

## ***Scenario for Project 1***

Heaven Classics, a music company, decided to launch its music store, but soon it ran into a problem related to storing, managing, and streaming of audio files for users from their on-premise data centers. The internal servers weren't able to take the load during peak hours, which led to the disappointment of listeners.

One of their technical team members suggested the AWS services. The company had invested a lot in setting up their on-premises data centers, and to invest again in a new service didn't seem a profitable proposition. But, they still wanted to know what AWS can offer.

With AWS services, the company's team need not manage the servers on their premises, and would only pay for what they use, and this got them interested. However, the company wasn't too keen on investing a huge amount. Then, the AWS representative introduced them to the concept of AWS Free Tier for 12 months. During this period, the team at Heaven Classics would be able to use the AWS services with certain limitations, and once they are sure that AWS services would be beneficial, they can utilize the paid services.

To manage all the AWS activities, Heaven Classics formed their own support group. They created an AWS account, and were assigned the following objectives:

1. Select AWS Region.
2. Create an Amazon S3 Bucket.
3. Create EC2 instance, and select Windows 2012 Server Configuration on AWS Cloud.

### ***1. Select an AWS Region***

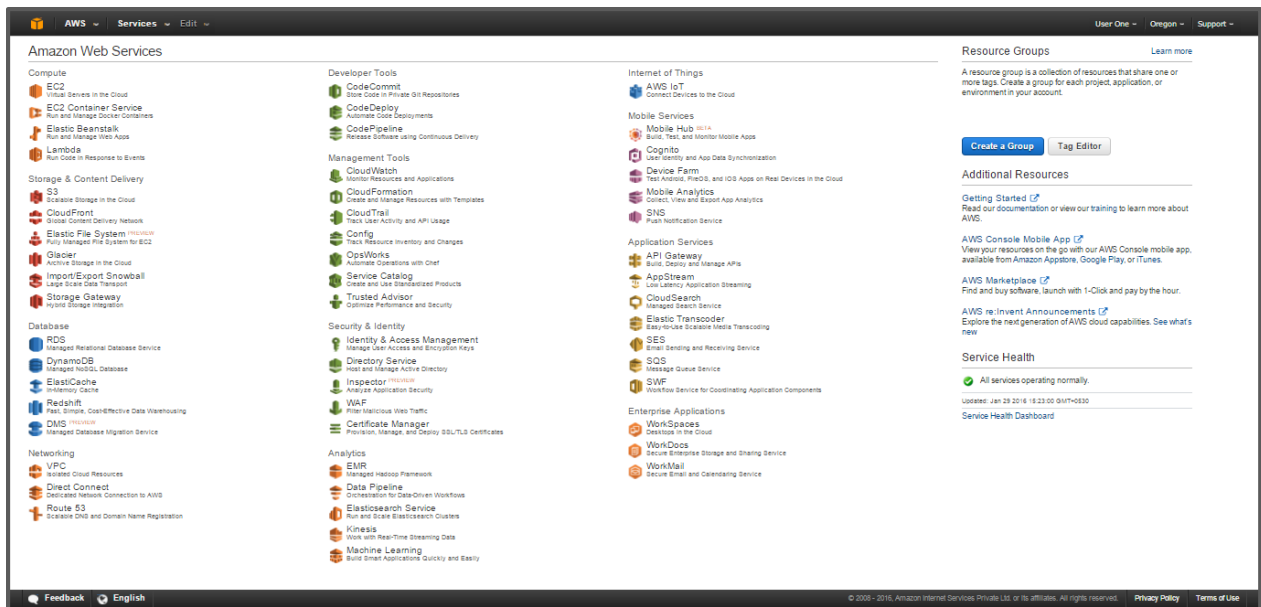
Amazon has its own data centers across the globe to host the AWS infrastructure. They are spread across different regions in the world, namely, Asia, Australia, Europe, North America, and South America.

Each data center site is called a Region, and each region consists of several distinct sites termed as Availability Zones, or AZ.

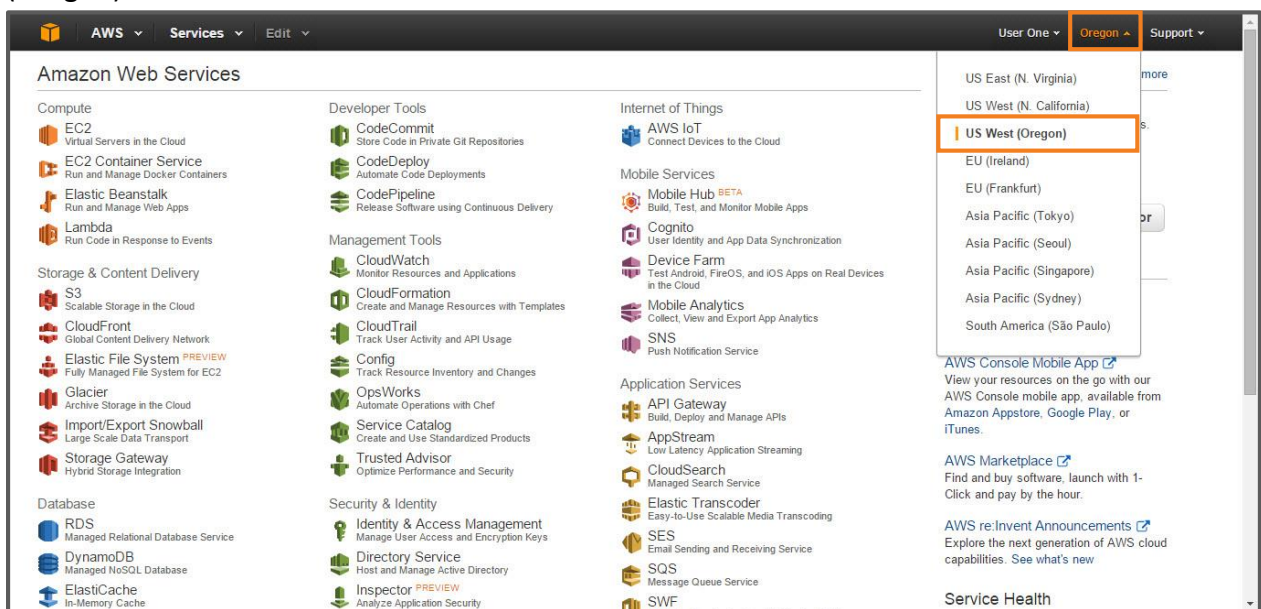
Selecting a Region enables Amazon to efficiently distribute and manage your data requested by users across the globe.

To select an AWS Region:

1. Open the Amazon Management Console.



- From the Navigation bar, use the region selector to select the desired Region, US West (Oregon).

