

# Advance AWS

## AWS Project- 1

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Course:

Advance AWS Cloud Computing with DevOps  
Fundamentals

Institute:

Lets Upgrade

# Project 01:

## Deploying a Web Server (IIS) in Windows Instance

Below are the 4 steps:

STEP A: Launch an Amazon EC2 Windows Instance

STEP B: Connect EC2 Instance

STEP C: Install IIS Server

STEP D: Terminate EC2 Instance

### STEP A: Launch an Amazon EC2 Instance

Steps for launching a new windows instance:

1. From the AWS Management Console, you can either find EC2 service or click on All services ->Compute->EC2

The screenshot shows the AWS Management Console homepage. At the top, there's a search bar with 'EC2' typed into it. Below the search bar, under 'AWS services', there's a section titled 'Find Services' with a placeholder 'You can enter names, keywords or acronyms.' To the right of the search bar, there's a button to download the AWS Console Mobile App. On the left, there's a sidebar with 'Recently visited services' (including EC2) and a 'All services' dropdown. The 'Compute' option under 'All services' is highlighted with a blue box. To the right of the sidebar, there are several service cards: 'Satellite Ground Station', 'Security, Identity, & Compliance' (with sub-options IAM, Resource Access Manager, Cognito, Secrets Manager), 'Quantum Technologies', 'Amazon Braket', 'Move to Managed File Storage' (with sub-option 'Reduce complexity, overhead, and cost by moving to fully managed storage'), 'Amazon SageMaker Autopilot' (with sub-option 'Get hands-on with AutoML.'), and 'AWS Training'. At the bottom, there are links for 'Feedback', 'English (US)', 'Privacy Policy', and 'Terms of Use'.

2. Once you are in EC2 console from the EC2 Dashboard on the left, select Instances

The screenshot shows the AWS EC2 Dashboard. On the left sidebar, under the 'Instances' section, the 'Instances' link is highlighted with a blue box. The main content area displays a summary of resources in the Asia Pacific (Mumbai) Region. It includes tables for Running instances (0), Dedicated Hosts (0), Volumes (0), Key pairs (3), Placement groups (0), Elastic IPs (0), Snapshots (0), Load balancers (0), and Security groups (17). A tooltip suggests using the AWS Launch Wizard for Microsoft SQL Server Always On availability groups. To the right, there's an 'Account attributes' panel and an 'Explore AWS' section.

3. From the Instances Dashboard, Select Launch Instance at the right

The screenshot shows the AWS EC2 Instances Dashboard. The 'Instances' link in the sidebar is highlighted with a blue box. The main area is titled 'Instances - Info' and shows a table with columns: Name, Instance ID, Instance state, Instance type, Status check, Alarm Status, and Availability zone. Below the table, it says 'Select an instance above'. At the top right of the main area, the 'Launch instances' button is highlighted with a blue box.

Once you click on Launch Instance, a wizard will start which has 7 steps for creating the instance.

## Step 1: Choose an Amazon Machine Image (AMI)

The screenshot shows the AWS Launch Wizard interface for Step 1. At the top, there's a navigation bar with the AWS logo, Services dropdown, user Kishore Shinde, location Mumbai, and Support. Below the navigation is a progress bar with steps 1. Choose AMI through 7. Review, and a red box highlights '7 Steps'. A 'Cancel and Exit' button is also present. The main area is titled 'Step 1: Choose an Amazon Machine Image (AMI)'. It contains a search bar with 'Windows' and a 'Search' button, and a note about AWS Launch Wizard for SQL Server. On the left, a sidebar shows 'Quick Start (8)' with categories: My AMIs (0), AWS Marketplace (723), and Community AMIs (3834). Under 'Free tier only', there's a checked checkbox and a 'Free Tier' button. The main list shows three AMI options:

- Microsoft Windows Server 2019 Base** - ami-0f438f5108bf5217e  
Windows, Free tier eligible. Microsoft Windows 2019 Datacenter edition. [English]. Root device type: ebs, Virtualization type: hvm, ENA Enabled: Yes. 64-bit (x86). A 'Select' button is highlighted with a red box.
- Microsoft Windows Server 2019 Base with Containers** - ami-0756ca816b1c1e257  
Windows, Free tier eligible. Microsoft Windows 2019 Datacenter edition with Containers. [English]. Root device type: ebs, Virtualization type: hvm, ENA Enabled: Yes. 64-bit (x86). A 'Select' button is visible.
- Microsoft Windows Server 2019 Core Base** - ami-08b80ff1ffac8ff40  
Windows. Microsoft Windows 2019 Core edition. [English]. Root device type: ebs, Virtualization type: hvm, ENA Enabled: Yes. 64-bit (x86). A 'Select' button is visible.

You can search the AMI e.g. Windows.... or can select the AMI from the list of the AMI's.

**Note:** Make sure you select the Free Tier only option so only free AMI's will be shown and you will not be charged.

Click on "Select" on the Windows AMI e.g. Microsoft Windows 2019 Base.

## Step 2: Choose an Instance Type

Here you can select the Instance type. These are varying combinations of CPU, Memory, Storage and Networking capacity. The default instance type selected is "t2.micro" which is Free tier eligible. Let it be selected otherwise you will be charged for other instance type. You can even see the details of the selected instance type in **Currently Selected**

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

**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

	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 <span style="background-color: #e0f2e0;">Free tier eligible</span>	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
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes

Cancel Previous Review and Launch Next: Configure Instance Details

### Step 3 : Configure Instance Details

Here you can configure the instance that suits your requirement. You can launch multiple instances from the same AMI you can mention it in Number of instances.

In Network you can select the VPC or create new VPC, we will continue with default VPC, select or create new Subnet, we will continue with default subnet. We can select IAM role, we will continue with “None”.

**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  Launch into Auto Scaling Group i

Purchasing option  Request Spot instances

Network vpc-afc1dbc7 (default) i Create new VPC

Subnet No preference (default subnet in any Availability Zone) i Create new subnet

Auto-assign Public IP Use subnet setting (Enable)

Placement group  Add instance to placement group

Capacity Reservation Open

Domain join directory No directory i Create new directory

IAM role None i Create new IAM role

Shutdown behavior Stop

Stop - Hibernate behavior  Enable hibernation as an additional stop behavior

Enable termination protection  Protect against accidental termination

Cancel Previous Review and Launch Next: Add Storage

In the Shutdown behavior you can select Stop or Terminate. It is an important option If you select Stop when the instance shuts down it will not be deleted but stopped.



**Enable termination protection:** If you check it will protect your instance from accidental termination.

**Enable termination protection**  **Protect against accidental termination**

Now keep whatever is default don't change anything and click on Next: Add Storage

## Step 4: Add Storage

Your Instance will be launched with the following storage device settings. You can attach additional EBS volumes. For now, keep the default Volume Type: Root and size: 30 GiB (only 30 GB is free for free tier for General purpose SSD) and General-Purpose SSD (gp2) as it is. Delete on Termination checkbox will make sure the volume gets deleted as soon as the Instance is terminated. You can even add new EBS volume. Click on Next: Add Tags

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/sda1	snap-012ad0bed7927582e	30	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypt

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: Add Tags

## Step 5: Add Tags

Tags enable you to categorize your AWS resources in different ways. Each tag is a simple label consisting of customer-defined key and an optional value that can make it easier to manage, search for, and filter resources. For E.g. Key can be Name and Value can be Web Server (With IIS).

**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** (128 characters maximum) **Value** (256 characters maximum)

Name IIS Server

Add another tag (Up to 50 tags maximum)

Instances Volumes

Cancel Previous Review and Launch Next: Configure Security Group

You can add the tag or can continue to next step “Configure Security Group”

## Step 6: Configure Security Group

A security group is similar to firewall. Here you can set the rules that can control traffic for your instance. For the current instance in the Type select “All Traffic” and in Source select “Anywhere”. It will show you a warning that the source anywhere will allow all IP addresses to access your instance you must select IP Addresses only. Ignore it for now and click on “Review and Launch”.

**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: launch-wizard-16

Description: launch-wizard-16 created 2020-10-07T18:07:30.298+05:30

Type	Protocol	Port Range	Source	Description
All traffic	All	0 - 65535	Anywhere	0.0.0.0/0, ::/0 e.g. SSH for Admin Desktop

Add Rule

**Warning**  
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Cancel Previous Review and Launch Next: Review

## Step 7: Review

Here you can review all the selection you have done in previous steps and if required can go back and change them. You are able to review the AMI details, Instance Type/Details, Security Groups, Storage & Tags.

Click on Launch once you have reviewed all the details.

Next it will ask you to Select an existing key pair or create a new key pair.

You can select existing key pair if you have one. For now, select “Create new pair” give key pair a name and download the keypair

*Note: Please keep it safe, it will be required to connect to the instance otherwise you can't.*

Click on Launch Instance.

In the next screen you will be able to see “Your instance is launching”. You will be able to see the instance id that is initiated for launch.

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### Launch Status

Your instances are now launching

The following instance launches have been initiated: i-080821739d9cef79c View launch log

Get notified of estimated charges Create billing alerts to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).

How to connect to your instances

Your instances are launching, and it may take a few minutes until they are in the running state, when they will be ready for you to use. Usage hours on your new instances will start immediately and continue to accrue until you stop or terminate your instances.

Click [View Instances](#) to monitor your instances' status. Once your instances are in the running state, you can connect to them from the Instances screen. [Find out](#) how to connect to your instances.

Here are some helpful resources to get you started

- [How to connect to your Windows instance](#)
- [Amazon EC2: User Guide](#)
- [Learn about AWS Free Usage Tier](#)
- [Amazon EC2: Microsoft Windows Guide](#)
- [Amazon EC2: Discussion Forum](#)

While your instances are launching you can also

You can click on the instance id which will take you to Instances Dashboard.

Here you will see the instance created which will be initially showing Instance State as "Pending". Wait till the Status check shows 2/2 checks and Instance State becomes "Running".

New EC2 Experience Tell us what you think

EC2 Dashboard New

Events New

Tags

Limits

Instances Instances New

- Instance Types
- Launch Templates
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts New
- Capacity Reservations

Images AMIs

Elastic Block Store

Feedback English (US) ▾

Instances (1) Info

Filter instances

Name	Instance ID	Instance state	Instance type	Status check	Alarm Status	Availability zone	Public IPv4 DNS
IIS Server	i-080821739d9cef79c	Running	t2.micro	2/2 checks ...	No alarms +	ap-south-1a	ec2-15-206-28-11

Select an instance above

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Now select the instance you will be able to see the additional details of the instance like Public IPv4 address, Private IPv4 address, Public IPv4 DNS, Private IPv4 DNS etc. You can also check the Security, Networking, Storage details etc.

Instances (1/1) [Info](#)

[Filter instances](#)

<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	A..	Availability zone	Public IPv4 DNS
<input checked="" type="checkbox"/>	IIS Server	i-080821739d9cef79c	<span>Running</span>	t2.micro	<span>2/2 checks ...</span>	<span>+ A+</span>	ap-south-1a	ec2-15-206-28-115.ap-so...

Instance: i-080821739d9cef79c (IIS Server)

[Details](#) [Security](#) [Networking](#) [Storage](#) [Status Checks](#) [Monitoring](#) [Tags](#)

[Instance summary](#) [Info](#)

Instance ID	<a href="#">i-080821739d9cef79c (IIS Server)</a>	Public IPv4 address	<a href="#">15.206.28.115   open address</a>	Private IPv4 addresses	<a href="#">172.31.40.55</a>
Instance state	<span>Running</span>	Public IPv4 DNS	<a href="#">ec2-15-206-28-115.ap-south-1.compute.amazonaws.com   open address</a>	Private IPv4 DNS	<a href="#">ip-172-31-40-55.ap-south-1.compute.internal</a>
Instance type	t2.micro	Elastic IP addresses	-	VPC ID	<a href="#">vpc-afc1dbc7</a>

So now your instance is up and running.

## Step B: Connecting to Windows Instance

Following are the steps to connect to the instance. Select the instance, Click on Action menu at the top, from the list select Connect.

Instances (1/1) [Info](#)

[Filter instances](#)

<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	A..	Available	Public IPv4 DNS
<input checked="" type="checkbox"/>	IIS Server	i-080821739d9cef79c	<span>Running</span>	t2.micro	<span>2/2 checks ...</span>	<span>+ A+</span>	ap-south-1a	ec2-15-206-28-115.ap-so...

Instance: i-080821739d9cef79c (IIS Server)

[Details](#) [Security](#) [Networking](#) [Storage](#) [Status Checks](#) [Monitoring](#) [Tags](#)

[Instance summary](#) [Info](#)

Instance ID	<a href="#">i-080821739d9cef79c (IIS Server)</a>	Public IPv4 address	<a href="#">15.206.28.115   open address</a>	Private IPv4 addresses	<a href="#">172.31.40.55</a>
Instance state	<span>Running</span>	Public IPv4 DNS	<a href="#">ec2-15-206-28-115.ap-south-1.compute.amazonaws.com   open address</a>	Private IPv4 DNS	<a href="#">ip-172-31-40-55.ap-south-1.compute.internal</a>
Instance type	t2.micro	Elastic IP addresses	-	VPC ID	<a href="#">vpc-afc1dbc7</a>

On the next screen you will see Session Manager & RDP Client Tabs. Click on RDP client.

EC2 > Instances > i-080821739d9cef79c > Connect to instance

**Connect to instance** [Info](#)

Connect to your instance i-080821739d9cef79c (IIS Server) using any of these options

Session Manager | **RDP client**

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 User name  
ec2-15-206-28-115.ap-south-1.compute.amazonaws.com Administrator

Password [Get password](#)

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

For accessing the instance, you will require RDP client. Click on “Download remote desktop file” & download the file. Now click on “Get password”

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EC2 > Instances > i-080821739d9cef79c > Get windows password

**Get Windows password** [Info](#)

Retrieve and decrypt the initial Windows administrator password for this instance.

To decrypt the password, you will need your key pair for this instance.

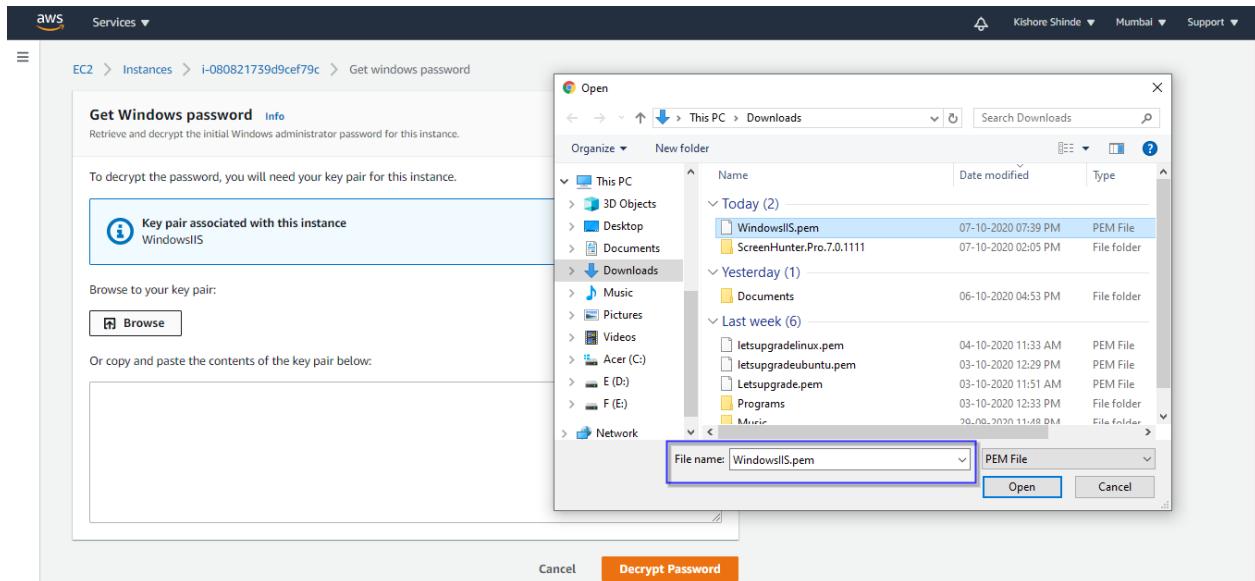
Key pair associated with this instance  
WindowsIIS

Browse to your key pair:  
[Browse](#)

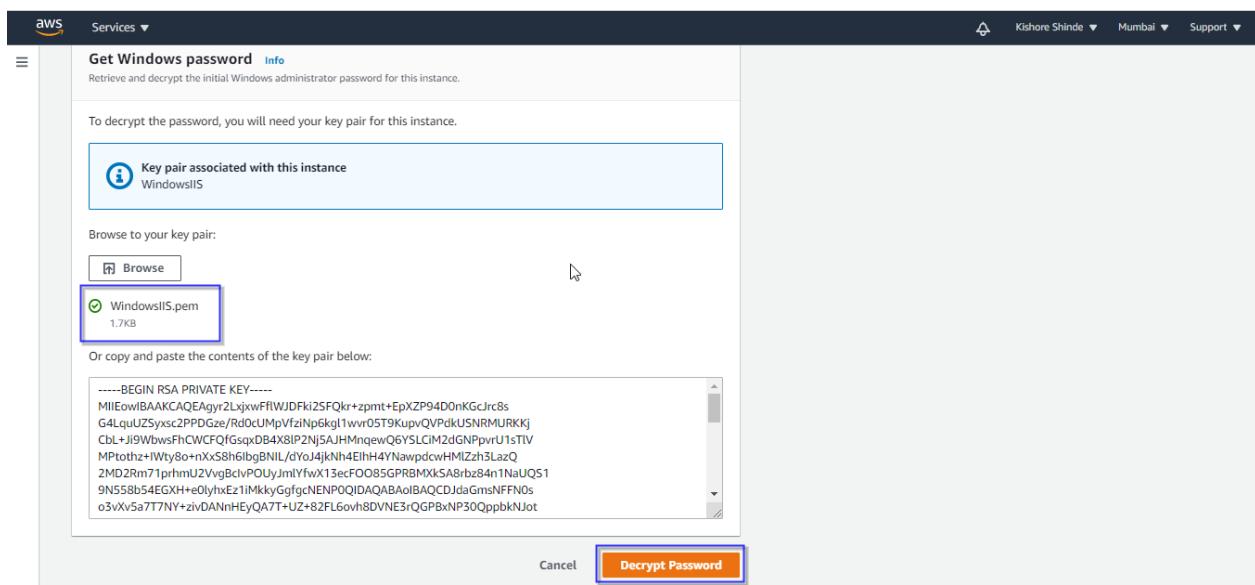
Or copy and paste the contents of the key pair below:

[Cancel](#) **Decrypt Password**

In the Get password screen select “Browse” to select the .pem file which you have downloaded after Step 7 in create key pair screen.



Select the file click on open.



Click on “Decrypt Password”.

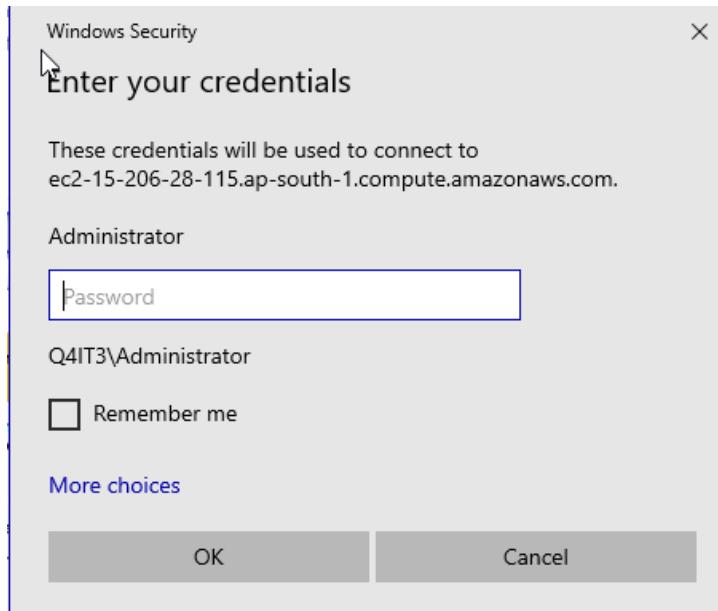
The screenshot shows the 'Connect to instance' page for an AWS EC2 instance. The 'RDP client' tab is selected. It displays connection details: Public DNS (ec2-15-206-28-115.ap-south-1.compute.amazonaws.com), User name (Administrator), and a highlighted Password field containing 'dOr9-ufYc5YYWq\$bO(iEQ.?xrTq9bNS'. A note below says, 'If you've joined your instance to a directory, you can use your directory credentials to connect to your instance.'

Copy the decrypted password similar to shown the above figure. This will be required when you connect the Instance through RDP client.

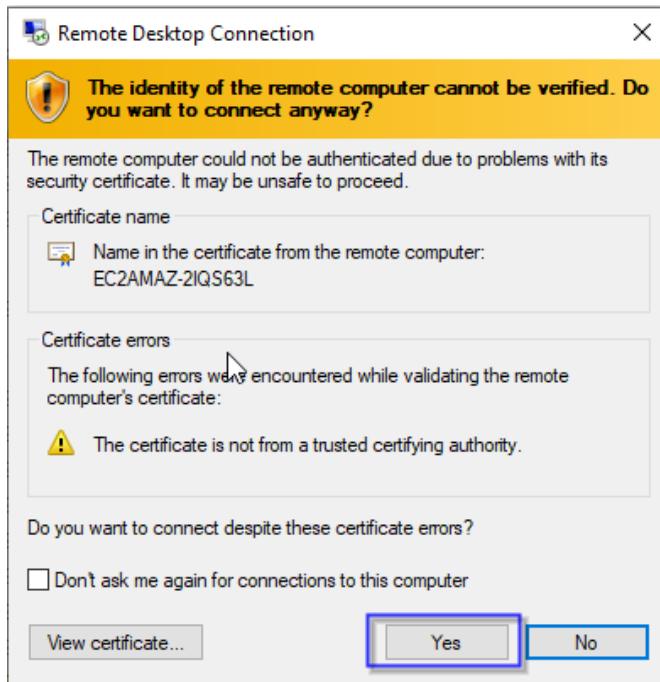
Now open the downloaded RDP client.

The screenshot shows the 'Remote Desktop Connection' dialog box. It displays a warning message: 'The publisher of this remote connection can't be identified. Do you want to connect anyway?'. Below the message, it says, 'This remote connection could harm your local or remote computer. Do not connect unless you know where this connection came from or have used it before.' It shows connection details: Publisher: Unknown publisher, Type: Remote Desktop Connection, and Remote computer: ec2-15-206-28-115.ap-south-1.compute.amazonaws.... There are two buttons at the bottom: 'Connect' and 'Cancel'.

Click on Connect.



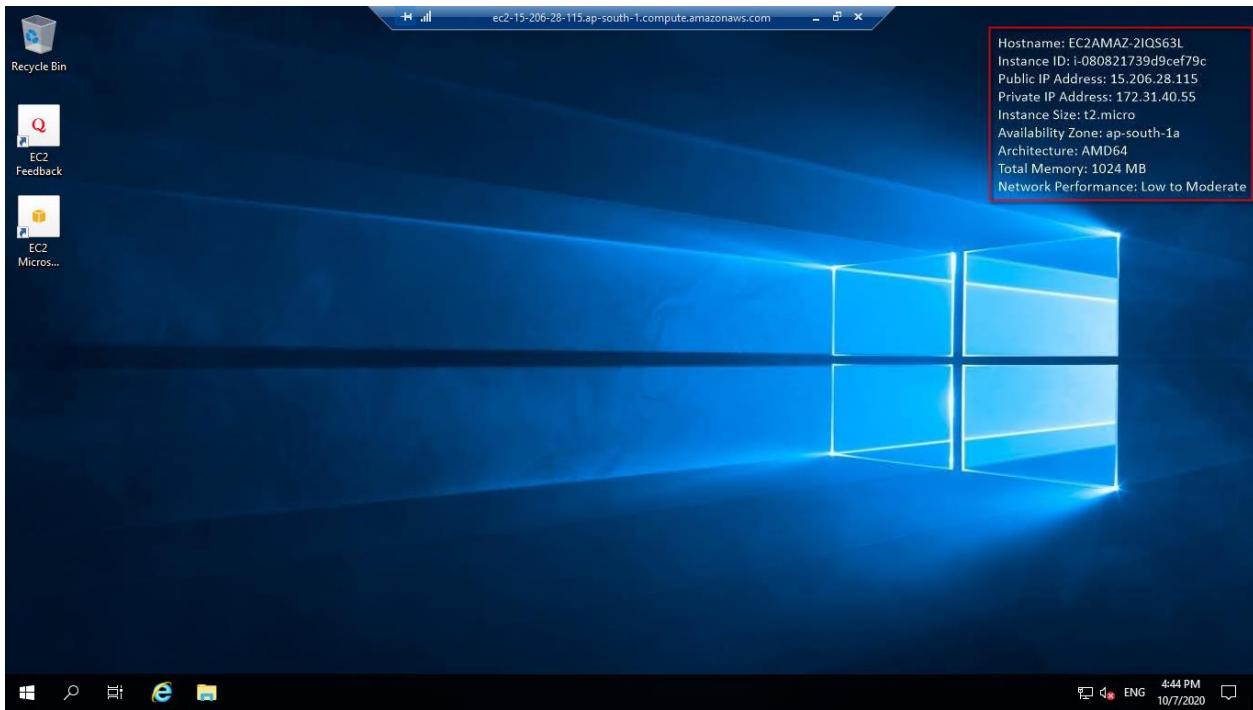
Enter or paste the password copied on the RDP client screen and click OK.



A Security Certificate error will be displayed but Click on Yes.

Now you will be connected to the instance. Wait for the settings to be done.

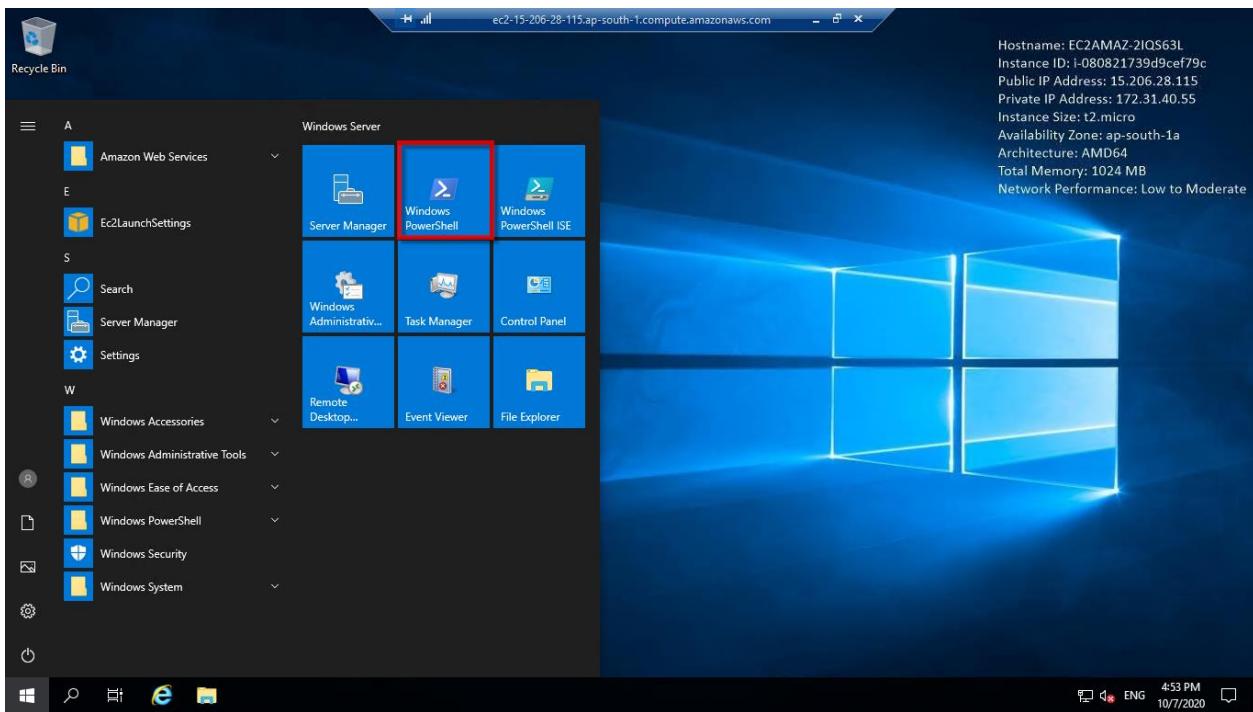
Once settings are done you will be able to see the Windows Server 2019 desktop with Instance details on the right side.



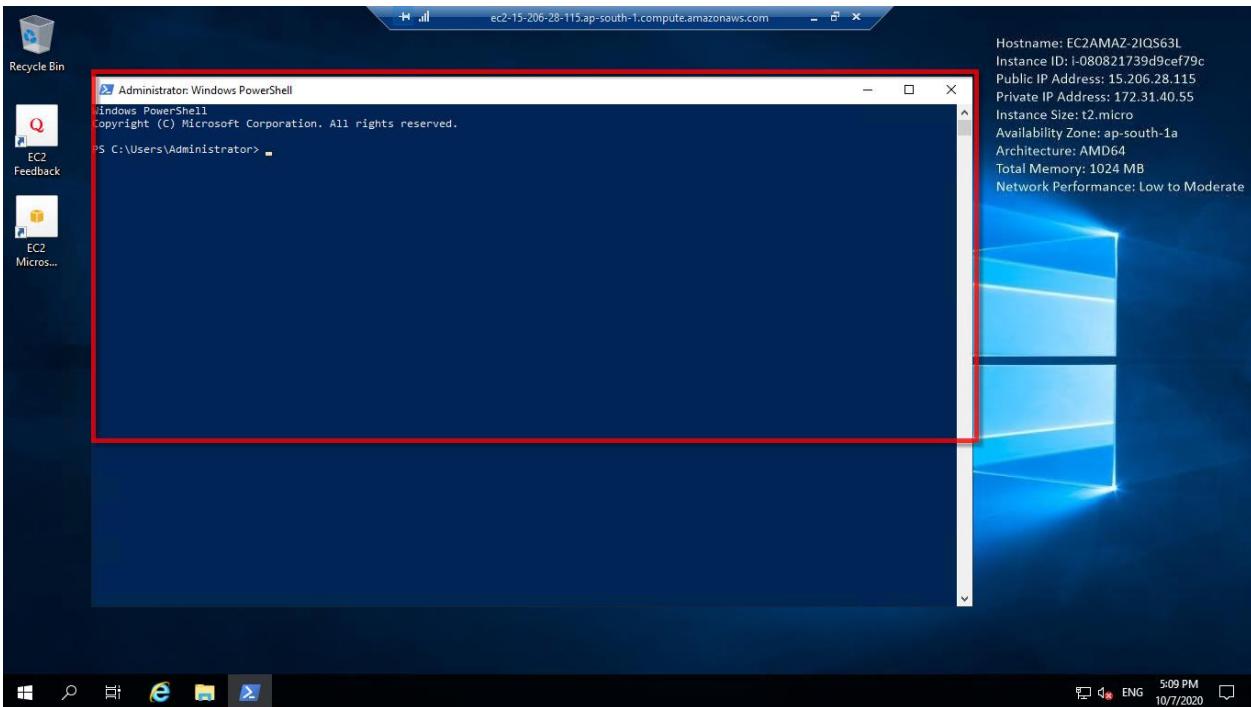
## STEP C: Installing IIS

Below are the steps for installing IIS Server on Windows Server 2019 using PowerShell ISE.

Open Windows PowerShell

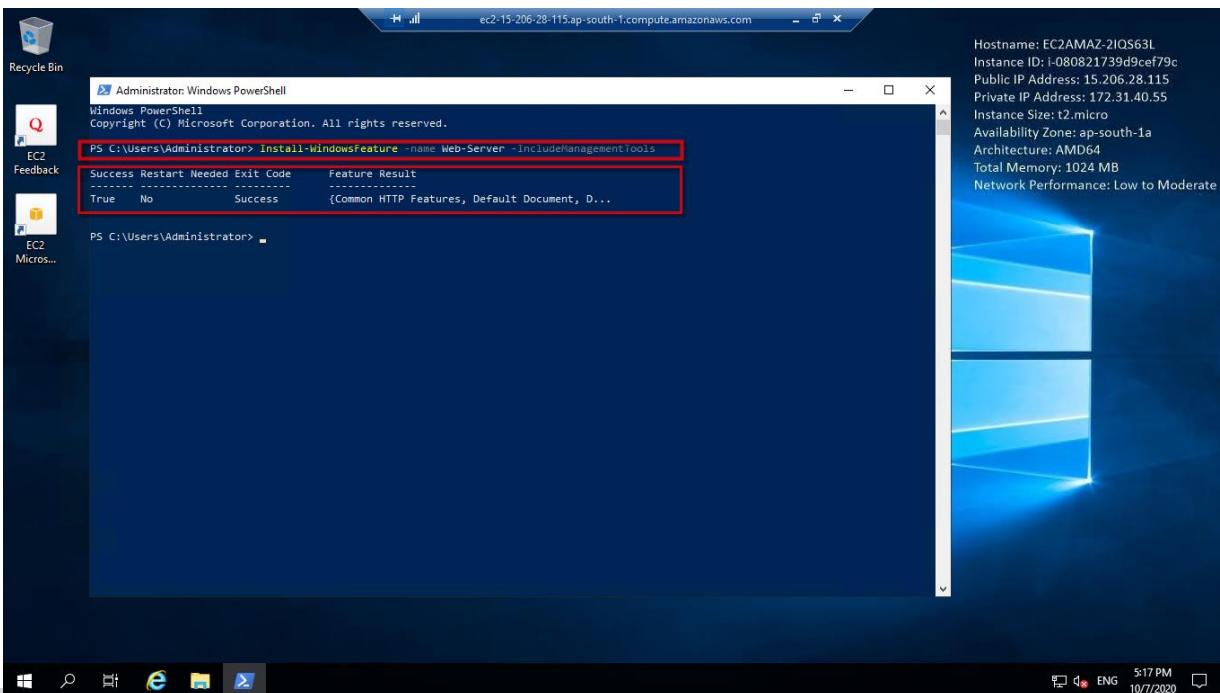


Below is the Windows PowerShell command prompt which opens with Administrator privileges/rights.



Type the below command to install the IIS Server.

***Install-WindowsFeature -name Web-Server -IncludeManagementTools*** & Press Enter to run the command. IIS will be downloaded & installed. Once installed you will see a Success – True. So, your IIS is installed.



Now to check the IIS Server installation. Copy the public address from the Instance details & paste it in your Internet browser (e.g. Chrome/Internet Explorer/Firefox) or click on open. In our current scenario our windows server public IP is: **15.206.28.115**

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with options like New EC2 Experience, EC2 Dashboard, Events, Tags, Limits, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, and Elastic Block Store. The main area shows 'Instances (1/1) Info' with a table. One row is selected for 'IIS Server' with Instance ID i-080821739d9cef79c, State Running, Type t2.micro, Status check 2/2 checks..., Availability zone ap-south-1a, and Public IPv4 DNS ec2-15-206-28-115.ap-south-1.compute.amazonaws.com. Below this, the 'Instance: i-080821739d9cef79c (IIS Server)' details are shown in a card. Under 'Public IPv4 address', the value '15.206.28.115 | open address' is highlighted with a red box.

You should be able to see the IIS Server is deployed on the Windows Server 2019.

The screenshot shows a web browser window with the address bar containing 'Not secure | 15.206.28.115'. The main content is the Microsoft Internet Information Services (IIS) welcome page. It features a large blue header with the Windows Server logo and the text 'Internet Information Services'. Below this is a grid of colored squares representing different languages. The squares contain text in various languages such as English, French, German, Spanish, and others. At the bottom of the page, it says 'Microsoft' and provides a link: 'go.microsoft.com/fwlink/?linkid=66138&clcid=0x409'.

