of your choice.

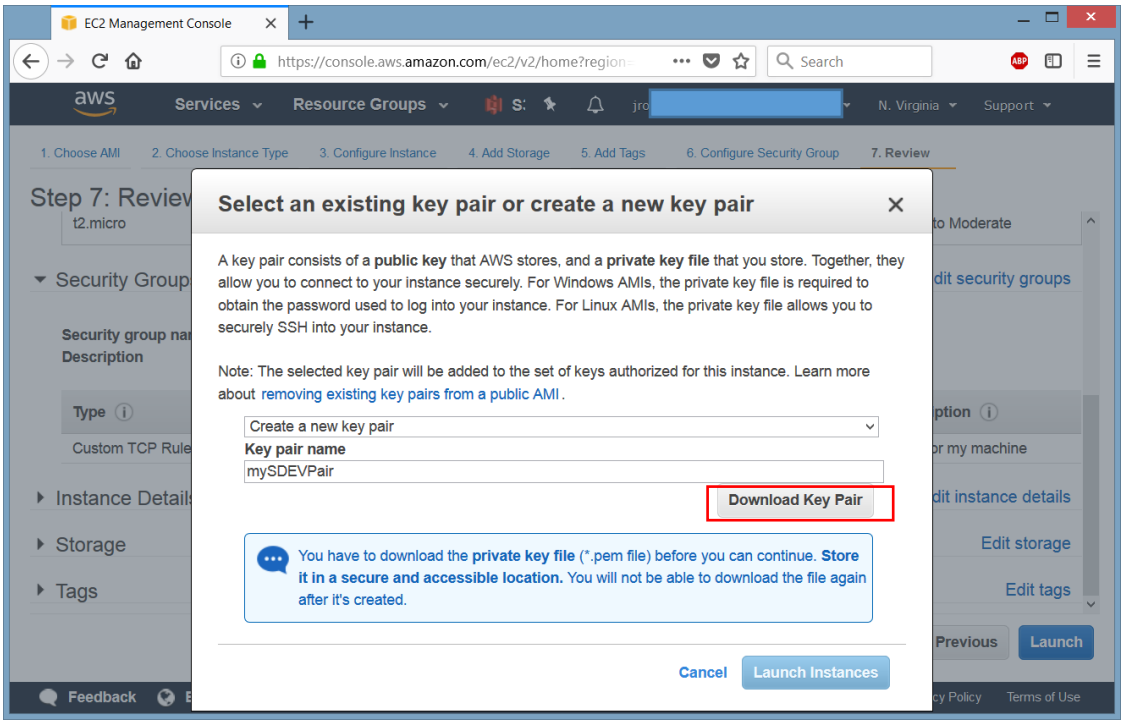

Figure 12 Download Key Pair

After downloading the Key Pair to your desktop, click on Launch Instances as shown in figure 13.

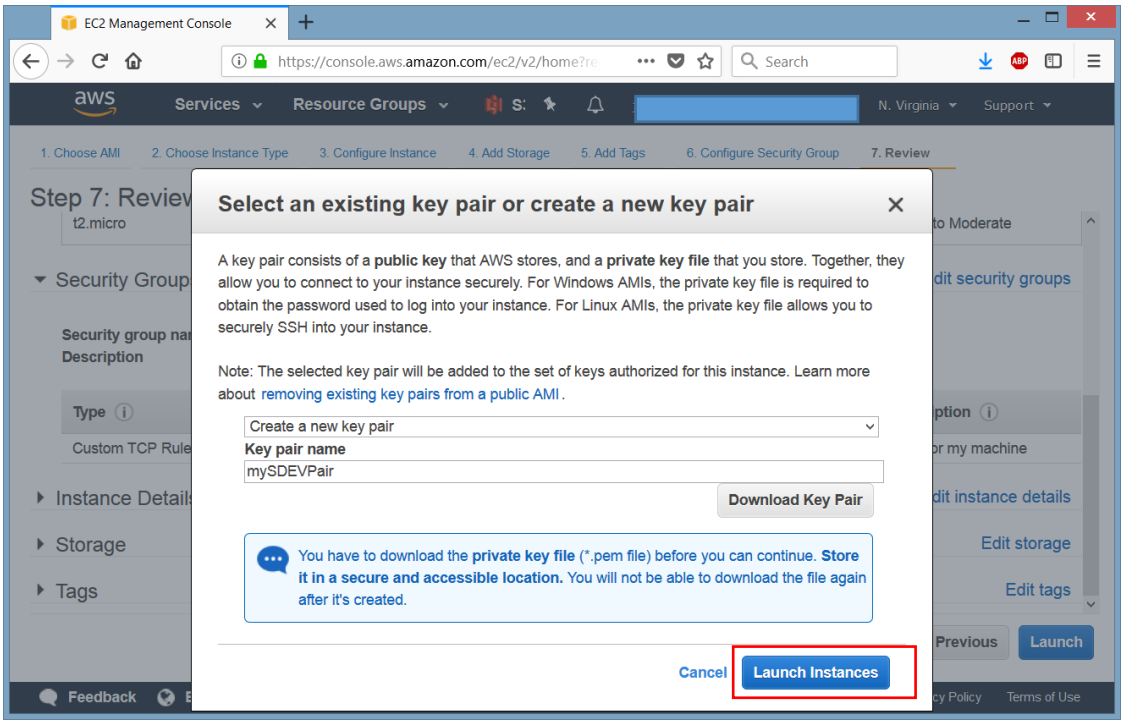

Figure 13 Finally - Launch the Instance

It will take a few minutes for your instance to launch. As shown in figure 14 and figure 15, preliminary status screens are available to view the status.