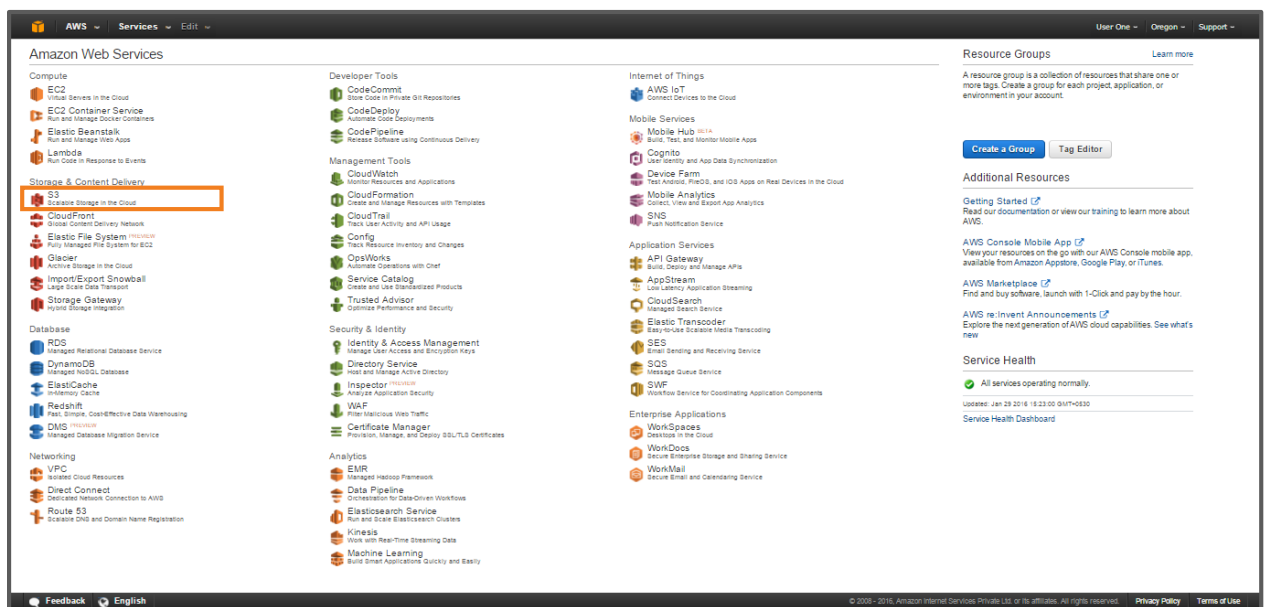


## 2. Create an Amazon S3 bucket

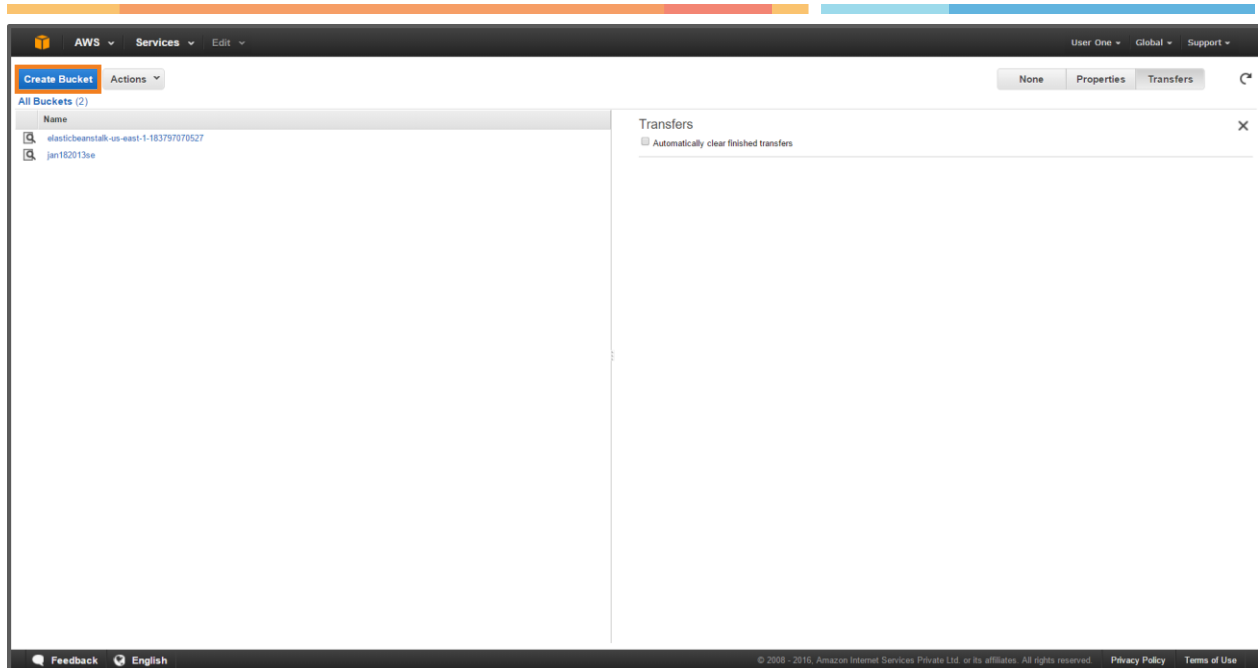
The Amazon S3 bucket enables the team at Heaven Classics to store their audio files in the US West (Oregon) region.

To create an S3 bucket:

1. In the AWS Management Console, locate the Amazon S3 icon under the Storage & Content Delivery services. Then, click the icon to display the S3 Management Console page.



2. On this page, click **Create Bucket** to display the Create a Bucket - Select a Bucket Name and Region dialog box.



- Next, enter a globally unique bucket name in the provided space. It was recommended to name the bucket with the company's initials and the current date to ensure uniqueness. Besides this, Heaven Classic has to confirm the bucket name does not contain upper case, special characters, or spaces between characters. Enter the name as: hc2016.

Create a Bucket - Select a Bucket Name and Region

Cancel

A bucket is a container for objects stored in Amazon S3. When creating a bucket, you can choose a Region to optimize for latency, minimize costs, or address regulatory requirements. For more information regarding bucket naming conventions, please visit the [Amazon S3 documentation](#).

