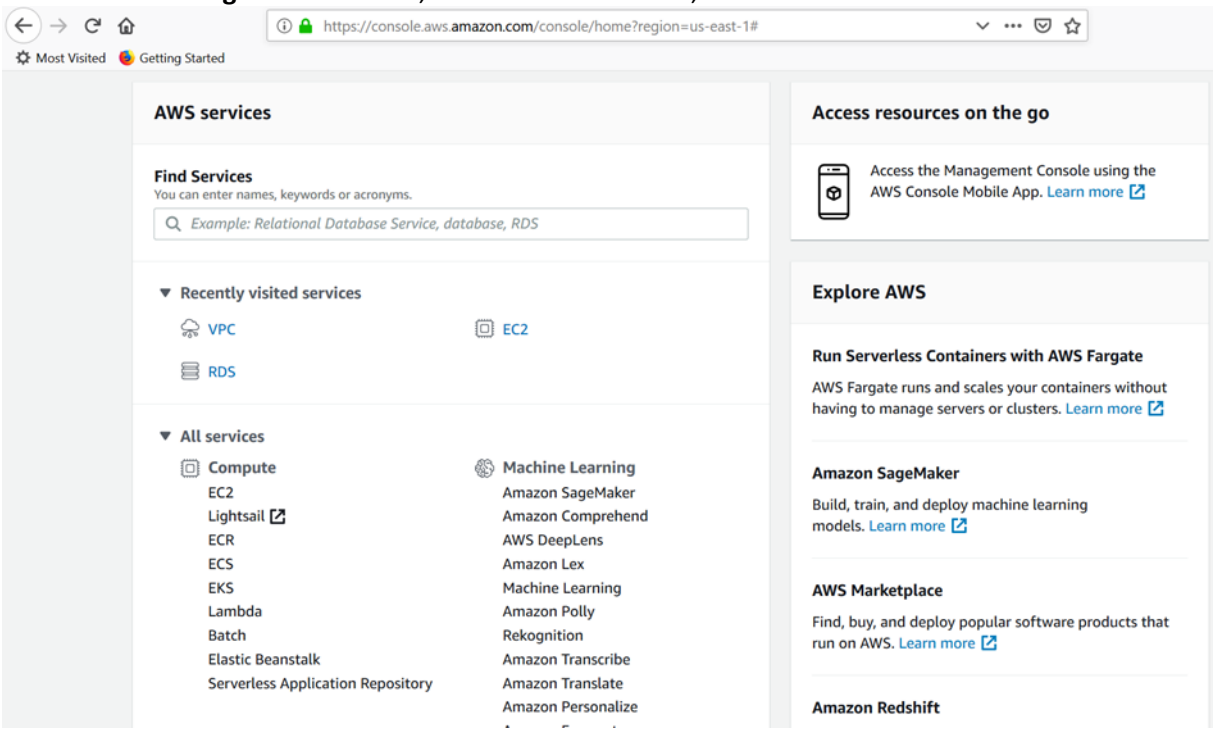
CCA Lab 1 - Creating an EC2 Instance with Microsoft Windows

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable capacity in the cloud. It is designed to make web-scale computing easier for developers.
Amazon EC2 allows to adapt capacity according to computing requirements.
Having the choice of multiple instance type, operationg systems and software packages, it is also possible to select the configuration of the memory, the CPU and the optimal storage.

This documents shows how to launch an Amazon EC2 server from Amazon Machine Image, how to create a security group to permit access to server ressources, how to login to the instance and how to configure an IIS web server.