## STEP D: Terminating Instance

Click on Actions->Select Instance State->Click on Terminate instance.

The screenshot shows the AWS EC2 Instances page. A modal window titled "Successfully rebooted i-080821739d9cef79c" is open, displaying a table of instances. In the top right corner of the modal, there is a "Actions" dropdown menu with three options: "Hibernate instance", "Instance state", and "Terminate instance". The "Terminate instance" option is highlighted with a red box. Below the modal, the main EC2 Instances page shows details for an instance named "IIS Server" (i-080821739d9cef79c). The instance is currently "Running". The "Actions" dropdown menu is also visible here, with the "Terminate instance" option highlighted.

It will ask you for Termination permission click on Terminate.

The screenshot shows the "Terminate instance?" confirmation dialog box. It contains the following text:  
"To confirm that you want to terminate the instance, choose the terminate button below.  
Terminating the instance cannot be undone." At the bottom of the dialog, there are two buttons: "Cancel" and "Terminate", with "Terminate" being highlighted with a red box.

The instance will be terminated and, in the instance details, you will see the public & private IP will be released which will go to shared pool and the instance status will show terminated.

The screenshot shows the AWS EC2 Instances page. At the top, there are two green status notifications: "Successfully rebooted i-080821739d9cef79c" and "Successfully terminated i-080821739d9cef79c". Below these, the "Instances (1/1) Info" section displays a single instance named "IIS Server" with the ID "i-080821739d9cef79c". The instance is listed as "Terminated" with a status check of "2/2 checks ...". The instance type is "t2.micro", located in the "ap-south-1a" availability zone, with a Public IPv4 DNS of "-". In the "Details" tab of the instance summary, the Instance ID is "i-080821739d9cef79c (IIS Server)", the Instance state is "Terminated", and the Instance type is "t2.micro". The Public IPv4 address and Private IPv4 addresses fields both show "-".

Project 1 is completed.

# Advance AWS

## AWS Project- 2

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Course:

Advance AWS Cloud Computing with DevOps  
Fundamentals

Institute:

Lets Upgrade

# Project 02:

## Deploying nginx Web Server in Ubuntu Instance

Below are the 4 steps:

STEP A: Launch an Amazon EC2 Ubuntu Instance

STEP B: Connect EC2 Instance

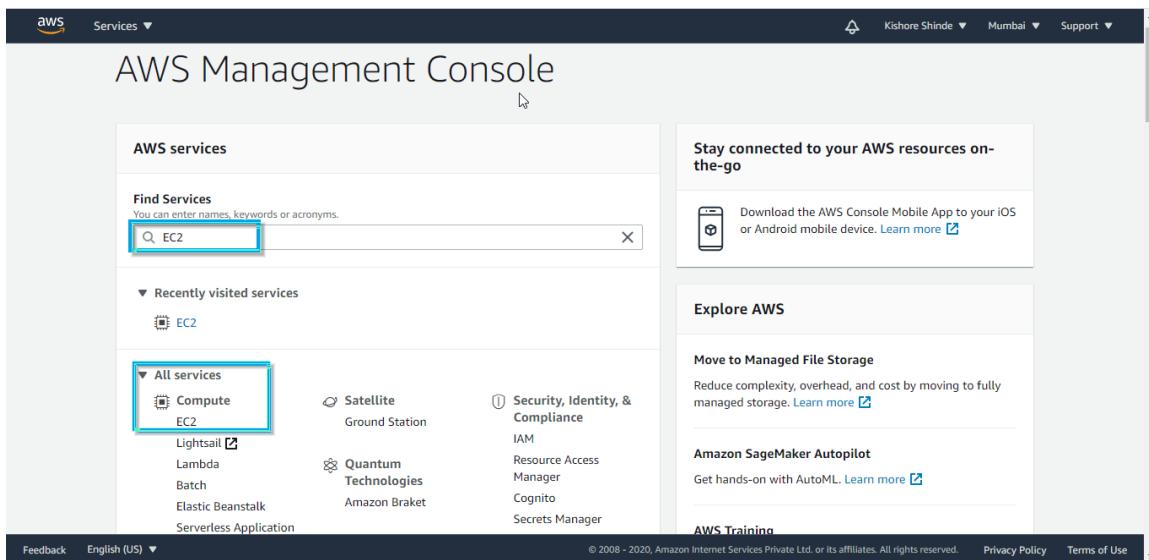
STEP C: Install nginx Web Server

STEP D: Terminate EC2 Instance

STEP A: Launch an Amazon EC2 Instance

### Steps for launching a new ubuntu instance:

1. From the AWS Management Console, you can either find EC2 service or click on All services ->Compute->EC2



- Once you are in EC2 console from the EC2 Dashboard on the left, select Instances

The screenshot shows the AWS EC2 Dashboard. On the left, there is a navigation sidebar with the following options:

- New EC2 Experience (button)
- EC2 Dashboard (selected)
- Events (New)
- Tags
- Limits
- Instances** (selected)
- Instance Types
- Launch Templates
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts (New)
- Capacity Reservations
- Images
- AMIs
- Elastic Block Store

The main content area is titled "Resources" and displays the following statistics for the Asia Pacific (Mumbai) Region:

	Value
Running instances	0
Elastic IPs	0
Dedicated Hosts	0
Snapshots	0
Volumes	0
Load balancers	0
Key pairs	3
Security groups	17
Placement groups	0

A callout box highlights a tooltip: "Easily size, configure, and deploy Microsoft SQL Server Always On availability groups on AWS using the AWS Launch Wizard for SQL Server. Learn more".

On the right side, there is a sidebar titled "Account attributes" with sections for Supported platforms (VPC), Default VPC (vpc-afc1dbc7), Settings, EBS encryption, Zones, Default credit specification, and Console experiments.

At the bottom, there is an "Explore AWS" section with a "Launch instance" button and promotional text: "Get Up to 40% Better Price Performance" and "T4g instances deliver the best price performance for burstable".

- From the Instances Dashboard, Select Launch Instance at the right

The screenshot shows the AWS Instances Dashboard. On the left, the navigation sidebar is identical to the previous screenshot. The main content area is titled "Instances" and shows a table with one row:

Name	Instance ID	Instance state	Instance type	Status check	Alarm Status	Availability zone
Select an instance above						

A large blue rectangular box highlights the "Launch Instances" button located at the top right of the table header. Below the table, there is a note: "Select an instance above".

Once you click on Launch Instance, a wizard will start which has 7 steps for creating the instance.

## Step 1: Choose an Amazon Machine Image (AMI)

Step 1: Choose an Amazon Machine Image (AMI)

An AMI is a template that contains the software configuration (operating system, application server, and application) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Quick Start (3)

My AMIs (0)  
AWS Marketplace (482)  
Community AMIs (16065)  
 Free tier only

Ubuntu Server 20.04 LTS (HVM), SSD Volume Type - ami-0cda377a1b884a1bc (64-bit x86) / ami-086c142842468ba9d (64-bit Arm)  
Ubuntu Server 20.04 LTS (HVM).EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).  
Free tier eligible Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Ubuntu Server 18.04 LTS (HVM), SSD Volume Type - ami-03f0fd1a2ba530e75 (64-bit x86) / ami-05146cf5b727eb773 (64-bit Arm)  
Ubuntu Server 18.04 LTS (HVM).EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).  
Free tier eligible Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-048bb32b1b7c36b7 (64-bit x86) / ami-0d923c0b095eeef221 (64-bit Arm)  
Ubuntu Server 16.04 LTS (HVM).EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).  
Free tier eligible Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

The following results for "ubuntu" were found in other catalogs:

Cancel and Exit

1 to 3 of 3 AMIs

Select  
 64-bit (x86)  
 64-bit (Arm)

Select  
 64-bit (x86)  
 64-bit (Arm)

Select  
 64-bit (x86)  
 64-bit (Arm)

You can search the AMI e.g. ubuntu.... or can select the AMI from the list of the AMI's.

**Note:** Make sure you select the Free Tier only option so only free AMI's will be shown and you will not be charged.

Click on “Select” on the Ubuntu AMI e.g. Ubuntu Server 20.04 LTS(HVM)....

## Step 2: Choose an Instance Type

Here you can select the Instance type. These are varying combinations of CPU, Memory, Storage and Networking capacity. The default instance type selected is “t2.micro” which is Free tier eligible. Let it be selected otherwise you will be charged for other instance type. You can even see the details of the selected instance type in **Currently Selected**

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

**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

	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 <span style="background-color: #e0f2e0;">Free tier eligible</span>	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
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes

Cancel Previous Review and Launch Next: Configure Instance Details

## Step 3: Configure Instance Details

Here you can configure the instance that suits your requirement. You can launch multiple instances from the same AMI you can mention it in Number of instances.

In Network you can select the VPC or create new VPC, we will continue with default VPC, select or create new Subnet, we will continue with default subnet. We can select IAM role, we will continue with “None”.

**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 <span style="border: 1px solid red; padding: 2px;">1</span>	Launch into Auto Scaling Group <span style="color: blue;">(i)</span>
Purchasing option <span style="border: 1px solid red; padding: 2px;"><input type="checkbox"/> Request Spot instances</span>	
Network <span style="border: 1px solid red; padding: 2px;">vpc-afc1dbc7 (default)</span>	<span style="color: blue;">(i)</span> Create new VPC
Subnet <span style="border: 1px solid red; padding: 2px;">No preference (default subnet in any Availability Zone)</span>	<span style="color: blue;">(i)</span> Create new subnet
Auto-assign Public IP <span style="border: 1px solid red; padding: 2px;">Use subnet setting (Enable)</span>	
Placement group <span style="border: 1px solid red; padding: 2px;"><input type="checkbox"/> Add instance to placement group</span>	
Capacity Reservation <span style="border: 1px solid red; padding: 2px;">Open</span>	
Domain join directory <span style="border: 1px solid red; padding: 2px;">No directory</span>	<span style="color: blue;">(i)</span> Create new directory
IAM role <span style="border: 1px solid red; padding: 2px;">None</span>	<span style="color: blue;">(i)</span> Create new IAM role
Shutdown behavior <span style="border: 1px solid red; padding: 2px;">Stop</span>	
Stop - Hibernate behavior <span style="border: 1px solid red; padding: 2px;"><input type="checkbox"/> Enable hibernation as an additional stop behavior</span>	
Enable termination protection <span style="border: 1px solid red; padding: 2px;"><input type="checkbox"/> Protect against accidental termination</span>	

Cancel Previous Review and Launch Next: Add Storage

In the Shutdown behavior you can select Stop or Terminate. It is an important option If you select Stop when the instance shuts down it will not be deleted but stopped.



**Enable termination protection:** If you check it will protect your instance from accidental termination.



Now keep whatever is default don't change anything and click on Next: Add Storage

#### Step 4: Add Storage

Your Instance will be launched with the following storage device settings. You can attach additional EBS volumes. For now, keep the default Volume Type: Root and size: 8 GiB

**Note:** The default root partition in AWS for windows is 30 GB and for Ubuntu is 8 GB you can change it.

Let the General-Purpose SSD (gp2) selection as it is. Delete on Termination checkbox will make sure the volume gets deleted as soon as the Instance is terminated. You can even add new EBS volume.

Click on Next: Add Tags

## Step 5: Add Tags

Tags enable you to categorize your AWS resources in different ways. Each tag is a simple label consisting of customer-defined key and an optional value that can make it easier to manage, search for, and filter resources. For E.g. Key can be Name and Value can be Web Server(nginx).

The screenshot shows the AWS EC2 instance creation wizard at Step 5: Add Tags. The top navigation bar includes the AWS logo, Services dropdown, user Kishore Shinde, location Mumbai, and Support link. Below the navigation, a progress bar shows steps 1 through 7. Step 5, 'Add Tags', is highlighted. A note explains that a tag consists of a key-value pair, with an example of 'Name = Webserver'. It also mentions that tags can be applied to volumes, instances, or both, and that they will be applied to all instances and volumes. A 'Learn more' link is provided. The main area shows a table for adding tags. One tag is already present: 'Name' with 'nginx' as the value. There are checkboxes for 'Instances' and 'Volumes', both of which are checked. Below the table is a button 'Add another tag' with the note '(Up to 50 tags maximum)'. At the bottom right are buttons for 'Cancel', 'Previous', 'Review and Launch' (which is highlighted with a blue border), and 'Next: Configure Security Group'.

You can add the tag or can continue to next step “Configure Security Group”

## Step 6: Configure Security Group

A security group is similar to firewall. Here you can set the rules that can control traffic for your instance. For the current instance in the Type select “All Traffic” and in Source select “Anywhere”. It will show you a warning that the source anywhere will allow all IP addresses to access your instance you must select IP Addresses only. Ignore it for now and click on “Review and Launch”.

**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
All traffic	All	0 - 65535	Anywhere	0.0.0.0/0 :/0 e.g. SSH for Admin Desktop

[Add Rule](#)

**Warning**  
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

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

## Step 7: Review

Here you can review all the selection you have done in previous steps and if required can go back and change them. You are able to review the AMI details, Instance Type/Details, Security Groups, Storage & Tags.

**Step 7: Review Instance Launch**

**AMI Details**  
Ubuntu Server 20.04 LTS (HVM), SSD Volume Type - ami-0cda377a1b884a1bc  
Free tier eligible  
Ubuntu Server 20.04 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

**Instance Type**  

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
I2 micro	Variable	1	1	EBS only	-	Low to Moderate

[Edit AMI](#) [Edit instance type](#)

**Security Groups**  
Security group name: launch-wizard-18  
Description: launch-wizard-18 created 2020-10-08T12:11:24.251+05:30  

Type	Protocol	Port Range	Source	Description
All traffic	All	All	0.0.0.0/0	
All traffic	All	All	:/0	

[Edit security groups](#)

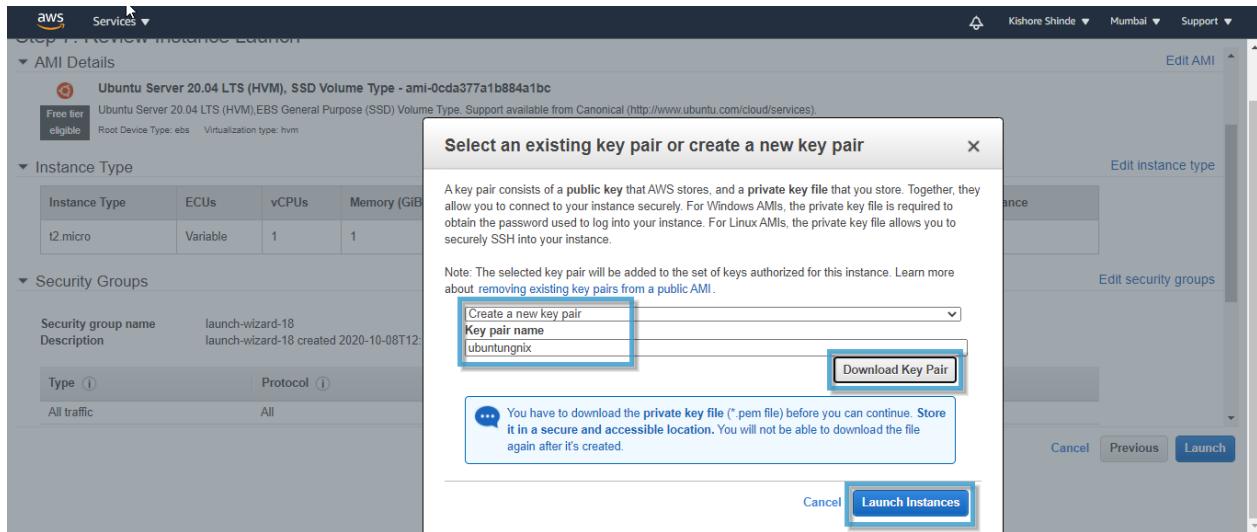
**Instance Details**  
[Edit instance details](#)

**Storage**  
[Edit storage](#)

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

Click on Launch once you have reviewed all the details.

Next it will ask you to Select an existing key pair or create a new key pair.

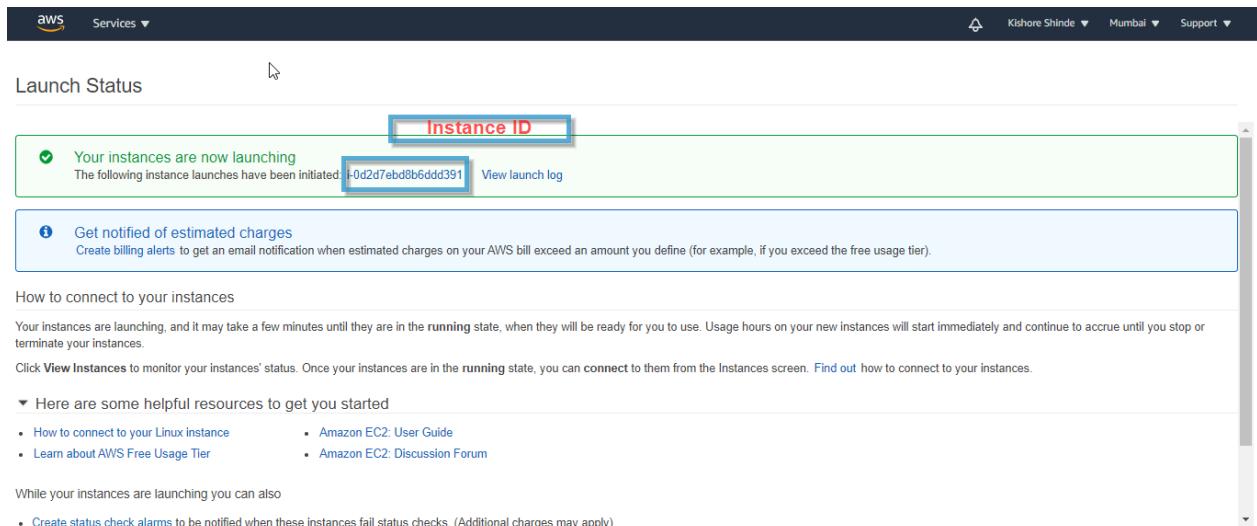


You can select existing key pair if you have one. For now, select “Create new pair” give key pair a name and download the keypair.

**Note:** Please keep it safe, it will be required to connect to the instance otherwise you can't.

Click on Launch Instance.

In the next screen you will be able to see “Your instance is launching”. You will be able to see the instance id that is initiated for launch.



You can click on the instance id which will take you to Instances Dashboard.

Here you will see the Ubuntu instance is created which will be initially showing Instance State as “Pending”. Wait till the Status check shows 2/2 checks and Instance State becomes “Running”.

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation sidebar with options like EC2 Dashboard, Events, Tags, Limits, Instances (selected), Images, and Elastic Block Store. The main area displays a table titled 'Instances (1) Info' with one row. The columns are Name (Ubuntu - nginx), Instance ID (i-0d2d7ebd8b6ddd391), Instance state (Running), Instance type (t2.micro), Status check (2/2 checks passed), Availability zone (ap-south-1a), and Public IPv4 DNS (ec2-13-233-25-81). A search bar at the top has the value 'search: i-0d2d7ebd8b6ddd391'. There are also 'Actions' and 'Launch instances' buttons.

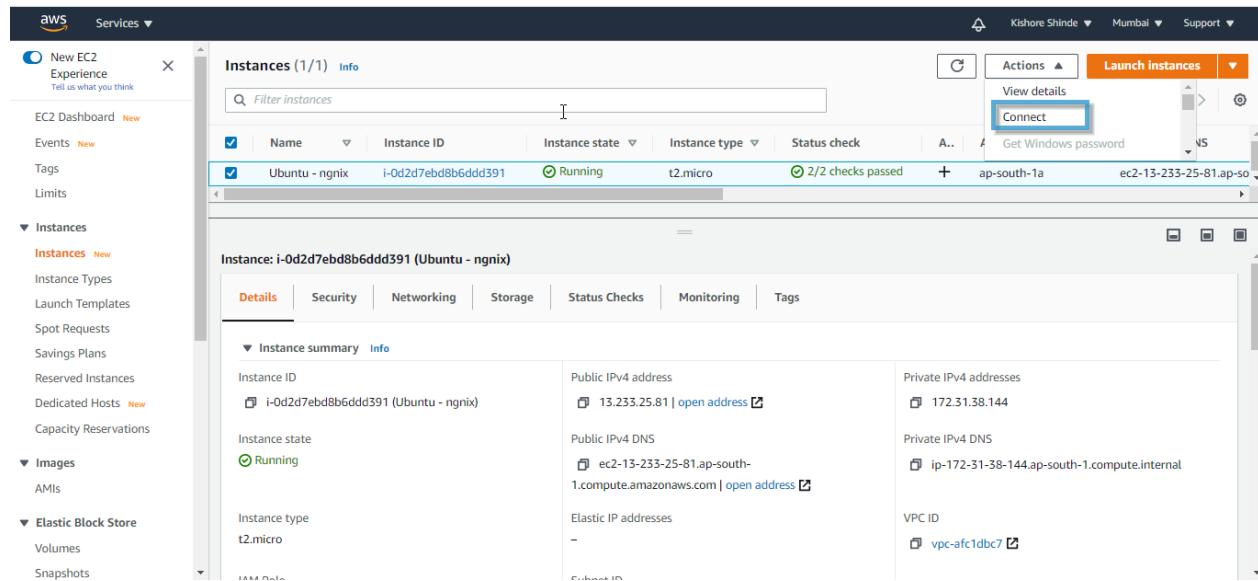
Now select the instance you will be able to see the additional details of the instance like Public IPv4 address, Private IPv4 address, Public IPv4 DNS, Private IPv4 DNS etc. You can also check the Security, Networking, Storage details etc.

This screenshot shows the same EC2 Instances page as above, but the instance row is selected, revealing more detailed information. The 'Details' tab is active. Under 'Instance summary', the instance ID is listed as i-0d2d7ebd8b6ddd391 (Ubuntu - nginx). Other details shown include Public IPv4 address (13.233.25.81), Private IPv4 addresses (172.31.38.144), Instance state (Running), Instance type (t2.micro), Public IPv4 DNS (ec2-13-233-25-81.ap-south-1.compute.amazonaws.com), and VPC ID (vpc-afc1dbc7).

So now your instance is up and running.

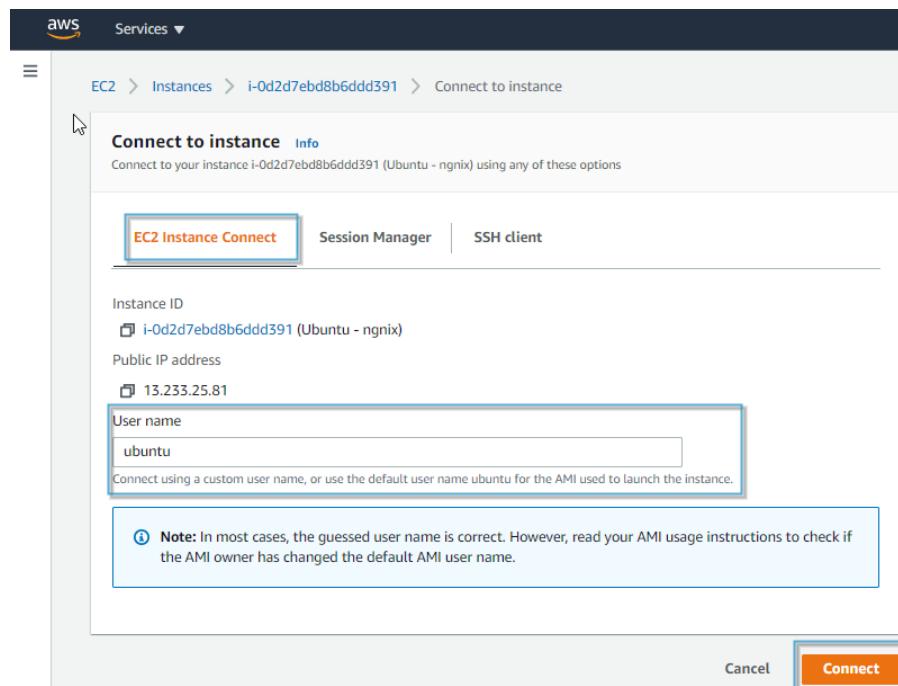
## Step B: Connecting to Ubuntu Instance

Following are the steps to connect to the instance. Select the instance, Click on Action menu at the top, from the list select Connect.



The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with various navigation options like EC2 Dashboard, Events, Tags, Limits, Instances, Images, and Elastic Block Store. The main area shows a table of instances with one row selected: "Ubuntu - nginx" (Instance ID: i-0d2d7ebd8b6ddd391). The instance is listed as "Running" with an "t2.micro" type and "2/2 checks passed". The "Actions" menu is open above the table, and the "Connect" option is highlighted with a blue border. Below the table, a detailed view for the selected instance is shown, including its summary, security group, networking, storage, status checks, monitoring, and tags.

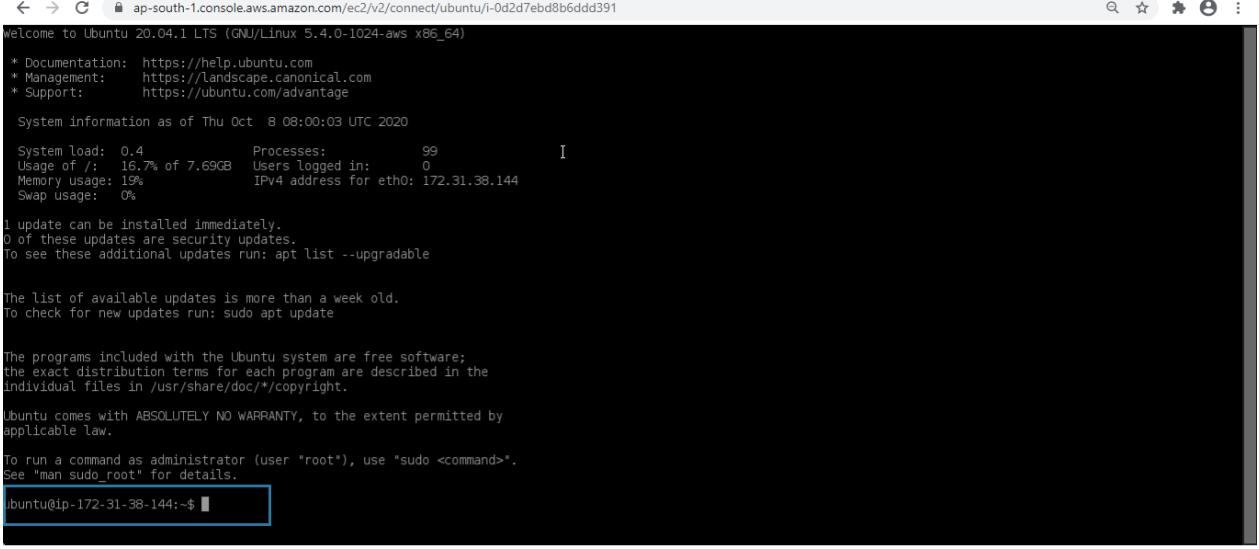
On the next screen you will see EC2 Instance Connect (default selected), Session Manager, SSH client Tabs. We will connect by EC2 Instance Connect



The screenshot shows the "Connect to instance" dialog box. At the top, there are three tabs: "EC2 Instance Connect" (which is selected and highlighted in blue), "Session Manager", and "SSH client". Below the tabs, it displays the instance ID "i-0d2d7ebd8b6ddd391 (Ubuntu - nginx)" and the public IP address "13.233.25.81". A "User name" input field is filled with "ubuntu". A note below the input field states: "Connect using a custom user name, or use the default user name ubuntu for the AMI used to launch the instance." At the bottom of the dialog, there is a note: "Note: In most cases, the guessed user name is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name." Finally, there are "Cancel" and "Connect" buttons at the bottom right.

Let the default User Name “ubuntu” as it is and click on Connect.”

The ubuntu instance will be connected. Once the instance is started you will be able to see the \$ prompt.



```
← → C ap-south-1.console.aws.amazon.com/ec2/v2/connect/ubuntu/i-0d2d7ebd8b6ddd391
Welcome to Ubuntu 20.04.1 LTS (GNU/Linux 5.4.0-1024-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

System information as of Thu Oct 8 08:00:03 UTC 2020

System load: 0.4      Processes:         99      I
Usage of /: 16.7% of 7.69GB  Users logged in: 0
Memory usage: 19%
Swap usage:  0%

1 update can be installed immediately.
0 of these updates are security updates.
To see these additional updates run: apt list --upgradable

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-38-144:~$
```

i-0d2d7ebd8b6ddd391 (Ubuntu - nginx)

Public IPs: 13.233.25.81 Private IPs: 172.31.38.144

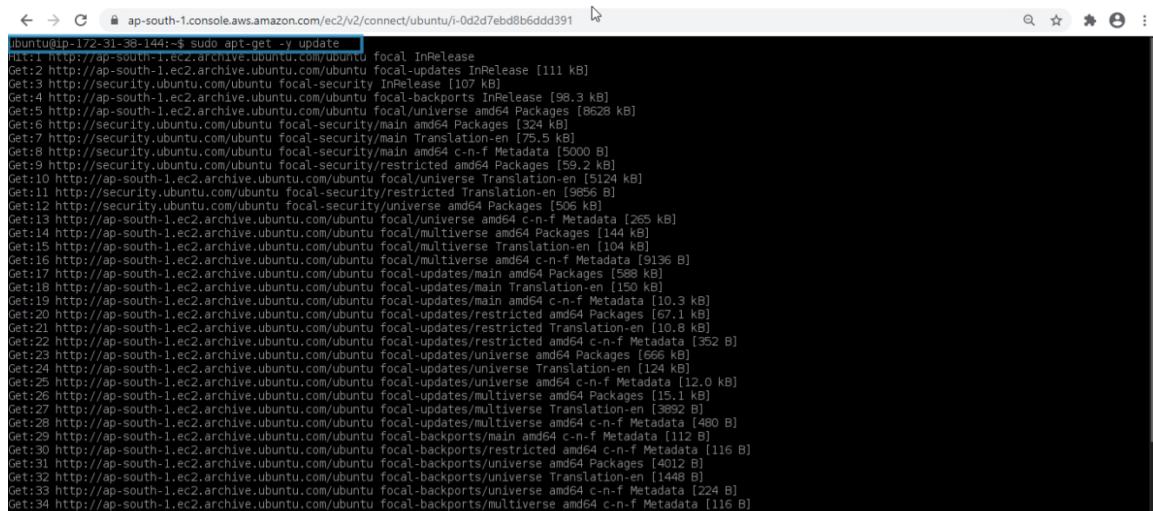
**Note:** In Windows Server Instance we required to download the RDP client, select key pair (.pem) file, decrypt the password, copy it and paste in Windows Security (password for Administrator) & then connect. Here all the steps are not required you can directly connect, internally AWS will take care of all the steps.

## STEP C: Installing nginx Web Server

Below are the commands you need to execute on the Ubuntu server \$ prompt for installing nginx web server.

### 1. sudo apt-get -y update

- this command will get the latest packages for the server
- sudo – Will give super user rights
- y is for Automatic Yes (so it will not prompt you for confirmation)

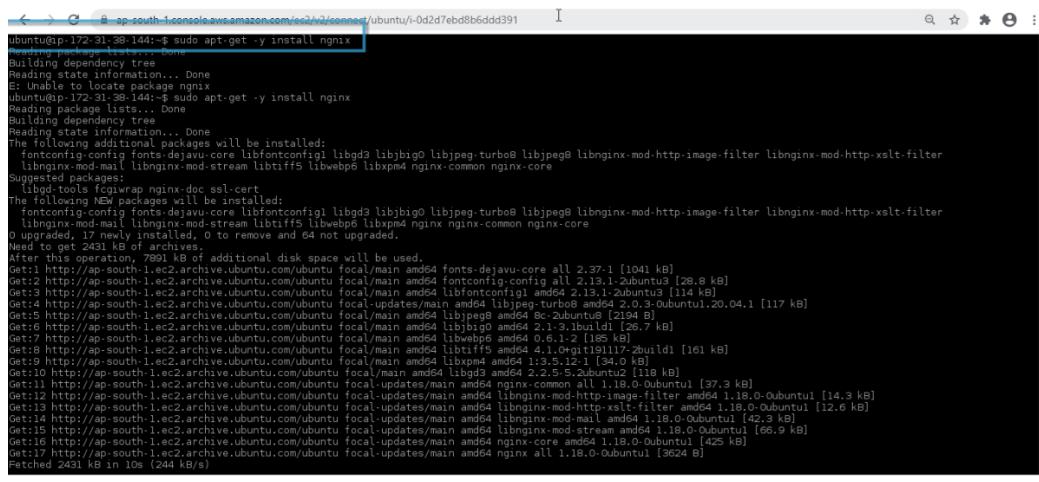


```
i0d2d7ebd8b6ddd391 (Ubuntu - nginx)
Public IPs: 13.233.25.81 Private IPs: 172.31.38.144
```

Once the package is installed, execute the command below for installing nginx.

### 2. sudo apt-get -y install nginx

- this command will install nginx server



```
i0d2d7ebd8b6ddd391 (Ubuntu - nginx)
Public IPs: 13.233.25.81 Private IPs: 172.31.38.144
```

So now nginx is installed. Disconnect the server.

Now to check the nginx installation. Copy the public address from the Instance details & paste it in your Internet browser (e.g. Chrome/Internet Explorer/Firefox) or click on open. In our current scenario our ubuntu server public IP is: 13.233.25.81

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with options like New EC2 Experience, EC2 Dashboard, Events, Tags, Limits, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, and Elastic Block Store Volumes. The main area shows a table titled 'Instances (1/1) Info' with one row. The row details are: Name: Ubuntu - nginx, Instance ID: i-0d2d7ebd8b6ddd391, Instance state: Running, Instance type: t2.micro, Status check: 2/2 checks passed, Availability zone: ap-south-1a, Public IPv4 DNS: ec2-13-233-25-81.ap-south-1.compute.amazonaws.com. Below the table, there's a detailed view for the instance i-0d2d7ebd8b6ddd391. Under the 'Details' tab, the 'Instance summary' section shows the Public IPv4 address 13.233.25.81, which is highlighted with a blue box. To the right, there are sections for Private IPv4 addresses (172.31.38.144), Private IPv4 DNS (ip-172-31-38-144.ap-south-1.compute.internal), and VPC ID (vpc-afc1dbc7).

You should be able to see the nginx web server installed on ubuntu.

The screenshot shows a web browser window with the URL 'Not secure 13.233.25.81'. The page content is 'Welcome to nginx!'. Below it, a message says: 'If you see this page, the nginx web server is successfully installed and working. Further configuration is required.' It also mentions: 'For online documentation and support please refer to [nginx.org](http://nginx.org). Commercial support is available at [nginx.com](http://nginx.com)'. At the bottom, it says 'Thank you for using nginx.'

## STEP D: Terminating Instance

Click on Actions->Select Instance State->Click on Terminate instance.

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with various navigation options like EC2 Dashboard, Events, Tags, Limits, Instances (selected), Images, and Elastic Block Store. The main area displays a table of instances. One instance, "Ubuntu - nginx" with ID i-0d2d7ebd8b6ddd391, is selected and shown in more detail below. In the top right corner of the instance row, there's a context menu with options: Reboot instance, Hibernate instance, Terminate instance (which is highlighted with a red box), and Manage instance state. Below the table, the instance details are shown in a modal window titled "Instance: i-0d2d7ebd8b6ddd391 (Ubuntu - nginx)". The "Details" tab is selected, showing information like Instance ID, Public IP, Private IP, Instance state (Running), Instance type (t2.micro), and VPC ID.

It will ask you for Termination permission click on Terminate.

This screenshot shows the same EC2 Instances page as above, but with a modal dialog box overlaid. The dialog is titled "Terminate instance?" and contains the message "To confirm that you want to terminate the instance, choose the terminate button below. Terminating the instance cannot be undone." It lists the instance ID "i-0d2d7ebd8b6ddd391 (Ubuntu - nginx)" and has two buttons at the bottom: "Cancel" and "Terminate" (which is highlighted with a red box).