**Bucket Name:**

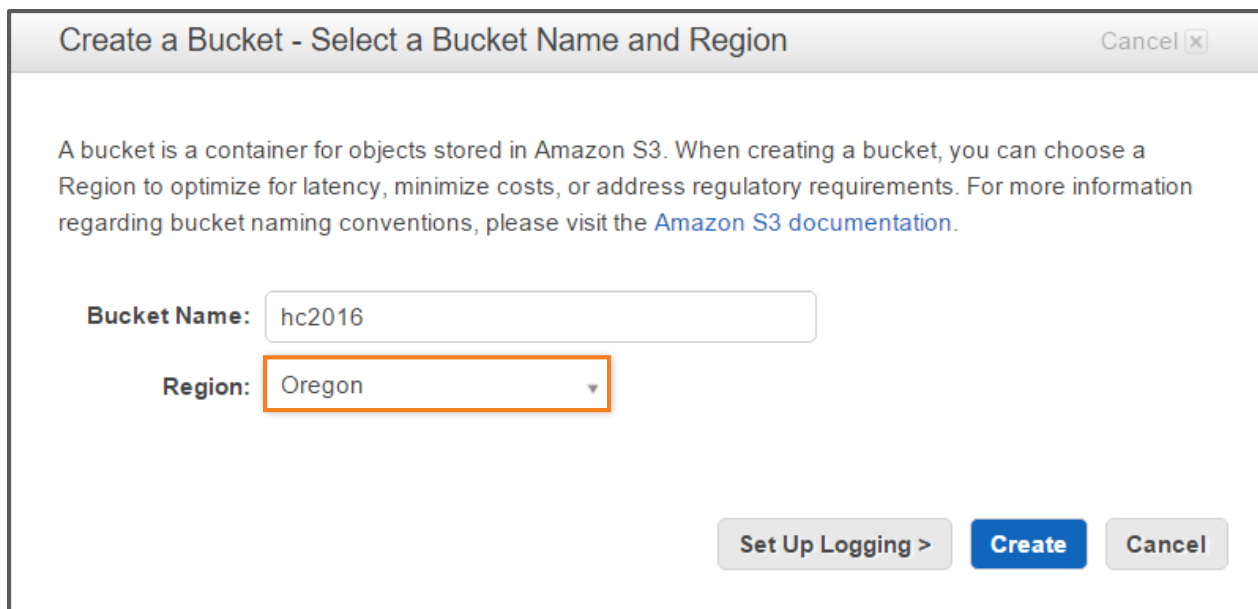
**Region:**

Set Up Logging >

Create

Cancel

- In the space provided for the Region, choose a location nearest to the office premises from the dropdown list. Heaven Classics will select US West (Oregon) region.



Create a Bucket - Select a Bucket Name and Region Cancel

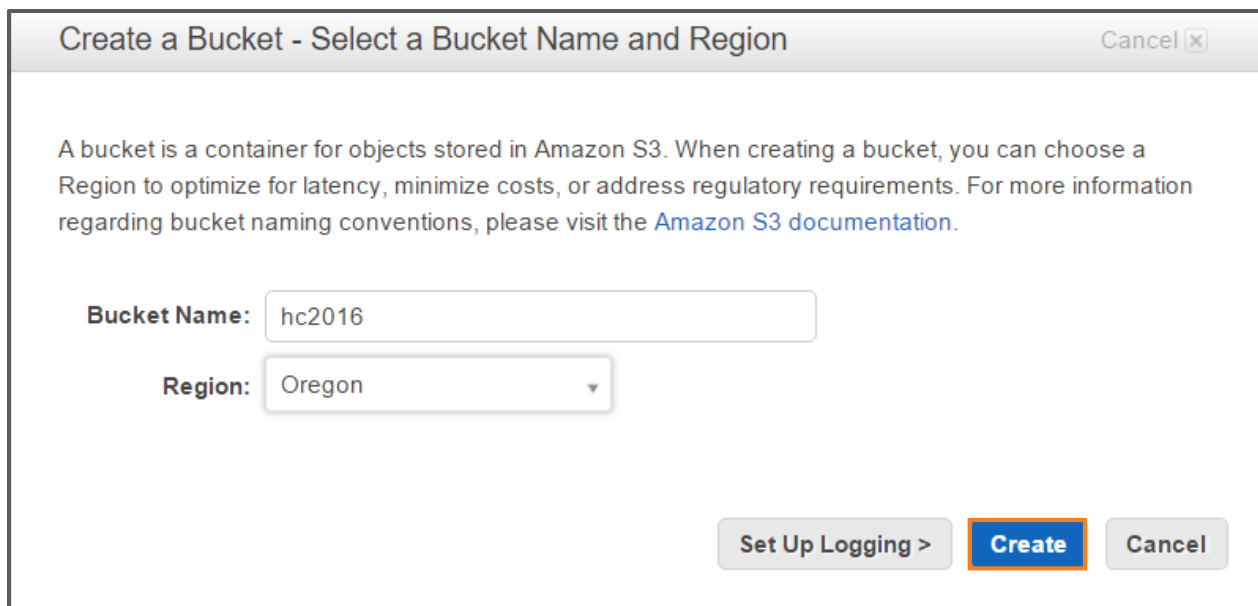
A bucket is a container for objects stored in Amazon S3. When creating a bucket, you can choose a Region to optimize for latency, minimize costs, or address regulatory requirements. For more information regarding bucket naming conventions, please visit the [Amazon S3 documentation](#).

Bucket Name:

Region:

Set Up Logging > Create Cancel

- Next, click **Create** to add the bucket and display its name on the left panel.



Create a Bucket - Select a Bucket Name and Region Cancel

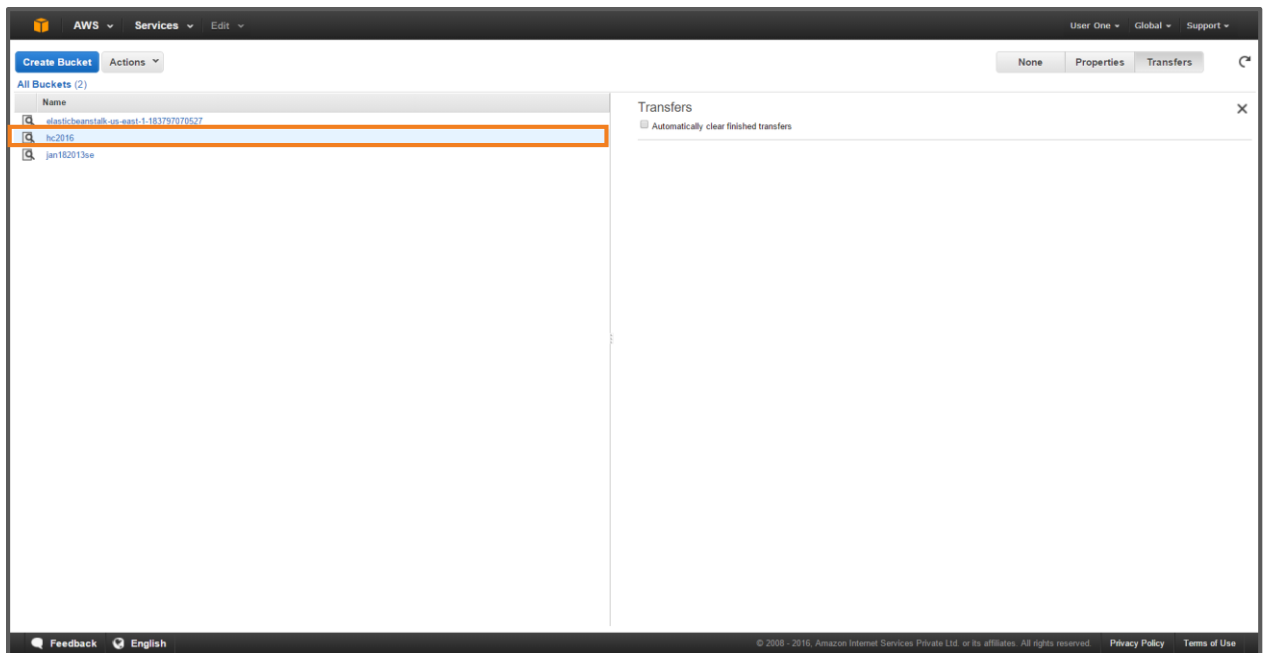
A bucket is a container for objects stored in Amazon S3. When creating a bucket, you can choose a Region to optimize for latency, minimize costs, or address regulatory requirements. For more information regarding bucket naming conventions, please visit the [Amazon S3 documentation](#).

