

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.

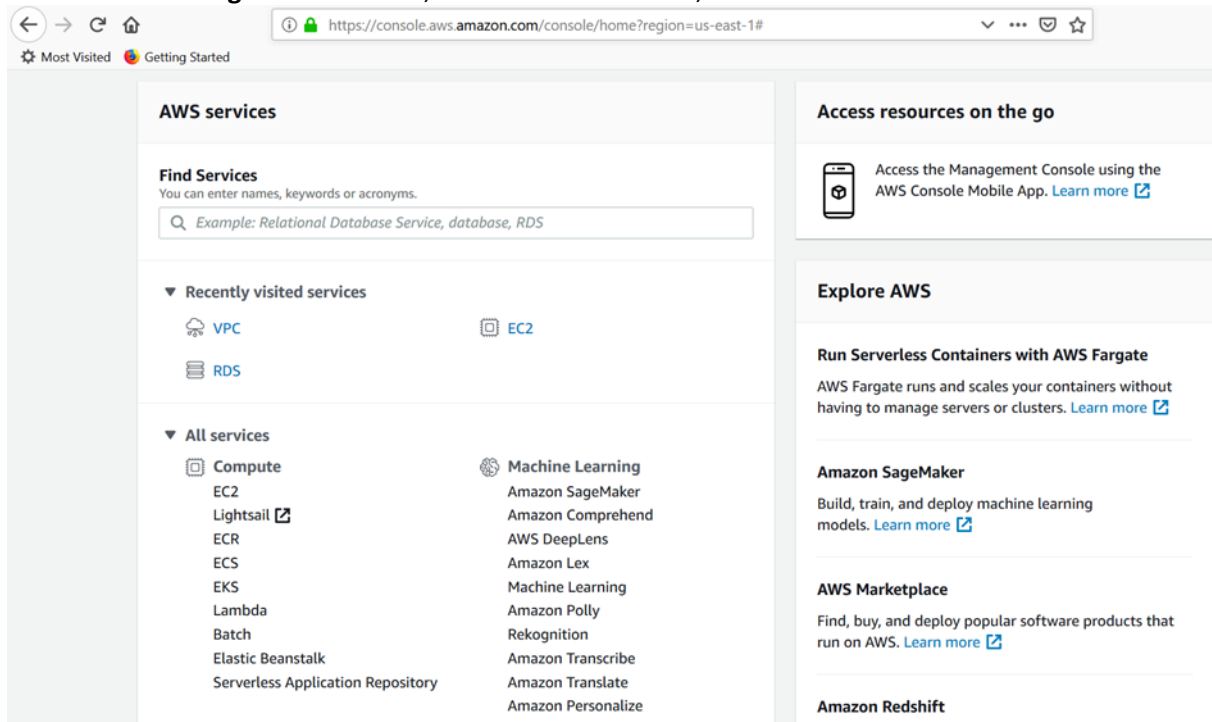
Amazon EC2 allows to adapt capacity according to computing requirements.

Having the choice of multiple instance type, operating 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 resources, 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

Step 1: Choose an Amazon Machine Image (AMI)

Cancel and Exit

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-0f9cf087c1f27d9b1 (64-bit x86) / ami-036ede09922dad9b (64-bit Arm)

Free tier eligible

Ubuntu Server 16.04 LTS (HVM), EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Microsoft Windows Server 2019 Base - ami-0410d3d3bd6d555f4

Windows

Free tier eligible

Microsoft Windows 2019 Datacenter edition. [English]

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Deep Learning AMI (Ubuntu) Version 21.2 - ami-0d96d570269578cd7

MXNet-1.3, TensorFlow-1.12, PyTorch-1.0, Keras-2.2, Chainer-5.2, Caffe/2-0.8, Theano-1.0 & CNTK-2.6, configured with NVIDIA CUDA, cuDNN, NCCL, Intel MKL-DNN, Docker & NVIDIA-Docker. For a fully managed experience, check: <https://aws.amazon.com/sagemaker>

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Deep Learning AMI (Amazon Linux) Version 21.2 - ami-087379093eeda94ae