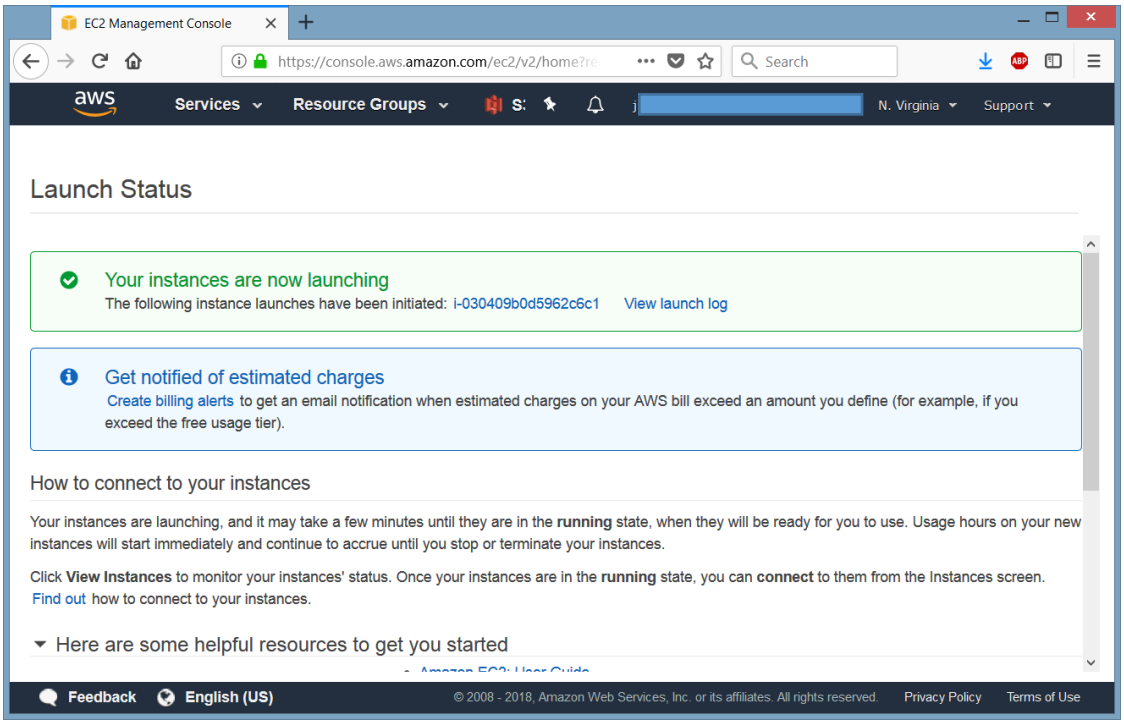

Figure 14 Awaiting the Instance

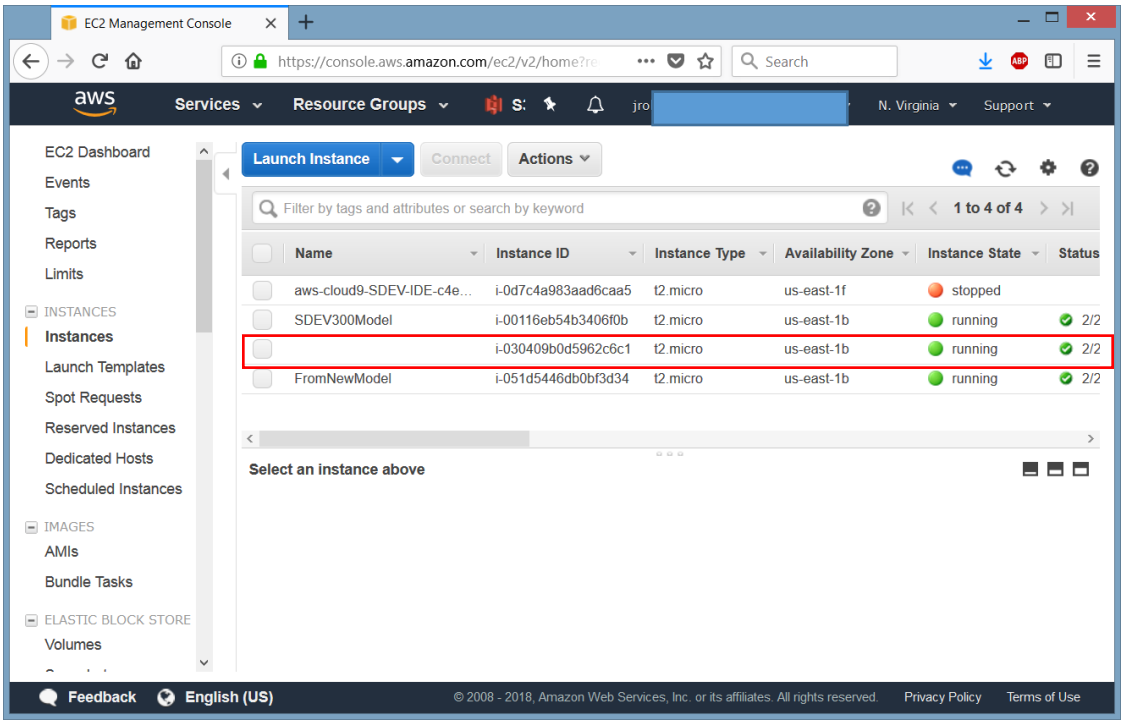

Figure 15 New Instance

The new instance will not have a name associated with it. To name it, just click on the pencil for the instance you just launched under the Name column and enter the name. Figure 16 shows the results of naming the instance.

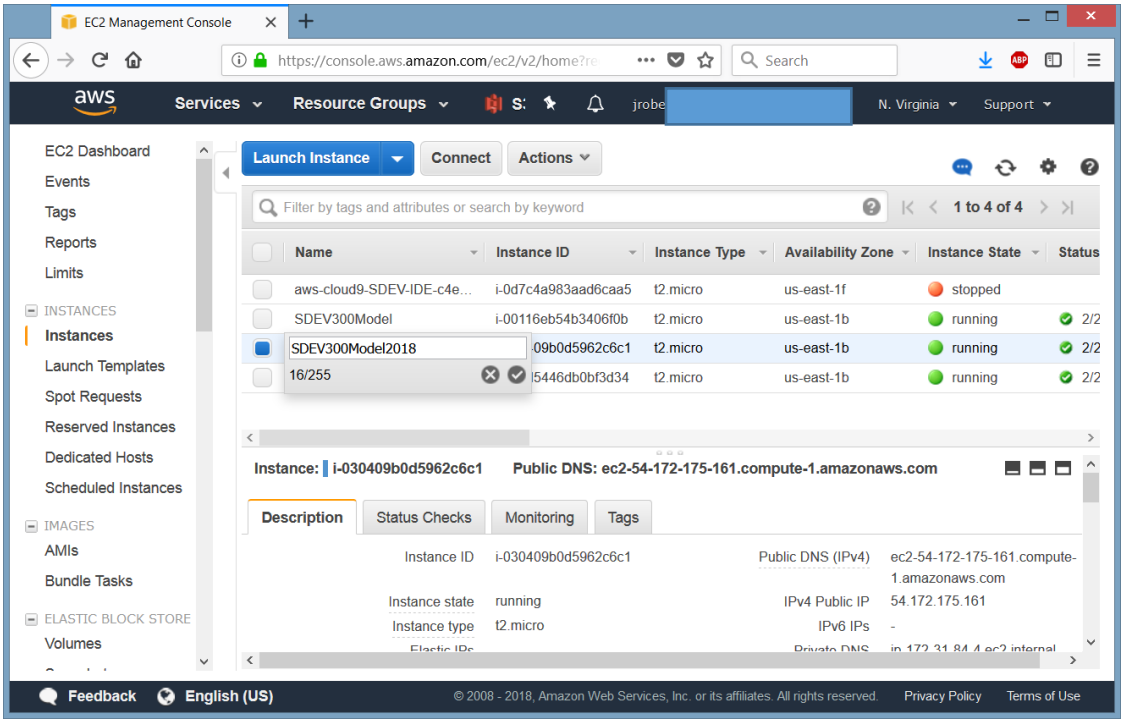

Figure 16 Naming the Instance

8. Connect to your instance using Remote Desktop.
   If your instance is running and you properly set the security group to the IP address you connect from, you can use Windows Remote Desktop, (or Mac Remote Desktop) to connect to your running instance.

   The credentials are:
   Username: Administrator
   Password: sdev300UMUC99!!

   To connect, you also need the Public DNS of the AMI. To find this, click on the instance you just launched and scroll down to find the public IP. Figure 17 shows the instance that was just launched along with the public IP of ec2-54-172-175-161.compute-1.amazonaws.com. Your public IP will be different and unique but will have a similar format.