Bucket Name:

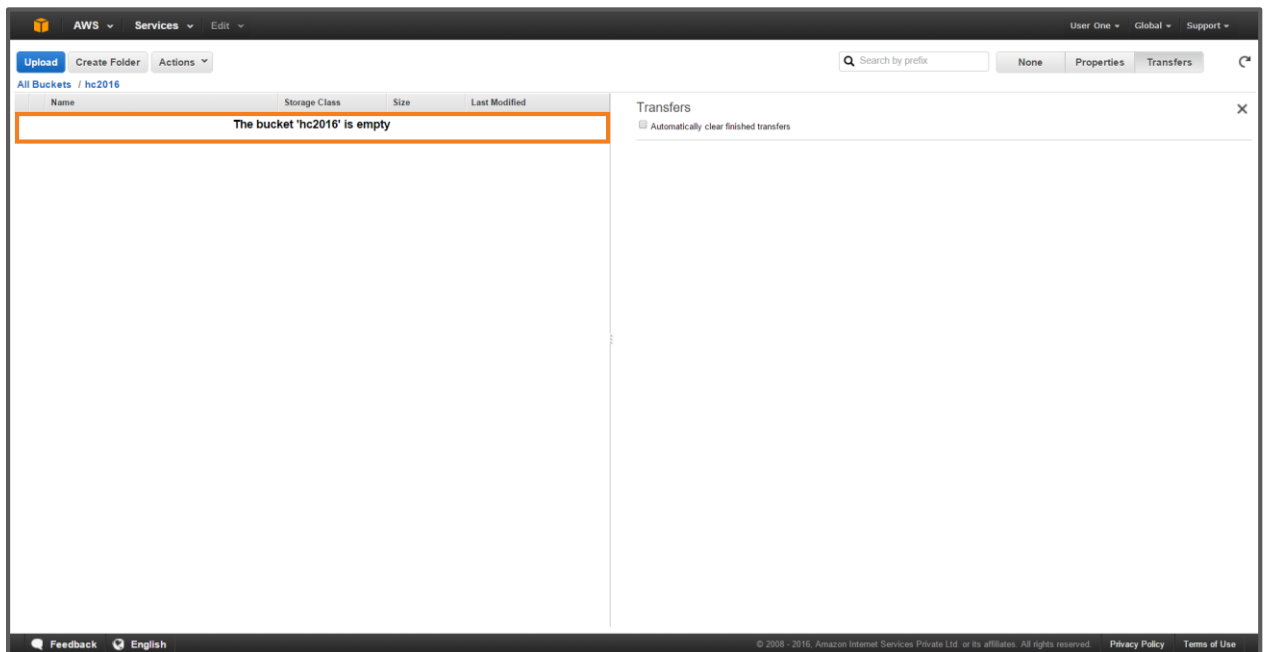
Region:

Set Up Logging > Create Cancel

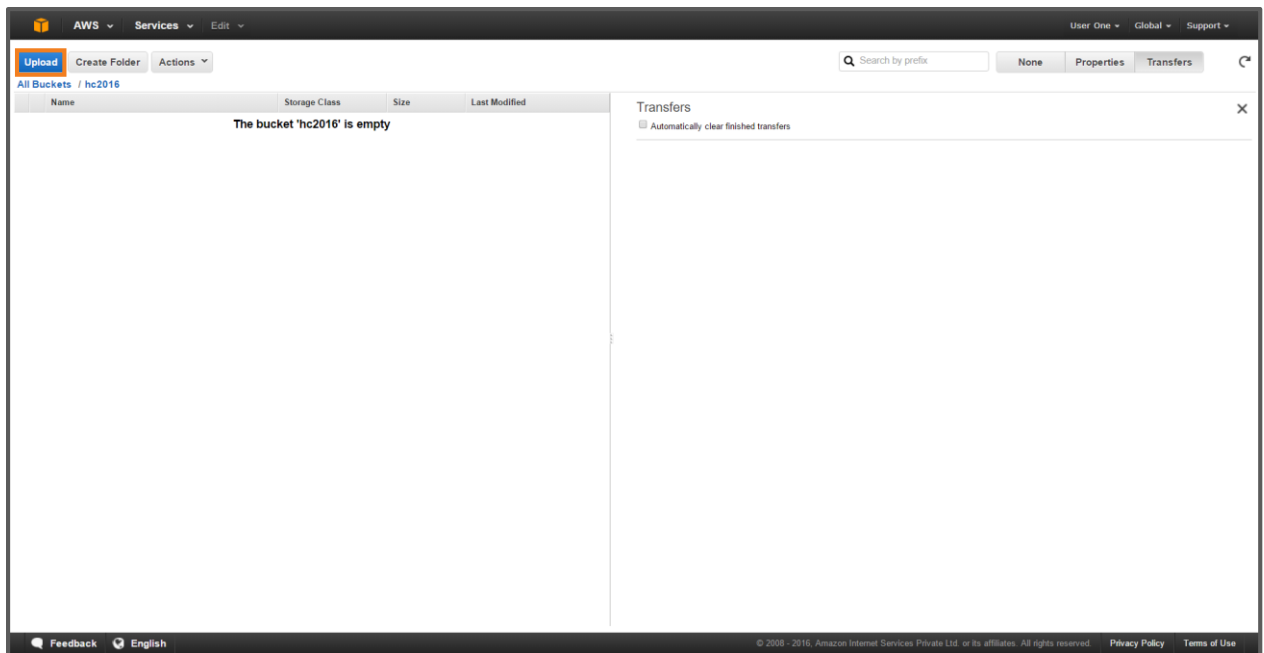
- Now, click the created bucket.