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

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

Filter by: All instance types Current generation Show/Hide Columns

Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	General purpose	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Yes

Cancel Previous Review and Launch Next: Configure Instance Details

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-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>
```

Step 3: Configure Instance Details

Tenancy ☐ Shared - Run a shared hardware instance
Additional charges will apply for dedicated tenancy.

Elastic Graphics ☐ Add Graphics Acceleration
Additional charges apply.

T2/T3 Unlimited ☐ Enable
Additional charges may apply.

▼ **Advanced Details**

User data ☒ As text ☐ As file ☐ Input is already base64 encoded

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

Cancel Previous **Review and Launch** Next: Add Storage

-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.

Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.
A copy of a tag can be applied to volumes, instances or both.
Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key (127 characters maximum)	Value (255 characters maximum)	Instances	Volumes
Greg	Web Server	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Add another tag (Up to 50 tags maximum)

Cancel Previous **Review and Launch** Next: Configure Security Group

-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 permit 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.

aws Services Resource Groups

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group: ☒ Create a new security group ☐ Select an existing security group

Security group name:

Description:

Type	Protocol	Port Range	Source	Description
RDP	TCP	3389	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop
HTTP	TCP	80	Anywhere 0.0.0.0/0, ::0	e.g. SSH for Admin Desktop
HTTPS	TCP	443	Anywhere 0.0.0.0/0, ::0	e.g. SSH for Admin Desktop

Add Rule

Cancel Previous Review and Launch

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-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 example 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**

aws

Services Resource Groups

awsstudent @ 4669-1840-0976 N. Virginia Support

EC2 Dashboard

- Events
- Tags
- Reports
- Limits
- INSTANCES
 - Instances
 - Launch Templates
 - Spot Requests
 - Reserved Instances
 - Dedicated Hosts
 - Scheduled Instances
 - Capacity Reservations
- IMAGES
 - AMIs
 - Bundle Tasks
- ELASTIC BLOCK STORE

Resources

You are using the following Amazon EC2 resources in the US East (N. Virginia) region:

- 1 **Running Instances**
- 0 Elastic IPs
- 0 Snapshots
- 1 Volumes
- Error retrieving resource count
- 1 Key Pairs
- 2 Security Groups
- 0 Dedicated Hosts
- 0 Placement Groups

Learn more about the latest in AWS Compute from AWS re:Invent by viewing the [EC2 Videos](#).

Create Instance

To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance.

[Launch Instance](#)