How to launch an Amazon EC2

-In the **AWS Management Console**, on the **Services** menu, click **EC2**

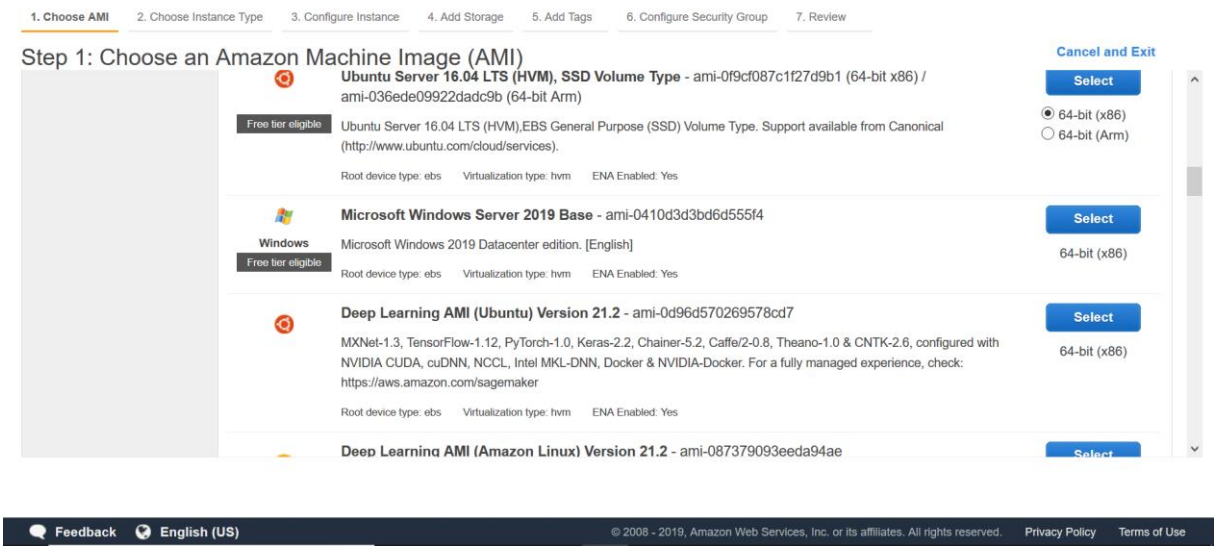


-Click **Launch Instance**

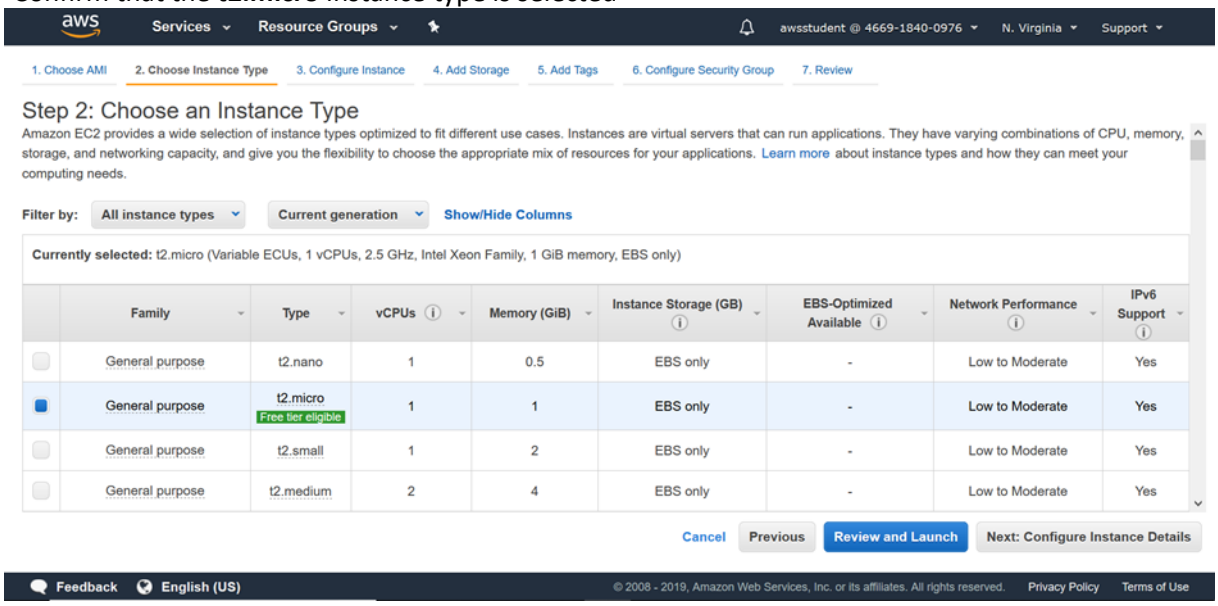
You will be asked to select an Amazon Machine Image (AMI), which is a frozen environment with softwares already installed in it. An AMI is used to launch an instance, which is a copy of the AMI running as a virtual server in the cloud.
Here we will launch an instance running Windows Server 2016.

-In the row for **Microsoft Windows Server 2019 Base**, click **Select**

The **instance type** determines the hardware allocated to the instance and offers different compute, memory and storage capabilities.
Here we will be using **t2.micro** instance type