The instance will be terminated and, in the instance details, you will see the public & private IP are released, which will go back to shared pool and the instance status will show terminated.

The screenshot shows the AWS EC2 Instances page. A green banner at the top indicates "Successfully terminated i-0d2d7ebd8b6ddd391". The main table lists one instance:

Name	Instance ID	Instance state
Ubuntu - nginx	i-0d2d7ebd8b6ddd391	Terminated

Details for the terminated instance are shown in the Instance summary section:

Public IPv4 address	Private IPv4 addresses
-	-

The sidebar on the left includes sections for New EC2 Experience, EC2 Dashboard, Events, Tags, Limits, Instances (selected), Instances Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, and Elastic Block Store.

Project 2 is completed.

# Advance AWS

## AWS Project- 3

Student:

Kishore Shinde

Teacher:

Mrs. Vinolin Jeremiah

Course:

Advance AWS Cloud Computing with DevOps  
Fundamentals

Institute:

Lets Upgrade

# Project 03:

## Working with Volumes

For the above-mentioned project, we will go through the following 8 steps:

Step A: Create a windows machine

Step B: Create a volume

Step C: Attach the volume to the windows machine

Step D: Bring the volume online

Step E: Create a new volume

Step F: Check mounted volume

Step G: Modify the volume

Step H: Delete the volume

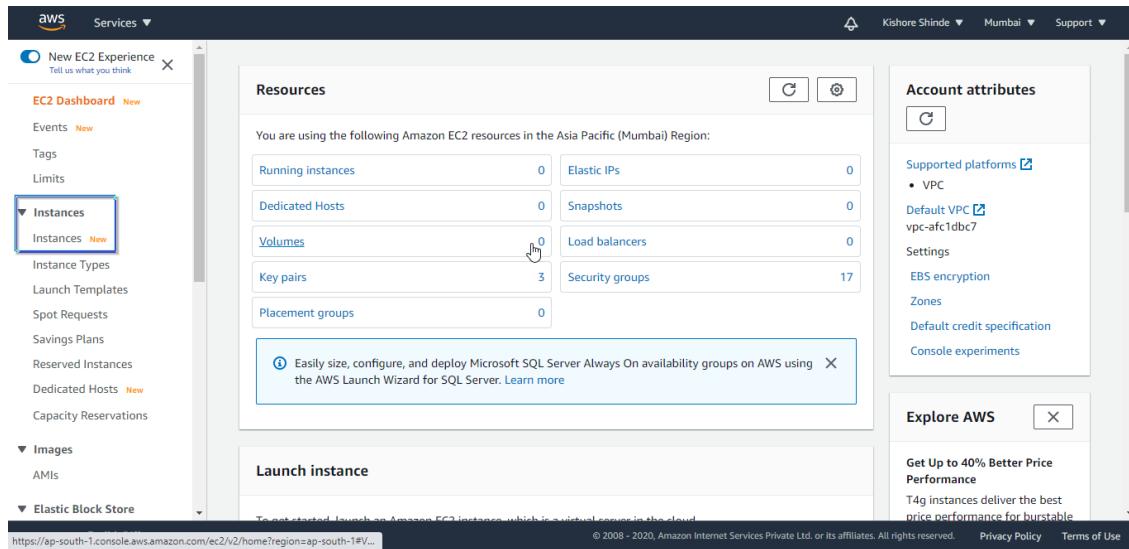
### STEP A: Create a Windows Machine

Steps for launching a new windows instance:

1. From the AWS Management Console, you can either find EC2 service or click on All services ->Compute->EC2

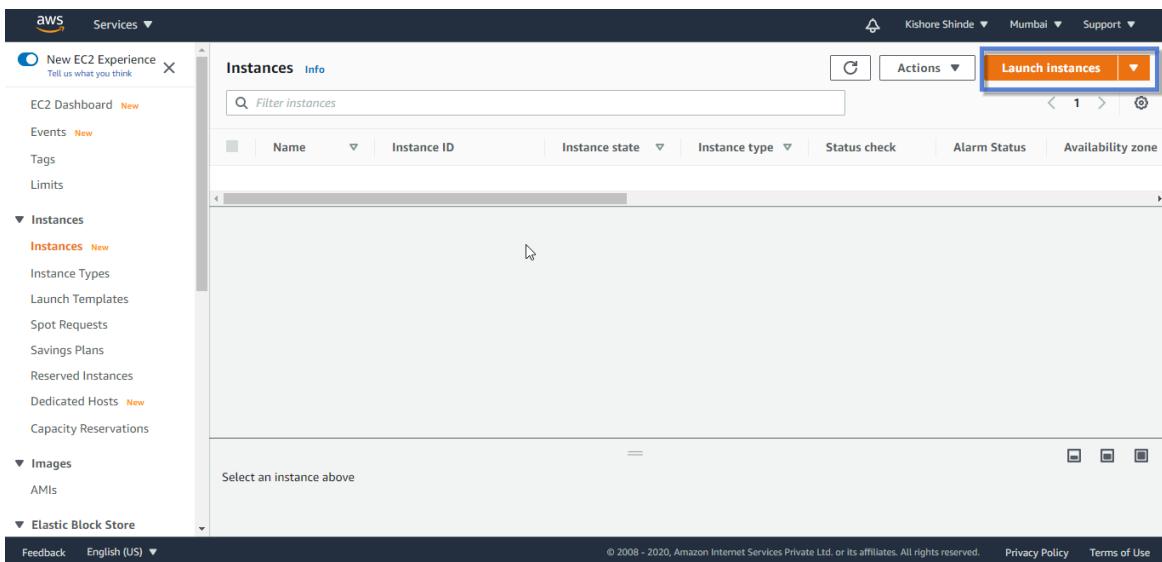
The screenshot shows the AWS Management Console homepage. At the top, there's a search bar with 'EC2' typed into it. Below the search bar, there's a 'Services' dropdown menu. Under the 'All services' section, 'Compute' is expanded, and 'EC2' is selected. Other options in the 'Compute' dropdown include Lightsail, Lambda, Batch, and Elastic Beanstalk. To the right of the search bar, there's a sidebar with sections like 'Stay connected to your AWS resources on-the-go' (with a link to the AWS Mobile App) and 'Explore AWS' (with links to Managed File Storage, SageMaker Autopilot, and AWS Training). The bottom of the page includes standard footer links for Feedback, English (US), Privacy Policy, and Terms of Use.

2. Once you are in EC2 console from the EC2 Dashboard on the left, select Instances



The screenshot shows the AWS EC2 Dashboard. On the left sidebar, under the 'Instances' section, the 'Instances' link is highlighted with a blue box. The main content area displays a summary of Amazon EC2 resources in the Asia Pacific (Mumbai) Region. It includes tables for Running Instances (0), Dedicated Hosts (0), Volumes (0), Key pairs (3), Placement groups (0), Elastic IPs (0), Snapshots (0), Load balancers (0), and Security groups (17). A callout box highlights a feature for easily sizing, configuring, and deploying Microsoft SQL Server Always On availability groups. The bottom right corner features an 'Explore AWS' section with promotional offers for price performance and burstable performance.

3. From the Instances Dashboard, Select Launch Instance at the right



The screenshot shows the AWS Instances Dashboard. The left sidebar has the 'Instances' section selected. The main area displays a table header for 'Instances' with columns: Name, Instance ID, Instance state, Instance type, Status check, Alarm Status, and Availability zone. A large orange button labeled 'Launch instances' is highlighted with a blue box. Below the table, a message says 'Select an instance above'. The bottom right corner contains standard footer links for Feedback, English (US), Privacy Policy, and Terms of Use.

Once you click on Launch Instance, a wizard will start which has 7 steps for creating the instance.

## Step 1: Choose an Amazon Machine Image (AMI)

The screenshot shows the AWS Launch Wizard interface for Step 1: Choose an Amazon Machine Image (AMI). The search bar at the top contains "Windows Server". Below the search bar, a message states: "AWS Launch Wizard for SQL Server offers an easy way to size, configure, and deploy Microsoft SQL Server Always On availability groups. Use AWS Launch Wizard for this launch." A sidebar on the left titled "Quick Start (8)" includes sections for "My AMIs (0)", "AWS Marketplace (407)", and "Community AMIs (1765)". A checkbox labeled "Free tier only" is checked. The main list displays four Windows AMIs:

Image	Name	Description	Select Button
Windows	Microsoft Windows Server 2019 Base - ami-0f438f5108bf5217e	Microsoft Windows 2019 Datacenter edition. [English] Root device type: ebs Virtualization type: hvm ENAv Enabled: Yes	Select (64-bit (x86))
Windows	Microsoft Windows Server 2019 Base with Containers - ami-0756ca816b1c1e257	Microsoft Windows 2019 Datacenter edition with Containers. [English] Root device type: ebs Virtualization type: hvm ENAv Enabled: Yes	Select (64-bit (x86))
Windows	Microsoft Windows Server 1909 Core Base - ami-08b80f1f66c8fce40	Microsoft Windows Server 1909 Semi-Annual Channel release [English] Root device type: ebs Virtualization type: hvm ENAv Enabled: Yes	Select (64-bit (x86))
Windows	Microsoft Windows Server 2016 Base - ami-07cd523936bf4714d	Microsoft Windows 2016 Datacenter edition. [English]	Select (64-bit (x86))

You can search the AMI e.g. Windows.... or can select the AMI from the list of the AMI's.

**Note:** Make sure you select the Free Tier only option so only free AMI's will be shown and you will not be charged.

Click on "Select" on the Windows AMI e.g. Microsoft Windows 2016 Base.

## Step 2: Choose an Instance Type

Here you can select the Instance type. These are varying combinations of CPU, Memory, Storage and Networking capacity. The default instance type selected is "t2.micro" which is Free tier eligible. Let it be selected otherwise you will be charged for other instance type. You can even see the details of the selected instance type in **Currently Selected**

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

**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

	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 <span style="background-color: #e0f2e0;">Free tier eligible</span>	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
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes

Cancel Previous Review and Launch Next: Configure Instance Details

## Step 3: Configure Instance Details

Here you can configure the instance that suits your requirement. You can launch multiple instances from the same AMI you can mention it in Number of instances.

In Network you can select the VPC or create new VPC, we will continue with default VPC, select or create new Subnet, we will continue with default subnet. We can select IAM role, we will continue with “None”.

**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 <span style="border: 1px solid red; padding: 2px;">1</span>	Launch into Auto Scaling Group <span style="color: blue;">(i)</span>
Purchasing option <span style="border: 1px solid red; padding: 2px;"><input type="checkbox"/> Request Spot instances</span>	
Network <span style="border: 1px solid red; padding: 2px;">vpc-afc1dbc7 (default)</span>	<span style="color: blue;">(i)</span> Create new VPC
Subnet <span style="border: 1px solid red; padding: 2px;">No preference (default subnet in any Availability Zone)</span>	<span style="color: blue;">(i)</span> Create new subnet
Auto-assign Public IP <span style="border: 1px solid red; padding: 2px;">Use subnet setting (Enable)</span>	
Placement group <span style="border: 1px solid red; padding: 2px;"><input type="checkbox"/> Add instance to placement group</span>	
Capacity Reservation <span style="border: 1px solid red; padding: 2px;">Open</span>	
Domain join directory <span style="border: 1px solid red; padding: 2px;">No directory</span>	<span style="color: blue;">(i)</span> Create new directory
IAM role <span style="border: 1px solid red; padding: 2px;">None</span>	<span style="color: blue;">(i)</span> Create new IAM role
Shutdown behavior <span style="border: 1px solid red; padding: 2px;">Stop</span>	
Stop - Hibernate behavior <span style="border: 1px solid red; padding: 2px;"><input type="checkbox"/> Enable hibernation as an additional stop behavior</span>	
Enable termination protection <span style="border: 1px solid red; padding: 2px;"><input type="checkbox"/> Protect against accidental termination</span>	

Cancel Previous Review and Launch Next: Add Storage

In the **Shutdown behavior** you can select Stop or Terminate. It is an important option If you select Stop when the instance shuts down it will not be deleted but stopped.



**Enable termination protection:** If you check it will protect your instance from accidental termination.



Now keep whatever is default don't change anything and click on Next: Add Storage

## Step 4: Add Storage

Your Instance will be launched with the following storage device settings. You can also attach additional EBS volumes here. In our case we will first create the instance and then create & attach volume. For now, keep the default Volume Type: Root and size: 30 GiB (only 30 GB is free for free tier for General purpose SSD) and General-Purpose SSD (gp2) as it is. Delete on Termination checkbox will make sure the volume gets deleted as soon as the Instance is terminated. You can even add new EBS volume. Click on Next: Add Tags

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/sda1	snap-012ad0bed7927582e	30	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

## Step 5: Add Tags

Tags enable you to categorize your AWS resources in different ways. Each tag is a simple label consisting of customer-defined key and an optional value that can make it easier to manage, search for, and filter resources. For E.g. Key can be Name and Value can be EBS Demo.

The screenshot shows the AWS EC2 wizard at Step 5: Add Tags. The user has added a tag named 'Name' with the value 'EBS Demo'. There are other tags listed below it. At the bottom right, there are 'Cancel', 'Previous', 'Review and Launch' (which is highlighted), and 'Next: Configure Security Group' buttons.

You can add the tag or can continue to next step “Configure Security Group”

## Step 6: Configure Security Group

A security group is similar to firewall. Here you can set the rules that can control traffic for your instance. For the current instance in the Type select “All Traffic” and in Source select “Anywhere”. It will show you a warning that the source anywhere will allow all IP addresses to access your instance you must select IP Addresses only. Ignore it for now and click on “Review and Launch”.

The screenshot shows the AWS EC2 wizard at Step 6: Configure Security Group. A new security group named 'launch-wizard-16' is being created. The 'Type' is set to 'All traffic' and the 'Source' is set to 'Anywhere'. A warning message at the bottom states: "Warning: Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only." At the bottom right, there are 'Cancel', 'Previous', 'Review and Launch' (which is highlighted), and 'Next: Review' buttons.

## Step 7: Review

Here you can review all the selection you have done in previous steps and if required can go back and change them. You are able to review the AMI details, Instance Type/Details, Security Groups, Storage & Tags.

The screenshot shows the AWS Step 7: Review Instance Launch page. At the top, there are tabs: 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, and 7. Review. The 7. Review tab is highlighted. Below the tabs, the page title is "Step 7: Review Instance Launch".  
The main content area is divided into sections:

- AMI Details:** Shows the selected AMI as "Microsoft Windows Server 2016 Base - ami-07cd5239368f4714d" (Free tier eligible). It includes details like Root Device Type: ebs, Virtualization type: hvm, and a note about Microsoft License Mobility.- Instance Type:** Shows the selected instance type as t2.micro with 1 vCPU, 1 GB Memory, and EBS only storage. It also indicates EBS-Optimized Available and Network Performance (Low to Moderate).- Security Groups:** Shows the selected security group as launch-wizard-19, created on 2020-10-08T19:37:59.912+05:30. It lists two inbound rules: All traffic on port 0.0.0.0/0 and All traffic on port ::/0.- Storage:** Shows the selected storage type as EBS only.

At the bottom right, there are buttons for "Cancel", "Previous", and "Launch". The "Launch" button is highlighted with a blue border.

Click on Launch once you have reviewed all the details.

Next it will ask you to Select an existing key pair or create a new key pair.

The screenshot shows the AWS Step 7: Review Instance Launch page with a modal dialog overlayed. The dialog title is "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 a key pair  
Select a key pair  
WindowsIIS  
 I acknowledge that I have access to the selected private key file (WindowsIIS.pem), and that without this file, I won't be able to log into my instance.

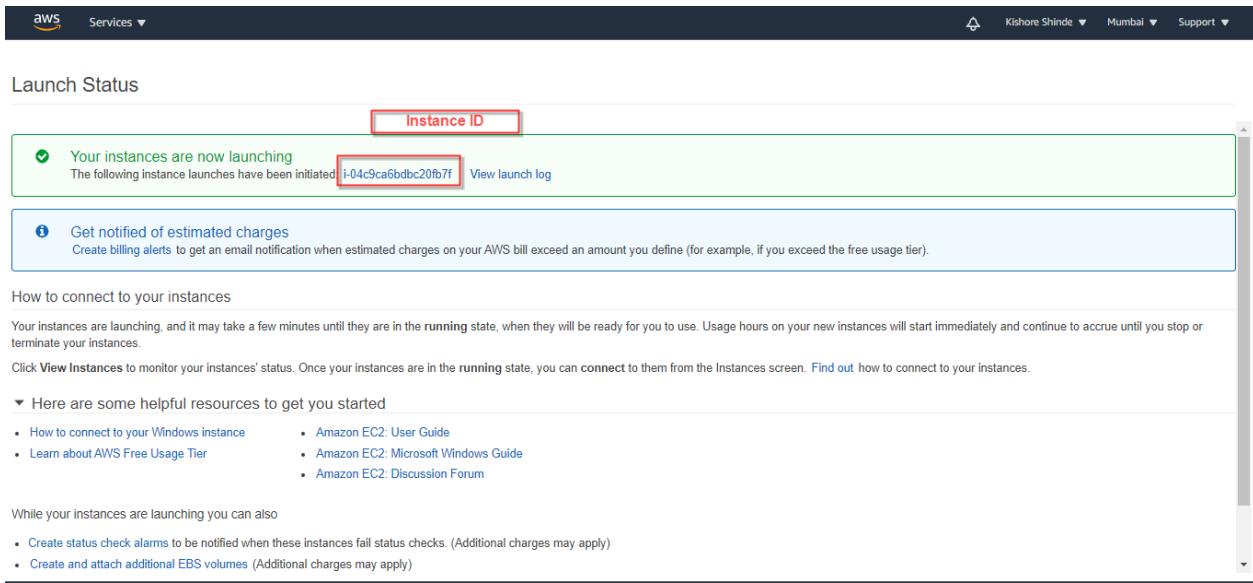
At the bottom of the dialog are "Cancel" and "Launch Instances" buttons. The "Launch Instances" button is highlighted with a blue border.

You can create a new or select an existing key paid. For this instance, we will select “existing key pair”. (WindowsIIS.pem). Select the “I acknowledge...” check box.

**Note:** Please make sure you have the .pem file, it will be required to connect to the instance otherwise you can't.

Click on Launch Instance.

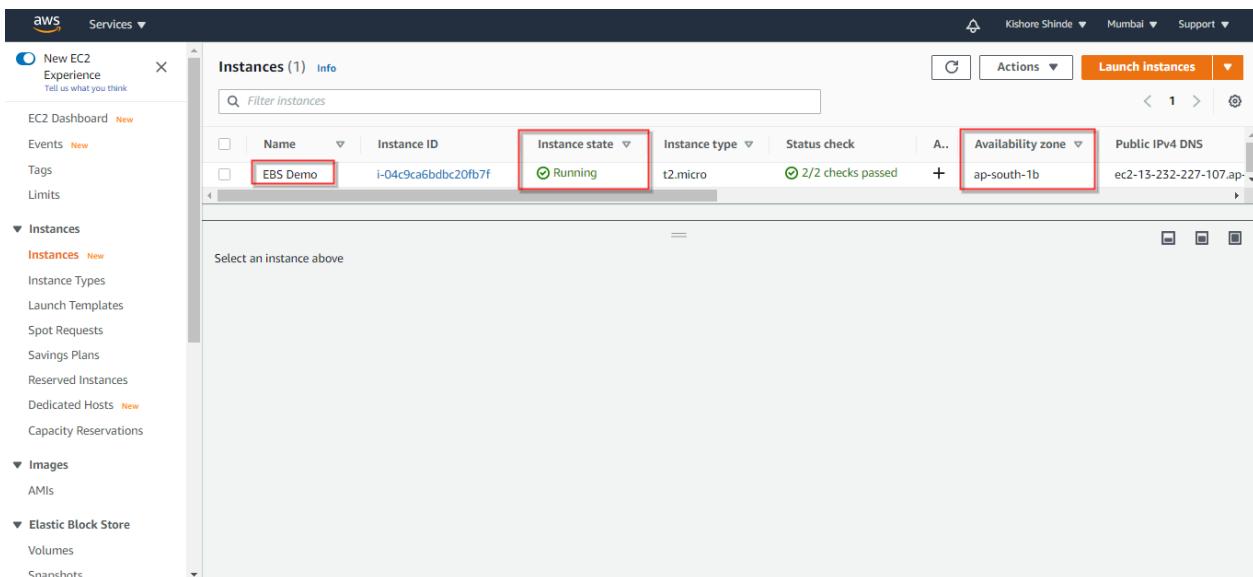
In the next screen you will be able to see “Your instance is launching”. You will be able to see the instance id that is initiated for launch.



The screenshot shows the AWS Launch Status page. At the top, there's a green banner with the message "Your instances are now launching" and the instance ID "i-04c9ca6bdb20fb7f". Below this, there's a blue banner with the message "Get notified of estimated charges" and a link to "Create billing alerts". The main content area is titled "How to connect to your instances" and includes a note about instances launching and becoming ready for use. It also provides links to helpful resources like the User Guide and Discussion Forum. A sidebar on the left lists various AWS services.

You can click on the instance id which will take you to Instances Dashboard.

Here you will see the instance created which will be initially showing Instance State as “Pending”. Wait till the Status check shows 2/2 checks and Instance State becomes “Running”.



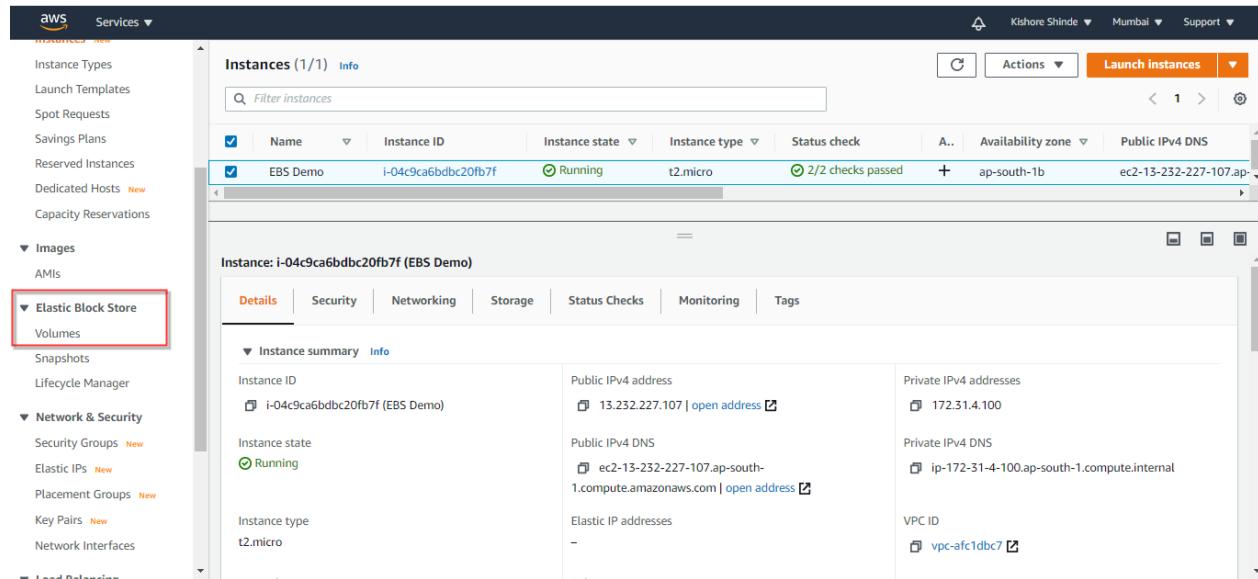
The screenshot shows the AWS Instances Dashboard. On the left, there's a navigation menu with options like New EC2 Experience, EC2 Dashboard, Events, Tags, Limits, Instances (selected), Images, and Elastic Block Store. The main area displays a table titled "Instances (1) Info" with one row. The row shows an instance named "EBS Demo" with Instance ID "i-04c9ca6bdb20fb7f", Instance state "Running" (highlighted with a red box), Instance type "t2.micro", Status check "2/2 checks passed" (highlighted with a red box), Availability zone "ap-south-1b" (highlighted with a red box), and Public IPv4 DNS "ec2-13-232-227-107.ap-south-1.amazonaws.com". There are "Actions" and "Launch Instances" buttons at the top right of the table.

Now your Windows Instance (Name: EBS Demo) is created.

**Note:** Make sure you take a note of the Availability Zone, which we will select when we create the EBS volume (It has to be in the same Availability Zone as the Instance)

## Step B: Creating EBS Volume

Following are the steps for creating EBS Volume :



The screenshot shows the AWS Instances page. On the left sidebar, under the 'Elastic Block Store' section, the 'Volumes' option is highlighted with a red box. The main content area displays a table titled 'Instances (1/1) Info' with one row for 'EBS Demo'. Below the table, there's a detailed view for the 'EBS Demo' instance, showing its configuration and network details.

Name	Instance ID	Instance state	Instance type	Status check	A..	Availability zone	Public IPv4 DNS
EBS Demo	i-04c9ca6bdb20fb7f	Running	t2.micro	2/2 checks passed	+	ap-south-1b	ec2-13-232-227-107.ap...

**Instance: i-04c9ca6bdb20fb7f (EBS Demo)**

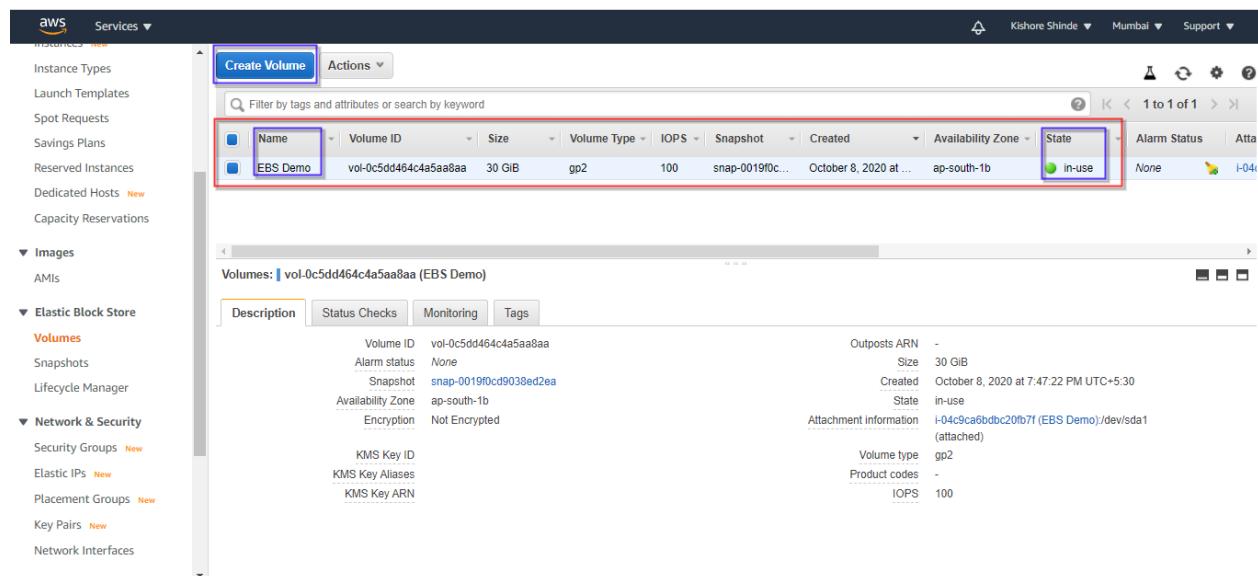
**Details** | Security | Networking | Storage | Status Checks | Monitoring | Tags

**Instance summary** | **Info**

Instance ID	Public IPv4 address	Private IPv4 addresses
i-04c9ca6bdb20fb7f (EBS Demo)	13.232.227.107   open address	172.31.4.100
Instance state	Public IPv4 DNS	Private IPv4 DNS
Running	ec2-13-232-227-107.ap-south-1.compute.amazonaws.com   open address	ip-172-31-4-100.ap-south-1.compute.internal
Instance type	Elastic IP addresses	VPC ID
t2.micro	-	vpc-afc1dbc7

Select the instance, and on the left under the Elastic Block Store select Volumes (Elastic Block Store->Volumes) as shown in the above screen.

On the next screen you will see the list of volumes.



The screenshot shows the AWS Volumes page. On the left sidebar, the 'Volumes' option under the 'Elastic Block Store' section is selected and highlighted with a red box. The main content area displays a table with one row for the 'EBS Demo' volume, which is highlighted with a blue box. The volume details are shown in a detailed view below the table.

Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone	State
EBS Demo	vol-0c5dd464c4a5aa8aa	30 GiB	gp2	100	snap-0019f0cd9038ed2ea	October 8, 2020 at ...	ap-south-1b	in-use

**Volumes: vol-0c5dd464c4a5aa8aa (EBS Demo)**

**Description** | Status Checks | Monitoring | Tags

Volume ID	Outposts ARN	Size	Created	State	Attachment information		
vol-0c5dd464c4a5aa8aa	-	30 GiB	October 8, 2020 at 7:47:22 PM UTC+5:30	in-use	i-04c9ca6bdb20fb7f (EBS Demo):/dev/sda1 (attached)		
Alarm status	Snapshot	Availability Zone	Encryption	KMS Key ID	Volume type	Product codes	IOPS
None	snap-0019f0cd9038ed2ea	ap-south-1b	Not Encrypted		gp2	-	100
KMS Key Aliases	KMS Key ARN						

You can see in the above screen Volume with Name “EBS Demo” is in use. These is the volume that is the root volume of the windows instance that we have created.

Now we will be creating an additional EBS volume.

Click on Create Volume.

The screenshot shows the 'Create Volume' page in the AWS Volumes section. The 'Volume Type' is set to 'General Purpose SSD (gp2)'. The 'Size (GiB)' field is highlighted with a purple border and contains the value '4'. Below it, the 'IOPS' field shows '100 / 3000' with a note '(Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS)'. The 'Throughput (MB/s)' field is labeled 'Not applicable'. The 'Availability Zone\*' dropdown shows 'ap-south-1a' selected, with a dropdown menu showing 'ap-south-1a', 'ap-south-1b', and 'ap-south-1c'. The 'Snapshot ID' and 'Encryption' fields are empty. Below these fields are 'Key' and 'Value' input fields for tags, both with character limits of 128 and 256 respectively. A note says 'This resource currently has no tags' and 'Choose the Add tag button or click to add a Name tag'. An 'Add Tag' button is present. At the bottom right are 'Cancel' and 'Create Volume' buttons, with 'Create Volume' highlighted by a red box. A note at the bottom left says '\* Required'.

In the Create Volume Screen you can select the Volume type let it be “General Purpose SSD (gp2)”. In the Size (GiB) you can specify the required volume size e.g. 4.

In the Availability Zone make sure you select the same availability zone as your instance in the current scenario it is **ap-south-1b**.

In the Snapshot ID you can also select the Snapshot if have existing snapshot. Now let it be as it is. You can add tag as well. Now click on “Create Volume”

The screenshot shows the 'Create Volume' page after a successful creation. A green notification bar at the top left says 'Volume created successfully' with a checkmark icon. Below it, the 'Volume ID' is listed as 'vol-0faaf35b29000968'. At the bottom right is a 'Close' button, which is highlighted with a red box.

You will get in a message “Volume created successfully”. Click on close.

You will see the EBS Volume Dashboard.

The screenshot shows the AWS EBS Volume Dashboard. On the left, there's a sidebar with navigation links for EC2 Dashboard, Events, Tags, Instances, Images, and Elastic Block Store (with Volumes and Snapshots). The main area has a search bar at the top and a table below it. The table has columns for Name, Volume ID, Size, Volume Type, IOPS, Snapshot, Created, Availability Zone, State, and Alarm Status. Two rows are visible: 'EBS Demo' (30 GiB, gp2, 100 IOPS) and 'EBS Volume' (4 GiB, gp2, 100 IOPS). The 'EBS Volume' row is highlighted with a red border. Below the table, a detailed view for 'EBS Volume' is shown with tabs for Description, Status Checks, Monitoring, and Tags. The 'Description' tab is selected, displaying details like Volume ID, Size (4 GiB), Created (October 8, 2020), and State (available).

You can see the new volume created. Just change the Name to “EBS Volume”. You can see the size 4 GB that you assigned. The Status for the new volume is “available” which will change to “In-use” once you attach it to instance.

**Note:** Both the existing “EBS Demo” Root volume and new EBS Volume is in same Availability zone i.e. ap-south-1b

Step C: Attach the Volume to Windows Instance

Select the instance (EBS Volume) -> Click on Action and select Attach Volume.

The screenshot shows the AWS EBS console. On the left, there's a sidebar with various EC2 and EBS-related options like New EC2 Experience, EC2 Dashboard, Instances, Images, and Elastic Block Store. In the main area, a table lists EBS volumes. A context menu is open over one of the volumes, with 'Actions' expanded. The 'Attach Volume' option is highlighted with a red box.

Select the running instance for which the volume as to be attached.

The screenshot shows the 'Attach Volume' dialog box. It has fields for 'Volume' (selected), 'Instance' (set to 'Search instance ID or Name tag' in 'ap-south-1b'), and 'Device' (set to 'i-04c9ca6bdb20fb7f (EBS Demo) (running)'). The 'Attach' button is highlighted with a red box.

Click on Attach.

You will can see the Attach Volume is in process.

The screenshot shows the AWS EBS console interface. On the left, there's a navigation sidebar with options like EC2 Dashboard, Instances, Images, and Elastic Block Store. Under 'Elastic Block Store', 'Volumes' is selected. The main area displays a table of volumes. One row is highlighted with a red box, showing a volume named 'EBS Volume' with Volume ID 'vol-0faaf35b229000968'. The 'State' column for this volume shows a green circle icon followed by the text 'in-use'. Another volume, 'EBS Demo', is listed below it with a similar status.

The State is changed from Available -> In-use. So now we have attached the volume to the windows machine/instance.

#### Step D: Bring the Volume Online

To bring the volume online we will need to connect to the windows instance.

Go to Instances. Select the instance to which we have attached volume.

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation sidebar with options like EC2 Dashboard, Instances, Images, and Elastic Block Store. Under 'Instances', 'Instances' is selected. The main area shows a table of instances. One instance, named 'EBS Demo' with Instance ID 'i-04c9ca6bdb20fb7f', is selected and highlighted with a red box. A context menu is open over this instance row, with the 'Connect' option highlighted with a red box. Other options in the menu include 'Actions', 'Launch Instances', 'View details', and 'Get Windows password'.

Click on Action and select Connect.

The screenshot shows the 'Connect to instance' page for an EC2 instance. The 'RDP client' tab is selected. A red box highlights the 'Download remote desktop file' button. Another red box highlights the 'Get password' link under the password section. A third red box highlights the 'EBS Demo.rdp' download link at the bottom left.

Select RDP client. Now download the remote desktop file. You can see the EBD demo.rdp file downloaded. We will use these to connect to windows instance.

Click on Get Password.

The screenshot shows the 'Get windows password' page for an EC2 instance. A red box highlights the 'Browse' button next to the key pair selection. Another red box highlights the 'WindowsIIS.pem' file selection. A third red box highlights the 'Decrypt Password' button at the bottom right.

Browse and select the .pem file(e.g. WindowsIIS.pem) we selected at the key pair screen.

Click on Decrypt Password.