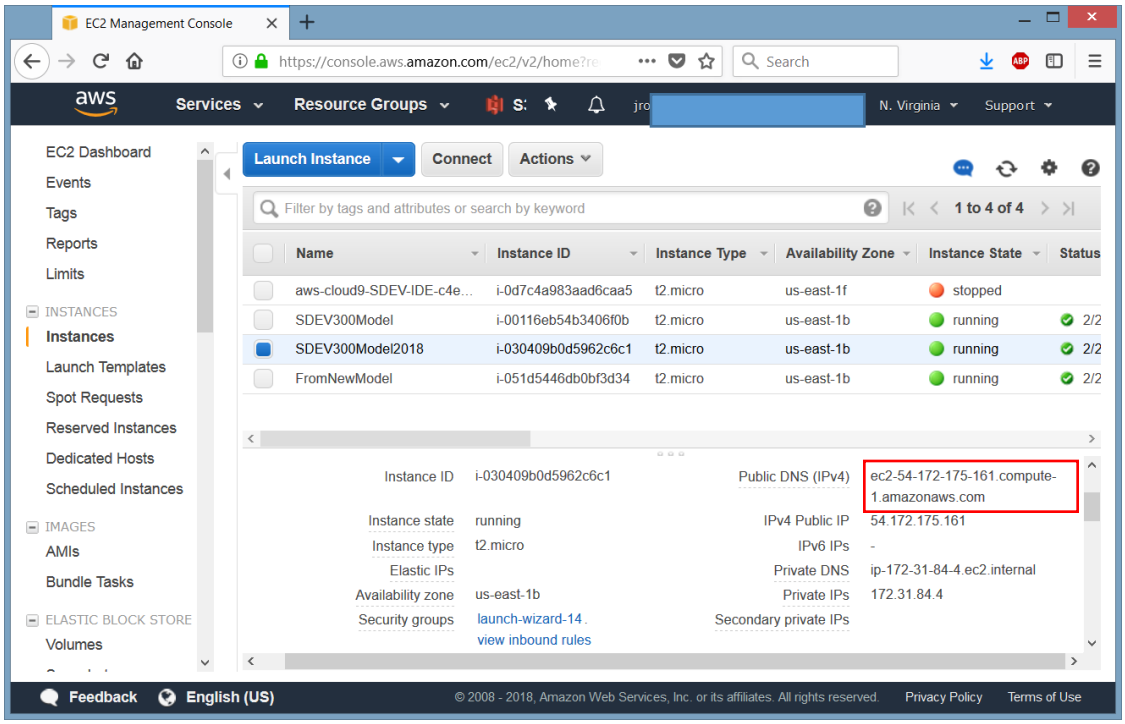

Figure 17 Viewing the Public IP address for your EC2 Instance

Launch your Remote Desktop Client from your home machine and connect to the Public address using the Administrator and preset password listed above. Enter your Computer Public IP and the Administrator username and then click “Connect” (See Figure 18).

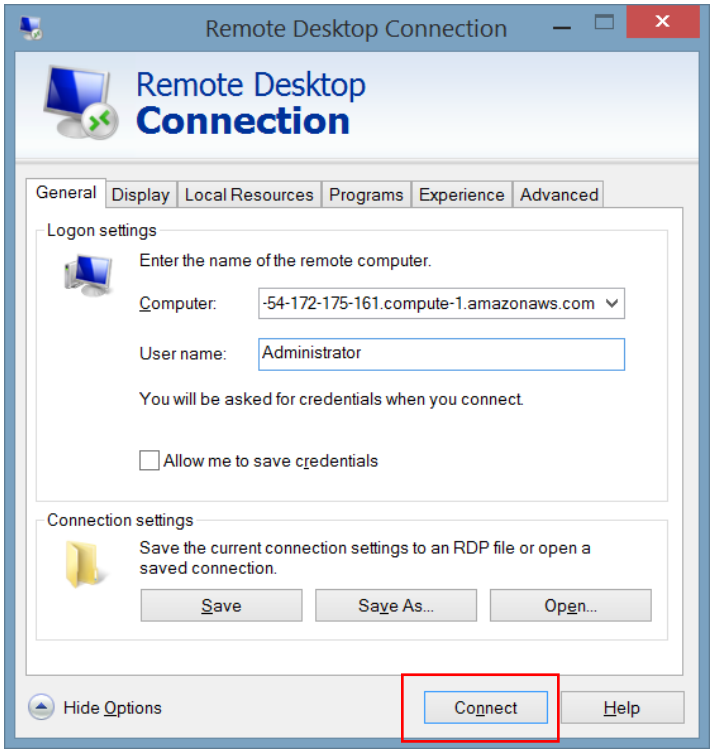

Figure 18 Enter Computer and Username

As shown in figure 19, you will then need to enter the connection password and click Ok. Recall the initial password for this machine is “sdev300UMUC99!!” (without the quotes).