-Confirm that the **t2.micro** instance type is selected



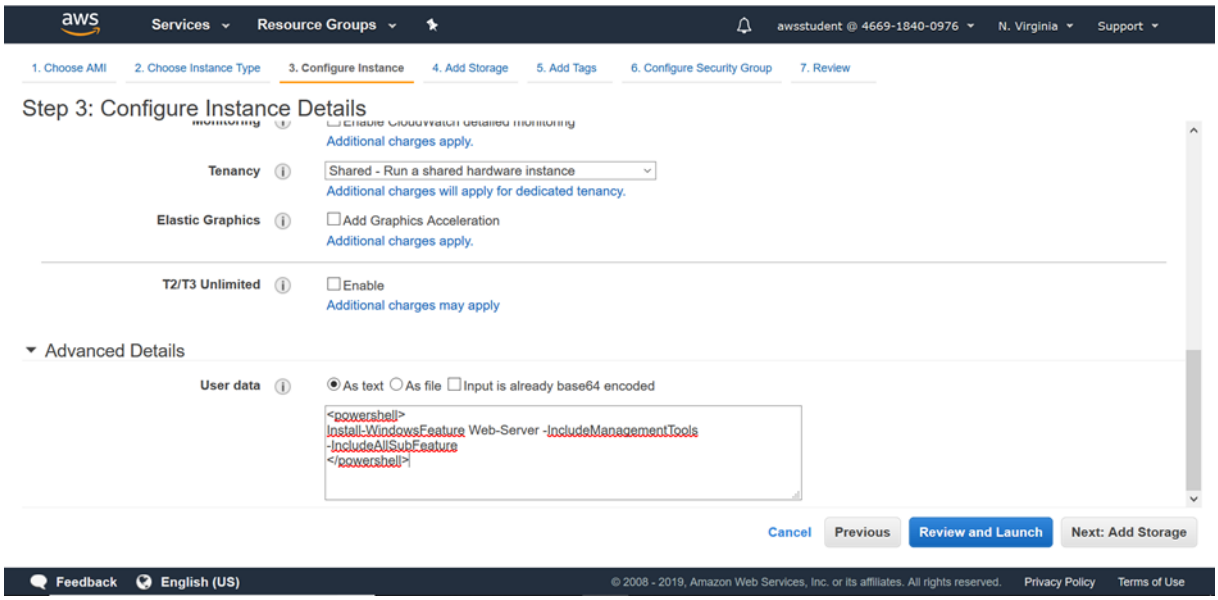
-Click **Next: Configure Instance Details**

In this step a list of options are available for the chosen instance such as monitoring settings or network configuration. We will be using the **default values**.

-Scroll down and click the **Advanced Details** heading to expand it

The **User data** field can be used to provide a script that will be executed when the instance is started in order to install an additional software for instance.
We will provide a script that will install Internet Information Services (IIS) on the instance using this command in the text box:

```
<powershell>
Install-WindowsFeature Web-Server -IncludeManagementTools -
IncludeAllSubFeature
</powershell>
```



-Click **Next: Add Storage**

Here we can specify the size of disk volumes.

-Click **Next: Add Tags**

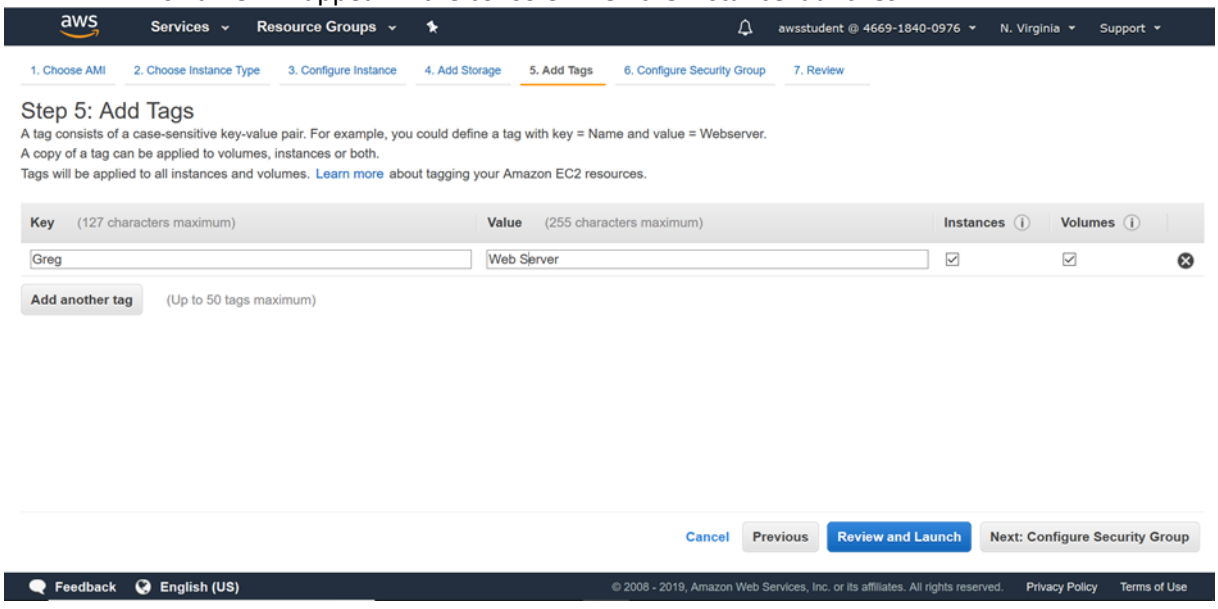
This allows to attach information to an EC2 instance (name, department…).