EC2 > Instances > i-04c9ca6bdbc20fb7f > Connect to instance

**Connect to instance** [Info](#)

Connect to your instance i-04c9ca6bdbc20fb7f (EBS Demo) using any of these options

Session Manager [RDP client](#)

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](#)

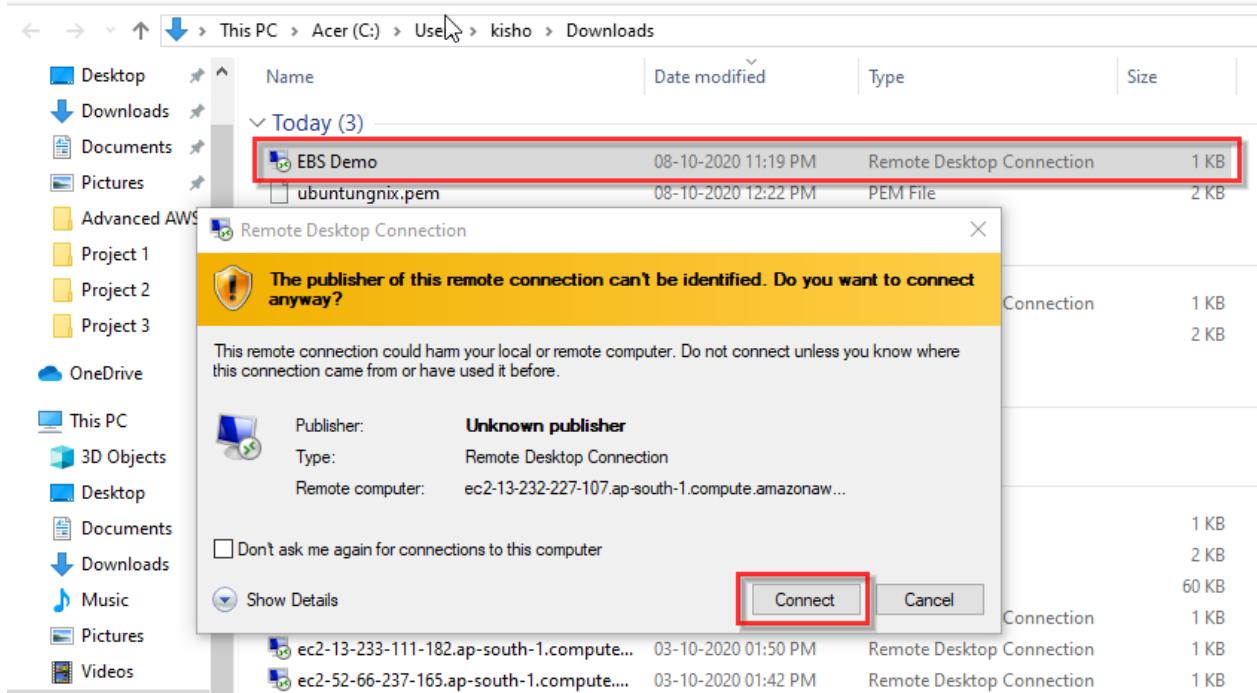
When prompted, connect to your instance using the following details:

Public DNS	User name
<input type="checkbox"/> ec2-13-232-227-107.ap-south-1.compute.amazonaws.com	<input type="checkbox"/> Administrator
Password	
<input type="checkbox"/> 4\$*t.HqPiTE;*z3NAQd?I!ES&5wDyuXV	

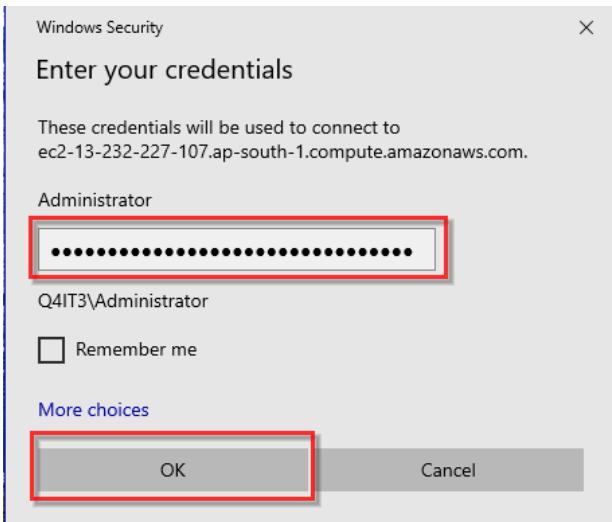
If you've joined your instance to a directory, you can use your directory credentials to connect to your instance.

Copy the decrypted password. This will be required when you connect the Instance through RDP client.

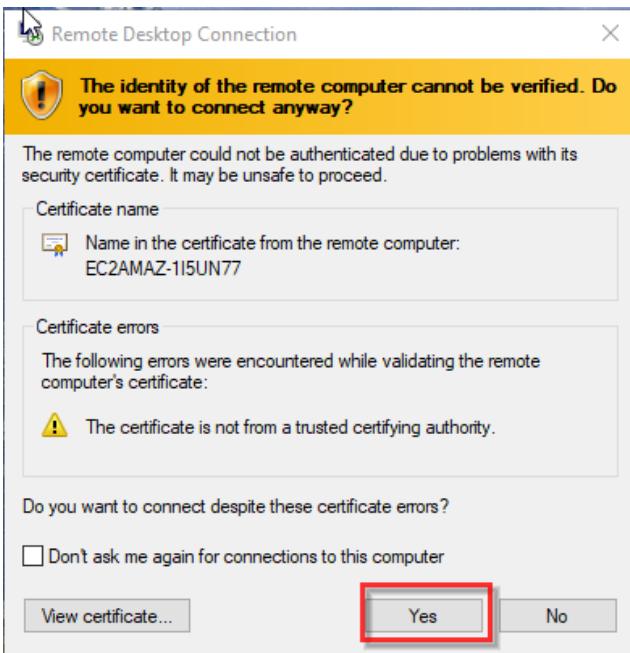
Now Open the downloaded RDP file.



Click on Connect.



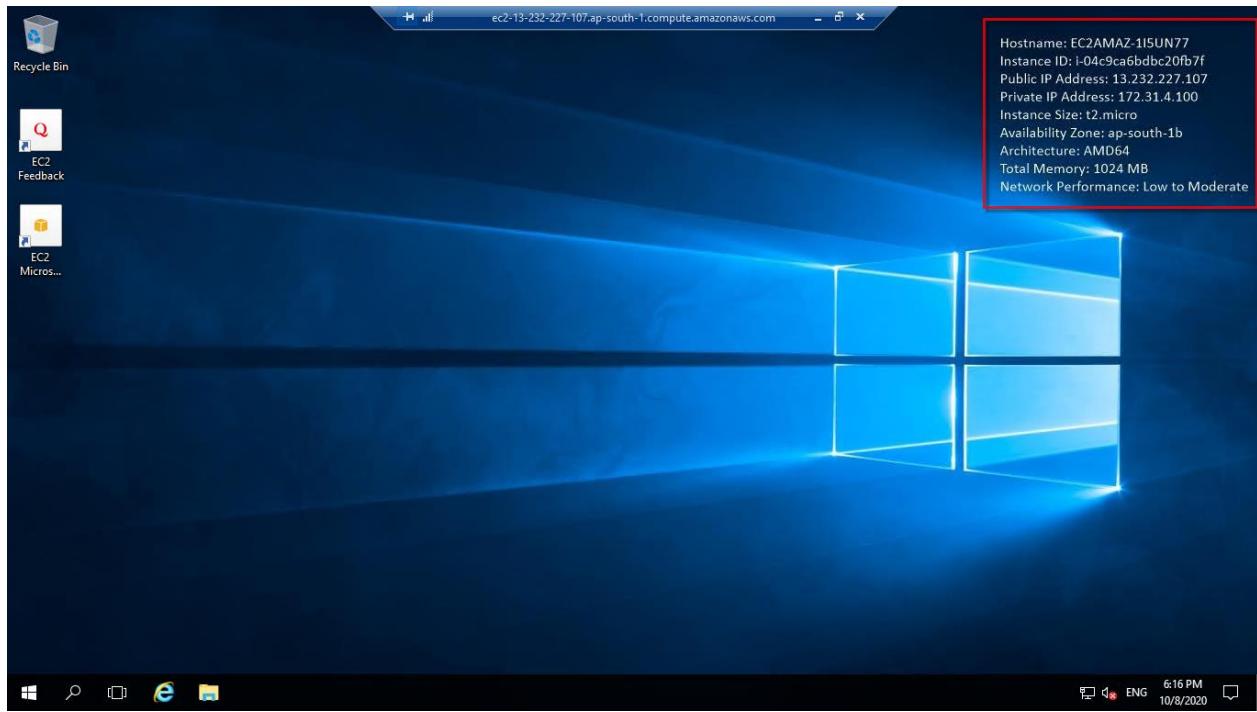
Enter or paste the password copied on the RDP client screen and click OK.



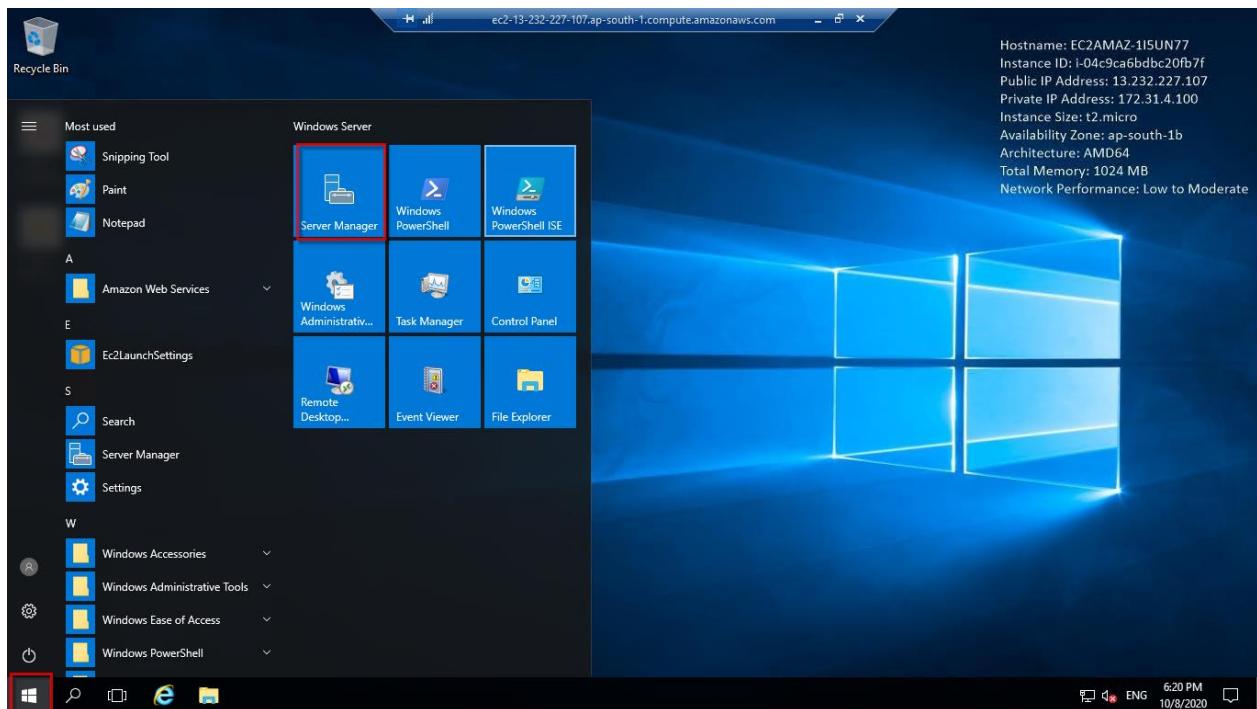
A Security Certificate error will be displayed but Click on Yes.

Now you will be connected to the instance. Wait for the settings to be done.

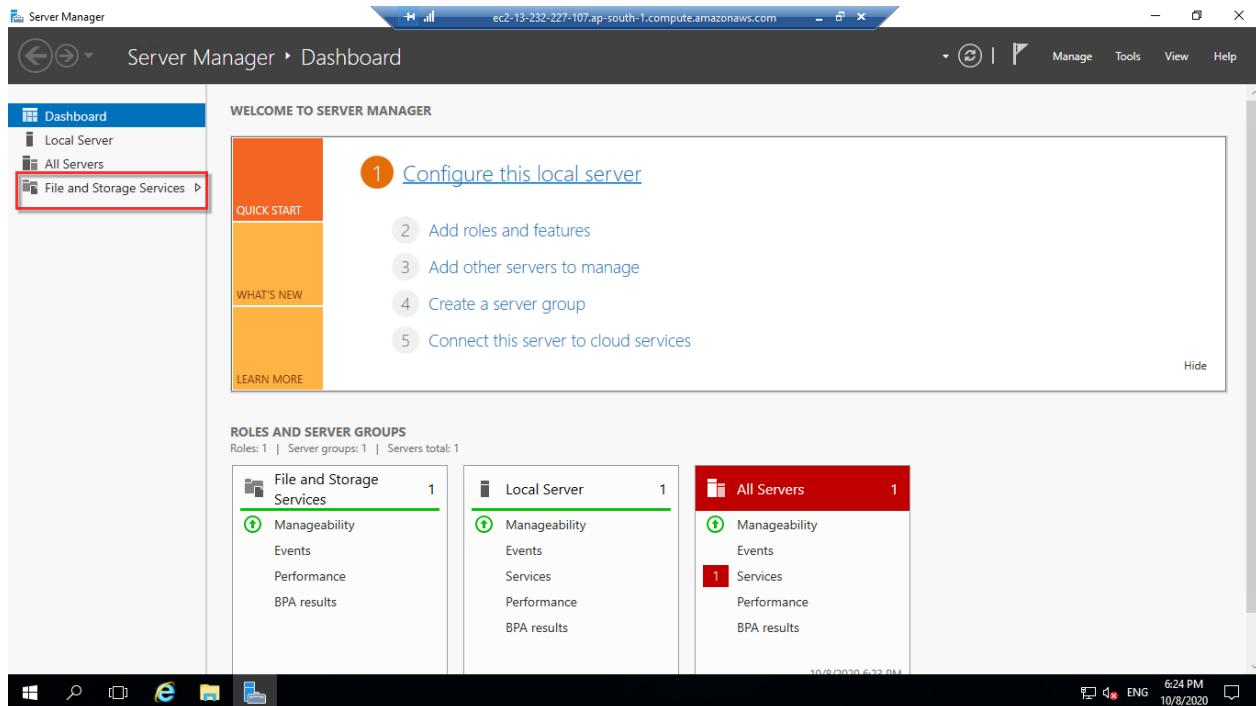
Once settings are done you will be able to see the Windows Server 2016 desktop with Instance details on the right side.



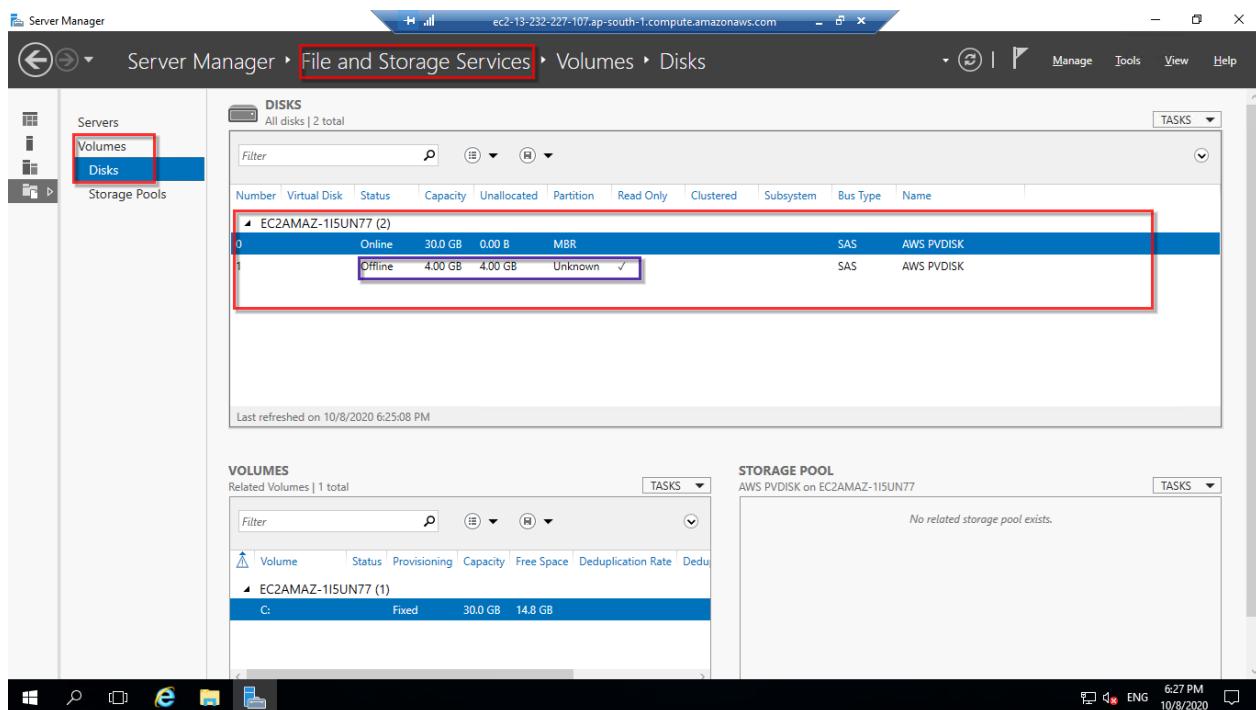
In the windows Instance click on Start and select Server Manager.



You will be able to see the Server Manager Dashboard. Select File and Storage Services.

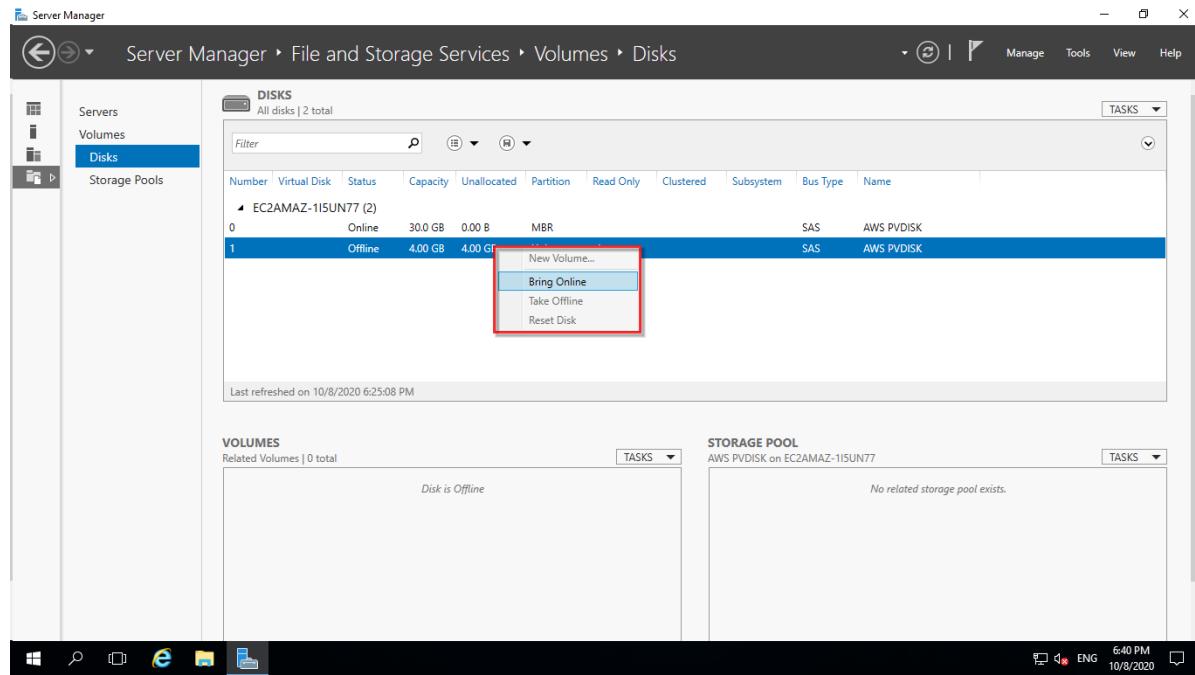


Select the Disks on the left. (Volume -> Disks)

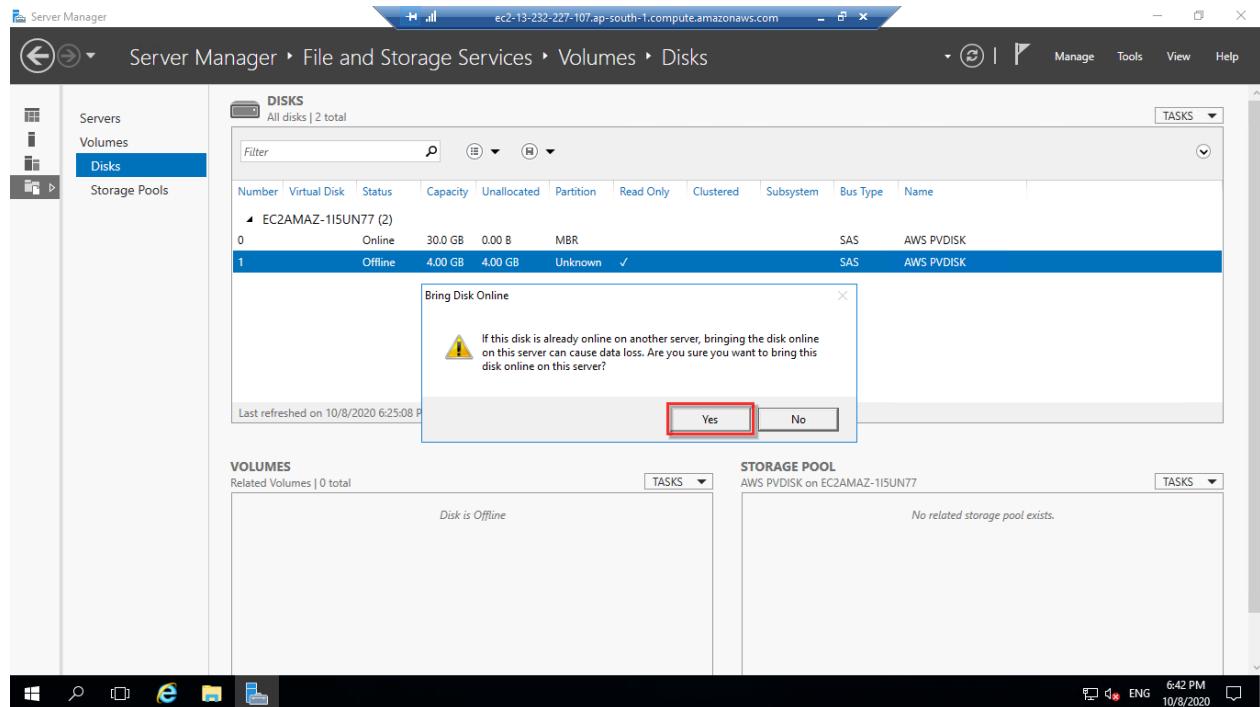


Here we can see both the Root volume (Status: Online) and new EBS volume (4.00 GB) attached (Status: Offline).

Select the new EBS volume. Right click and select Bring Online.

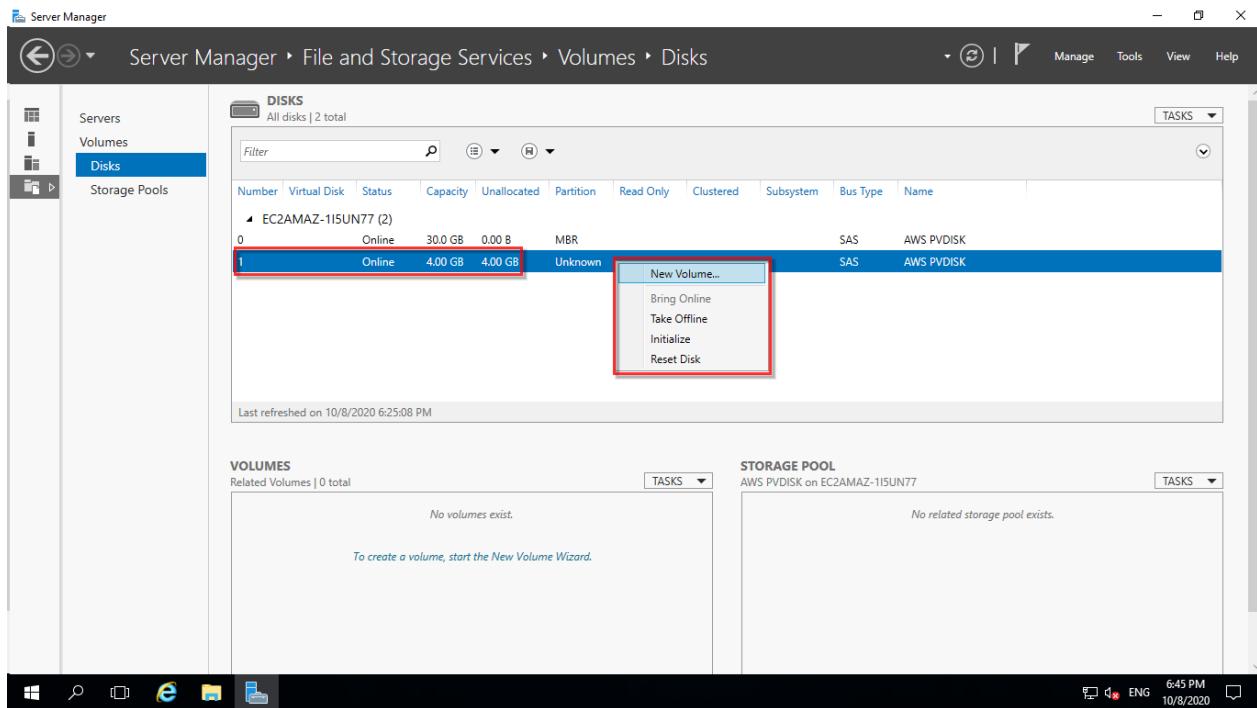


It will prompt you a message box for Yes/No confirmation. Read it and click on Yes.



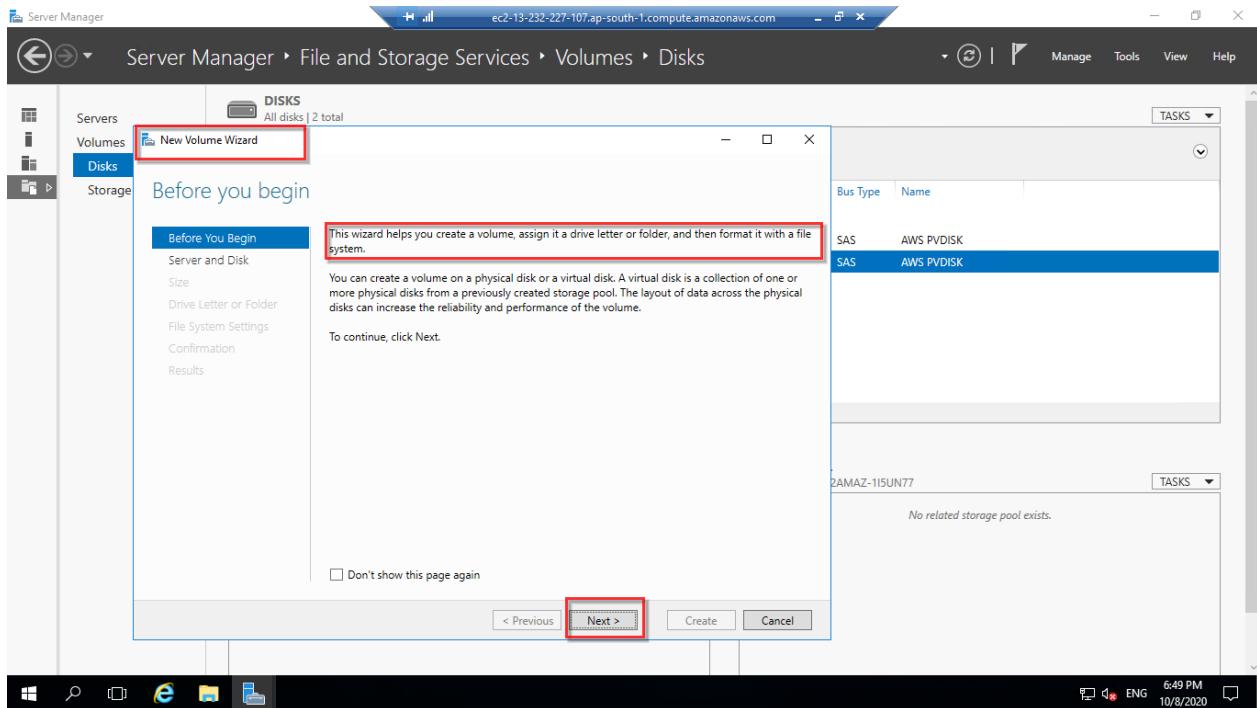
You can see the new EBS volume is online.

## Step E: Create New Volume

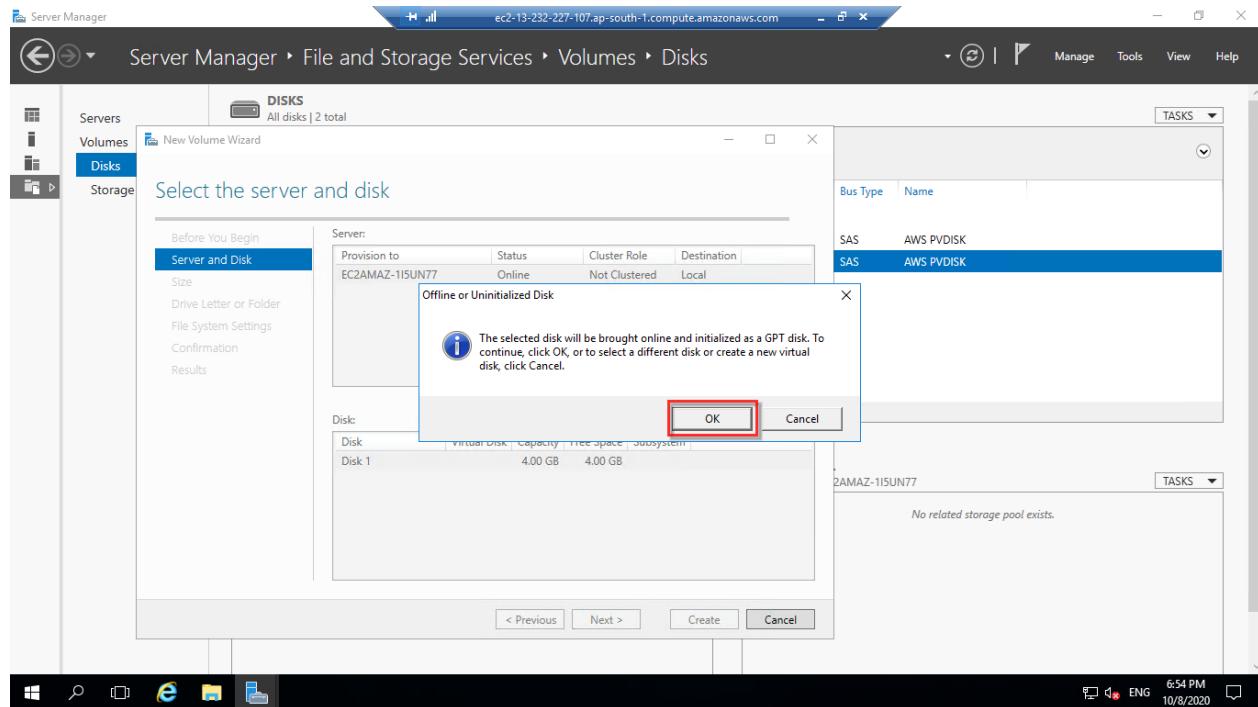


Again, right click on the new EBS Volume and select New Volume.

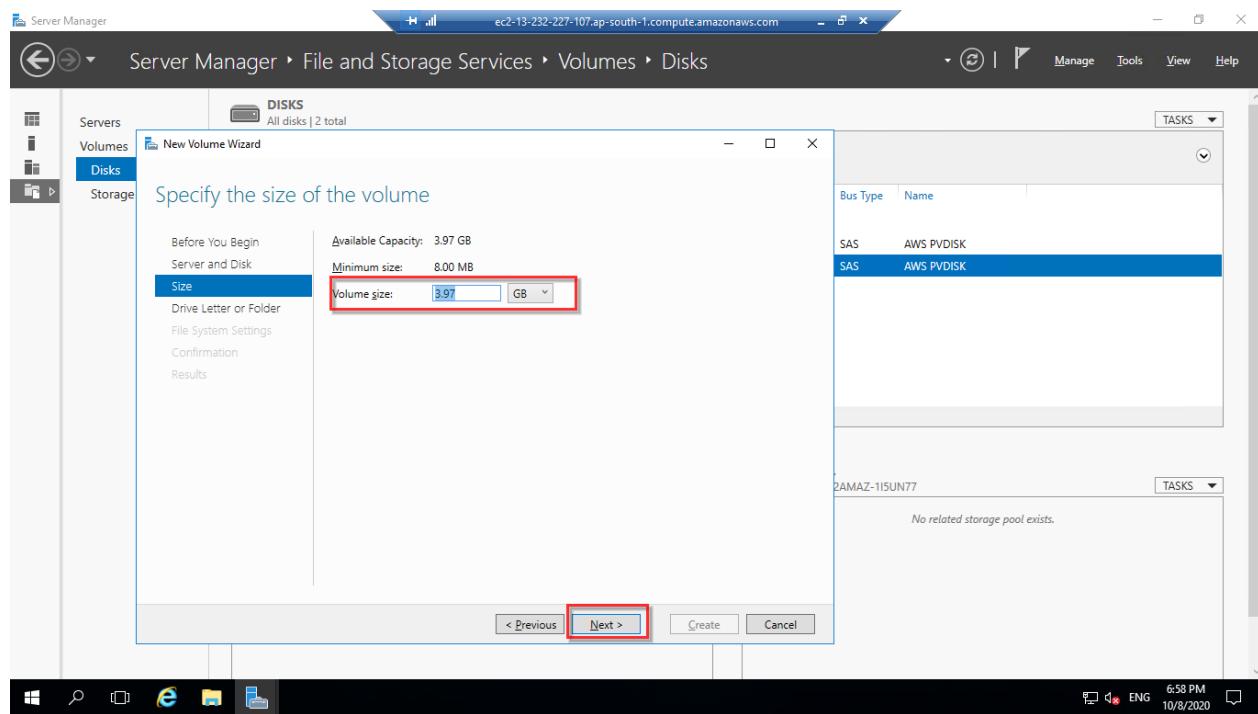
A New Volume Wizard will be started.



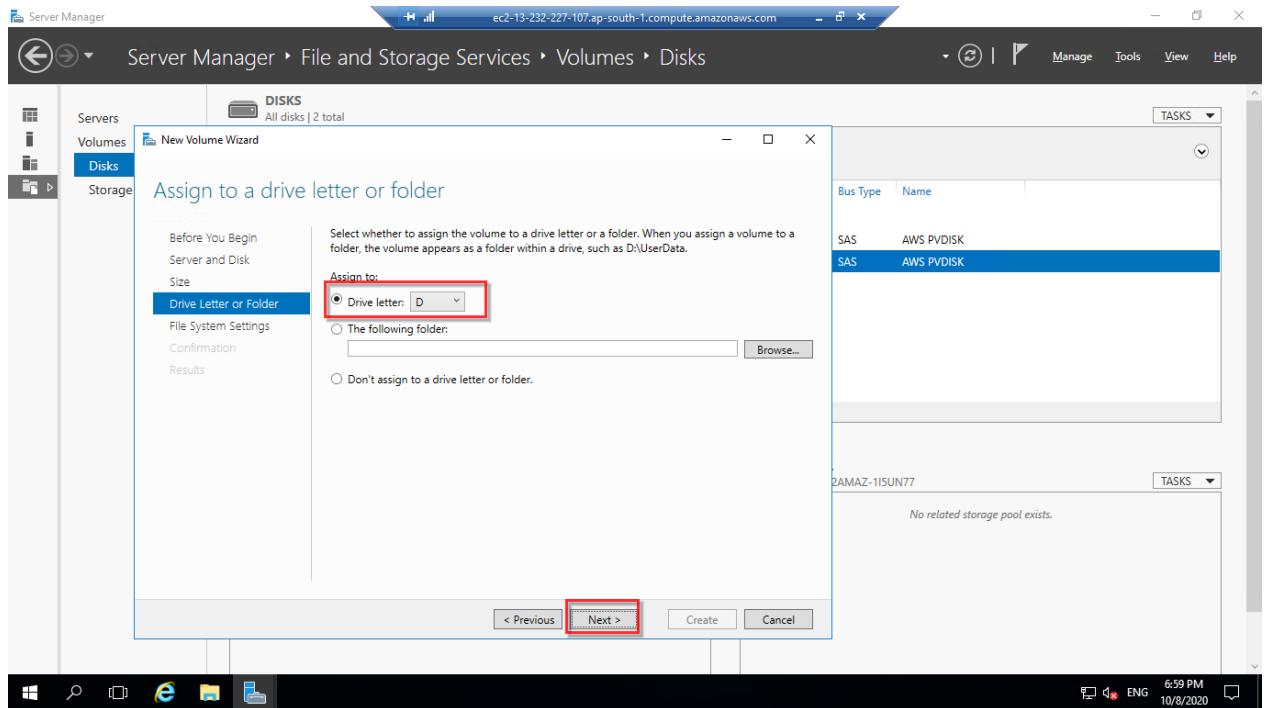
This wizard helps you create a volume, assign it a drive letter or folder and then format it with file system. Keep on clicking next and complete the wizard.