Note: Your instances will launch in the US East (N. Virginia) region

Service Health

Service Status: **US East (N. Virginia):** No events

Scheduled Events

Account Attributes

Supported Platforms

VPC

Default VPC
vpc-0ff08768

Resource ID length management
Console experiments

Additional Information

[Getting Started Guide](#)
[Documentation](#)
[All EC2 Resources](#)
[Forums](#)
[Pricing](#)
[Contact Us](#)

AWS Marketplace

Find free software trial products in the AWS Marketplace from the [EC2 Launch Wizard](#). Or try these popular AMIs:

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

aws

Services Resource Groups

awsstudent @ 4669-1840-0976 N. Virginia Support

EC2 Dashboard

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[Launch Instance](#) [Connect](#) [Actions](#)

Connect To Your Instance

You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:

[Download Remote Desktop File](#)

When prompted, connect to your instance using the following details:

Public DNS	ec2-34-230-65-64.compute-1.amazonaws.com
User name	Administrator
Password	Get Password

If you've joined your instance to a directory, you can use your directory credentials to connect to your instance.

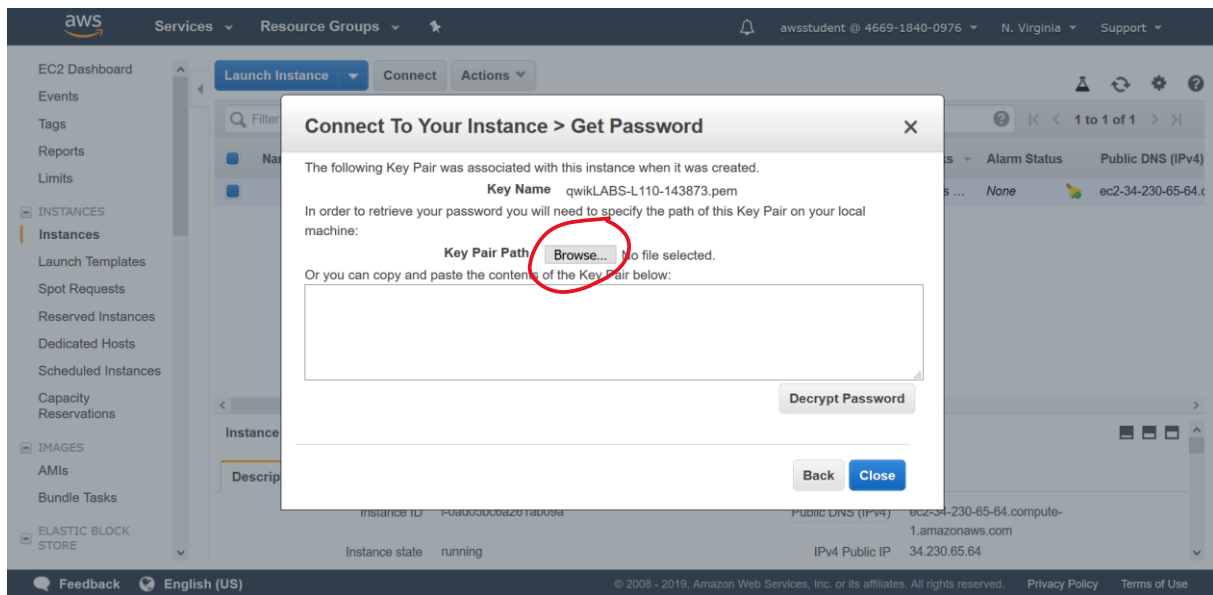
If you need any assistance connecting to your instance, please see our [connection documentation](#).

[Close](#)

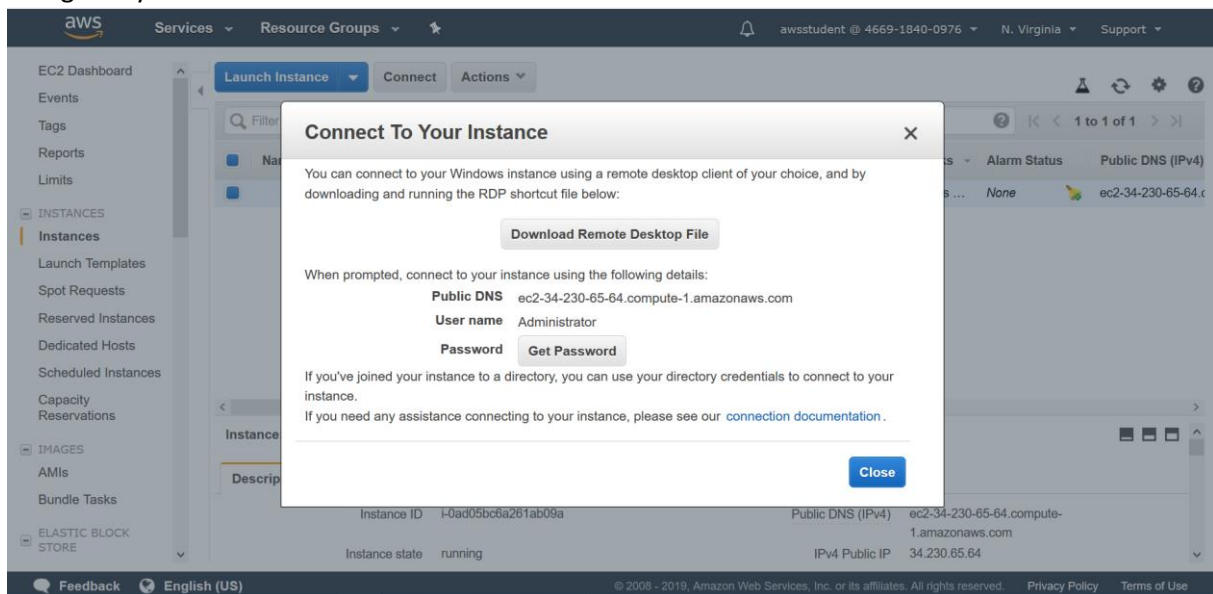
Instance ID	i-0ad05bc6a261ab09a	Public DNS (IPv4)	ec2-34-230-65-64.compute-1.amazonaws.com