Click **Add Tag**.

In the **Key** box, type : Name

In the **Value** box, type : Web Server

This name will appear in the console when the instance launches.



-Click **Next: Configure Security Group**.

A **security group** is a virtual firewall that controls the traffic. Adding rules to each security group allows traffic to or from associated instances.

-On the **Configure Security Group** page, click the option **Create a new security group**.

- For the **Security group name** let's type *Web and RDP.*

-For the **Description** type : *Permit Web and Remote Desktop access*

A rule already exists and permits access via RDP (Remote Desktop Protocol). Let's add two additional rules.

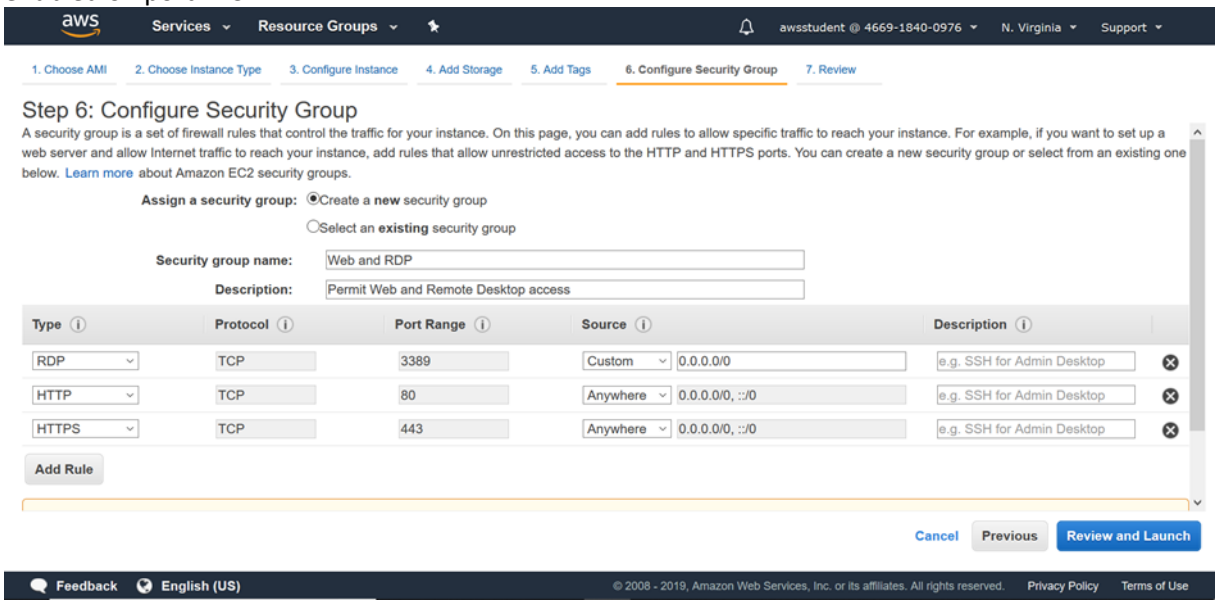
-Click **Add Rule**.

-In the bottom row, in the **Type**, select **HTTP.**

-In the **Source** select **Anywhere**.

This will pemit http web traffic on port 80 to come from anywhere on the internet.

-Add another rule with **Type HTTPS** and **Source Anywhere** so that inbound HTTPS web traffic is enabled on port 443.



-Click **Review and Launch** and ignore the warning (not important here) and click **Launch**.