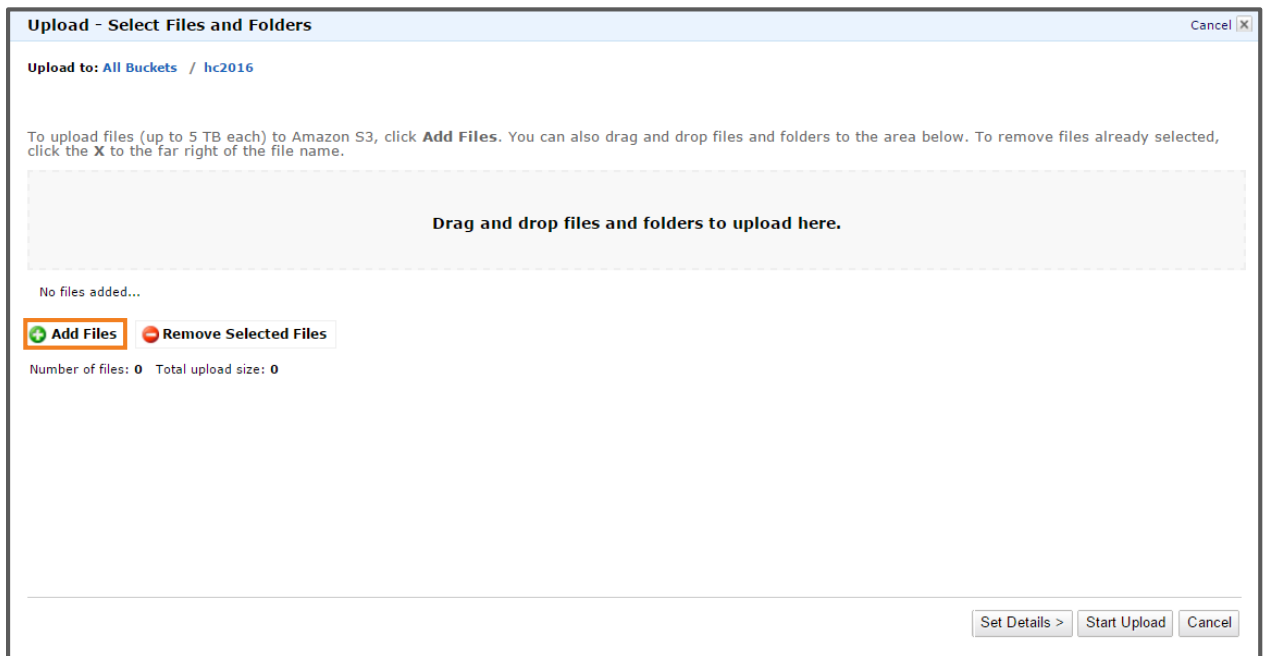
7. Clicking on the created bucket gives a message indicating the bucket is empty.



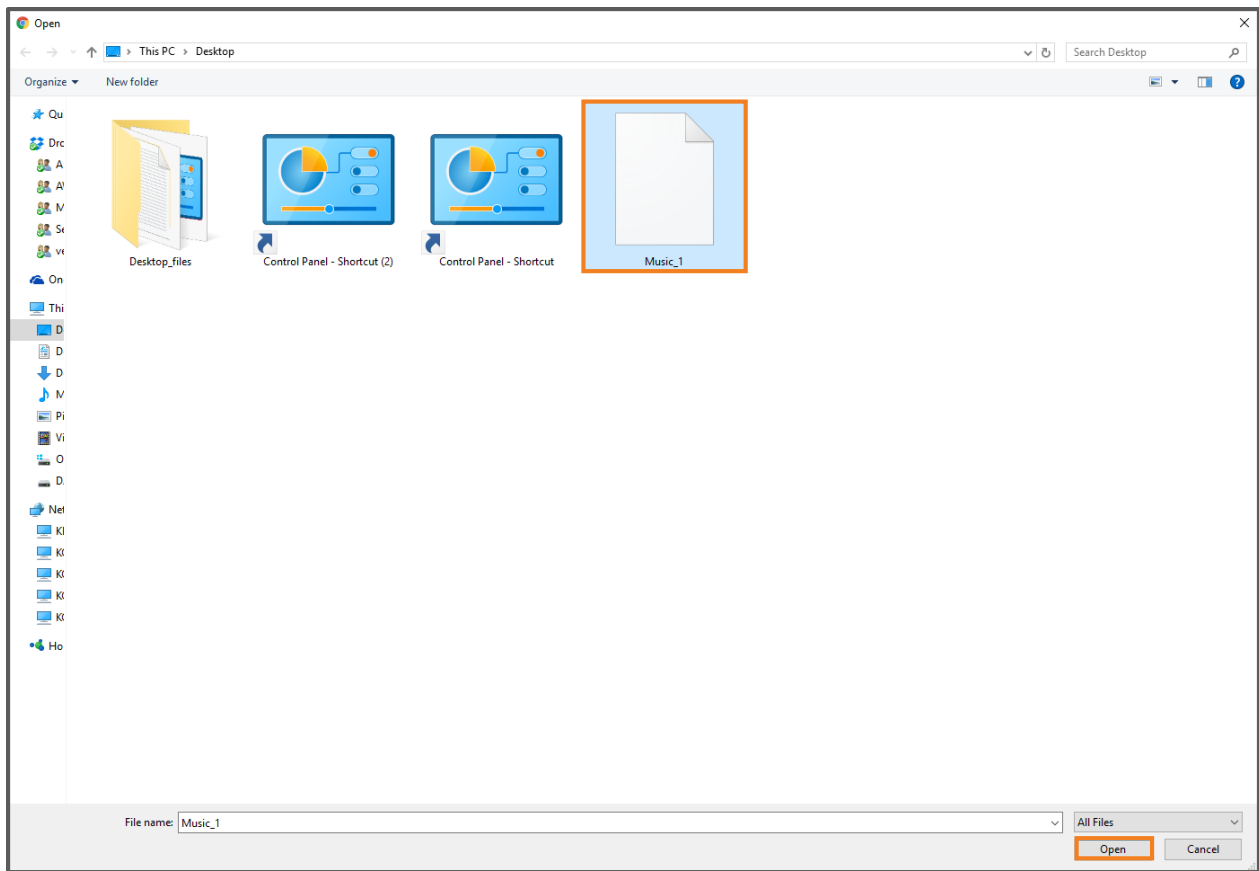
8. Here, click **Upload** to select files from their local machine. There is another option of drag and drop the files to Upload.