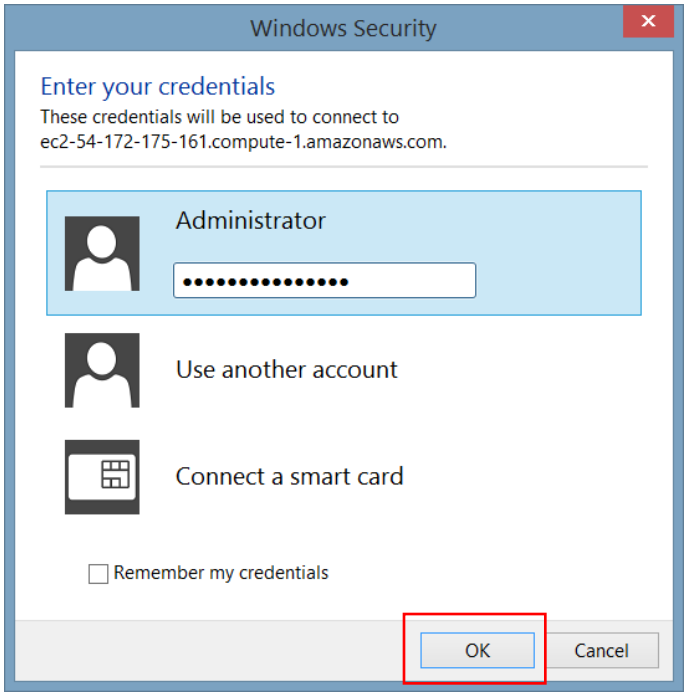

Figure 19 Enter your Password and Select Ok.

The first time you connect to this machine, you may receive a warning message similar to that shown in figure 20. Click “Yes” to continue.

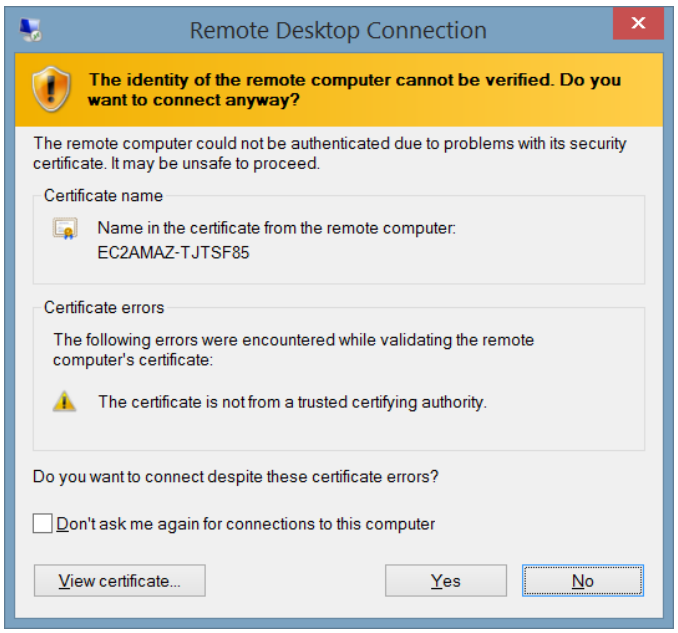

Figure 20 Accept the Remote Desktop Connection

Finally, you will have access to your AMI running all of the needed software for this course. Your remote desktop should look similar to one displayed in figure 21.