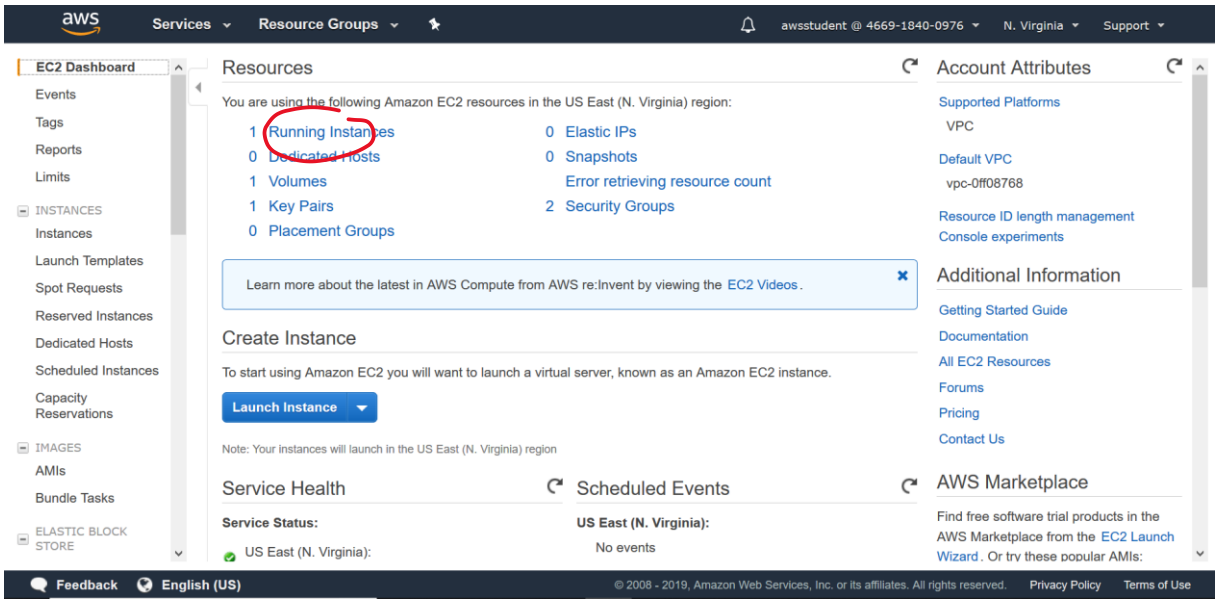
The key pair that is asked for is used to decrypt the Windows admin password. We will be using the key pair already created for the lab (selecting **Choose an existing key pair**).

How to connect to EC2 : Windows Password

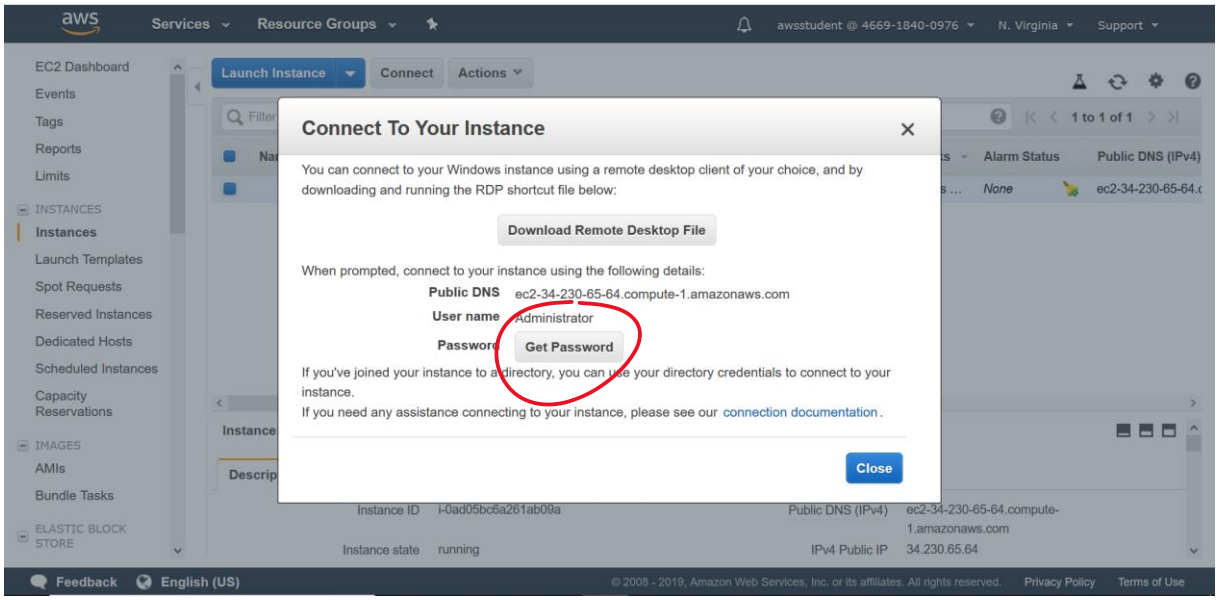
As a new Amazon EC2 instance is launched, a random admin password is generated and encrypted. This password will prevent others from connecting to the instance just created.

In order to login to the instance you will have to download and use a private key pair to decrypt this password. In this exemple we will use an already existing key pair that is created for the lab but you can create a new one.