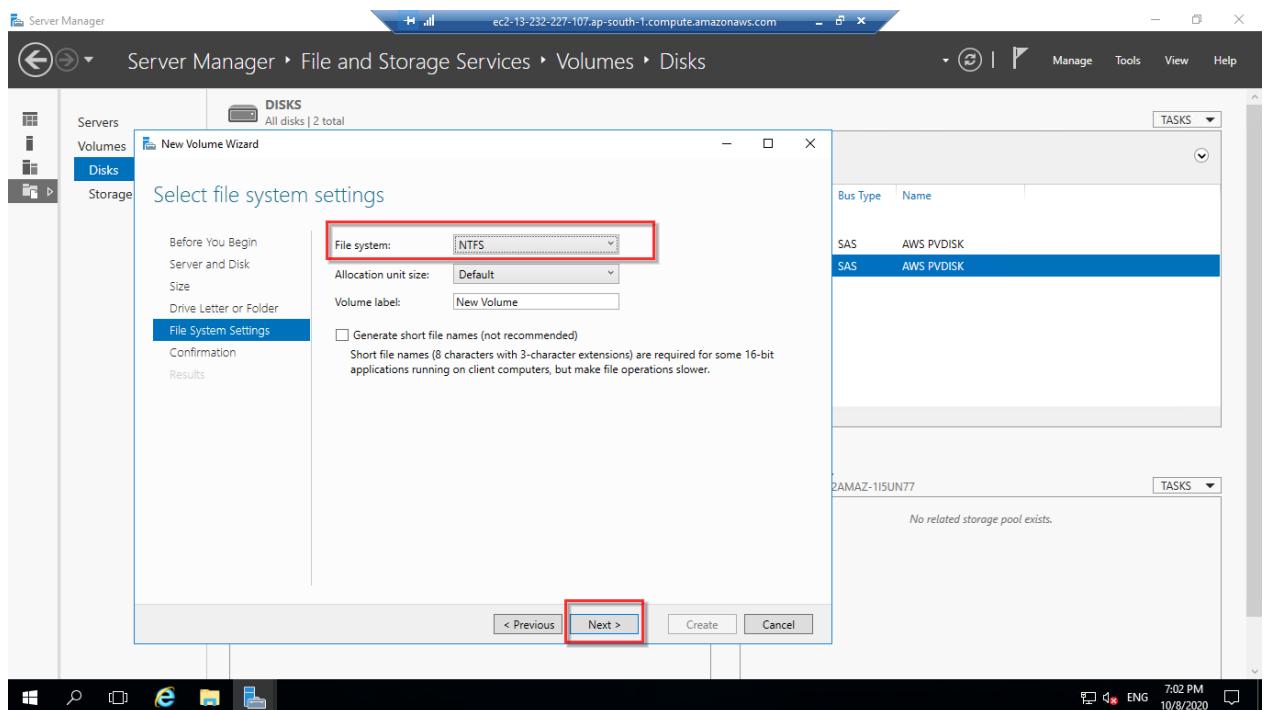
When prompted for Offline or Uninitiated Disk click on Ok.



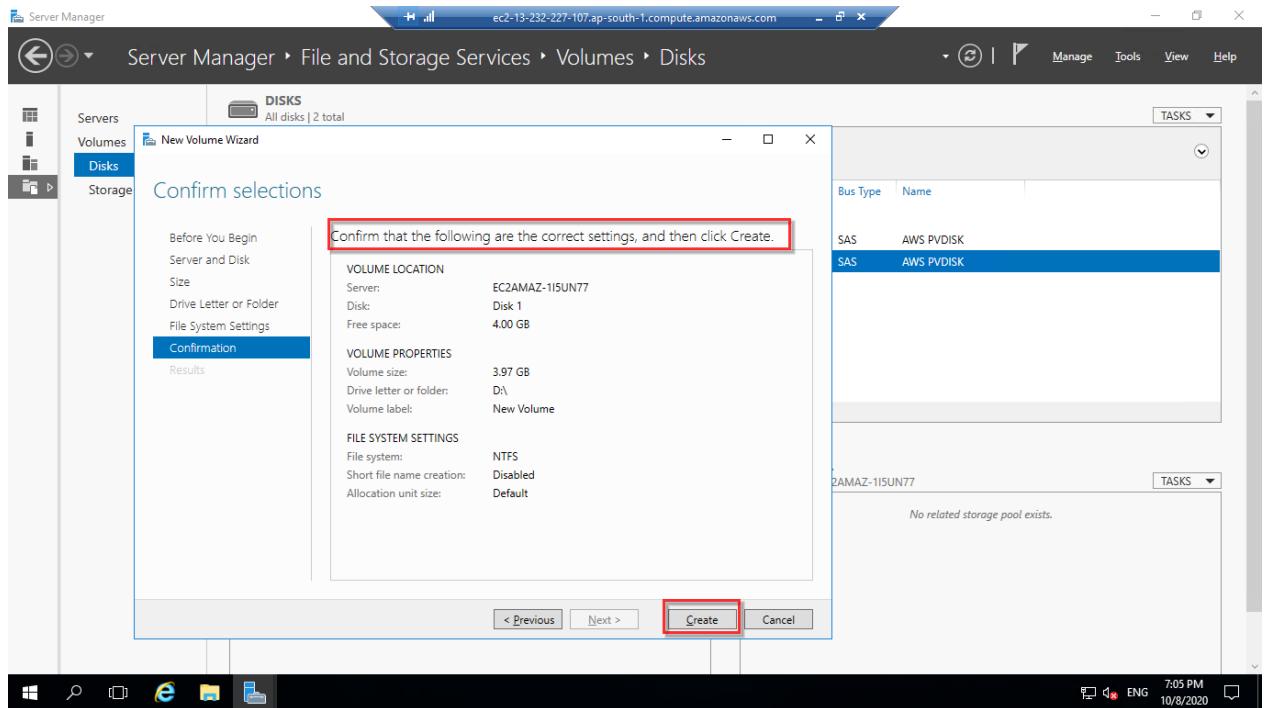
Let the Size be default. Click on next.



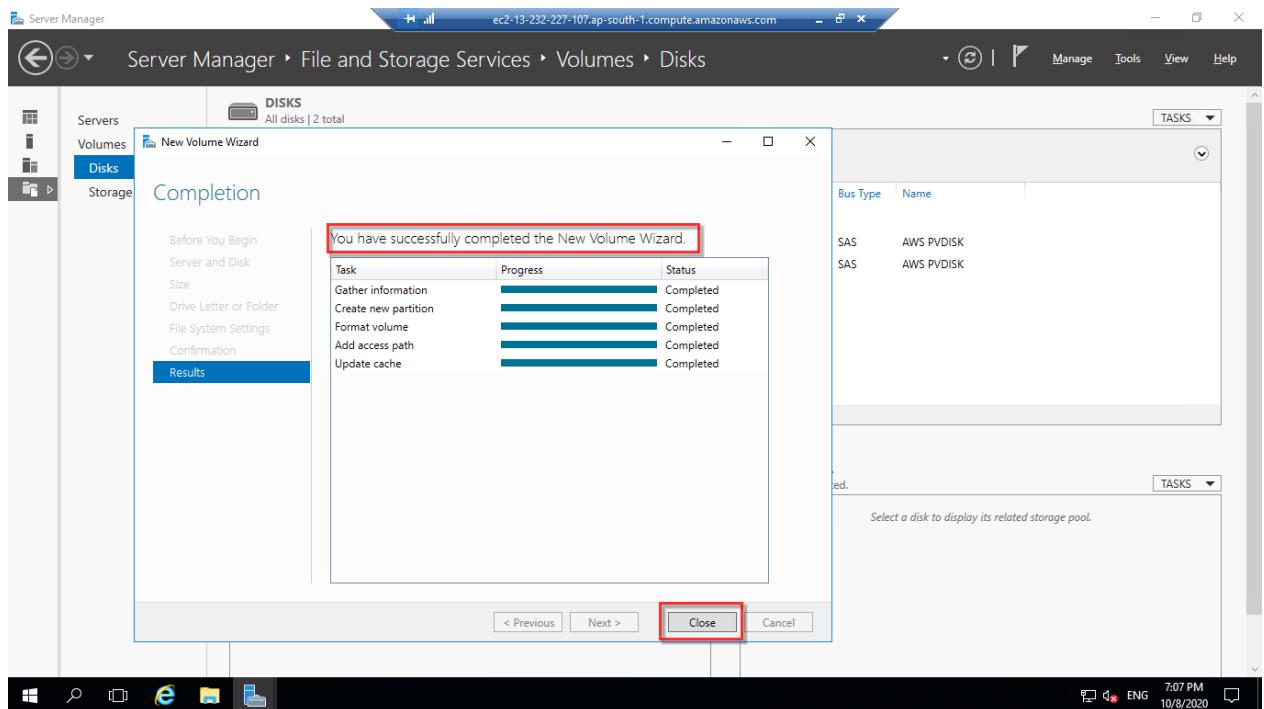
Let the Drive Letter “D” be default. Click on next.



Let the File System be default: NTFS and click on Next.



Confirm the setting and click on **Create**.

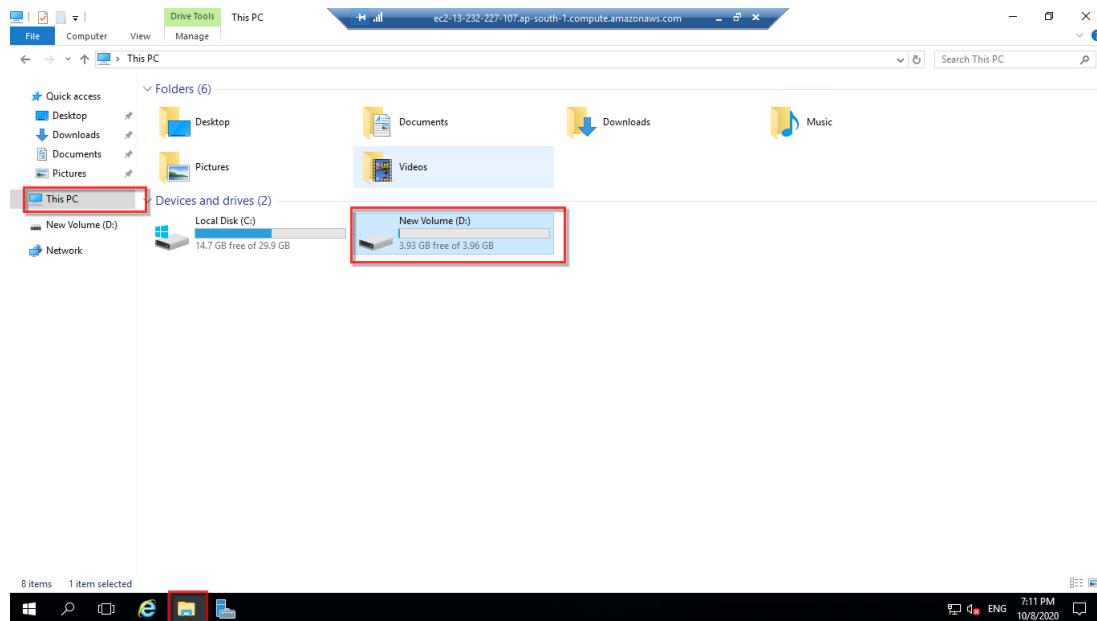


Once all the Task are successfully completed click on **Close**.

Your new volume is created.

## Step F: Check mounted volume

Now go to **File Explorer** on your windows server. Click on **This PC**. You will be able to see the C Drive the root/base volume and new EBS volume (D drive) is successfully mounted.



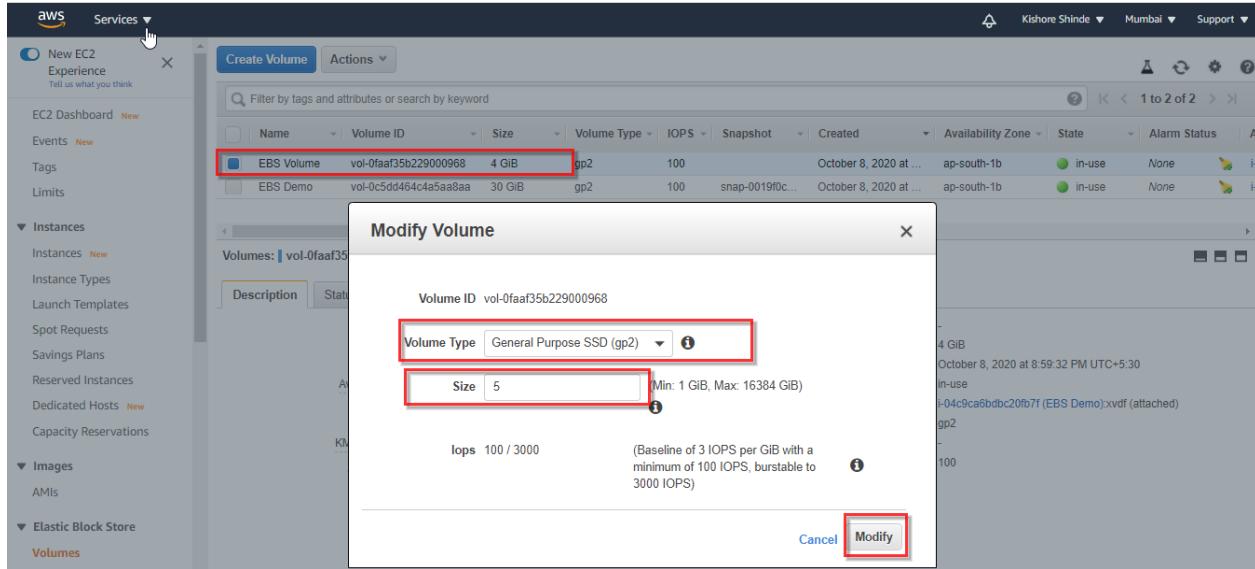
Now you will be able to use this drive.

## Step G: Modify Volume

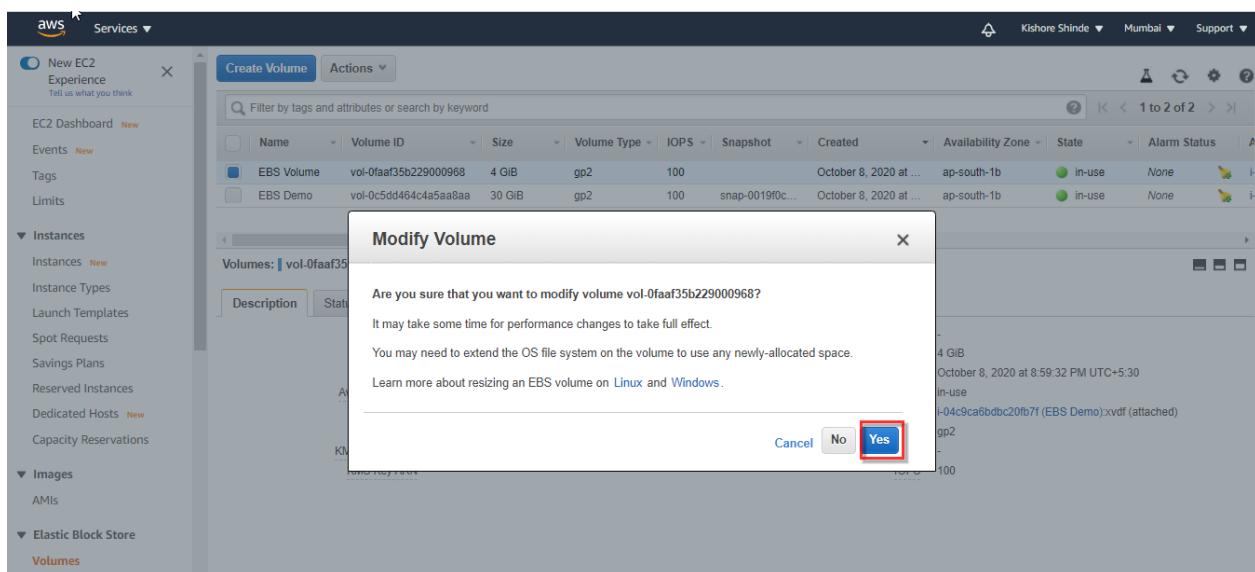
Go to Volumes. Select the EBS volume you want to modify and click on Action, select **Modify Volume**.

A screenshot of the AWS Management Console. The left sidebar shows 'Elastic Block Store' with 'Volumes' selected, highlighted with a red box. In the main area, a table lists EBS volumes. One volume, 'vol-0faaf35b229000968', is selected. A context menu is open over this volume, with 'Modify Volume' highlighted and also enclosed in a red box. The table columns include Volume ID, Volume Type, IOPS, Snapshot, Created, Availability Zone, State, Alarm Status, and Attachments.

You can change the Volume Type General Purpose SSD to Provisioned as per your requirements. Now let it be default. Change the size from 4 to 5 GB and click on Modify.



It will ask you for a confirmation.



Click on Yes.

You will get the **Modify Volume Request Succeeded** message. Click on **Close**.

Now you will be able to see the Volume modified changes.

**Note:** Click on Refresh if you are not able to see the changes.

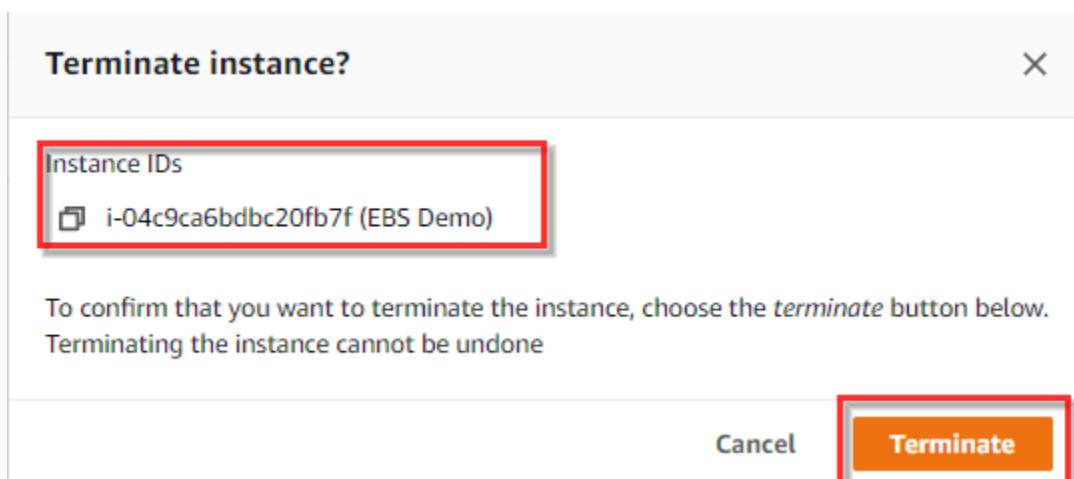
## Step H: Deleting the Volume

For deleting the volume, you must first stop the running instance.

Go to Instances.

The screenshot shows the AWS Cloud9 Instances page. On the left, there's a sidebar with options like Instances, Images, Elastic Block Store, Network & Security, and more. The main area shows a table of instances. One instance, named 'EBS Demo' with the ID 'i-04c9ca6bdb20fb7f', is selected and highlighted with a red box. In the 'Actions' menu at the top right, the 'Terminate instance' option is also highlighted with a red box.

Select the instance you have to delete in this example EBS Demo. Click on Actions and select Instance State-> Terminate Instance.



Click on **Terminate**.

Once the instance is terminated click on Volumes.

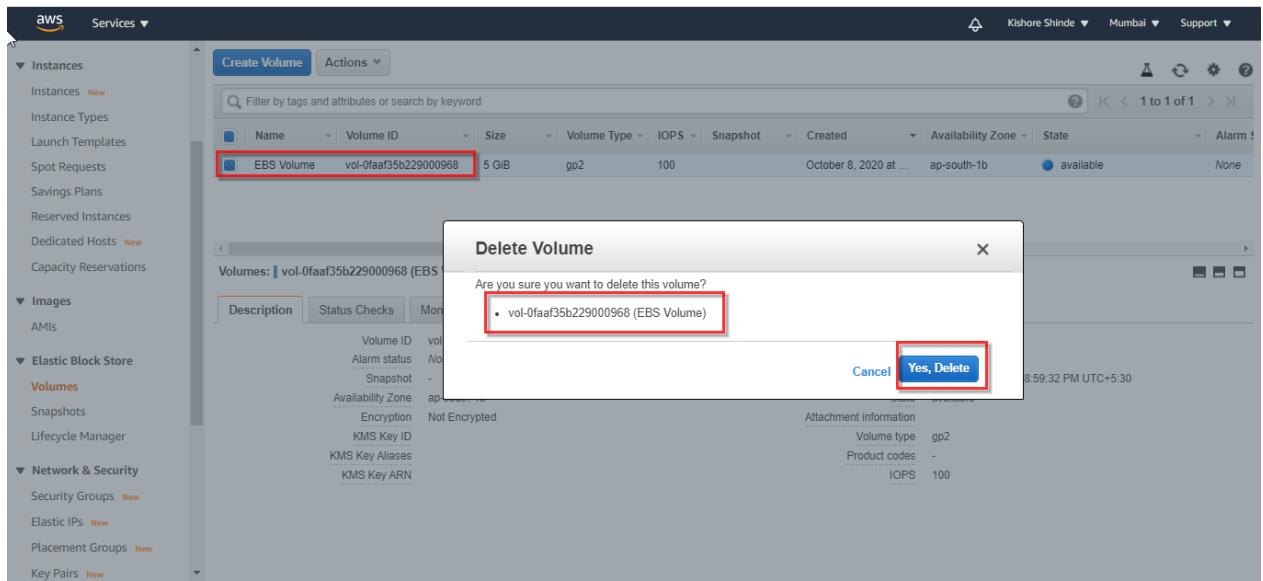
The screenshot shows the AWS Management Console with the 'Elastic Block Store' section selected. In the left sidebar, 'Volumes' is highlighted. The main area displays a table of volumes. One row is selected, showing an 'EBS Volume' named 'vol-0faaf35b229000968' with a size of '5 GiB'. The 'State' column indicates it is 'available'. Below the table, a detailed view of the selected volume ('vol-0faaf35b229000968') is shown, including its Volume ID, Size (5 GiB), State (available), and various configuration details like Volume Type (gp2), IOPS (100), and Availability Zone (ap-south-1b).

You will be able to see the Root/Base Volume is deleted and the new EBD Volume mounted status is **available**.

Now for deleting it select the volume.

The screenshot shows the same AWS Management Console interface. A context menu has been opened over the selected EBS volume ('vol-0faaf35b229000968'). The 'Actions' menu is displayed, and the 'Delete Volume' option is highlighted with a red box. Other options in the menu include 'Modify Volume', 'Create Snapshot', 'Attach Volume', 'Detach Volume', 'Force Detach Volume', 'Change Auto-Enable IO Setting', and 'Add/Edit Tags'.

Click on Actions and select Delete Volume.



It will ask for Confirmation. Click on Yes, Delete.

Your EBS Volume will be deleted.

Project 3 is completed.

# Advance AWS

## AWS Project- 4

Student:

Kishore Shinde

Teacher:

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Course:

Advance AWS Cloud Computing with DevOps  
Fundamentals

Institute:

Lets Upgrade

# Project 04:

## Working with Elastic IP's

We will be doing it in 6 steps:

STEP A: Creating a Linux Instance

STEP B: Connecting a Linux Instance

STEP C: Installing Apache Server

STEP D: Creating Elastic IP

STEP E: Associating Elastic IP

STEP F: Terminating a Linux Instance

STEP G: Releasing/Deleting Elastic IP

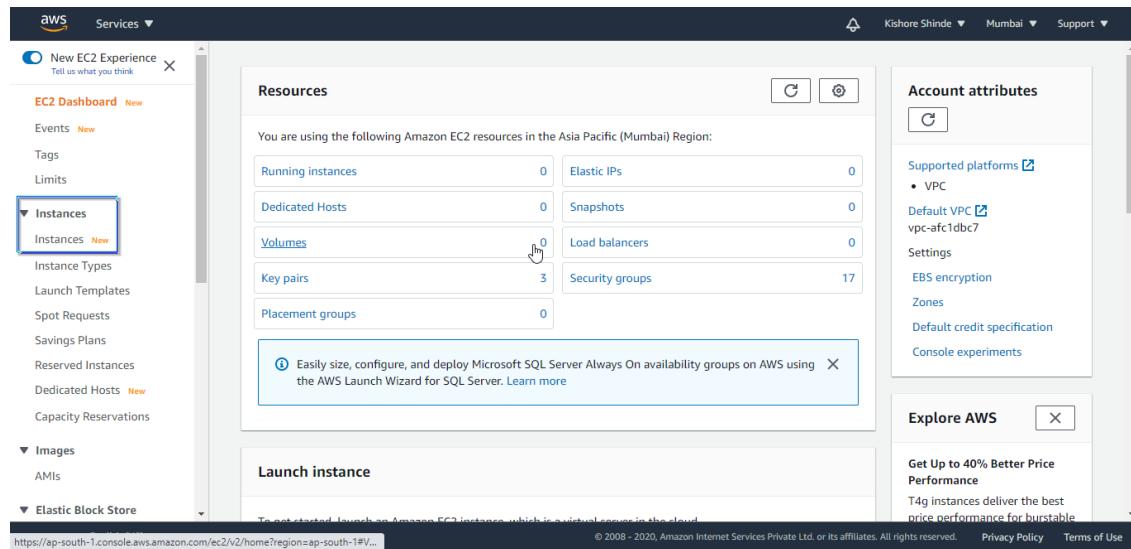
STEP A: Creating a Linux Instance

### Steps for launching a new Linux Instance:

1. From the AWS Management Console, you can either find EC2 service or click on All services ->Compute->EC2

The screenshot shows the AWS Management Console homepage. At the top, there is a search bar with the text 'EC2' highlighted by a blue box. Below the search bar, there is a section titled 'Recently visited services' with 'EC2' listed. Underneath this, there is a large section titled 'All services' with a blue box around the 'Compute' category. Other services listed in 'Compute' include Lightsail, Lambda, Batch, Elastic Beanstalk, and Serverless Application. To the right of the search bar, there is a sidebar with sections for 'Stay connected to your AWS resources on-the-go' (with a link to download the mobile app), 'Explore AWS' (with links to Managed File Storage and SageMaker Autopilot), and 'AWS Training'. The bottom of the page includes standard footer links for Feedback, English (US), Privacy Policy, and Terms of Use.

2. Once you are in EC2 console from the EC2 Dashboard on the left, select Instances



The screenshot shows the AWS EC2 Dashboard. On the left, there is a navigation sidebar with the following options:

- New EC2 Experience (button)
- EC2 Dashboard (selected)
- Events
- Tags
- Limits
- Instances (selected)
- Instance Types
- Launch Templates
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts (New)
- Capacity Reservations
- Images
- AMIs
- Elastic Block Store

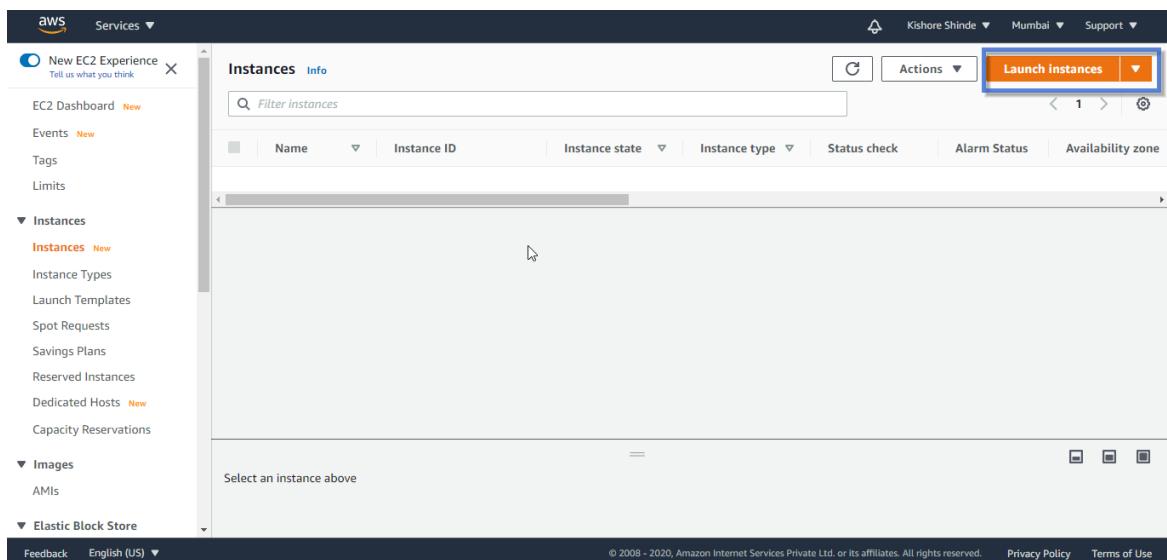
The main content area is titled "Resources" and displays the following information about Amazon EC2 resources in the Asia Pacific (Mumbai) Region:

Category	Count
Running instances	0
Elastic IPs	0
Dedicated Hosts	0
Snapshots	0
Volumes	0
Load balancers	0
Key pairs	3
Security groups	17
Placement groups	0

A tooltip message at the bottom of the resource list says: "Easily size, configure, and deploy Microsoft SQL Server Always On availability groups on AWS using the AWS Launch Wizard for SQL Server. Learn more".

On the right side, there is a "Account attributes" panel and an "Explore AWS" panel.

3. From the Instances Dashboard, Select Launch Instance at the right



The screenshot shows the AWS Instances Dashboard. On the left, there is a navigation sidebar with the following options:

- New EC2 Experience (button)
- EC2 Dashboard (New)
- Events
- Tags
- Limits
- Instances (selected)
- Instances (New)
- Instance Types
- Launch Templates
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts (New)
- Capacity Reservations
- Images
- AMIs
- Elastic Block Store

The main content area is titled "Instances" and shows a table with the following columns:

Name	Instance ID	Instance state	Instance type	Status check	Alarm Status	Availability zone
Select an instance above						

A blue box highlights the "Launch instances" button in the top right corner of the table header.

Once you click on Launch Instance, a wizard will start which has 7 steps for creating the instance.

## Step1: Choose an Amazon Machine Image (AMI)

The screenshot shows the 'Step 1: Choose an Amazon Machine Image (AMI)' step of the AWS wizard. The top navigation bar includes 'Services' and the user 'Kishore Shinde'. Below the navigation, there are seven tabs: 1. Choose AMI (highlighted), 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, and 7. Review. A search bar at the top right says 'Search for an AMI by entering a search term e.g. "Windows"'. A note below it states: 'An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.' On the left, a sidebar titled 'Quick Start' lists 'My AMIs', 'AWS Marketplace', 'Community AMIs', and a selected 'Free tier only' option. The main content area displays a list of AMIs. The first item, 'Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-0e306788f2473ccb (64-bit x86) / ami-001e484a60bb07fd (64-bit Arm)', is highlighted with a red box. To its right is a 'Select' button and a radio button for '64-bit (x86)'. Other items in the list include 'Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type' and 'Red Hat Enterprise Linux 8 (HVM), SSD Volume Type'. Each item has a 'Select' button and a radio button for '64-bit (x86)'.

You can search the AMI e.g. Linux.... or can select the AMI from the list of the AMI's.

**Note:** Make sure you select the Free Tier only option so only free AMI's will be shown and you will not be charged.

Click on “Select” on the Amazon Linux 2 AMI e.g. Amazon Linux 2 AMI (HVM), SSD....

## Step 2: Choose an Instance Type

Here you can select the Instance type. These are varying combinations of CPU, Memory, Storage and Networking capacity. The default instance type selected is “t2.micro” which is Free tier eligible. Let it be selected otherwise you will be charged for other instance type. You can even see the details of the selected instance type in **Currently Selected**

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

**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

	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 <span style="background-color: #e0f2e0;">Free tier eligible</span>	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
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes

Cancel Previous Review and Launch Next: Configure Instance Details

## Step 3: Configure Instance Details

Here you can configure the instance that suits your requirement. You can launch multiple instances from the same AMI you can mention it in **Number of instances**.

In **Network** you can select the VPC or create new VPC, we will continue with default VPC, select or create new Subnet, we will continue with default subnet. We can select IAM role, we will continue with “None”.

**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 <span style="border: 1px solid red; padding: 2px;">1</span>	Launch into Auto Scaling Group <span style="color: blue;">(i)</span>
Purchasing option <span style="border: 1px solid red; padding: 2px;"><input type="checkbox"/> Request Spot instances</span>	
Network <span style="border: 1px solid red; padding: 2px;">vpc-afc1dbc7 (default)</span>	<span style="color: blue;">(i)</span> Create new VPC
Subnet <span style="border: 1px solid red; padding: 2px;">No preference (default subnet in any Availability Zone)</span>	<span style="color: blue;">(i)</span> Create new subnet
Auto-assign Public IP <span style="border: 1px solid red; padding: 2px;">Use subnet setting (Enable)</span>	
Placement group <span style="border: 1px solid red; padding: 2px;"><input type="checkbox"/> Add instance to placement group</span>	
Capacity Reservation <span style="border: 1px solid red; padding: 2px;">Open</span>	
Domain join directory <span style="border: 1px solid red; padding: 2px;">No directory</span>	<span style="color: blue;">(i)</span> Create new directory
IAM role <span style="border: 1px solid red; padding: 2px;">None</span>	<span style="color: blue;">(i)</span> Create new IAM role
Shutdown behavior <span style="border: 1px solid red; padding: 2px;">Stop</span>	
Stop - Hibernate behavior <span style="border: 1px solid red; padding: 2px;"><input type="checkbox"/> Enable hibernation as an additional stop behavior</span>	
Enable termination protection <span style="border: 1px solid red; padding: 2px;"><input type="checkbox"/> Protect against accidental termination</span>	

Cancel Previous Review and Launch Next: Add Storage

In the Shutdown behavior you can select Stop or Terminate. It is an important option If you select Stop when the instance shuts down it will not be deleted but stopped.



**Enable termination protection:** If you check it will protect your instance from accidental termination.



Now keep whatever is default don't change anything and click on Next: Add Storage

#### Step 4: Add Storage

Your Instance will be launched with the following storage device settings. You can attach additional EBS volumes. For now, keep the default Volume Type: Root and size: 8 GiB

**Note:** The default root partition in AWS for windows is 30 GB and for Linux is 8 GB you can change it.

Let the General-Purpose SSD (gp2) selection as it is. Delete on Termination checkbox will make sure the volume gets deleted as soon as the Instance is terminated. You can even add new EBS volume.