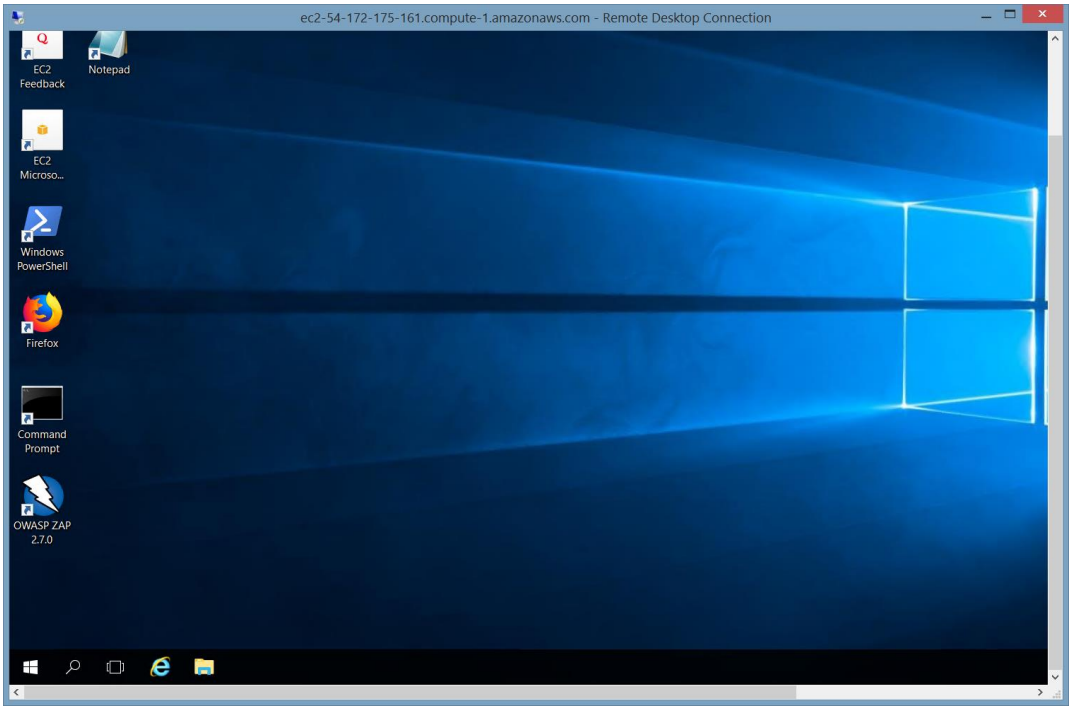

Figure 21 Successful launching of the AMI

9. Change your password.

Since everyone knows the default password for this machine, it is critical you change the password immediately so you don't lose control of the machine to someone else looking for EC2 instances with known passwords.

To change the password, click on the Windows icon. Then click on the Administrator users' icon to display and select the "change account settings" (see figure 22).

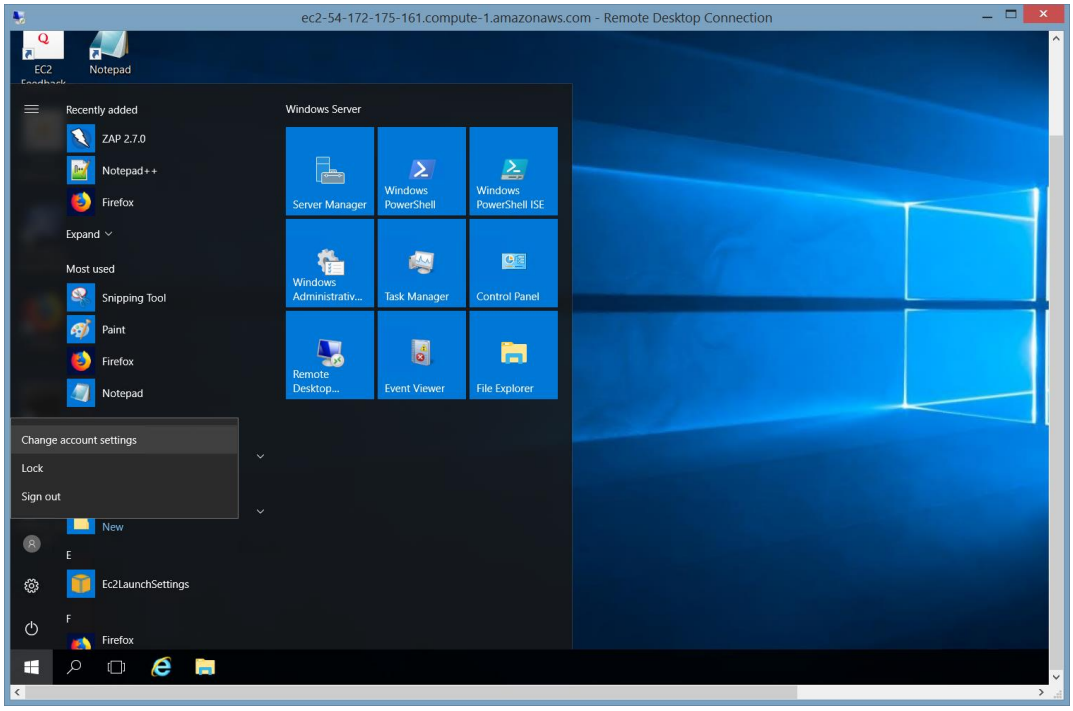

Figure 22 Select Change Account Settings

Once the account options are available locate the password option and select the “Change” button. You will then be prompted to enter the current password and then your new password. Note the password needs to be complex to include upper and lower case letters, numbers and special characters to be accepted. Be sure to record your password as you will need to enter your new password to connect the next time.