Instance state	running	IPv4 Public IP	34.230.65.64

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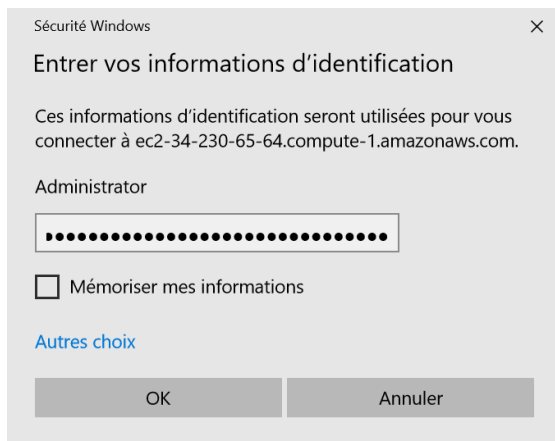
-Then browse the PEM key pair you have downloaded and decrypt password.



-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.

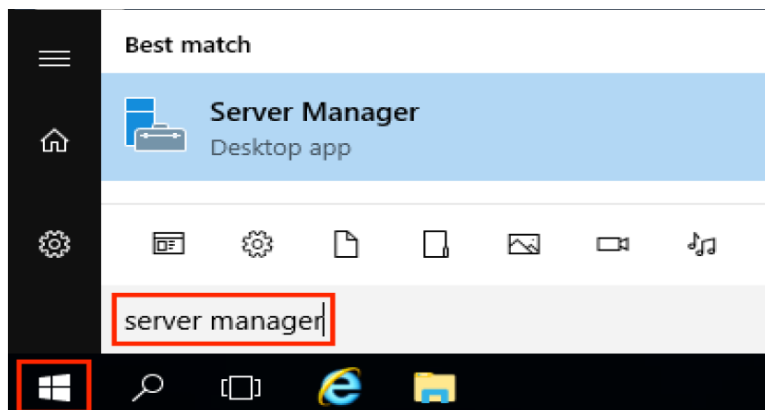


Configure Windows instance

You are now connected to your EC2 Windows instance.

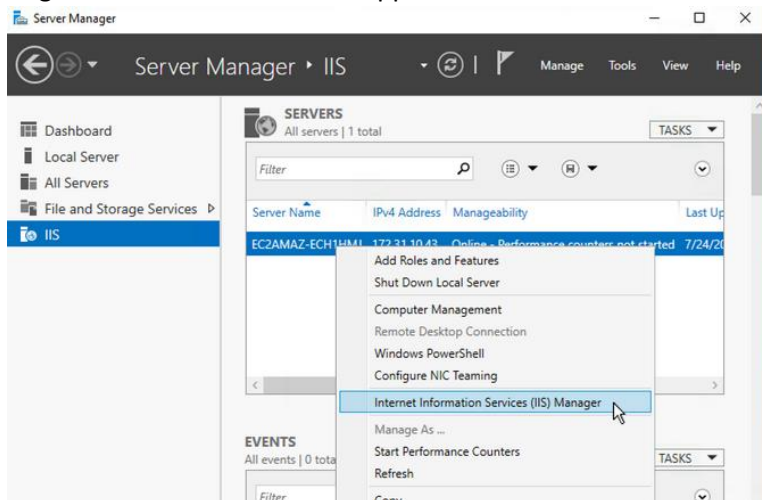
As a result of the user data script used before, IIS is already running on the computer. In this task we will configure IIS so that the default htm page displays meta data about the EC2 instance.

-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

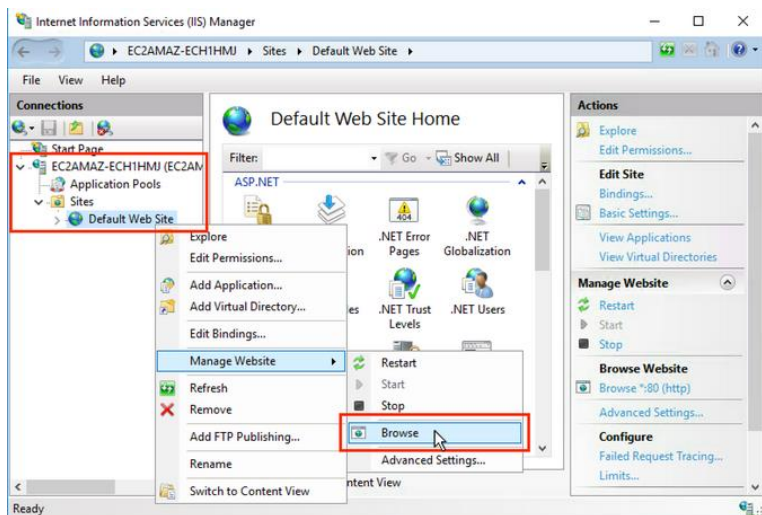
-Right click on the server that appears then select Internet Information Service Manager



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

Explore the Web Server Configuration :

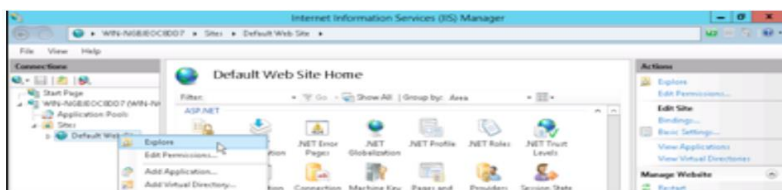
-Click the arrow beside the server name in the left column to expand it and browse as below



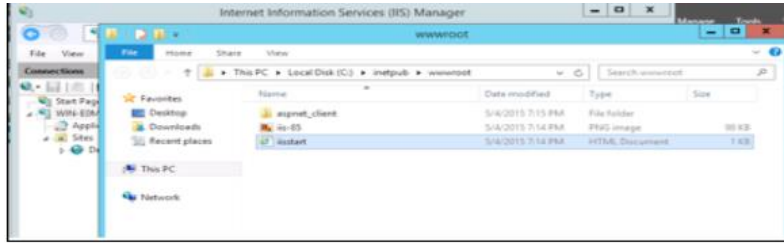
A browser window will open, confirming that IIS is working properly.

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

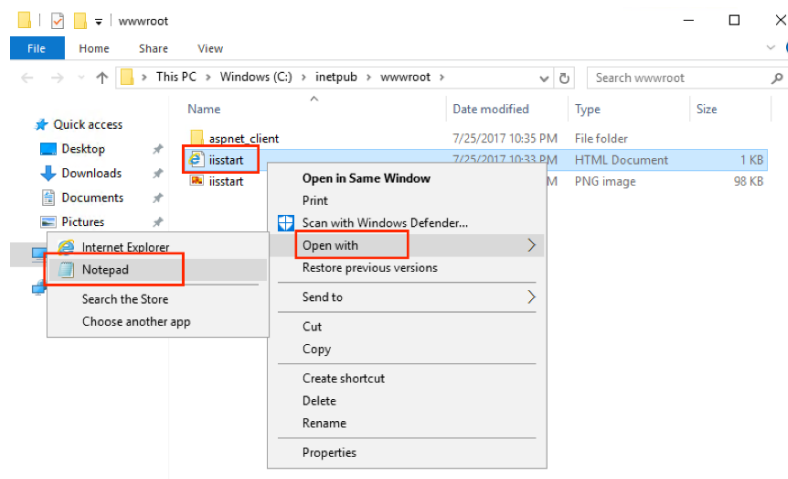
-In the left navigation pane, right click Default Web Site and select Explore



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



-Edit the default iisstart.htm page by opening iisstart 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.