The screenshot shows the 'Step 4: Add Storage' configuration page. The 'Volume Type' is set to 'Root' and 'Device' is '/dev/sda1'. The 'Size (GiB)' field is highlighted with a blue box and contains the value '8'. The 'Volume Type' dropdown shows 'General Purpose SSD (gp2)'. The 'Delete on Termination' checkbox is checked. A note at the bottom states: '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.' The 'Next: Add Tags' button is highlighted with a blue box.

Click on Next: Add Tags

## Step 5: Add Tags

Tags enable you to categorize your AWS resources in different ways. Each tag is a simple label consisting of customer-defined key and an optional value that can make it easier to manage, search for, and filter resources. For E.g. Key can be Name and Value can be Web Server (Linux-Apache).

The screenshot shows the AWS EC2 instance creation wizard at Step 5: Add Tags. The top navigation bar includes 'Services' and tabs for '1. Choose AMI', '2. Choose Instance Type', '3. Configure Instance', '4. Add Storage', '5. Add Tags' (which is highlighted in orange), '6. Configure Security Group', and '7. Review'. The main content area is titled 'Step 5: Add Tags' with a note: 'A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.' It also mentions that a tag can be applied to volumes, instances or both, and that tags will be applied to all instances and volumes. A red box highlights the 'Key' and 'Value' input fields where 'Name' and 'Linux -Apache' are entered respectively. Below these fields are checkboxes for 'Instances' and 'Volumes', both of which are checked. At the bottom left is a 'Add another tag' button with the note '(Up to 50 tags maximum)'. At the bottom right are buttons for 'Cancel', 'Previous', 'Review and Launch' (which is blue and bold), and 'Next: Configure Security Group' (which is in a red box).

You can add the tag or can continue to next step “Configure Security Group”

## Step 6: Configure Security Group

A security group is similar to firewall. Here you can set the rules that can control traffic for your instance. For the current instance in the Type select “All Traffic” and in Source select “Anywhere”. It will show you a warning that the source anywhere will allow all IP addresses to access your instance you must select IP Addresses only. Ignore it for now and click on “Review and Launch”.

**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: launch-wizard-16 created 2020-10-07T18:07:30.298+05:30

Type	Protocol	Port Range	Source	Description
All traffic	All	0 - 65535	Anywhere	0.0.0.0/0 ::/0 e.g. SSH for Admin Desktop

**Add Rule**

**Warning**  
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

**Cancel** **Previous** **Review and Launch**

## Step 7: Review

Here you can review all the selection you have done in previous steps and if required can go back and change them. You are able to review the AMI details, Instance Type/Details, Security Groups, Storage & Tags.

**Step 7: Review Instance Launch**

**AMI Details**

Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-0e306788ff2473ccb

**Instance Type**

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
I2 micro	Variable	1	1	EBS only	-	Low to Moderate

**Security Groups**

Security group name: launch-wizard-20  
Description: launch-wizard-20 created 2020-10-09T11:29:05.049+05:30

Type	Protocol	Port Range	Source	Description
All traffic	All	All	0.0.0.0/0	
All traffic	All	All	::/0	

**Launch**

Click on Launch once you have reviewed all the details.

Next it will ask you to Select an existing key pair or create a new key pair.

You can select existing key pair if you have one. For now, select “Create new pair” give key pair a name and download the keypair. We have given name to key pair as *Linux-Apache* and downloaded it *Linux-Apache.pem*.

**Note:** Please keep it safe, it will be required to connect to the instance otherwise you can't.

Click on Launch Instance.

In the next screen you will be able to see “Your instance is launching”. You will be able to see the instance id that is initiated for launch.

You can click on the instance id which will take you to Instances Dashboard.

Here you will see the Linux instance is created which will be initially showing Instance State as “Pending”. Wait till the Status check shows 2/2 checks passed now it is Initializing and Instance State becomes “Running”.

Name	Instance ID	Instance state	Instance type	Status check	A..	Availability zone	Public IPv4 DNS
Linux -Apache	i-0a9baddee8cf3acbb5	Running	t2.micro	Initializing		ap-south-1b	ec2-15-207-71-193.ap-s...

Now select the instance you will be able to see the additional details of the instance like Public IPv4 address, Private IPv4 address, Public IPv4 DNS, Private IPv4 DNS etc. You can also check the Security, Networking, Storage details etc.

Name	Instance ID	Instance state	Instance type	Status check	A..	Availability zone	Public IPv4 DNS
Linux -Apache	i-0a9baddee8cf3acbb5	Running	t2.micro	2/2 checks passed		ap-south-1b	ec2-15-207-71-193.a...

**Instance: i-0a9baddee8cf3acbb5 (Linux -Apache)**

**Details** | Security | Networking | Storage | Status Checks | Monitoring | Tags

**Instance summary**

- Instance ID: i-0a9baddee8cf3acbb5 (Linux -Apache)
- Public IPv4 address: 15.207.71.193 | [open address](#)
- Private IPv4 addresses: 172.31.0.237
- Instance state: Running
- Public IPv4 DNS: ec2-15-207-71-193.ap-south-1.compute.amazonaws.com | [open address](#)
- Elastic IP addresses: It is taking a bit longer than usual to fetch your data
- VPC ID: vpc-afc1dbc7
- Instance type: t2.micro

So now your Linux instance is up and running.

## Step B: Connecting to Linux Instance

Following are the steps to connect to the instance. Select the instance, Click on Action menu at the top, from the list select Connect.

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with various navigation options like New EC2 Experience, EC2 Dashboard, Events, Tags, Limits, Instances, Images, and Elastic Block Store. The 'Instances' section is expanded, showing sub-options like Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, AMIs, Volumes, and Snapshots. In the main content area, a table lists one instance: 'Linux -Apache' (i-0a9baddee8cf3acbb5). The instance is shown as 'Running' with an 't2.micro' instance type and 2/2 checks passed. The 'Actions' menu is open above the table, and the 'Connect' option is highlighted with a purple box. Below the table, a detailed view for the selected instance is shown, including tabs for Details, Security, Networking, Storage, Status Checks, Monitoring, and Tags. The 'Details' tab is selected, displaying information such as Instance ID (i-0a9baddee8cf3acbb5), Instance state (Running), Instance type (t2.micro), IAM Role, Public IPv4 address (15.207.71.193), Private IPv4 addresses (172.31.0.237), Public IPv4 DNS (ec2-15-207-71-193.ap-south-1.compute.amazonaws.com), Private IPv4 DNS (ip-172-31-0-237.ap-south-1.compute.internal), and VPC ID (vpc-afc1dbc7).

On the next screen you will see EC2 Instance Connect (default selected), Session Manager, SSH client Tabs. We will connect by EC2 Instance Connect

The screenshot shows the 'Connect to instance' dialog box. At the top, it says 'EC2 > Instances > i-0a9baddee8cf3acbb5 > Connect to instance'. Below that, there are three tabs: 'EC2 Instance Connect' (which is selected and highlighted with a purple box), 'Session Manager', and 'SSH client'. The 'EC2 Instance Connect' tab has fields for 'Instance ID' (i-0a9baddee8cf3acbb5) and 'Public IP address' (15.207.71.193). There is also a 'User name' field which contains 'ec2-user'. A note below the fields says: 'Note: In most cases, the guessed user name is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name.' At the bottom right of the dialog box are 'Cancel' and 'Connect' buttons, with 'Connect' being the one highlighted with a purple box.

Let the default User Name “ec2-user” as it is and click on Connect.”

The Linux instance will be connected. Once the instance is started you will be able to see the \$ prompt.

```
  _\|_(-_-/_ ) Amazon Linux 2 AMI  
  \_\|_\_\_|_  
https://aws.amazon.com/amazon-linux-2/  
2 package(s) needed for security, out of 13 available  
Run "sudo yum update" to apply all updates.  
[ec2-user@ip-172-31-0-237 ~]$ █
```

i-0a9badee8cf3acbb5 (Linux -Apache)

Public IPs: 15.207.71.193      Private IPs: 172.31.0.237

**Note:** In Windows Server Instance we required to download the RDP client, select key pair (.pem) file, decrypt the password, copy it and paste in Windows Security (password for Administrator) & then connect. Here all the steps are not required you can directly connect, internally AWS will take care of all the steps.

## STEP C: Installing Apache Web Server

Below are the commands you need to execute on the Linux server \$ prompt for installing Apache web server.

## 1. sudo -s

- this command will switch to the root user
  - sudo – Will give super user rights

## 2. yum -y update

- this command will download & update it to latest version

```
Verifying : rpm-plugin-systemd-inhibit-4.11.3-40.amzn2.0.5.x86_64 3/25
Verifying : rpm-libs-4.11.3-40.amzn2.0.5.x86_64 4/25
Verifying : ec2-net-utils-1.4-3.amzn2.noarch 5/25
Verifying : pam-1.1.8-23.amzn2.0.1.x86_64 6/25
Verifying : python2-botocore-1.18.6-1.amzn2.0.1.noarch 7/25
Verifying : kernel-4.14.198-152.320.amzn2.x86_64 8/25
Verifying : rpm-4.11.3-40.amzn2.0.5.x86_64 9/25
Verifying : p11-kit-trust-0.23.21-2.amzn2.0.1.x86_64 10/25
Verifying : kernel-tools-4.14.198-152.320.amzn2.x86_64 11/25
Verifying : rpm-build-libs-4.11.3-40.amzn2.0.5.x86_64 12/25
Verifying : awscli-1.18.147-1.amzn2.0.1.noarch 13/25
Verifying : ec2-net-utils-1.4-2.amzn2.noarch 14/25
Verifying : rpm-4.11.3-40.amzn2.0.4.x86_64 15/25
Verifying : awscli-1.18.107-1.amzn2.0.1.noarch 16/25
Verifying : p11-kit-trust-0.23.19-1.amzn2.x86_64 17/25
Verifying : rpm-build-libs-4.11.3-40.amzn2.0.4.x86_64 18/25
Verifying : p11-kit-0.23.19-1.amzn2.x86_64 19/25
Verifying : pam-1.1.8-22.amzn2.x86_64 20/25
Verifying : kernel-tools-4.14.193-149.317.amzn2.x86_64 21/25
Verifying : rpm-libs-4.11.3-40.amzn2.0.4.x86_64 22/25
Verifying : rpm-plugin-systemd-inhibit-4.11.3-40.amzn2.0.4.x86_64 23/25
Verifying : python2-botocore-1.17.31-1.amzn2.0.1.noarch 24/25
Verifying : python2-rpm-4.11.3-40.amzn2.0.4.x86_64 25/25

Installed:
  kernel.x86_64 0:4.14.198-152.320.amzn2

Updated:
  awscli.noarch 0:1.18.147-1.amzn2.0.1
  p11-kit.x86_64 0:0.23.21-2.amzn2.0.1
  python2-botocore.noarch 0:1.18.6-1.amzn2.0.1
  rpm-build-libs.x86_64 0:4.11.3-40.amzn2.0.5

kernel-tools.x86_64 0:4.14.198-152.320.amzn2
pam.x86_64 0:1.1.8-23.amzn2.0.1
rpm.x86_64 0:4.11.3-40.amzn2.0.5
rpm-plugin-systemd-inhibit.x86_64 0:4.11.3-40.amzn2.0.5

Complete!
[root@ip-172-31-0-237 ec2-user]#
```

i-0a9bad0e8cf3acbb5 (Linux -Apache)

Public IPs: 15.207.71.193 Private IPs: 172.31.0.237

All the updates will be installed & you will see a Complete message above the \$ prompt.

## 3. clear

- This command will clear the screen

## 4. yum install httpd

- this command will install Apache Server

```
[root@ip-172-31-0-237 ec2-user]# yum install httpd
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core
Resolving Dependencies
--> Running transaction check
--> Package httpd.x86_64 0:2.4.46-1.amzn2 will be installed
--> Processing Dependency: httpd-tools = 2.4.46-1.amzn2 for package: httpd-2.4.46-1.amzn2.x86_64
--> Processing Dependency: httpd-filesystem = 2.4.46-1.amzn2 for package: httpd-2.4.46-1.amzn2.x86_64
--> Processing Dependency: system-logos-httpd for package: httpd-2.4.46-1.amzn2.x86_64
--> Processing Dependency: mod_http2 for package: httpd-2.4.46-1.amzn2.x86_64
--> Processing Dependency: httpd-filesystem for package: httpd-2.4.46-1.amzn2.x86_64
--> Processing Dependency: /etc/mime.types for package: httpd-2.4.46-1.amzn2.x86_64
--> Processing Dependency: libaprutil-1.so.0()(64bit) for package: httpd-2.4.46-1.amzn2.x86_64
--> Processing Dependency: libapr-1.so.0()(64bit) for package: httpd-2.4.46-1.amzn2.x86_64
--> Running transaction check
--> Package apr.x86_64 0:1.6.3-5.amzn2.0.2 will be installed
--> Package apr-util.x86_64 0:1.6.1-5.amzn2.0.2 will be installed
--> Processing Dependency: apr-util-bdb(x86-64) = 1.6.1-5.amzn2.0.2 for package: apr-util-1.6.1-5.amzn2.0.2.x86_64
--> Package generic-logos-httpd.noarch 0:18.0.0-4.amzn2 will be installed
--> Package httpd-filesystem.noarch 0:2.4.46-1.amzn2 will be installed
--> Package httpd-tools.x86_64 0:2.4.46-1.amzn2 will be installed
--> Package mailcap.noarch 0:2.1.41-2.amzn2 will be installed
--> Package mod_http2.x86_64 0:1.15.14-2.amzn2 will be installed
--> Running transaction check
--> Package apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2 will be installed
--> Finished Dependency Resolution

Dependencies Resolved
```

```

Total                                         9.2 MB/s | 1.8 MB 00:00:00
  running transaction check
  running transaction test
  Transaction test succeeded
  running transaction
    Installing : apr-1.6.3-5.amzn2.0.2.x86_64          1/9
    Installing : apr-util-bdb-1.6.1-5.amzn2.0.2.x86_64      2/9
    Installing : apr-util-1.6.1-5.amzn2.0.2.x86_64      3/9
    Installing : httpd-tools-2.4.46-1.amzn2.x86_64      4/9
    Installing : generic-logos-httpd-18.0.0-4.amzn2.noarch 5/9
    Installing : mailcap-2.1.41-2.amzn2.noarch          6/9
    Installing : httpd-filesystem-2.4.46-1.amzn2.noarch 7/9
    Installing : mod_http2-1.15.14-2.amzn2.x86_64        8/9
    Installing : httpd-2.4.46-1.amzn2.x86_64          9/9
  Verifying   : apr-util-1.6.1-5.amzn2.0.2.x86_64          1/9
  Verifying   : httpd-filesystem-2.4.46-1.amzn2.noarch  2/9
  Verifying   : mod_http2-1.15.14-2.amzn2.x86_64        3/9
  Verifying   : httpd-tools-2.4.46-1.amzn2.x86_64        4/9
  Verifying   : mailcap-2.1.41-2.amzn2.noarch          5/9
  Verifying   : generic-logos-httpd-18.0.0-4.amzn2.noarch 6/9
  Verifying   : httpd-2.4.46-1.amzn2.x86_64          7/9
  Verifying   : apr-1.6.3-5.amzn2.0.2.x86_64          8/9
  Verifying   : mailcap-2.1.41-2.amzn2.noarch          9/9
  Verifying   : generic-logos-httpd-18.0.0-4.amzn2.noarch 9/9
  Verifying   : httpd-2.4.46-1.amzn2.x86_64          9/9

Installed:
  httpd.x86_64 0:2.4.46-1.amzn2

Dependency Installed:
  apr.x86_64 0:1.6.3-5.amzn2.0.2  apr-util.x86_64 0:1.6.1-5.amzn2.0.2  generic-logos-httpd.noarch 0:18.0.0-4.amzn2
  httpd-filesystem.noarch 0:2.4.46-1.amzn2  httpd-tools.x86_64 0:2.4.46-1.amzn2  mailcap.noarch 0:2.1.41-2.amzn2
  mod_http2.x86_64 0:1.15.14-2.amzn2

Complete!
root@ip-172-31-0-237 ec2-user]#

```

When prompted Press "Y" for confirmation.

You will see a Complete message above the \$ prompt once Apache server is installed.

## 5. systemctl start httpd

- this command will start the Apache Server

```

[root@ip-172-31-0-237 ec2-user]# systemctl start httpd
[root@ip-172-31-0-237 ec2-user]#

```

## 6. systemctl enable httpd

- this command will enable the Apache Server

```

[root@ip-172-31-0-237 ec2-user]# systemctl start httpd
[root@ip-172-31-0-237 ec2-user]# systemctl enable httpd
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-0-237 ec2-user]#

```

## 7. systemctl status httpd

- this command will check the status of the Apache Server

```
[root@ip-172-31-0-237 ec2-user]# systemctl start httpd
[root@ip-172-31-0-237 ec2-user]# systemctl enable httpd
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service to /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-0-237 ec2-user]# systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disabled)
   Active: active (running) since Fri 2020-10-09 07:16:43 UTC; 4min 23s ago
     Docs: man:htpd.service(8)
     Main PID: 14321 (httpd)
    Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec: 0 B/sec"
      CGroup: /system.slice/httpd.service
              ├─14321 /usr/sbin/httpd -DFOREGROUND
              ├─14322 /usr/sbin/httpd -DFOREGROUND
              ├─14323 /usr/sbin/httpd -DFOREGROUND
              ├─14324 /usr/sbin/httpd -DFOREGROUND
              ├─14325 /usr/sbin/httpd -DFOREGROUND
              └─14326 /usr/sbin/httpd -DFOREGROUND
Oct 09 07:16:43 ip-172-31-0-237.ap-south-1.compute.internal systemd[1]: Starting The Apache HTTP Server...
Oct 09 07:16:43 ip-172-31-0-237.ap-south-1.compute.internal systemd[1]: Started The Apache HTTP Server.
[root@ip-172-31-0-237 ec2-user]#
```

Now we can see the Apache server is active and running.

Disconnect the server.

Now to check that the Apache Server in installed properly. Copy the public address from the Instance details & paste it in your Internet browser (e.g. Chrome/Internet Explorer/Firefox) or click on open. In our current scenario our Linux server public IP is: 15.207.71.193

The screenshot shows the AWS EC2 Instances page. On the left sidebar, under 'Instances', 'Instances' is selected. The main area displays a table with one row for the instance 'Linux -Apache'. The instance details are as follows:

Name	Instance ID	Instance state	Instance type	Status check	Availability zone	Public IPv4 DNS
Linux -Apache	i-0a9badee8cf3acbb5	Running	t2.micro	2/2 checks passed	ap-south-1b	ec2-15-207-71-193.a

Below the table, the instance summary for 'i-0a9badee8cf3acbb5 (Linux -Apache)' is shown. It includes the following details:

- Instance ID:** i-0a9badee8cf3acbb5 (Linux -Apache)
- Public IPv4 address:** 15.207.71.193 [open address]
- Private IPv4 addresses:** 172.31.0.237
- Instance state:** Running
- Instance type:** t2.micro
- Public IPv4 DNS:** ec2-15-207-71-193.ap-south-1.compute.amazonaws.com [open address]
- Elastic IP addresses:** It is taking a bit longer than usual to fetch your data
- VPC ID:** vpc-afc1dbc7

You should be able to see the Apache web server installed on Linux instance.

The screenshot shows a web browser window with the URL `15.207.71.193` in the address bar, which is highlighted with a red box. The page title is "Test Page". The content of the page is a standard Apache test page message:

This page is used to test the proper operation of the Apache HTTP server after it has been installed. If you can read this page, it means that the Apache HTTP server installed at this site is working properly.

**If you are a member of the general public:**  
The fact that you are seeing this page indicates that the website you just visited is either experiencing problems, or is undergoing routine maintenance.

If you would like to let the administrators of this website know that you've seen this page instead of the page you expected, you should send them e-mail. In general, mail sent to the name "webmaster" and directed to the website's domain should reach the appropriate person.

For example, if you experienced problems while visiting `www.example.com`, you should send e-mail to "`webmaster@example.com`".

**If you are the website administrator:**  
You may now add content to the directory `/var/www/html/`. Note that until you do so, people visiting your website will see this page, and not your content. To prevent this page from ever being used, follow the instructions in the file `/etc/httpd/conf.d/welcome.conf`.

You are free to use the image below on web sites powered by the Apache HTTP Server.

Powered by APACHE 2.4

## STEP D: Creating Elastic IP

The screenshot shows the AWS Management Console interface for managing Elastic IP addresses. The left sidebar menu is expanded to show the "Network & Security" section, with the "Elastic IPs" option highlighted and a red box around it. The main content area is titled "Elastic IP addresses" and contains a table with columns: Name, Allocated IPv4 add..., Type, Allocation ID, and Associated instance ID. A search bar at the top of the table says "Filter Elastic IP addresses". An orange button labeled "Allocate Elastic IP address" is located at the top right of the table area, also highlighted with a red box. The status message "No Elastic IP addresses found in this Region" is displayed below the table.

Select **Elastic IPs** from the left pane. You will be able to see the Elastic IP addresses dashboard. Click on **Allocate Elastic IP address**

**Elastic IP address settings**

Public IPv4 address pool  
Public IP addresses are allocated from Amazon's pool of public IP addresses, from a pool that you own and bring to your account, or from a pool that you own and continue to advertise.

- Amazon's pool of IPv4 addresses
- Public IPv4 address that you bring to your AWS account(option disabled because no pools found) [Learn more](#)
- Customer owned pool of IPv4 addresses(option disabled because no customer owned pools found) [Learn more](#)

Cancel **Allocate**

Click on **Allocate**.

You will be taken to Elastic IP Dashboard and you will see that **Elastic IP is allocated successfully**.

Name	Allocated IPv4 add...	Type	Allocation ID	Associated instance ID
EIPdemo	15.207.171.143	Public IP	eipalloc-0f68b70ebf522962f	-

Give it a name e.g. EIPdemo, you can see the allocated IP (15.207.171.143). You can see the Associated instance ID is blank as we not yet associated it with any instance.

**Note:** Make sure you associate the Elastic IP with an instance if you keep it idle you will be charged.

## STEP E: Associating Elastic IP

Select the Elastic IP you want to associate to an instance.

The screenshot shows the AWS Elastic IP addresses page. On the left, there's a navigation menu with options like Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, Elastic Block Store, Volumes, Snapshots, Lifecycle Manager, Network & Security, Security Groups, Elastic IPs (selected), Placement Groups, and Key Pairs. The main area displays a table titled "Elastic IP addresses (1/1)" with one entry: "EIPdemo" (Allocated IPv4 address: 15.207.171.143, Type: Public IP). To the right of the table is an "Actions" dropdown menu with options: View details, Release Elastic IP addresses, Associate Elastic IP address (highlighted with a red box), Disassociate Elastic IP address, and End instance ID. Below the table, there's a summary section for the selected IP address.

Click on Actions then click on Associate Elastic IP address.

On the Associate Elastic IP address screen, in Resource type select Instance (selected by default).

The screenshot shows the "Associate Elastic IP address" dialog box. At the top, it says "Associate Elastic IP address" and "Choose the instance or network interface to associate to this Elastic IP address (15.207.171.143)". A red box highlights the "Elastic IP address: 15.207.171.143" field. Below it, the "Resource type" section has a radio button for "Instance" (selected) and "Network interface". A warning message states: "⚠ If you associate an Elastic IP address to an instance that already has an Elastic IP address associated, this previously associated Elastic IP address will be disassociated but still allocated to your account. [Learn more](#)". A red box highlights the "Instance" field, which contains "i-0a9badee8cf3acbb". Below it is a "Private IP address" field containing "172.31.0.237", also highlighted with a red box. At the bottom, the "Reassociation" section has a checked checkbox "Allow this Elastic IP address to be reassociated". The "Associate" button at the bottom right is highlighted with a red box.

From the Instance select the Instance to which you want to associate the Elastic IP.

**Private IP address:** Will come automatically just select it.

**Reassociation:** Check Allow this Elastic IP address to be reassigned. This will make sure that once you terminate the instance to which Elastic IP is associated you can then associate the Elastic IP with another instance.

Click on **Associate** to associate the Elastic IP.

It will take you back to the Elastic IP dashboard.

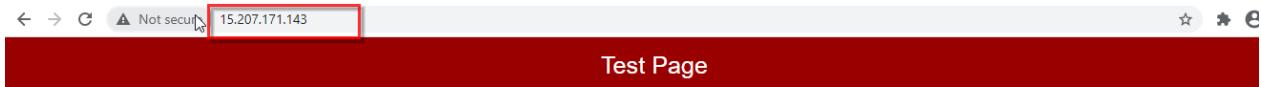
The screenshot shows the AWS Elastic IP dashboard. On the left, there's a sidebar with various services like Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, Elastic Block Store, Volumes, Snapshots, Lifecycle Manager, Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs), and Load Balancing (Load Balancers, Target Groups). The 'Elastic IPs' section is selected. In the main area, a success message box says 'Elastic IP address associated successfully. Elastic IP address 15.207.171.143 has been associated with instance i-0a9badee8cf3acbb5'. Below it, a table lists 'Elastic IP addresses (1/1)'. A row for 'EIPdemo' is selected, showing details: Name (EIPdemo), Allocated IPv4 address (15.207.171.143), Type (Public IP), Allocation ID (eipalloc-0f68b70ebf522962f), and Associated instance ID (i-0a9badee8cf3acbb5). A red box highlights the 'Associated instance ID' column. At the bottom, there's a summary card for the IP 15.207.171.143, showing its association with instance i-0a9badee8cf3acbb5.

You can see the Elastic IP is associated successfully and in Associated Instance you can see the instance id of the Linux instance with which we have associated.

Now if you check the Linux instance with the public IP (15.207.71.193) that was created with it. You will not be able to access the Apache Server.

The screenshot shows a browser window with the URL '15.207.71.193'. A red box highlights the URL bar. The page content says 'This site can't be reached' and '15.207.71.193 took too long to respond.' It includes a 'Try:' section with three items: 'Checking the connection', 'Checking the proxy and the firewall', and 'Running Windows Network Diagnostics'. At the bottom, there are 'Reload' and 'Details' buttons, and a status bar at the bottom left says 'Connecting...'. A red box highlights the error message.

To access the Linux Instance/Apache Server you will have to check it with newly associated Elastic IP (15.2017.171.143).



This page is used to test the proper operation of the Apache HTTP server after it has been installed. If you can read this page, it means that the Apache HTTP server installed at this site is working properly.

#### If you are a member of the general public:

The fact that you are seeing this page indicates that the website you just visited is either experiencing problems, or is undergoing routine maintenance.

If you would like to let the administrators of this website know that you've seen this page instead of the page you expected, you should send them e-mail. In general, mail sent to the name "webmaster" and directed to the website's domain should reach the appropriate person.

For example, if you experienced problems while visiting www.example.com, you should send e-mail to "webmaster@example.com".

#### If you are the website administrator:

You may now add content to the directory /var/www/html/. Note that until you do so, people visiting your website will see this page, and not your content. To prevent this page from ever being used, follow the instructions in the file /etc/httpd/conf.d/welcome.conf.

You are free to use the image below on web sites powered by the Apache HTTP Server.



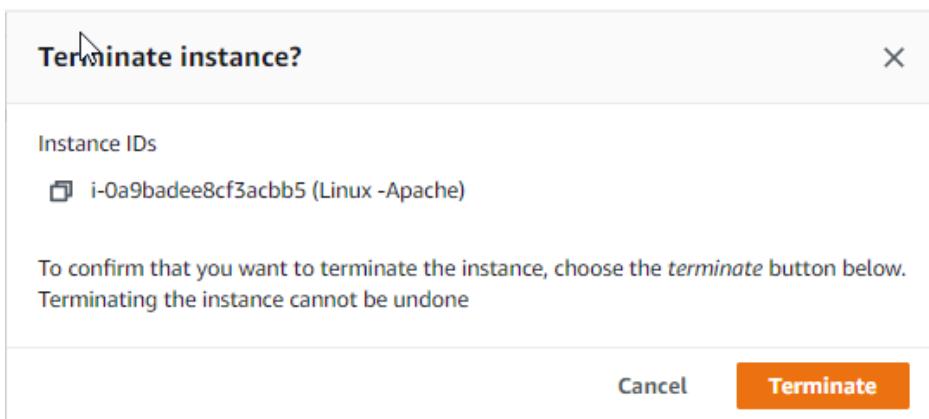
## STEP F: Terminating a Linux Instance

To Terminate the instance, go to Instances.

Name	Instance ID	Instance state	Instance type	Status
Linux-Apache	i-0a9baddee8cf3acbb5	Running	t2.micro	

Click on Actions->Select Instance State->Click on Terminate instance.

It will ask you for Termination permission click on Terminate.



The instance will be terminated, the instance status will show terminated.

A screenshot of the AWS EC2 Instances page. At the top, a green banner says "Successfully terminated i-0a9badee8cf3acbb5". Below it, the "Instances (1) Info" section shows a table with one row. The row contains: Name (Linux-Apache), Instance ID (i-0a9badee8cf3acbb5), Instance state (Terminated), Instance type (t2.micro), Status check (-), Availability zone (ap-south-1b), and Public IPv4 DNS (-). The "Actions" button is highlighted in orange.

Go To **Elastic IPs**. You can check that as soon as the instance is terminated the Associate Instance ID is removed and the IP is available to be associated with new instance.

A screenshot of the AWS Elastic IP addresses page. The left sidebar shows "Elastic IPs" under "Network & Security" highlighted with a red box. The main table shows one entry: EIPdemo, 15.207.171.143, Public IP, Allocation ID eipalloc-0f68b70ebf522962f, and the "Associated instance ID" field is empty. The "Allocate Elastic IP address" button is orange.

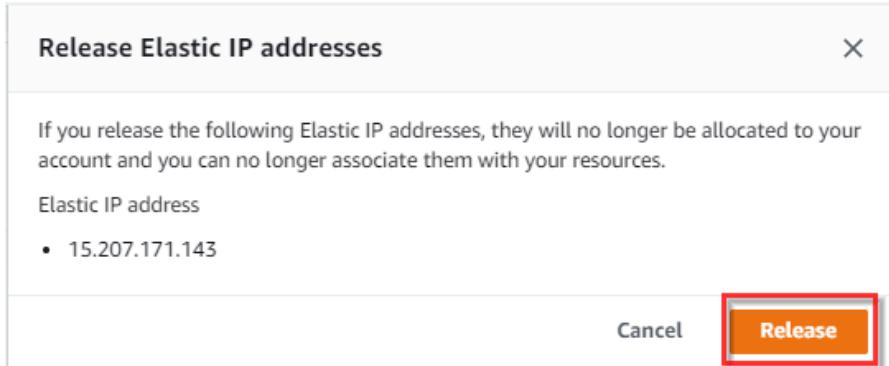
## STEP G: Releasing/Deleting Elastic IP

To Release or Delete the Elastic IP. Click on Action.

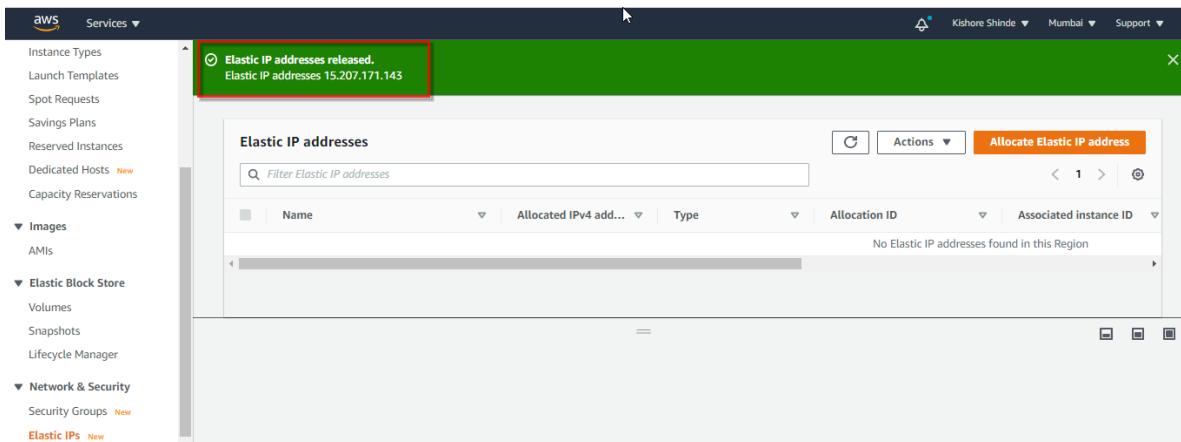
A screenshot of the AWS Elastic IP addresses page. The "Elastic IPs" link in the sidebar is highlighted with a red box. In the "Actions" dropdown menu, the "Release Elastic IP addresses" option is highlighted with a red box. The rest of the interface is identical to the previous screenshot, showing the EIPdemo entry with its details.

Then Click on **Release Elastic IP address**.

It will ask you for permission. Click on **Release**.



You will be taken back to Elastic IP dashboard.



You will see the Elastic IP is released.

Project 4 is completed.

# Advance AWS

## AWS Project 5: Working with S3

Student:

Kishore Shinde

Teacher:

Mrs. Vinolin Jeremiah

Course:

Advance AWS Cloud Computing with DevOps  
Fundamentals

Institute:

Lets Upgrade

# Project 5: Working with S3

## Topics Covered

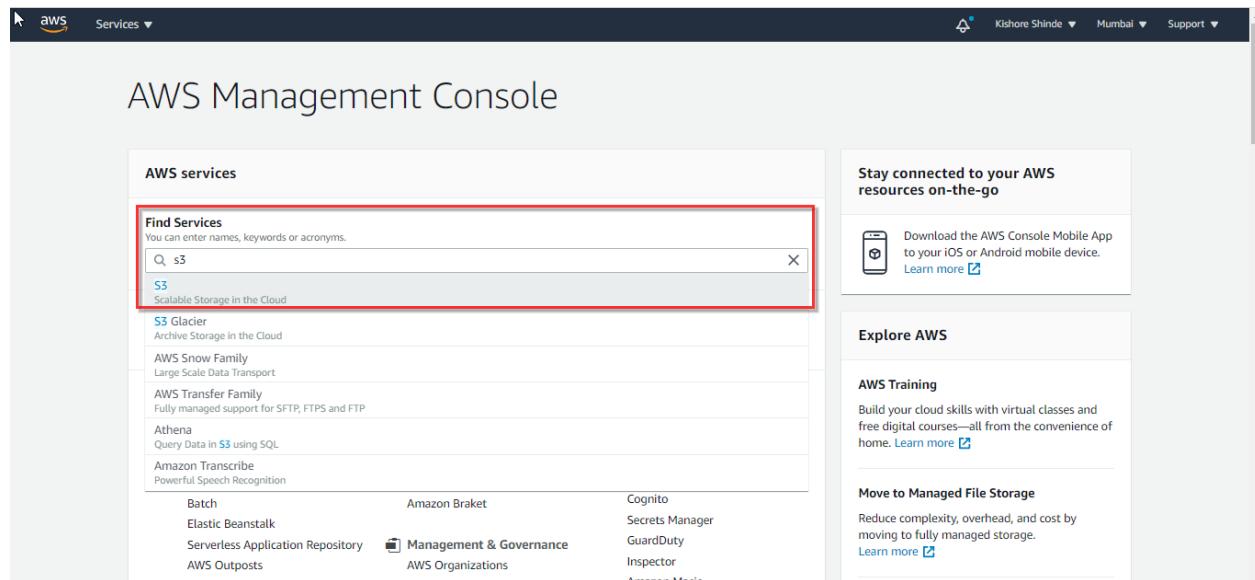
A: Working with S3

B: Static Web Hosting

C: Versioning

A: Working with S3

Go to AWS Management Console, type S3



The screenshot shows the AWS Management Console homepage. At the top, there's a navigation bar with the AWS logo, a 'Services' dropdown, and user information for 'Kishore Shinde' and 'Mumbai'. Below the navigation is a search bar with the placeholder 'Find Services' and a text input field containing 's3'. A red box highlights this search input field. To the right of the search bar is a sidebar with sections for 'Stay connected to your AWS resources on-the-go' (with a link to the AWS mobile app), 'Explore AWS' (with a 'AWS Training' section), and 'Move to Managed File Storage'.