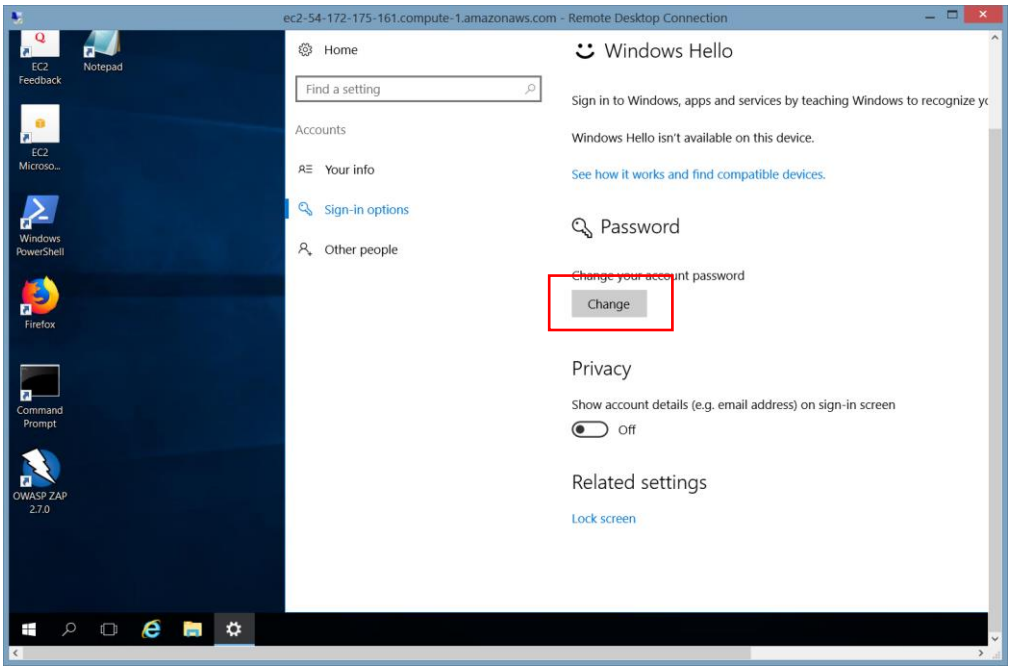

Figure 23 Change the Password

Once you disconnect from the AMI, you should use the Remote Desktop Client to connect again. Your AMI instance will remain running until you terminate it.

10. Verify the AMI components are running properly including:

Once connected, you should verify the components are functioning as expected. You will need to check the following:

- Apache server
- MySQL
- PHP
- Upload and download of files

A bitnami Windows, Apache, MySQL, PHP (WAMP) stack has been installed on the SDEV AMI. The Apache WebServer and MySQL database start automatically. To verify this, open up your Firefox browser (which was also preinstalled on your AMI) and type in localhost. A successful result will look similar to the screen capture provided in figure 22.

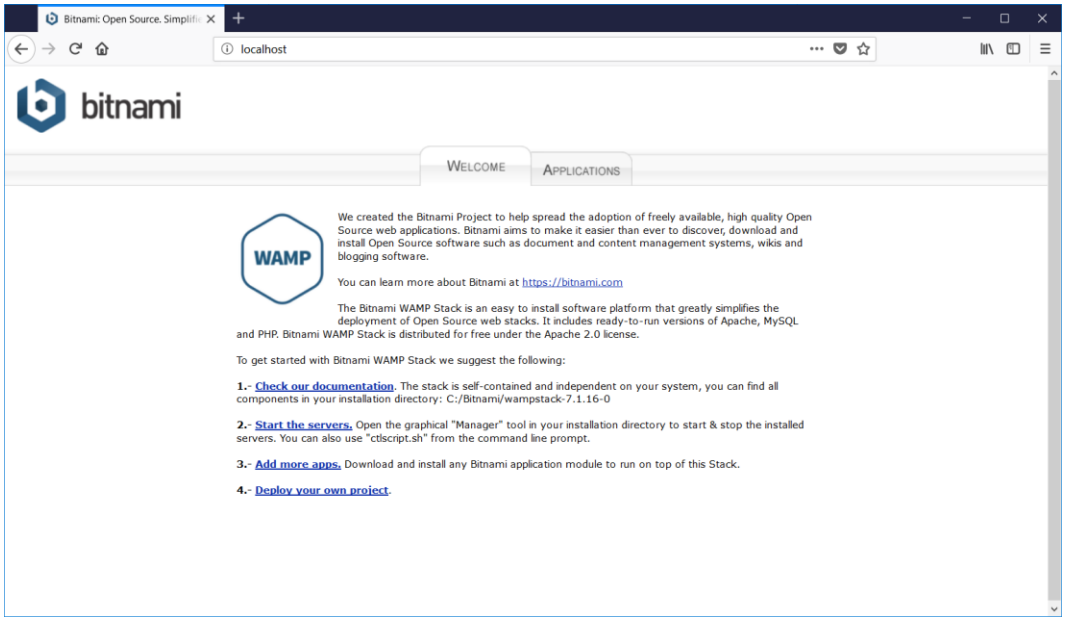

Figure 24 Bitnami WAMP running

The MySQL server is also running on your AMI. To test it, open your command prompt, (located on your AMI desktop) and change to the Bitnami\WampStack-7.1.16-0\mysql\bin directory and enter the following command:

```
mysql -u root -p
```

When prompted enter the following mysql root password:

```
sdev300vm99
```

Figure 25 shows the result from successfully accessing the mysql database.