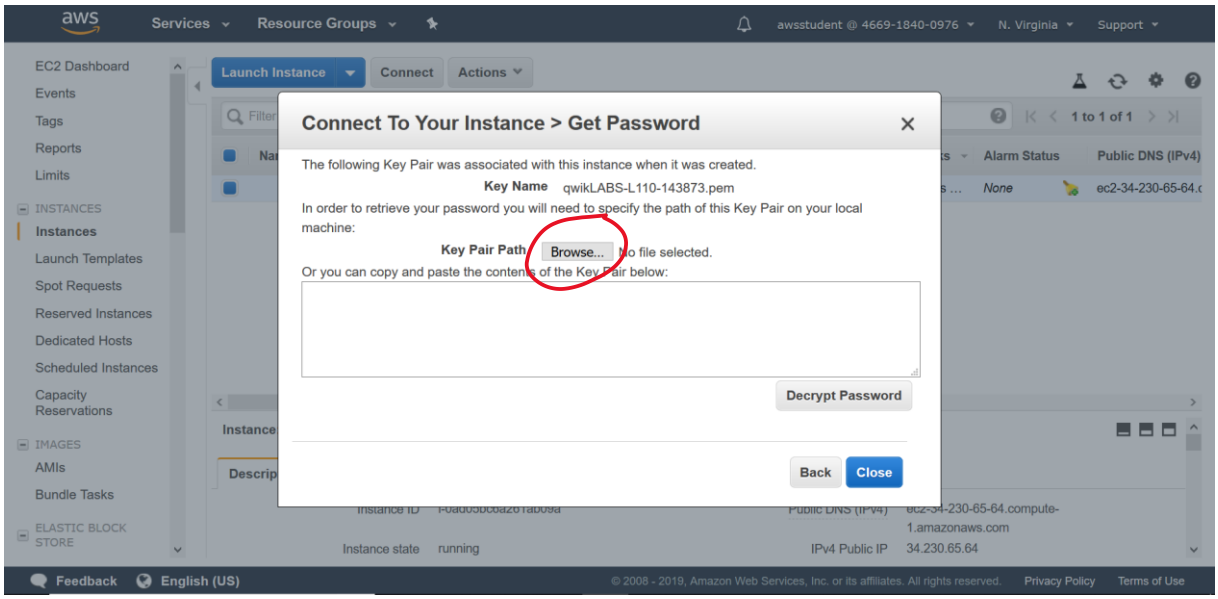
-Return to the Amazon EC2 Management Console and select **running instances**



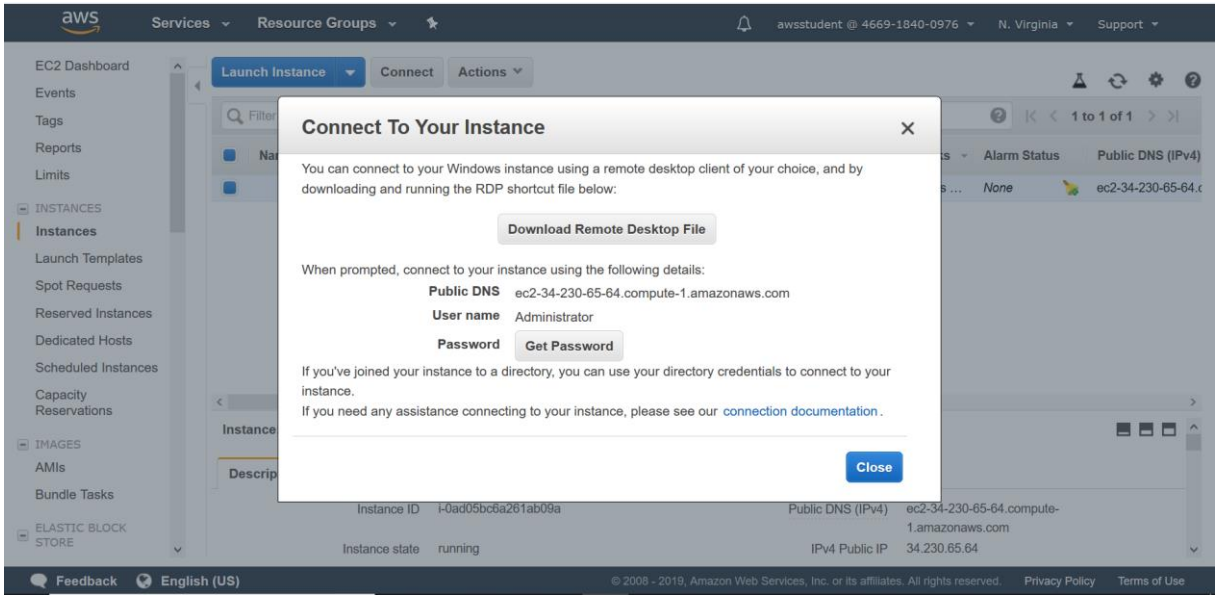
-Select your Web Server instance and connect to it and the click Get Password