9. Click **Add Files**.

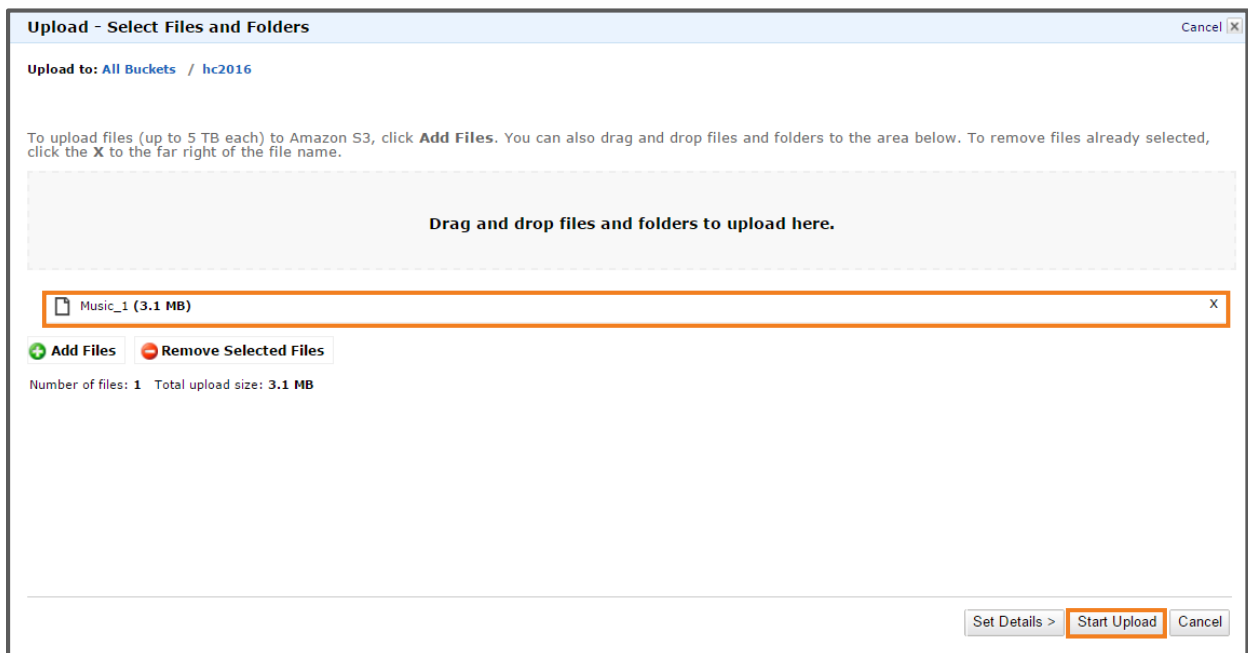


10. Select the files, and click **Open**.



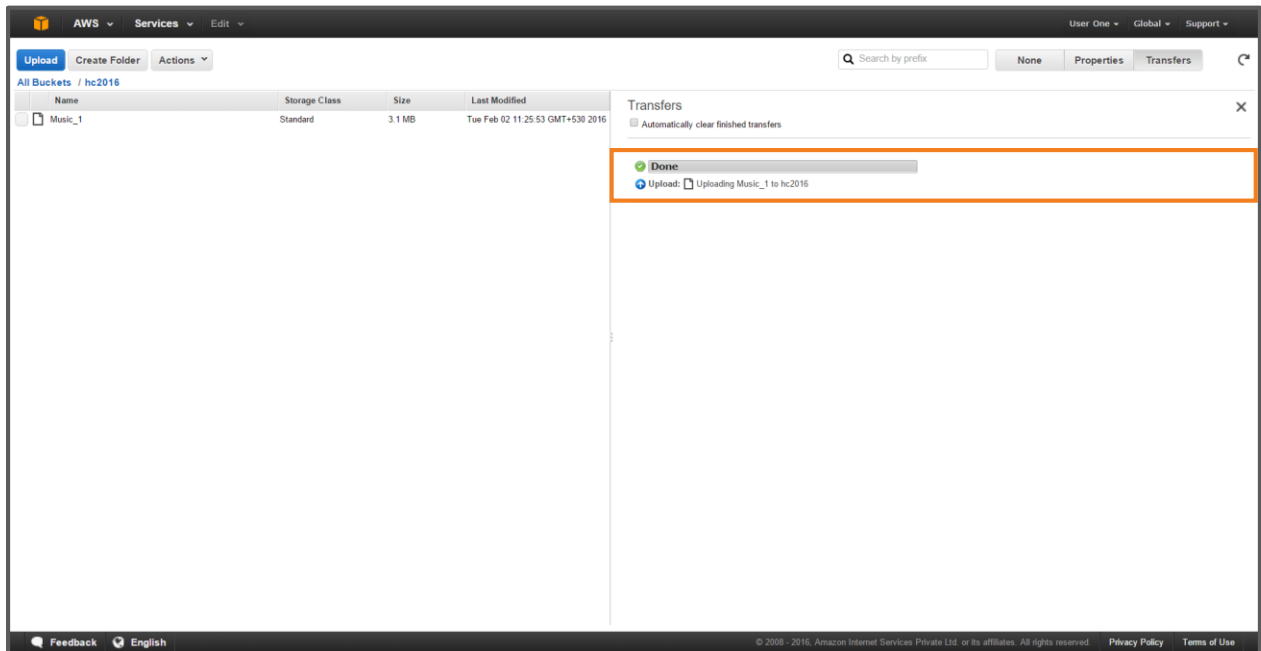
11. After selecting the files, the file name is displayed on the screen.

12. Click **Start Upload** to begin the upload process.

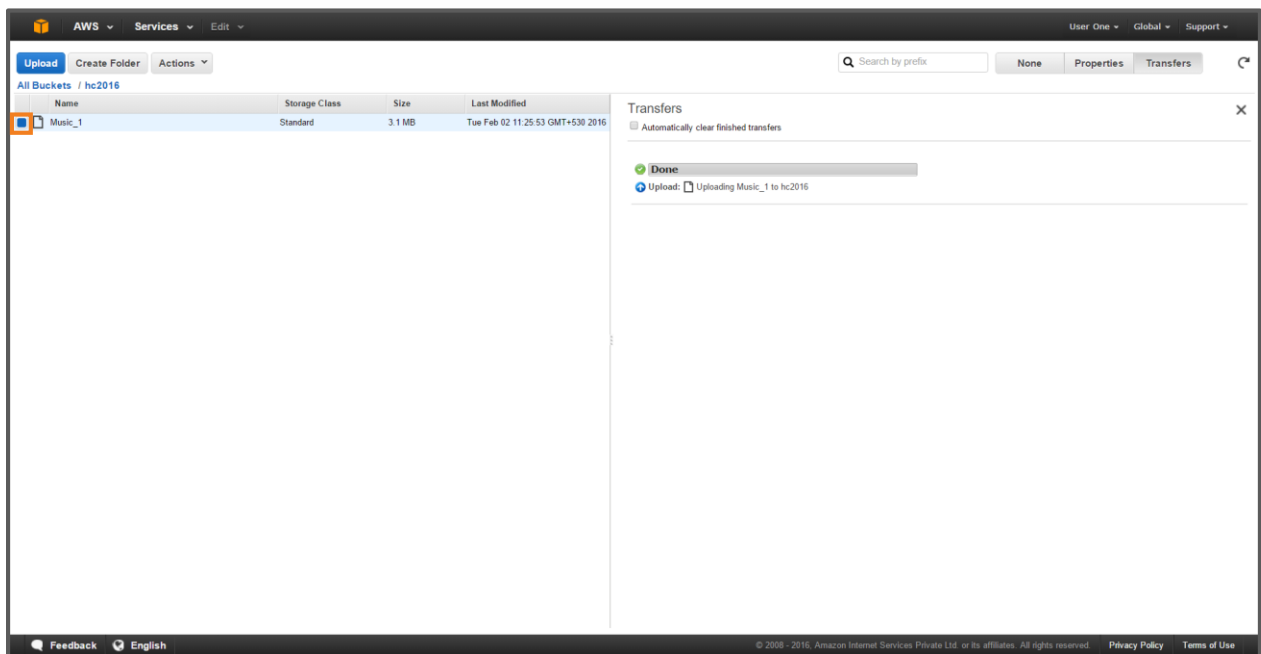




13. Check whether the upload status is changed to **Done**.



14. Select the object to confirm if the file is uploaded to the created S3 bucket.



**Note:** It is important to note that the box towards the left of the name of the object, turns blue. This indicates that the object is selected.