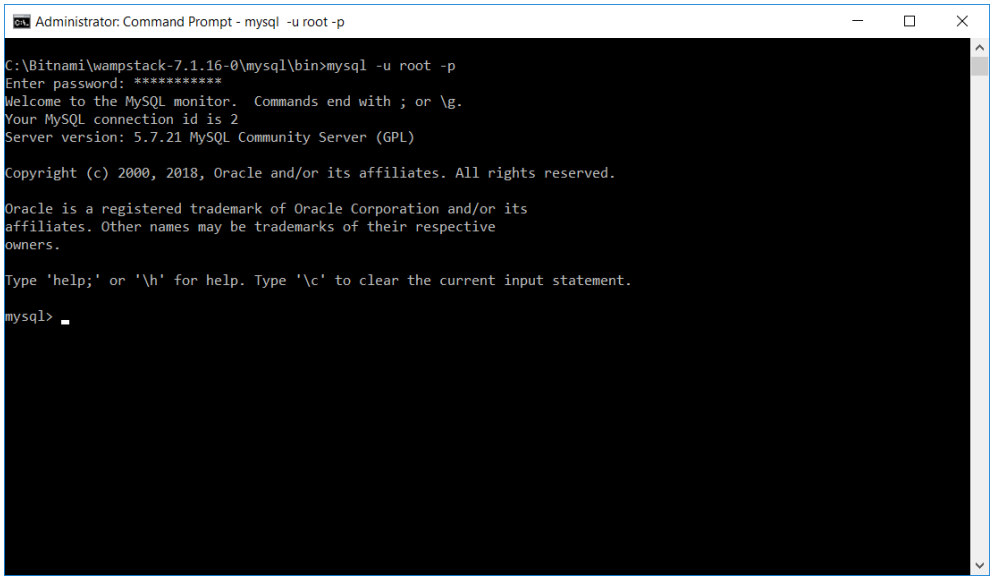

Figure 25 Entering the MySQL Database

Moving data back and forth is easy using the windows explorer copy and paste options. To copy a file from your home computer to the AMI, click on the file (or folder) and use right-mouse click to select Copy or use the short cut of CTRL+C. To paste the file (or folder), move your mouse over the AMI and use the explorer to navigate to the desired location. For example, create a directory called SDEV300 in your documents area on the AMI and the paste the files. (Use CTRL+V or right mouse click Paste).

Copy and paste work exactly the same as they do on your existing Windows or Mac machine.

Disconnect from the Server:

Finally, after you have finished with your session, disconnect from the server. To do so, click on the windows icon and the power button. Carefully select the Disconnect option as shown in figure 26.

It is important that you select Disconnect as opposed to Shut Down or Restart. You should connect, perform your tasks on the AMI and this disconnect each time you have course work to perform.

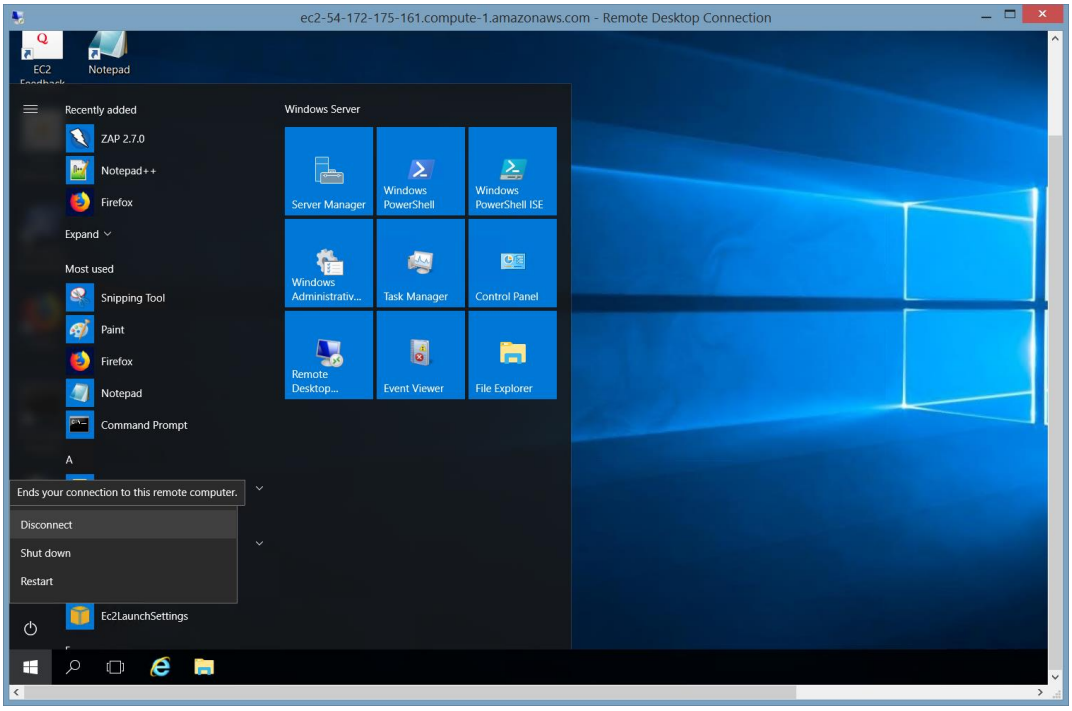

Figure 26 Disconnect from the Server

Congratulations! You have successfully launched and tested your SDEV AMI. In the coming weeks, we will be using this AMI to complete some exciting projects related to Web Application security.