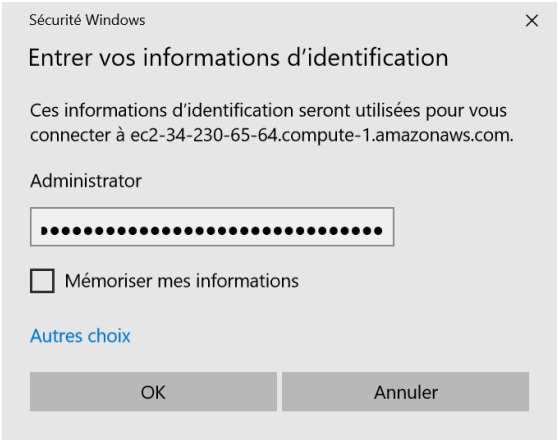
-Then browse the PEM key pair you have dowloade and decrypt password.



-You will be presented a screen similar to the one below, download the Remote Desktop File in order to login to your instance :



-Then paste de decrypted password and click OK.

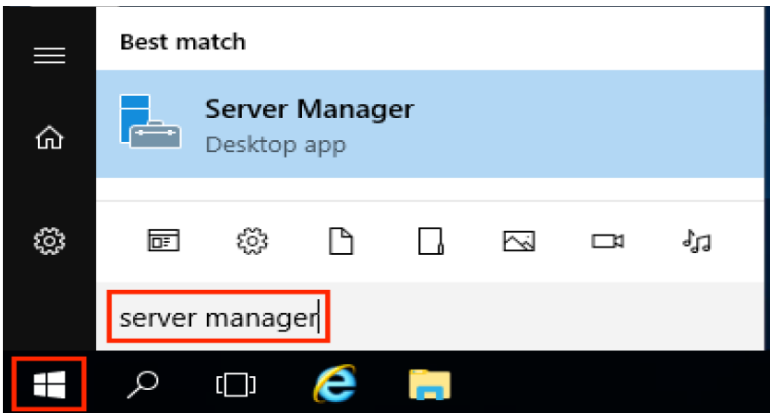


Configure Windows instance

You are now connected to your EC2 Windows instance.

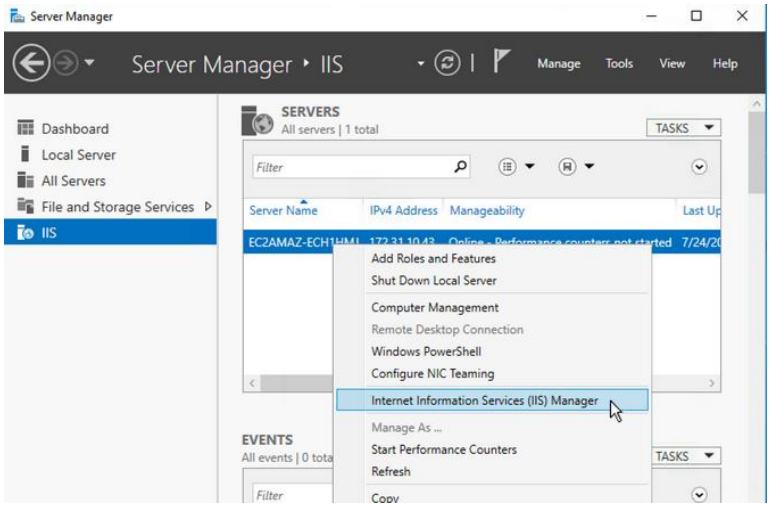
As a result of the user data script used before, IIS is already running on the computer. In this task we will configure IIS so that the default htm page displays meta data about the EC2 instance.

-On the Remote Desktop of the EC2 instance you are connected, launch Server Manager using the search bar.



-In the server Manager click on IIS in the left navigation panel

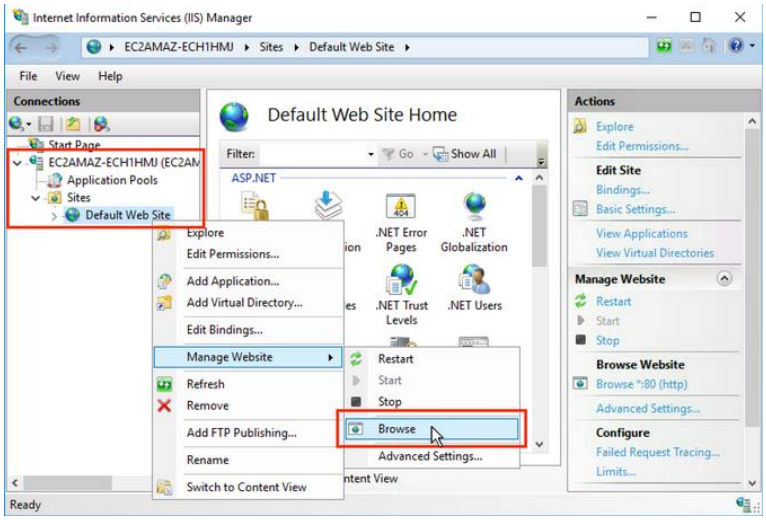
-Right click on the server that appears then select Internet Information Service Manager



A new Internet Information Services (IIS) Manager window will appear.