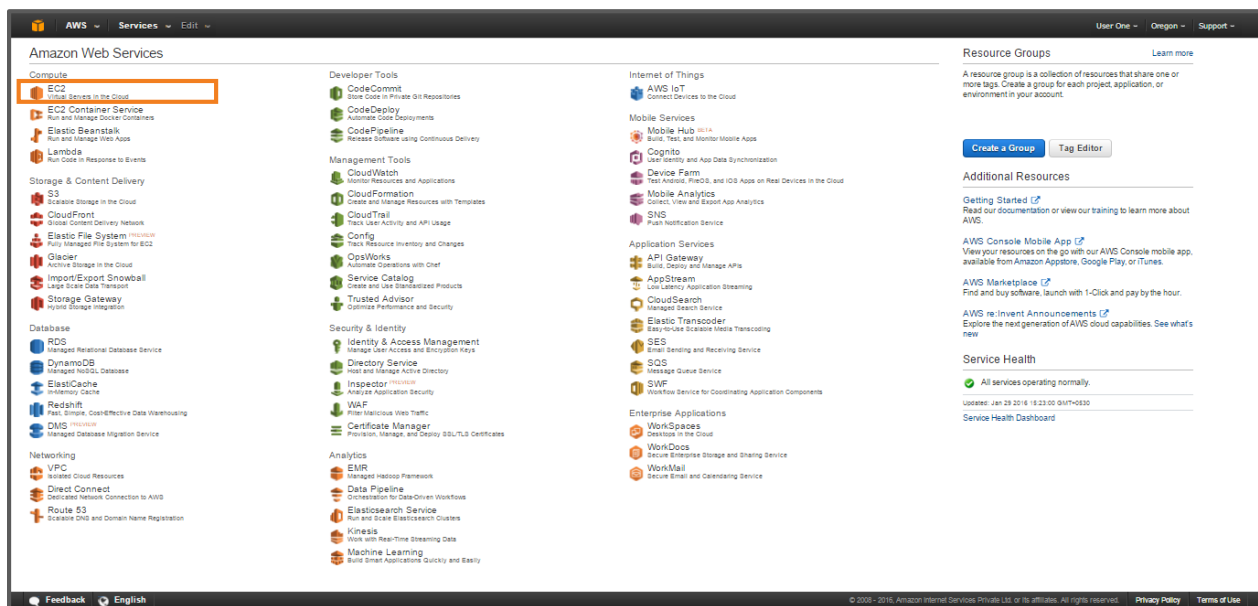
### 3. Create an EC2 Instance

After selecting the Region and creating an S3 bucket, the team has to set up their own Cloud Server. This could be done by creating an Amazon EC2 instance.

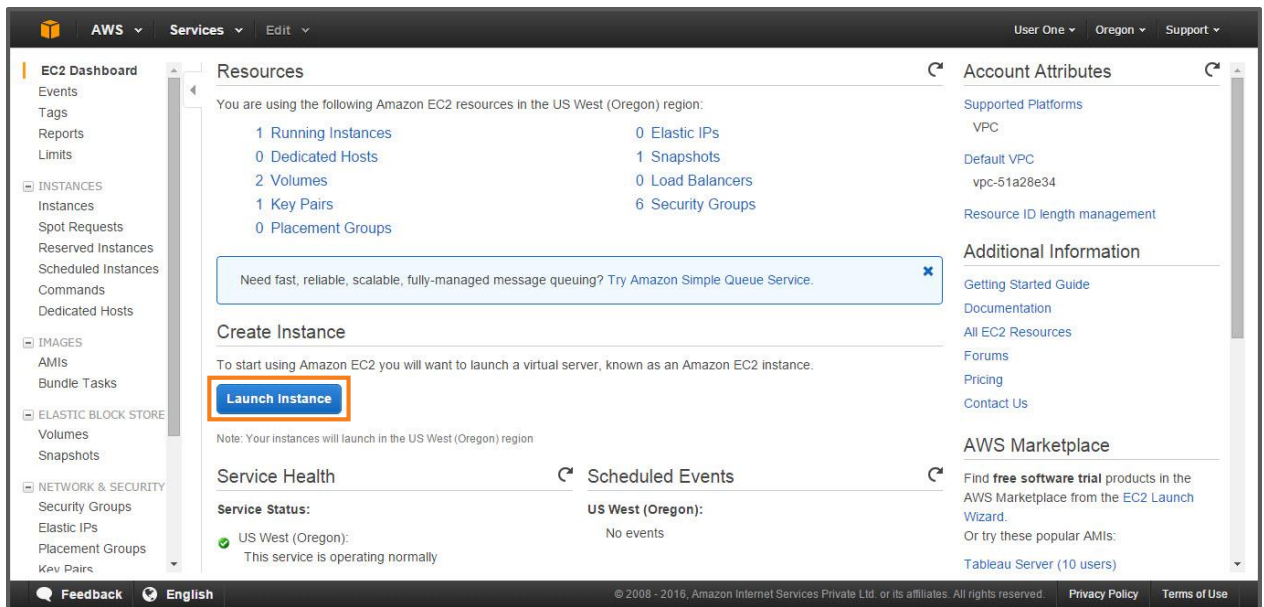
Since the free tier allowed limited storage space of 30 GB and 1 CPU, the team went ahead with the configuration.

To create an EC2 instance:

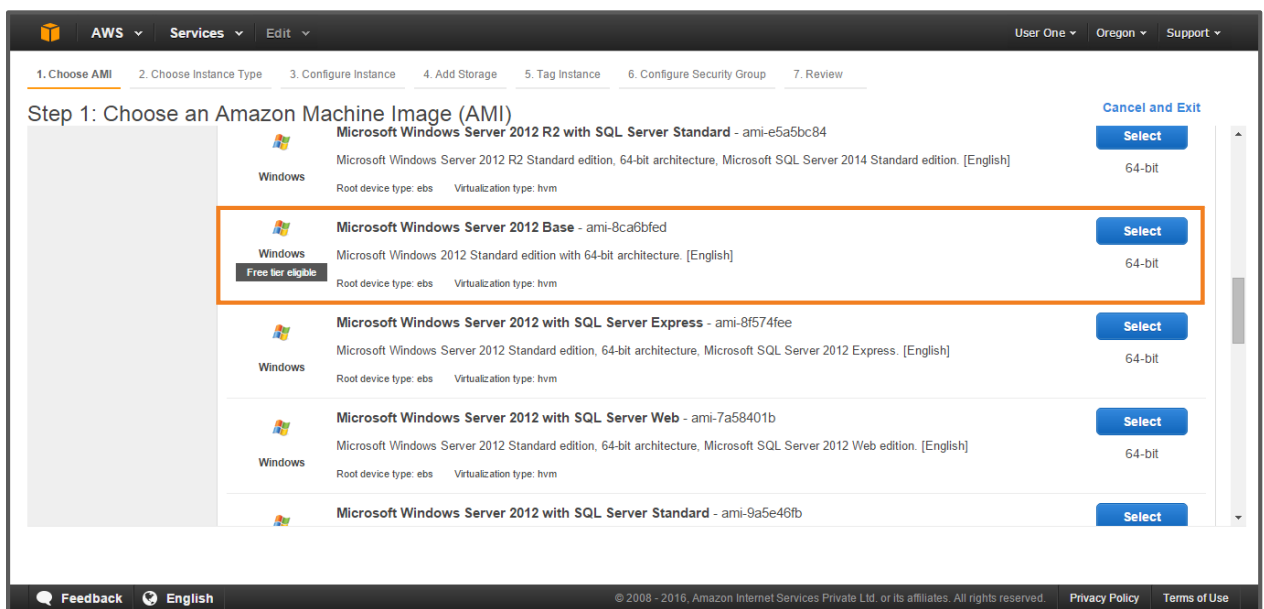
1. In the AWS Management Console, under Compute Services, click **EC2** to open the Amazon EC2 Console.



2. Next, click **Launch Instance** to display the page to choose an Amazon Machine Image, or AMI. AMI is a template that helped the company select the configuration for the Operating System, Application Server, and applications.



### 3. Select the Microsoft Windows Server 2012 Base.



### 4. On the **Choose Instance Type** page, select the instance with t2.micro instance type, and 1 vCPU.

**Step 2: Choose an Instance Type**

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
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate
<input checked="" type="checkbox"/>	General purpose	t2.micro <small>Free tier eligible</small>	1	1	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	m4.large	2	8	EBS only	Yes	Moderate

Cancel Previous **Review and Launch** Next: Configure Instance Details

5. Click **Next: Configure Instance Details** to display the Configure Instance Details page.

**Step 2: Choose an Instance Type**

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
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate
<input checked="" type="checkbox"/>	General purpose	t2.micro <small>Free tier eligible</small>	1	1	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	m4.large	2	8	EBS only	Yes	Moderate

Cancel Previous **Review and Launch** **Next: Configure Instance Details**

6. Here, use the default configuration, and then click **Next: Add storage** to display the Add Storage page.

**Step 3: Configure Instance Details**  
Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances: 1 [Launch into Auto Scaling Group](#)

Purchasing option: ☐ Request Spot instances

Network: vpc-51a28e34 (172.31.0.0/16) (default) [Create new VPC](#)

Subnet: No preference (default subnet in any Availability Zone) [Create new subnet](#)

Auto-assign Public IP: Use subnet setting (Enable)

Domain join directory: None [Create new directory](#)

IAM role: None [Create new IAM role](#)

Shutdown behavior: Stop

Enable termination protection: ☐ Protect against accidental termination

Monitoring: ☐ Enable CloudWatch detailed monitoring  
Additional charges apply.

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

[Cancel](#) [Previous](#) [Review and Launch](#) **Next: Add Storage**

- Again, select the default storage, and then click **Next: Tag instance** to display the Tag Instance page.

**Step 4: Add Storage**  
Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Delete on Termination	Encrypted
Root	/dev/sda1	snap-cfa1bb56	30	General Purpose SSD (GP2)	90 / 3000	<input checked="" type="checkbox"/>	Not Encrypted

[Add New Volume](#)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

[Cancel](#) [Previous](#) [Review and Launch](#) **Next: Tag Instance**

- On the Tag Instance page, define the key-value for EC2 instance as: EC2-HC.

**Step 5: Tag Instance**  
A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more](#) about tagging your Amazon EC2 resources.

Key (127 characters maximum)	Value (255 characters maximum)
Name	EC2-HQ

[Create Tag](#) (Up to 10 tags maximum)

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Configure Security Group](#)

9. Click **Next: Configure Security Group** to display the Configure Security Group page.

**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 ID	Name	Description	Actions
<input checked="" type="checkbox"/> sg-cedb82aa	default	default VPC security group	<a href="#">Copy to new</a>
<input type="checkbox"/> sg-d7485a8	launch-wizard-1	launch-wizard-1 created 2016-01-24T12:36:12.226+05:30	<a href="#">Copy to new</a>
<input type="checkbox"/> sg-b4738fd3	rds-launch-wizard	Created from the RDS Management Console	<a href="#">Copy to new</a>

Inbound rules for sg-cedb82aa (Selected security groups: sg-cedb82aa)

Type	Protocol	Port Range	Source
All traffic	All	All	sg-cedb82aa (default)

[Cancel](#) [Previous](#) [Review and Launch](#)

10. Click **Select an existing security group** to display the existing security groups.

11. Select the required Security Group, and then click **Review and Launch** to display the Review page.

12. Select the existing security group and configured the default security group. Next, launched the instance.

**Step 7: Review Instance Launch**  
Please review your instance launch details. You can go back to edit changes for each section. Click Launch to assign a key pair to your instance and complete the launch process.

**AMI Details**  
Microsoft Windows Server 2012 Base - ami-8ca6b6fd  
Microsoft Windows 2012 Standard edition with 64-bit architecture [English]  
Host Device Type: x86\_64 Virtualization Type: hvm  
If you plan to use this AMI for an application that benefits from Microsoft License Mobility, fill out the License Mobility Form. Don't show me this again

**Instance Type**  
Instance Type: t2.micro ECUs: Variable vCPUs: 1 Memory (GiB): 1 Instance Storage (GB): EBS only EBS-Optimized Available: - Network Performance: Low to Moderate

**Security Groups**  
Security Group ID: sg-ceb82aa Name: default Description: default VPC security group  
All selected security groups inbound rules  
Security Group ID: sg-ceb82aa Type: All traffic Protocol: All Port Range: All Source: sg-ceb82aa (default)

**Instance Details**  
Storage  
Tags

Cancel Previous **Launch**

13. Review all the selected options as per need, and then click **Launch**.

**Note:** It is important to enter the private key file to open the created EC2 instance.

**Select an existing key pair or create a new key pair**

A key pair consists of a public key that AWS stores, and a private key file that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about removing existing key pairs from a public AMI.

Choose an existing key pair  
Select a key pair  
Key\_pair\_HC

☒ I acknowledge that I have access to the selected private key file (Key\_pair\_HC.pem), and that without this file, I won't be able to log into my instance.

Cancel **Launch Instances**

14. Select the **I acknowledge...** check box.

15. Click **Launch Instances**. AWS creates the EC2 instance.

## Work for Students:

Launch the created EC2 instance using the selected Private Key.