Explore the Web Server Configuration :

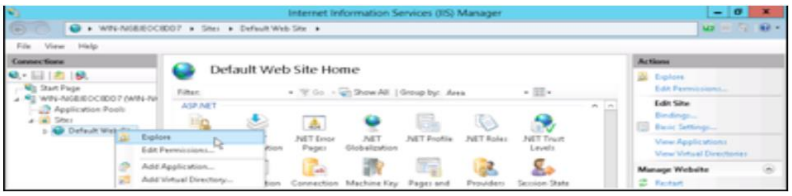
-Click the arrow beside the server name in the left column to expand it and browse as below



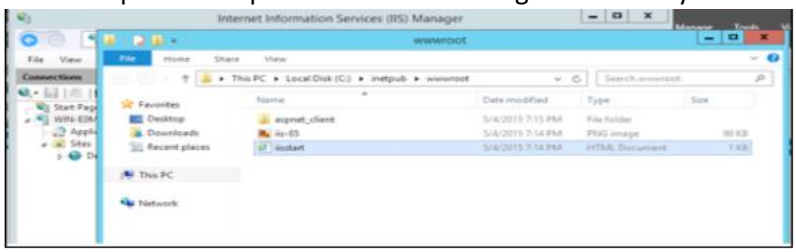
A browser window will open, confirming that IIS is working properly.

-Return to Remote Desktop session and return to the IIS manager window that is showing the title Default Web Site Home

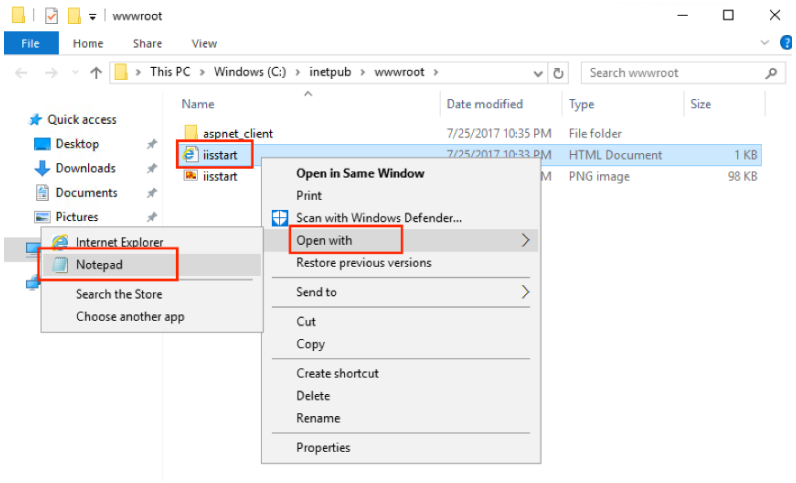
-In the left navigation pane, right click Default Web Site and select Explore



This will open a fil explorer window showing the directory that has your web server files.



-Edit the default iisstart.htm page by opening iistart with notepad.



-Erase the content of the file and replayce it with :

```
<html>
<body>
<h2>EC2 Instance Metadata</h2>
<a href="http://169.254.169.254/latest/meta-data/">Instance
Metadata</a><BR/>
<a href="http://169.254.169.254/latest/meta-data/hostname">Instance
Hostname</a><BR/>
<a href="http://169.254.169.254/latest/meta-data/public-ipv4">Instance
Public IP Address</a><BR/>
<a href="http://169.254.169.254/latest/meta-data/placement/availability-
zone">Instance Availability Zone</a><BR/>
<a href="http://169.254.169.254/latest/user-data">Instance User Data</a>
<a href="https://github.com/Greglec/">Instance Greg Github</a><BR/>

</body>
</html>
```

-In Internet Explorer in the Remote Desktop Session go to http://localhost or refresh the default home page.

The new home page is now displayed and shows four links to the instance metadata and one link to my github account.

Instance Metadata displays all the metadata available.

Instance Hostname shows the name of the EC2 instance.

Instance Public IP Address shows the OP address assigned to the instance.

Instance Availability Zone shows the data center where your instance is running.

User data shows the script that was passed to the instance and was run when it started.