AWS services

Find Services

You can enter names, keywords or acronyms.

s3

S3 Scalable Storage in the Cloud

S3 Glacier

Archive Storage in the Cloud

AWS Snow Family

Large Scale Data Transport

AWS Transfer Family

Fully managed support for SFTP, FTPS and FTP

Athena

Query Data in S3 using SQL

Amazon Transcribe

Powerful Speech Recognition

Batch

Elastic Beanstalk

Serverless Application Repository

AWS Outposts

Amazon Braket

Management & Governance

AWS Organizations

Cognito

Secrets Manager

GuardDuty

Inspector

Amazon Macie

Stay connected to your AWS resources on-the-go

Download the AWS Console Mobile App to your iOS or Android mobile device. [Learn more](#)

Explore AWS

AWS Training

Build your cloud skills with virtual classes and free digital courses—all from the convenience of home. [Learn more](#)

Move to Managed File Storage

Reduce complexity, overhead, and cost by moving to fully managed storage. [Learn more](#)

Select S3(Scalable Storage in the Cloud).

You will be able to see the S3 buckets dashboard.

The screenshot shows the AWS S3 service dashboard. On the left, there's a sidebar with options like 'Buckets', 'Batch operations', 'Access analyzer for S3', 'Block public access (account settings)', and 'Feature spotlight'. The main area is titled 'S3 buckets' with a search bar and buttons for 'Edit public access settings', 'Empty', and 'Delete'. At the top right, it says 'All access types' with a dropdown arrow. Below that, it shows '0 Buckets' and '0 Regions'. A large central box says 'You do not have any buckets. Here is how to get started with Amazon S3.' It features three icons: a bucket with a cloud above it labeled 'Create a new bucket', a bucket with an upward arrow labeled 'Upload your data', and two user silhouettes with a plus sign labeled 'Set up your permissions'. A note below the first icon says 'Buckets are globally unique'. A note below the second icon says 'After you create a bucket, you can'. A note below the third icon says 'By default, the permissions on an object are private, but you can set up...'. A red box highlights the '+ Create bucket' button.

For creating new bucket, click on Create bucket.

Create bucket wizard will start.

The screenshot shows the 'Create bucket' wizard. The first step, 'Name and region', is selected. It has four tabs at the top: 'Name and region' (selected), 'Configure options', 'Set permissions', and 'Review'. The 'Bucket name' field contains 's3230106' and is highlighted with a red box. The 'Region' dropdown is set to 'Asia Pacific (Mumbai)'. Below these, there's a section for 'Copy settings from an existing bucket' which says 'You have no buckets 0 Buckets'. At the bottom, there's a 'Create' button highlighted with a red box, and 'Cancel' and 'Next' buttons.

Give the bucket a unique name. An S3 bucket name is universally unique, and the namespaces is shared by all AWS accounts. This means the bucket name created will not be taken by any other AWS account, unless you delete the bucket e.g. s3230106.

Select the Region or let it be default. e.g. Asia Pacific (Mumbai)

**Note:** To optimize latency, minimize cost or address regulatory requirements choose any region that is geographically close to you.

Click on Create.

The screenshot shows the AWS S3 buckets dashboard. On the left sidebar, there are links for 'Amazon S3' (selected), 'Buckets', 'Batch operations', 'Access analyzer for S3', 'Block public access (account settings)', and 'Feature spotlight'. The main area is titled 'S3 buckets' with a search bar and a dropdown for 'All access types'. A red box highlights the top section where a new bucket can be created. Below this, a table lists one bucket: 's3230106'. The table includes columns for 'Bucket name', 'Access', 'Region', and 'Date created'. The bucket details show it is 'Bucket and objects not public' in 'Asia Pacific (Mumbai)' and was created on 'Oct 9, 2020 3:58:57 PM GMT+0530'.

You will be taken back to S3 bucket dashboard and will see the newly created bucket.

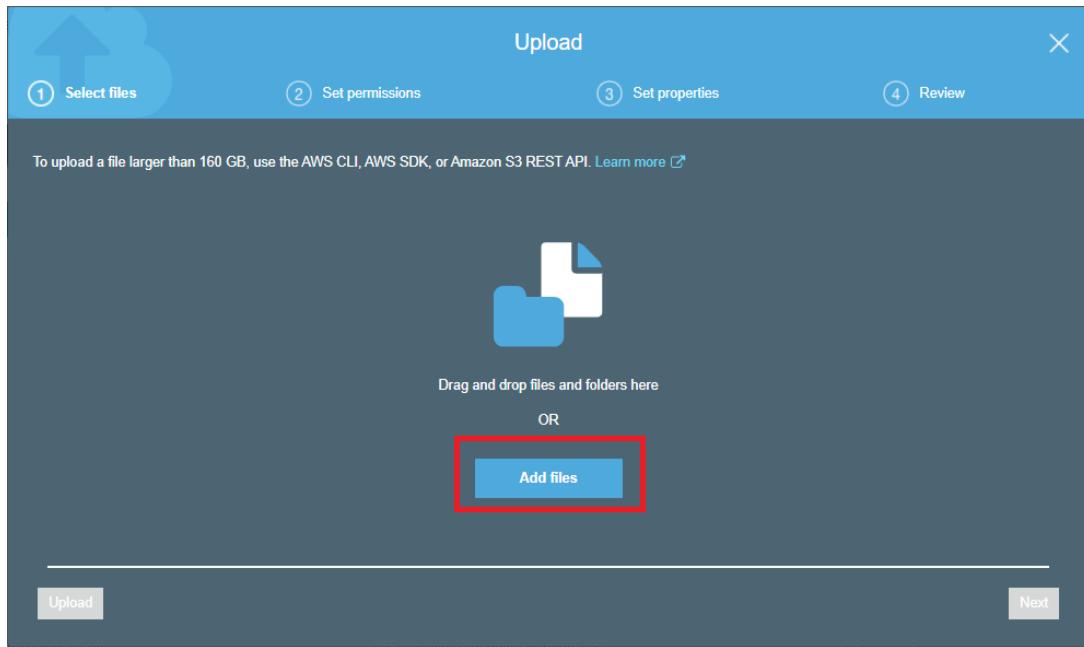
e.g. `s3230106`.

Click on the created bucket to go into the bucket.

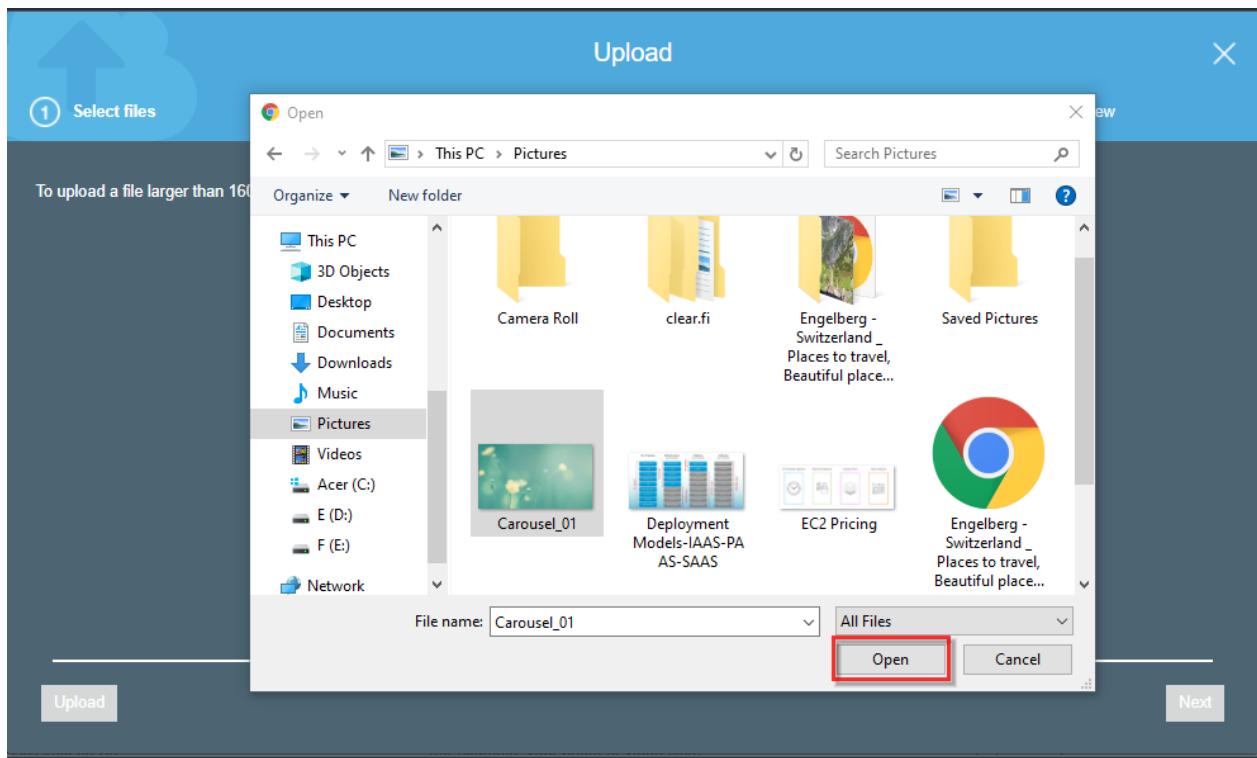
The screenshot shows the 's3230106' bucket overview page. The top navigation bar shows 'Amazon S3 > s3230106'. The main menu tabs are 'Overview' (selected), 'Properties', 'Permissions', 'Management', and 'Access points'. Below the tabs, there are buttons for 'Upload' (highlighted with a red box), 'Create folder', 'Download', and 'Actions'. The region is listed as 'Asia Pacific (Mumbai)'. The central content area says 'This bucket is empty. Upload new objects to get started.' It features three icons: 'Upload an object' (a bucket icon), 'Set object properties' (two user icons with a plus sign), and 'Set object permissions' (three database icons with a gear). Small descriptive text and links are provided for each feature.

You can see the list of files that you have uploaded. Now it is blank.

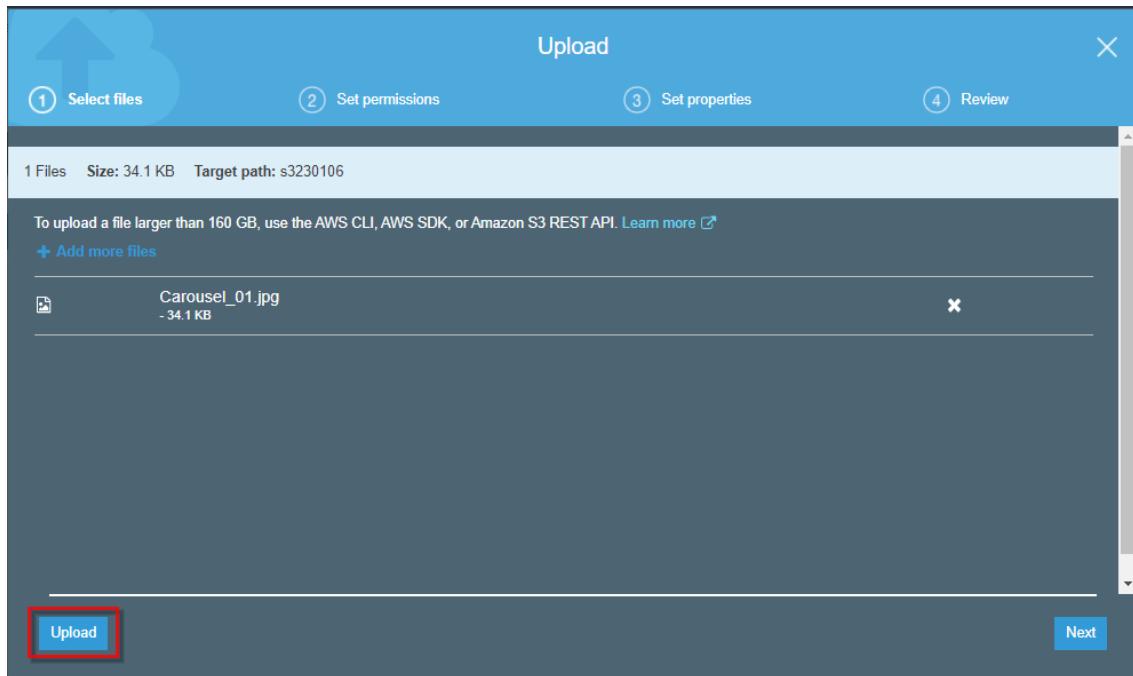
Click on Upload to upload the files in bucket.



Click on Add files.



Select any file (e.g. image file etc.) & Click on Open.



Click on **Upload** to upload the file to bucket.

A screenshot of the AWS S3 bucket interface. The top navigation bar shows 'Amazon S3 &gt; s3230106'. The bucket name 's3230106' is displayed. The 'Properties' tab is selected. Below the tabs is a search bar with placeholder text 'Type a prefix and press Enter to search. Press ESC to clear.' Underneath are buttons for 'Upload', '+ Create folder', 'Download', and 'Actions'. The main area shows a table of uploaded files. The first file, 'Carousel\_01.jpg', is highlighted with a red box. The table columns are 'Name', 'Last modified', 'Size', and 'Storage class'. The file details are: Name: Carousel\_01.jpg, Last modified: Oct 9, 2020 4:31:29 PM GMT+0530, Size: 34.1 KB, Storage class: Standard. The status bar at the bottom shows 'Viewing 1 to 1'.

You can see the file is uploaded to the bucket.

Click on the uploaded file to open it.

Carousel\_01.jpg Latest version ▾

Overview Properties Permissions Select from

Open Download Download as Make public Copy path

Owner  
ef92c440ad4d8b69ec8720900878cc7ec9f44b15bcdcad9bb119ce71c2c5684

Last modified  
Oct 9, 2020 4:31:29 PM GMT+0530

Etag  
e353f9f62504407d92d4c5dc390196d3

Storage class  
Standard

Server-side encryption  
None

Size  
34.1 KB

Key  
Carousel\_01.jpg

Object URL  
[https://s3230106.s3.ap-south-1.amazonaws.com/Carousel\\_01.jpg](https://s3230106.s3.ap-south-1.amazonaws.com/Carousel_01.jpg)

Copy the Object URL and paste it in any internet browser.

S3 Management Console https://s3230106.s3.ap-south-1.a +

← → ⌂ 🔒 s3230106.s3.ap-south-1.amazonaws.com/Carousel\_01.jpg

This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<Error>
<Code>AccessDenied</Code>
<Message>Access Denied</Message>
<RequestId>22A91ED9FAC979E5</RequestId>
<HostId>NJg38Z3fgtwQSV7egqATdqpdpJnhCvUI6hSQJ9Ukp11EVz980nmVXiLgg8wy7TluwWrP4kfWf9M=</HostId>
</Error>
```

You will get **Access Denied** message because by default the content in the S3 bucket is private. To access the content, we will need to make it public.

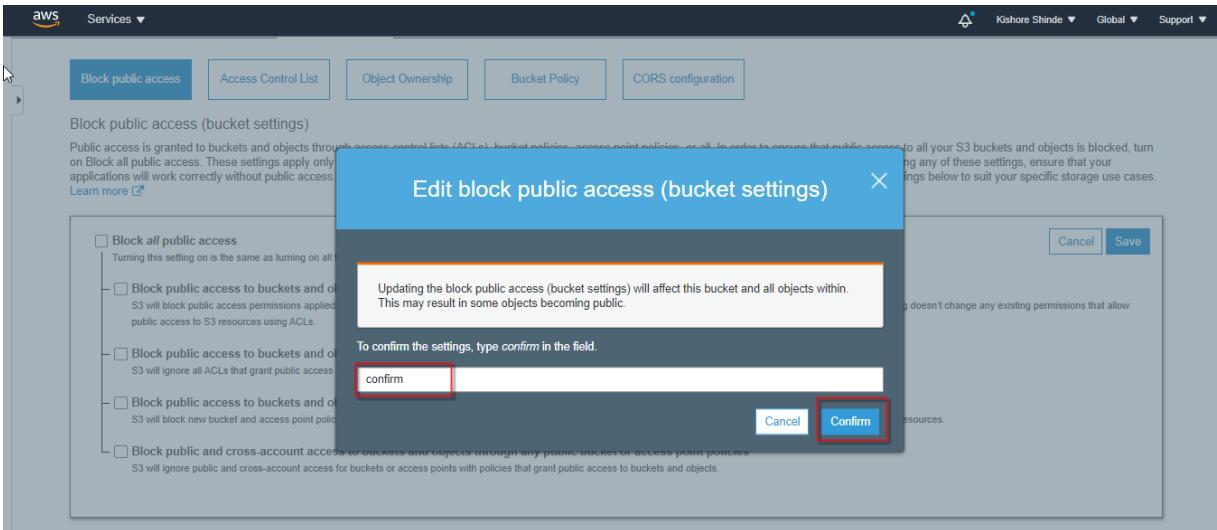
For doing that go inside your bucket.

In the Permissions Tab, by default Block Public access is selected.

Click on Edit on the right side.

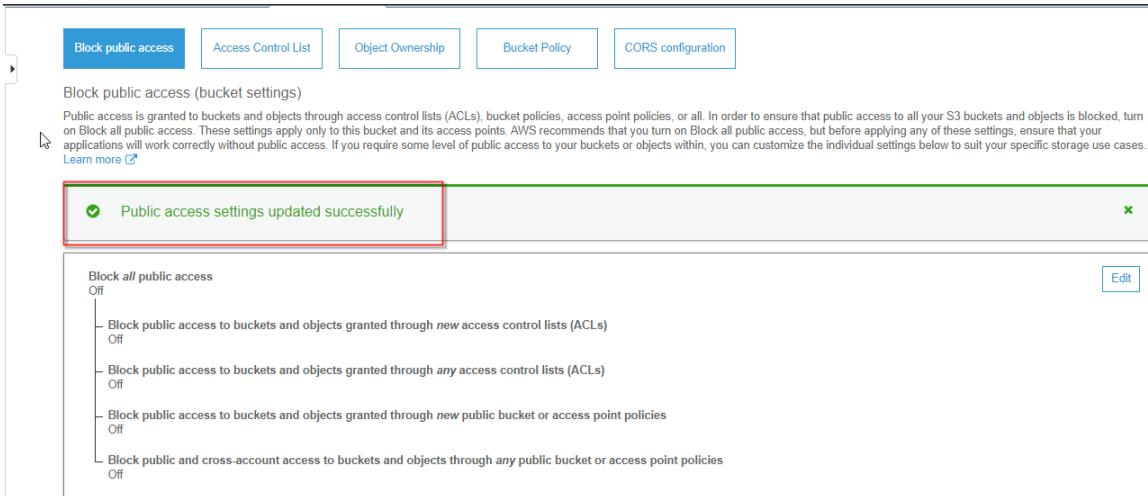
Uncheck Block all public access and click on Save.

You will be asked to confirm the changes.

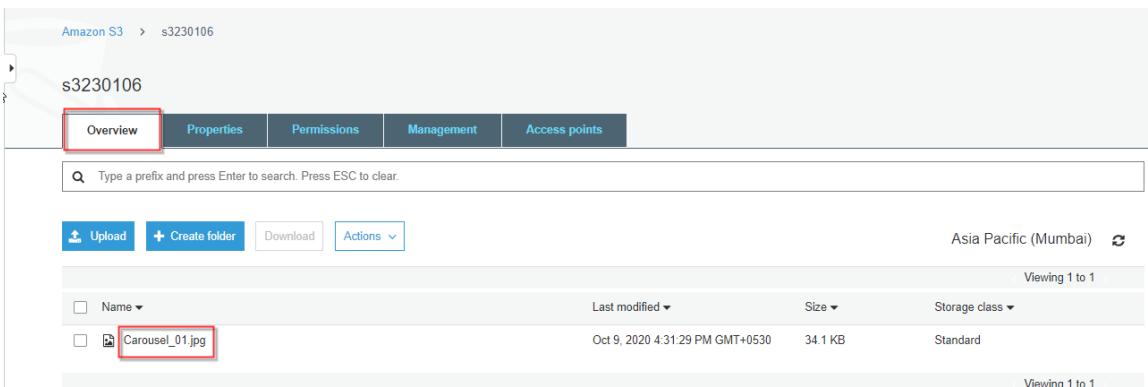


Type confirm & Click on Confirm.

You will see a message Public access settings updated successfully.



Next navigate to Overview Tab.



Click on the object or file. E.g. Carousel\_01.jpg

Carousel\_01.jpg Latest version ▾

Overview Properties Permissions Select from

Open Download Download as Make public Copy path

**Owner**  
ef92c440ad4d8b69ec8720900878cc7ec9f44b15bcdcad9bb119ce71c2c5684

**Last modified**  
Oct 9, 2020 4:31:29 PM GMT+0530

**Etag**  
e353f9f62504407d92d4c5dc390196d3

**Storage class**  
Standard

**Server-side encryption**  
None

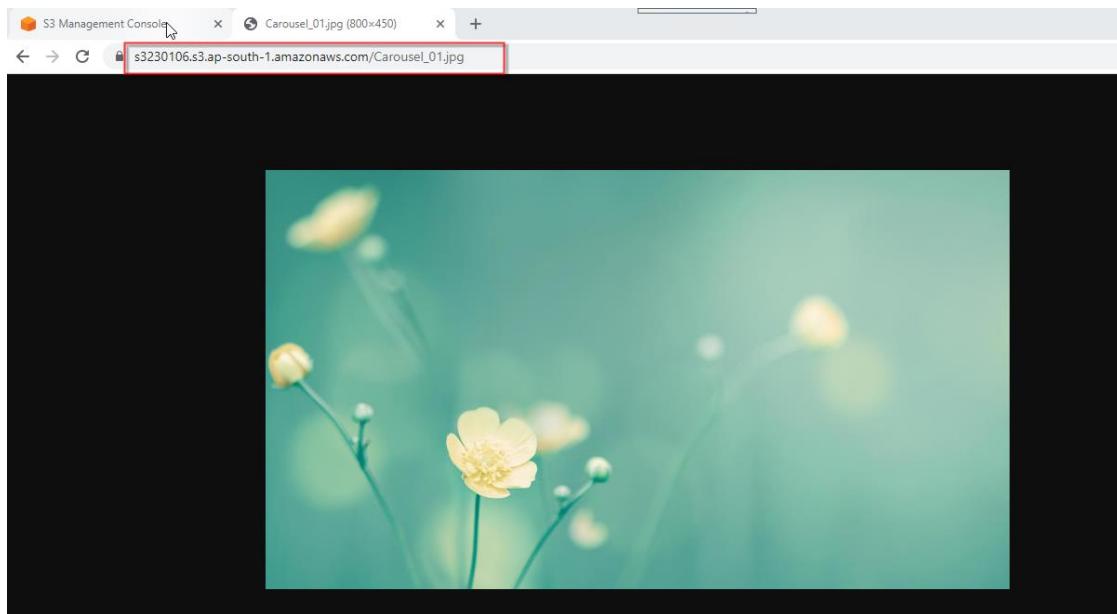
**Size**  
34.1 KB

**Key**  
Carousel\_01.jpg

**Object URL**  
[https://s3230106.s3.ap-south-1.amazonaws.com/Carousel\\_01.jpg](https://s3230106.s3.ap-south-1.amazonaws.com/Carousel_01.jpg)

Now click on **Make public**.

Copy the Object URL path and paste in your browser.



Now you can see the file.

## B: Static Web Hosting

From the s3 bucket select the file.

The screenshot shows the AWS S3 console interface. At the top, there is a banner with the text "Access S3-backed file shares on premises and reduce local storage costs using AWS Storage Gateway. Learn more »" and a "Documentation" link. Below the banner, a message says "We've temporarily re-enabled the previous version of the S3 console while we continue to improve the new S3 console experience. Switch to the new console." The main area is titled "S3 buckets" and includes a search bar and a dropdown menu set to "All access types". There are buttons for "+ Create bucket", "Edit public access settings", "Empty", and "Delete". To the right, it shows "1 Buckets" and "1 Regions". The table lists one bucket: "s3230106" (with a red box around it), "Objects can be public", "Region: Asia Pacific (Mumbai)", and "Date created: Oct 9, 2020 3:58:57 PM GMT+0530".

Now go into Properties.

The screenshot shows the "Properties" tab of the AWS S3 bucket configuration. The tab bar includes "Overview", "Properties" (highlighted with a red box), "Permissions", "Management", and "Access points". The "Properties" tab displays several features: "Versioning" (disabled), "Server access logging" (disabled), "Static website hosting" (disabled, highlighted with a red box), and "Object-level logging" (disabled). Below these, there is a section for "Default encryption" which automatically encrypts objects stored in the bucket.

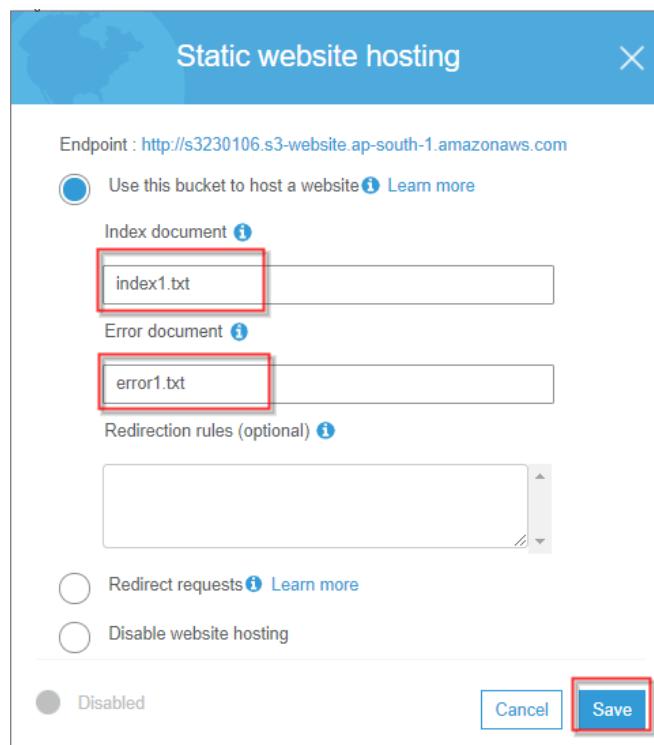
Select **Static website hosting**.

In that select **Use this bucket to host website**.

Now create two text files (index1.txt & error.txt)

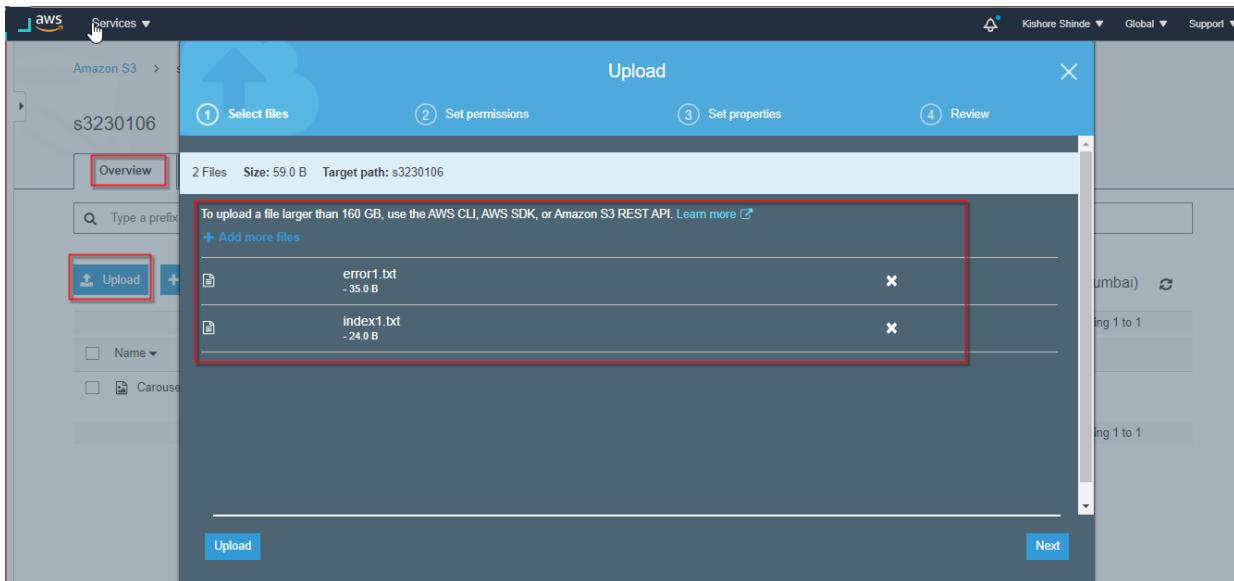
In Index document enter the file name index1.txt.

In Error document enter file error1.txt



Click on Save.

Next go into Overview Tab and upload both index1.txt and Error1.txt file.



Click on upload.

A screenshot of the AWS S3 "Overview" page for the "s3230106" bucket. The sidebar shows the bucket name. The main area has tabs: "Overview" (selected), "Properties", "Permissions", "Management", and "Access points". A search bar says "Type a prefix and press Enter to search. Press ESC to clear.". Below are buttons for "Upload", "Create folder", "Download", and "Actions". The "Actions" dropdown menu is open, with "Make public" highlighted. The file list shows three items: "Carousel\_01.jpg", "error1.txt", and "index1.txt". A red box highlights the "error1.txt" and "index1.txt" files. The "error1.txt" file has a red "X" icon. The "Actions" column for "error1.txt" shows "Edit", "Delete", and "Version history". The "Actions" column for "index1.txt" shows "Edit", "Delete", and "Version history". The "Storage class" for all files is "Standard". The status bar at the bottom says "Viewing 1 to 3".

Now make both files public.

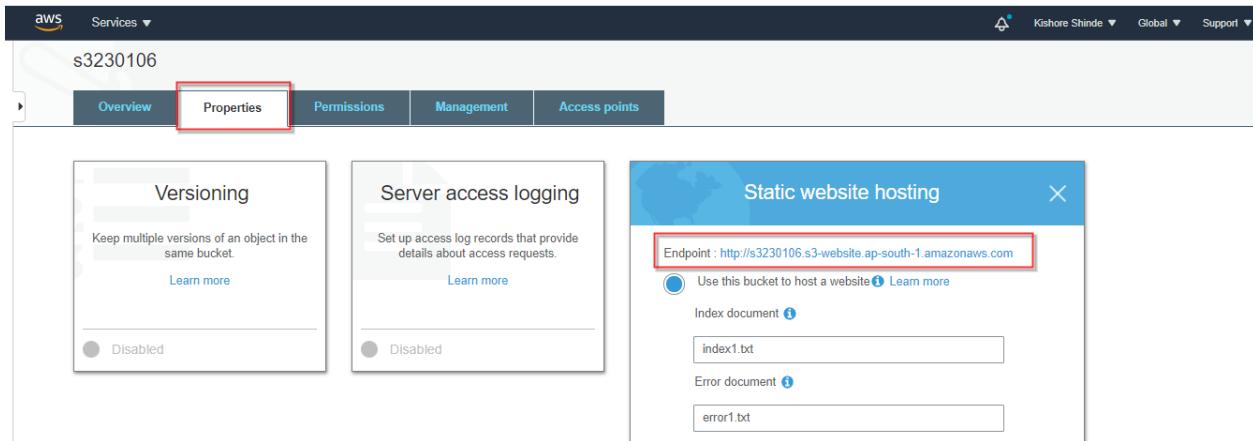
The screenshot shows the Amazon S3 console interface. At the top, there's a navigation bar with 'Amazon S3' and a path 's3230106 > s3230106'. Below this is a header with tabs: 'Overview' (selected), 'Properties', 'Permissions', 'Management', and 'Access points'. A search bar below the tabs contains the placeholder text 'Type a prefix and press Enter to search. Press ESC to clear.' Under the tabs, there are buttons for 'Upload', 'Create folder', 'Download', and 'Actions'. The main area displays a list of objects. Two files are selected: 'Carousel\_01.jpg' and 'error1.txt' (which has a red box around it). Another file, 'index1.txt', also has a checked checkbox. A context menu is open over the selected files, with 'Actions' expanded. The 'Make public' option is highlighted with a red box. Other options in the Actions menu include 'Open', 'Download as', 'Get total size', 'Change storage class', 'Restore', 'Change encryption', 'Change metadata', and 'Add tags'. To the right of the object list, there are filters for 'Last modified', 'Size', and 'Storage class', and a note 'Viewing 1 to 3'. At the bottom, there's an 'Operations' summary: '0 In progress' and '1 Success'. On the far right, it says 'Asia Pacific (Mumbai)' with a refresh icon.

Select both the files, click on Actions, click Make public.

The screenshot shows a modal dialog titled 'Make public'. At the top, it displays the selection information: 'Selection: 2 Objects, 0 Folders', 'Total size: 59.0 B', and 'Total objects: 2'. Below this, a list shows two files: 'error1.txt - 35.0 B' and 'index1.txt - 24.0 B', both of which are highlighted with a red box. At the bottom of the dialog, a message box contains the text: 'Everyone will have access to one or all of the following: read this object, read and write permissions.' At the very bottom, there are two buttons: 'Cancel' and 'Make public', with 'Make public' highlighted with a red box.

When asked confirmation, select Make public.

Go to the Properties tab.



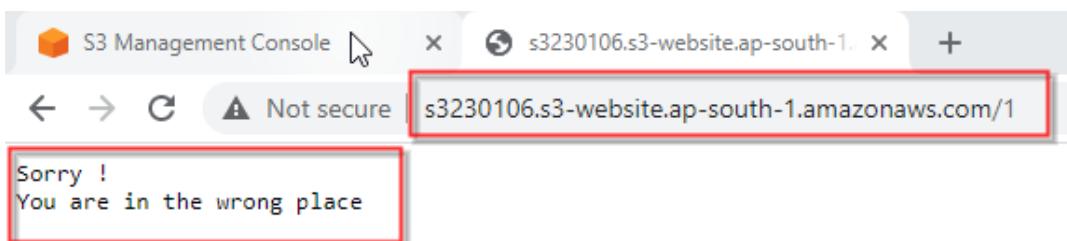
Select **Static website hosting**.

You can see the Endpoint, copy the link in it and paste it in internet browser.



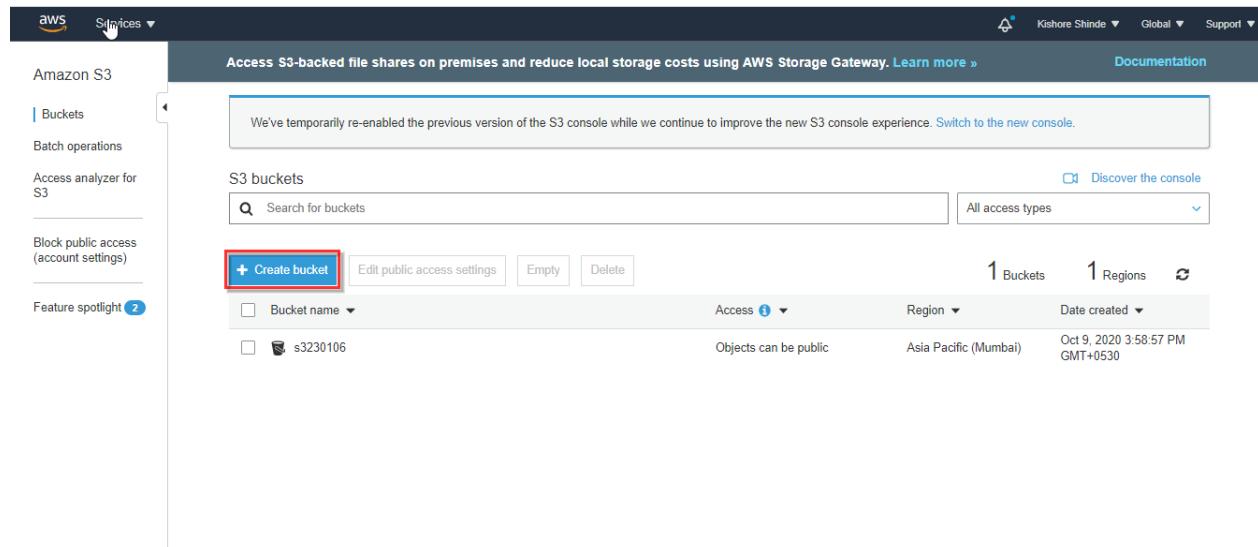
So, you can see your Static website is hosted using S3 bucket.

You can also see the error file if you enter wrong link.



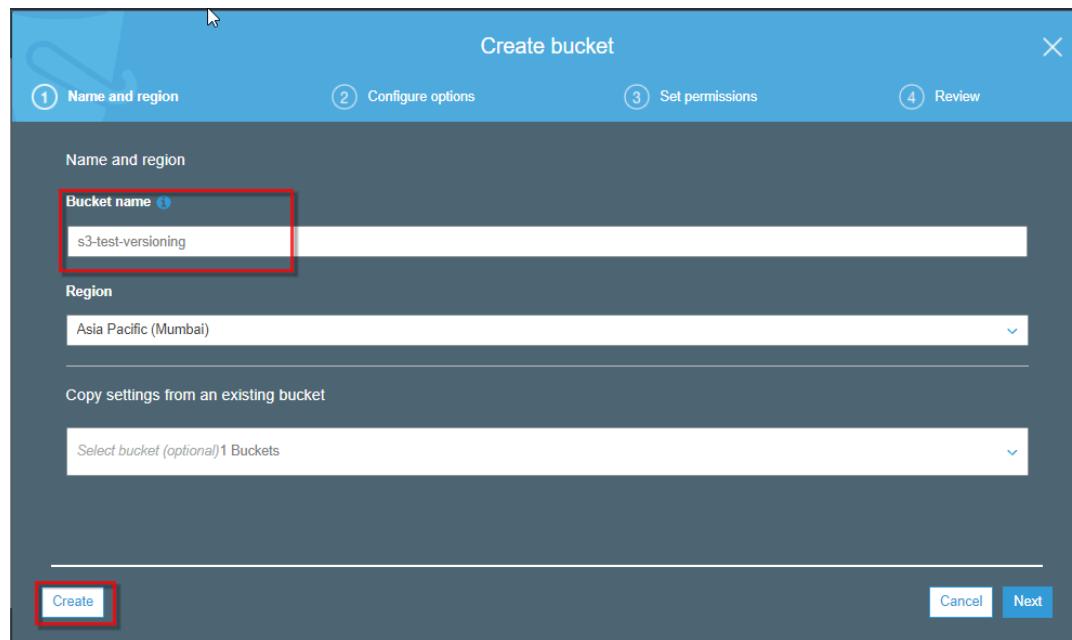
## C. Versioning

Go into your Amazon S3 Console.



The screenshot shows the AWS S3 console interface. On the left, there's a navigation sidebar with options like 'Buckets', 'Batch operations', 'Access analyzer for S3', and 'Block public access (account settings)'. The main area is titled 'S3 buckets' and contains a search bar and a dropdown menu for 'All access types'. A message at the top says, 'We've temporarily re-enabled the previous version of the S3 console while we continue to improve the new S3 console experience. Switch to the new console.' Below this, there's a table showing one bucket: 's3230106' (Bucket name), 'Objects can be public' (Access), 'Asia Pacific (Mumbai)' (Region), and 'Oct 9, 2020 3:58:57 PM GMT+0530' (Date created). At the top right, there are links for 'Documentation', 'Discover the console', and account information ('Kishore Shinde', 'Global', 'Support'). A red box highlights the '+ Create bucket' button at the top left of the bucket list table.

Let us first create a new bucket and Enable the versioning before adding any objects in the bucket.



The screenshot shows the 'Create bucket' wizard. Step 1: Name and region. It has four tabs: 1. Name and region, 2. Configure options, 3. Set permissions, 4. Review. In the 'Name and region' section, the 'Bucket name' input field is filled with 's3-test-versioning' and has a red box around it. The 'Region' dropdown is set to 'Asia Pacific (Mumbai)'. Below that, there's a 'Copy settings from an existing bucket' section with a dropdown menu showing 'Select bucket (optional) 1 Buckets'. At the bottom left is a red box around the 'Create' button, and at the bottom right are 'Cancel' and 'Next' buttons.

Give unique name to the bucket e.g.s3-test-versioning and click on **Create**.

Now select the bucket and open it. Go to the **Properties** tab and select **Versioning**.

The screenshot shows the AWS S3 console with the 'Properties' tab selected. A modal window titled 'Versioning' is open, showing two options: 'Enable versioning' (selected) and 'Suspend versioning'. Below these are 'Disabled' and 'Save' buttons. To the right of the modal are sections for 'Server access logging' and 'Static website hosting', both currently set to 'Disabled'. A red box highlights the 'Save' button in the modal.

Select **Enable versioning** and click on **Save**.

The screenshot shows the AWS S3 console with the 'Properties' tab selected. A modal window titled 'Versioning' is open, showing the 'Enabled' status. A red box highlights the 'Enabled' checkbox. Below the modal, the main page shows the 'Enabled' status under the 'Versioning' section.

You will see Versioning is **Enabled**.

Create a text file e.g. Versioningdemo.txt.

AWS Services ▾

Amazon S3 s3-test-versioning

s3-test-versioning

Overview Properties Permission

Upload Create folder Download

Upload an object Set object properties Set object permissions

Asia Pacific (Mumbai) ↻

Notepad window content:

```
Versioningdemo - Notepad
File Edit Format View Help
Hi all
Welcome to the demo of S3 Versioning!
Versioningdemo.txt has been created.

Ln 3, Col 1 100% Windows (CRLF) UTF-8
```

Upload the file.

Upload

① Select files ② Set permissions ③ Set properties ④ Review

1 Files Size: 47.0 B Target path: s3-test-versioning

To upload a file larger than 160 GB, use the AWS CLI, AWS SDK, or Amazon S3 REST API. Learn more ↗

+ Add more files

Versioningdemo.txt - 47.0 B

Upload Next

Browse & select the file. Click on Upload.

Amazon S3 > s3-test-versioning

s3-test-versioning

Overview Properties Permissions Management Access points

Type a prefix and press Enter to search. Press ESC to clear.

Upload Create folder Download Actions Hide Show

Asia Pacific (Mumbai)

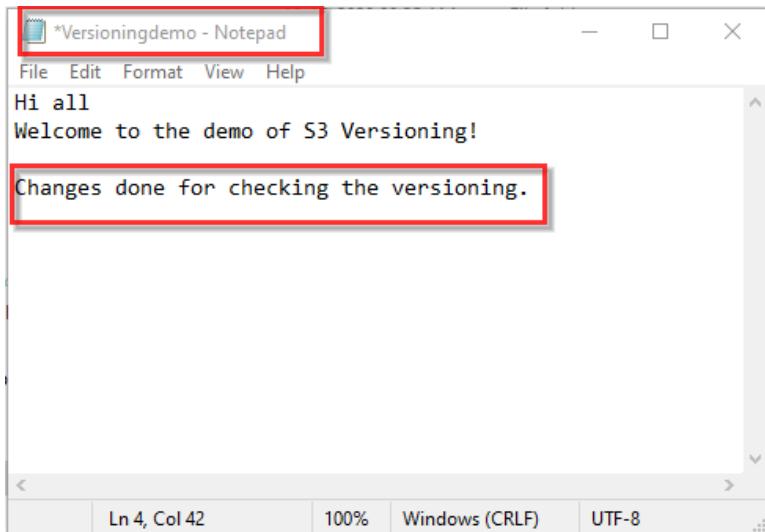
Name	Last modified	Size	Storage class
Versioningdemo.txt	Oct 9, 2020 7:02:01 PM GMT+0530	47.0 B	Standard

Viewing 1 to 1

Viewing 1 to 1

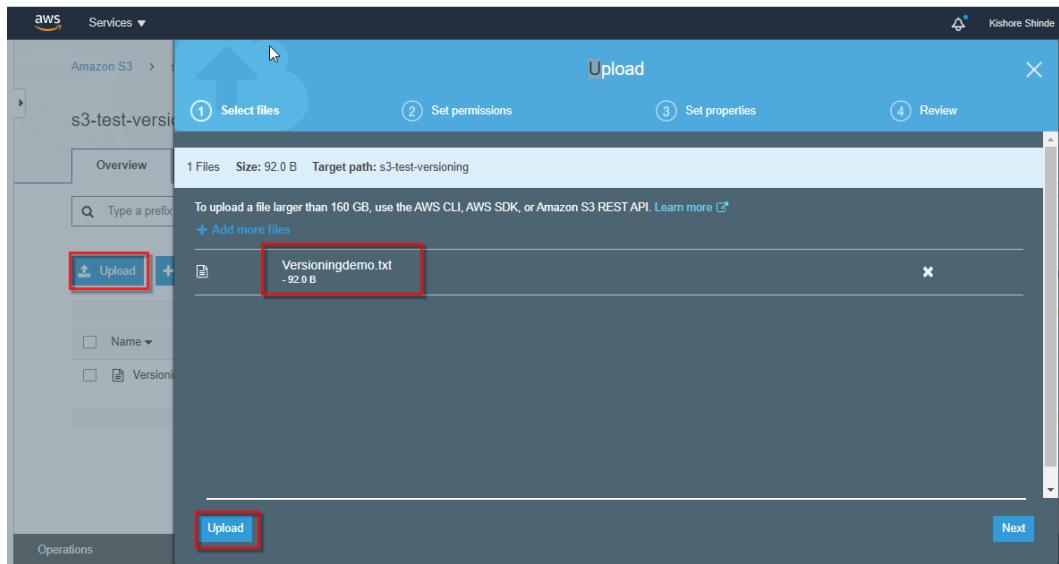
You can see the file is uploaded.

Now go to the same file which you have uploaded e.g. Versioningdemo.txt and add or update the content.



Save the file.

**Note:** Don't change the name



Click on Upload.

A screenshot of the AWS S3 'Properties' tab for the 's3-test-versioning' bucket. The top navigation bar shows 'Overview', 'Properties' (selected), 'Permissions', 'Management', and 'Access points'. A search bar below the tabs contains the placeholder 'Type a prefix and press Enter to search. Press ESC to clear.' The toolbar includes 'Upload', 'Create folder', 'Download', 'Actions', 'Versions', 'Hide', and 'Show'. The 'Show' button is highlighted with a red box. The main content area displays a table with one file entry: 'Versioningdemo.txt' (Last modified: Oct 9, 2020 7:18:27 PM GMT+0530, Size: 92.0 B). The table has columns for 'Name', 'Last modified', and 'Size'.

You will see you can see only one file and not two files.

Now click on Show next to Versions.

The screenshot shows the AWS S3 console for a bucket named 's3-test-versioning'. At the top, there are tabs for Overview, Properties (which is selected), Permissions, Management, and Access points. Below the tabs is a search bar with placeholder text 'Type a prefix and press Enter to search. Press ESC to clear.' Underneath the search bar are buttons for Upload, Create folder, Download, Actions (with a dropdown arrow), Versions, Hide (which is highlighted with a red box), and Show. A table below lists file versions. The first row has a checkbox, the file name 'Versioningdemo.txt', its Version ID, Last modified date ('Oct 9, 2020 7:18:27 PM'), and Size ('92.0 B'). The second row also has a checkbox, the same file name, a different Version ID ('QUEausU.5cUiw.Pu7qAo4hSAF8t9rp4d'), and Size ('47.0 B'). The third row has a checkbox, the same file name, a different Version ID ('sOw0ho.Kf9VPb047bLMSOb.3976o1u...'), and Size ('47.0 B'). The second and third rows are highlighted with a red box.

	Name	Version ID	Last modified	Size
<input type="checkbox"/>	Versioningdemo.txt	QUEausU.5cUiw.Pu7qAo4hSAF8t9rp4d	Oct 9, 2020 7:18:27 PM	92.0 B
<input type="checkbox"/>	Versioningdemo.txt	sOw0ho.Kf9VPb047bLMSOb.3976o1u...	Oct 9, 2020 7:02:01 PM	47.0 B

You can see two versions of the file (e.g. Versioningdemo.txt) with one showing the **Latest Version**.

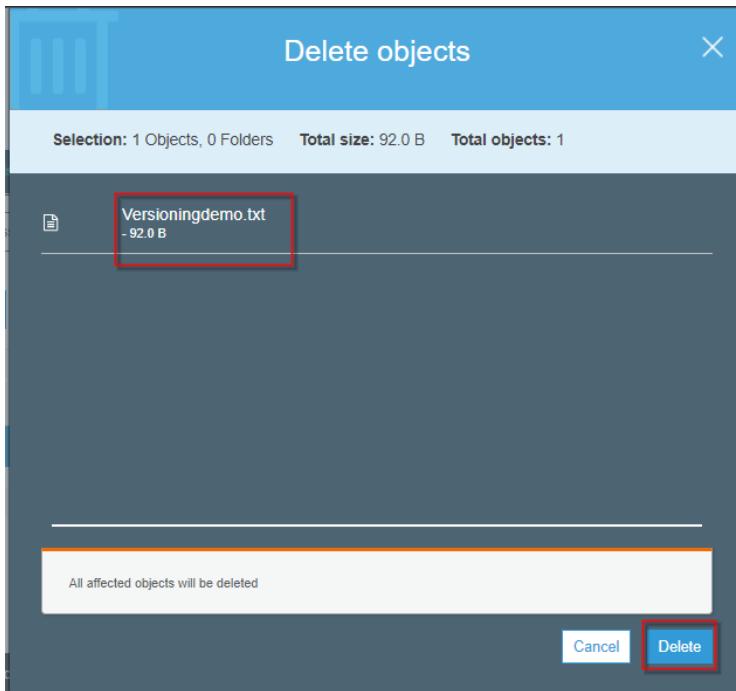
Now click on **Hide** next to **Versions**.

Let us check if the file is accidentally deleted how Versioning will work.

Select the file and Click on **Actions** and Click **Delete**.

The screenshot shows the AWS S3 console for the same bucket 's3-test-versioning'. The interface is similar to the previous one, with tabs for Overview, Properties (selected), Permissions, Management, and Access points. A search bar is present. Below the tabs are buttons for Upload, Create folder, Download, Actions (with a dropdown arrow), Versions, Hide, and Show. A table lists files, with 'Versioningdemo.txt' selected (indicated by a checked checkbox). A dropdown menu for 'Actions' is open, showing options like Restore, Change encryption, Change metadata, Add tags, Make public, Rename, Delete, Undo delete, Copy, and Move. The 'Delete' option is highlighted with a red box. At the bottom, there is a progress bar showing 'Operations' (0 In progress, 5 Success).

It will ask for confirmation click on **Delete**.



You can see the file is deleted and the bucket is empty.

The screenshot shows the 's3-test-versioning' bucket overview page. The top navigation bar includes tabs for Overview, Properties, Permissions, Management, and Access points. Below the tabs, there are buttons for Upload, Create folder, Download, Actions, Versions, Hide (which is highlighted with a red box), and Show. To the right, it shows the region as Asia Pacific (Mumbai) with a refresh icon. The main content area displays the message 'This bucket is empty. Upload new objects to get started.' Below this, there are three sections with icons: 'Upload an object' (bucket icon), 'Set object properties' (two user profile icons with a plus sign), and 'Set object permissions' (database icon with gears). The 'Show' button in the Actions row is also highlighted with a red box.

Click on **Show** next to **Versions**.

Amazon S3 > s3-test-versioning

s3-test-versioning

Overview Properties Permissions Management Access points

Type a prefix and press Enter to search. Press ESC to clear.

Upload Create folder Download Actions Versions Hide Show

Asia Pacific (Mumbai) Viewing 1 to 3

Name	Version ID	Last modified	Size	Storage class
Versioningdemo.txt		Oct 9, 2020 7:35:10 PM	--	--
<input type="checkbox"/> Oct 9, 2020 7:35:10 PM (Delete marker)	7QVE0WHL0E7ZvmBRltCgSV7Tw8o...		--	--
<input type="checkbox"/> Oct 9, 2020 7:18:27 PM	QUEausU.5cUiw.Pu7qAo4hSAF8t9rp4d	92.0 B	Standard	
<input type="checkbox"/> Oct 9, 2020 7:02:01 PM	sOw0ho.Kf9VPb047bLMSOb.3976o1u...	47.0 B	Standard	

You will be able to see the file with all the versions and the file deleted with **Delete marker**.

**Note:** When a file is deleted, it is not completely deleted only a **Delete Marker** is set.

If you want a backup of deleted file. Select the latest file.

s3-test-versioning

Overview Properties Permissions Management Access points

Type a prefix and press Enter to search. Press ESC to clear.

Upload Create folder Download Actions Versions Hide Show

Asia Pacific (Mumbai) Viewing 1 to 3

Name	Version ID	Last modified	Size	Storage class
Versioningdemo.txt		Oct 9, 2020 7:35:10 PM	--	--
<input type="checkbox"/> Oct 9, 2020 7:35:10 PM (Delete marker)	7QVE0WHL0E7ZvmBRltCgSV7Tw8o...	--	--	
<input checked="" type="checkbox"/> Oct 9, 2020 7:18:27 PM	QUEausU.5cUiw.Pu7qAo4hSAF8t9rp4d	92.0 B	Standard	
<input type="checkbox"/> Oct 9, 2020 7:02:01 PM	sOw0ho.Kf9VPb047bLMSOb.3976o1u...	47.0 B	Standard	

Operations 0 In progress 6 Success 0 Error

Feedback English (US) ^ Show all

Click on **Download**.

Now open the downloaded file.

The screenshot shows the AWS S3 console with the path "Amazon S3 > s3-test-versioning". The "s3-test-versioning" bucket is selected. The "Overview" tab is active. In the file list, there are three versions of the file "Versioningdemo.txt":

Name	Last modified	Size	Storage class
Versioningdemo.txt	Oct 9, 2020 7:35:10 PM (Delete marker)	--	--
Versioningdemo.txt	Oct 9, 2020 7:18:27 PM	92.0 B	Standard
Versioningdemo.txt	Oct 9, 2020 7:02:01 PM	47.0 B	Standard

A red box highlights a Notepad window titled "Versioningdemo - Notepad" showing the file content:

```
Hi all
Welcome to the demo of S3 Versioning!
Changes done for checking the versioning.
```

You will be able to see all the latest update you have done to the file before it was deleted.

You can again upload the document.

The screenshot shows the AWS S3 console with the path "Amazon S3 > s3-test-versioning". The "s3-test-versioning" bucket is selected. The "Overview" tab is active. The file list shows one file:

Name	Last modified	Size	Storage class
Versioningdemo.txt	Oct 9, 2020 7:49:01 PM GMT+0530	92.0 B	Standard

It will show the document that you uploaded again.

Now Click on **Versions ->Show**.

The screenshot shows the AWS S3 console for the 's3-test-versioning' bucket. The 'Versions' tab is active. A file named 'Versioningdemo.txt' has four versions listed:

Name	Version ID	Last modified	Size	Storage class
Versioningdemo.txt		Oct 9, 2020 7:49:01 PM (Latest version)	92.0 B	Standard
Versioningdemo.txt	eElh0ktRPzZBmcE7IP_dk_goa20rMU8X	Oct 9, 2020 7:35:10 PM (Delete marker)	--	--
Versioningdemo.txt	7QVE0WHL0E7ZvmbBRICgSV7Tw8o...	Oct 9, 2020 7:18:27 PM	92.0 B	Standard
Versioningdemo.txt	QUEausU.5cUiw.Pu7qAo4hSAF8t9rp4d	Oct 9, 2020 7:02:01 PM	47.0 B	Standard

You will be able to see all the versions of the file.

- Latest version
- Delete marker
- Previous versions file as well

**Note:** Don't change the file name, if it is the same, the versioning will be maintained and if you change the name it will be considered a new object and separate version of that file will be maintained. If Versioning is not enabled the file will directly be deleted, Delete marker will not be placed and versions will not be maintained.

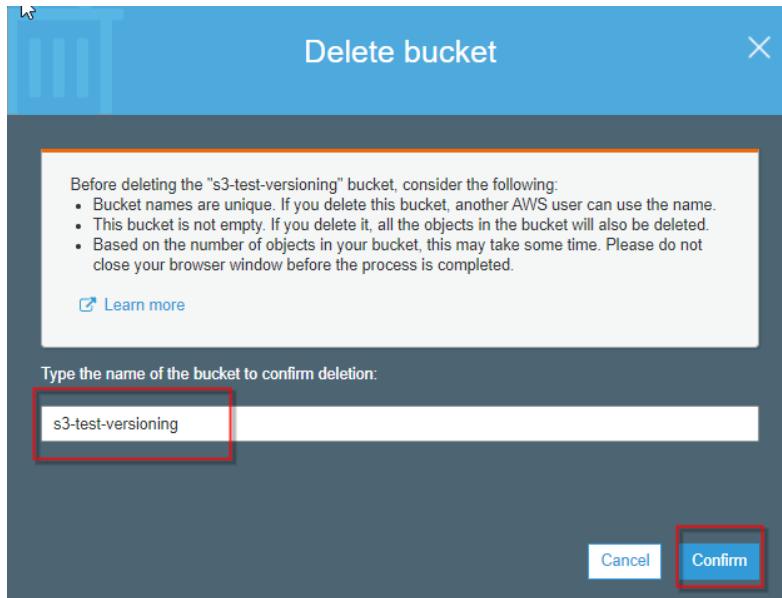
Now let us delete the buckets.

The screenshot shows the AWS S3 console with the 'S3 buckets' page. A bucket named 's3-test-versioning' is selected and highlighted with a red box. The 'Delete' button is also highlighted with a red box.

Bucket name	Access	Region	Date created
s3-test-versioning	Bucket and objects not public	Asia Pacific (Mumbai)	Oct 9, 2020 6:46:46 PM GMT+0530
s3230106	Objects can be public	Asia Pacific (Mumbai)	Oct 9, 2020 3:58:57 PM GMT+0530

Select the bucket and click on Delete.

It will ask for confirmation.



You will need to type the bucket name and then click on **Confirm** to delete it.

Project 5 is completed.

# Advance AWS

## AWS Project: Lifecycle Effects on Instance

Student:

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Course:

Advance AWS Cloud Computing with DevOps  
Fundamentals

Institute:

Lets Upgrade

# Project: Life Cycle Effects on Instance

## Steps Covered

In all the steps we will be checking the Public IP, Private IP & Installed Applications status

STEP A: Details of running instance

STEP B: Stop running instance

STEP C: Start stopped instance

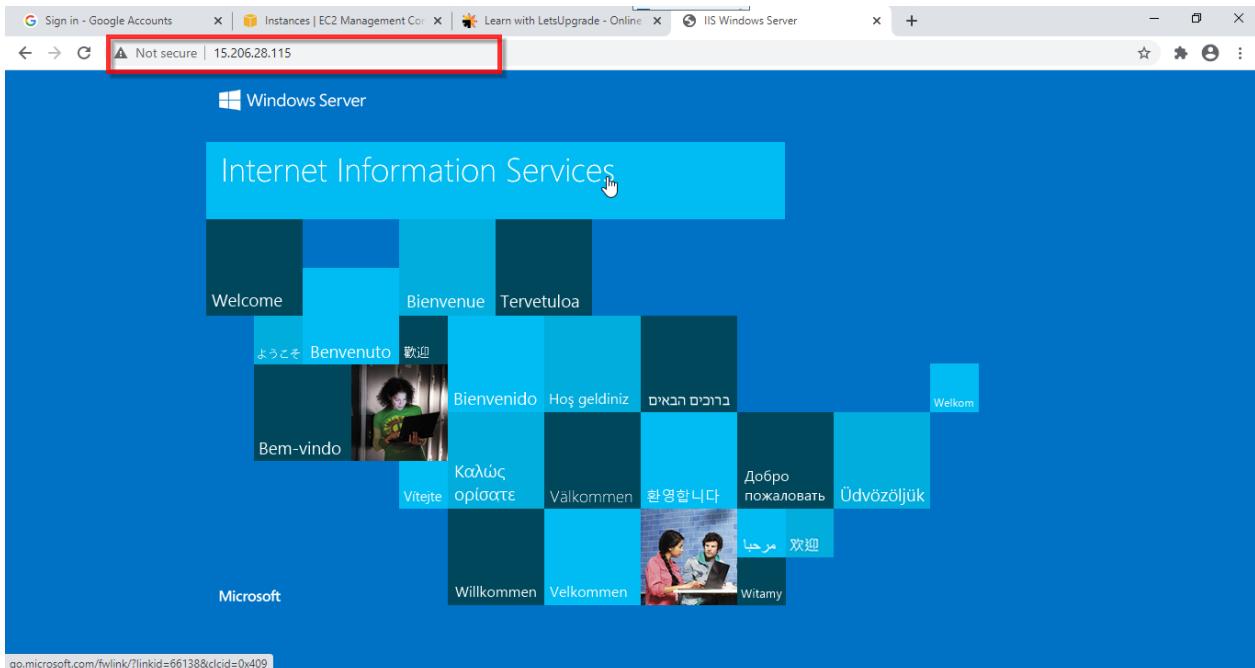
STEP D: Restarting / Rebooting instance

STEP E: Terminate EC2 Instance

### STEP A: Details of running instance

Below is the running Windows EC2 instance with IIS Server installed on it.

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation sidebar with options like New EC2 Experience, EC2 Dashboard, Events, Tags, Limits, Instances (selected), Images, and Elastic Block Store. The main area displays a table titled 'Instances (1/1)'. The table has columns for Name, Instance ID, Instance state, Instance type, Status check, Availability zone, and Public IPv4 DNS. One row is selected for 'IIS Server' (Instance ID: i-080821739d9cef79c). Below the table, a detailed view for 'Instance: i-080821739d9cef79c (IIS Server)' is shown. It includes tabs for Details, Security, Networking, Storage, Status Checks, Monitoring, and Tags. Under the Details tab, the 'Instance summary' section is expanded, showing fields like Instance ID (boxed), Instance state (Running), Instance type (t2.micro), and IAM Role. Other sections show Public IPv4 address (15.206.28.115), Private IPv4 addresses (172.31.40.55), Public IPv4 DNS (ec2-15-206-28-115.ap-south-1.compute.amazonaws.com), Private IPv4 DNS (ip-172-31-40-55.ap-south-1.compute.internal), and VPC ID (vpc-afc1dbc7).



Instance Lifecycle Status	Public IPv4 Address	Private IPv4 Address	Software Installed
Running	15.206.28.115	172.31.40.55	IIS running

## STEP B: Stop running instance

Details	Security	Networking	Storage	Status Checks	Monitoring	Tags																																										
<b>Instance summary</b> <small>Info</small> <table border="1"> <tr> <td>Instance ID</td> <td colspan="3">Public IPv4 address</td> <td colspan="3">Private IPv4 addresses</td> </tr> <tr> <td>i-080821739d9cef79c (IIS Server)</td> <td colspan="3">15.206.28.115   open address</td> <td colspan="3">172.31.40.55</td> </tr> <tr> <td>Instance state</td> <td colspan="3">Public IPv4 DNS</td> <td colspan="3">Private IPv4 DNS</td> </tr> <tr> <td>Running</td> <td colspan="3">ec2-15-206-28-115.ap-south-1.compute.amazonaws.com   open address</td> <td colspan="3">ip-172-31-40-55.ap-south-1.compute.internal</td> </tr> <tr> <td>Instance type</td> <td colspan="3">Elastic IP addresses</td> <td colspan="3">VPC ID</td> </tr> <tr> <td>t2.micro</td> <td colspan="3">-</td> <td colspan="3">vpc-afc1dbc7</td> </tr> </table>							Instance ID	Public IPv4 address			Private IPv4 addresses			i-080821739d9cef79c (IIS Server)	15.206.28.115   open address			172.31.40.55			Instance state	Public IPv4 DNS			Private IPv4 DNS			Running	ec2-15-206-28-115.ap-south-1.compute.amazonaws.com   open address			ip-172-31-40-55.ap-south-1.compute.internal			Instance type	Elastic IP addresses			VPC ID			t2.micro	-			vpc-afc1dbc7		
Instance ID	Public IPv4 address			Private IPv4 addresses																																												
i-080821739d9cef79c (IIS Server)	15.206.28.115   open address			172.31.40.55																																												
Instance state	Public IPv4 DNS			Private IPv4 DNS																																												
Running	ec2-15-206-28-115.ap-south-1.compute.amazonaws.com   open address			ip-172-31-40-55.ap-south-1.compute.internal																																												
Instance type	Elastic IP addresses			VPC ID																																												
t2.micro	-			vpc-afc1dbc7																																												

For stopping the instance click on Actions, Click Instance State, then click Stop instance.

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with various EC2-related options like Instances, Images, and Elastic Block Store. The main area shows a table of instances with one row selected: 'IIS Server' (Instance ID: i-080821739d9cef79c). This instance is currently 'Running'. A modal window titled 'Stop instance?' is overlaid on the page, containing a list of instance IDs (the same one selected) and a 'Stop' button.

It will ask for Stop instance confirmation click on **Stop**.

Once the instance is stopped you can see the Instance status “**Stopped**”.

This screenshot shows the same EC2 Instances page after the instance has been stopped. A green success message at the top of the page reads 'Successfully stopped i-080821739d9cef79c'. In the main table, the instance status is now 'Stopped'. When you click on the instance details, the 'Details' tab shows the instance is indeed 'Stopped'.

Below are the changes in the status:

Instance Lifecycle Status	Public IPv4 Address	Private IPv4 Address	Software Installed
Stopped	-	172.31.40.55	Not able to access

As the instance is stopped not able to access the software installed.

## STEP C: Start Stopped Instance

The screenshot shows the AWS EC2 Instances page. At the top, a green banner says 'Successfully stopped i-080821739d9cef79c'. Below it, the 'Instances (1/1) Info' section lists one instance: 'IIS Server' (i-080821739d9cef79c), which is currently 'Stopped'. The 'Actions' dropdown menu is open, and the 'Start instance' option is highlighted with a red box. Other options in the dropdown include 'Stop instance', 'Launch instances', 'Manage tags', and 'Instance state'.

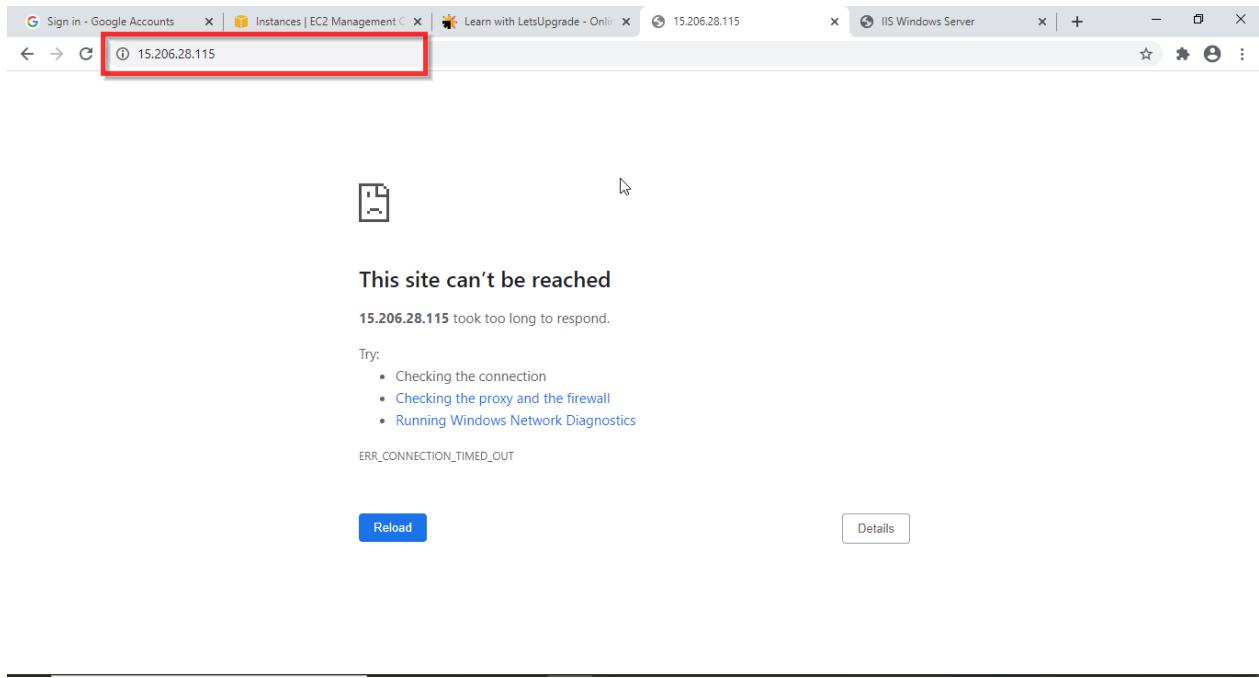
For starting the instance select the stopped instance click on **Actions**, Click on **Instance State**, then Click on **Start Instance**.

Once the instance is started again you can see following changes:

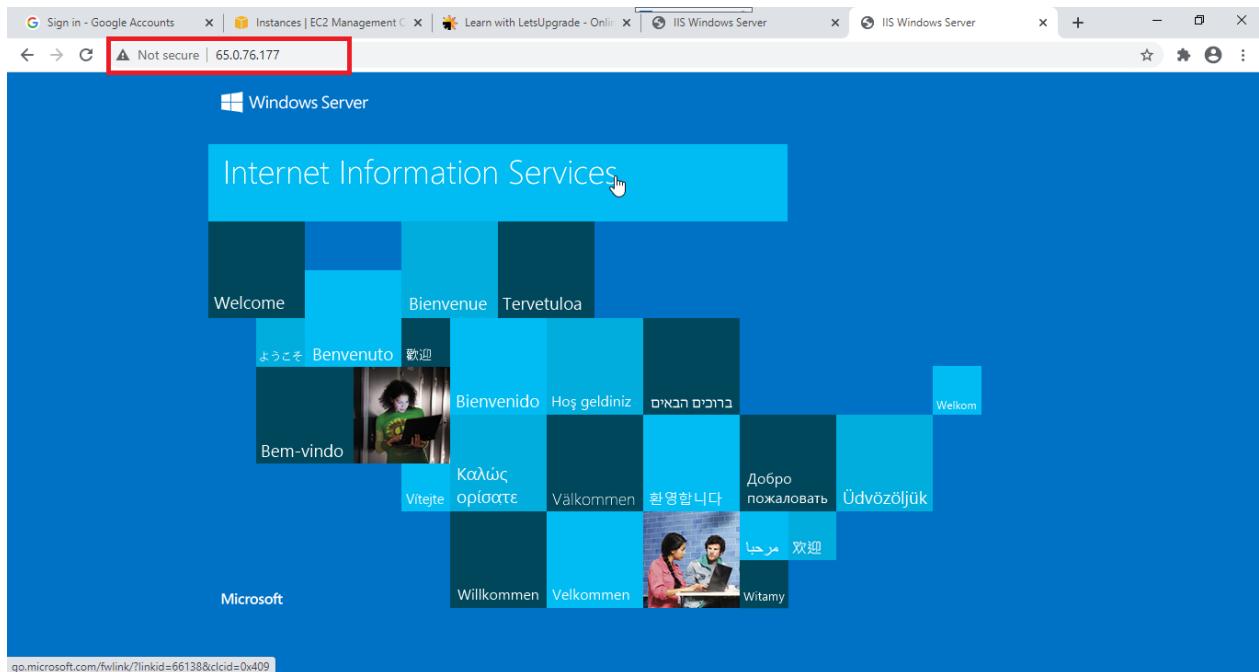
The screenshot shows the AWS EC2 Instances page after the instance has been started. A green banner at the top says 'Successfully started i-080821739d9cef79c'. The 'Instances (1/1) Info' section now shows the instance as 'Running'. The 'Actions' dropdown menu is closed. The instance details show the Public IPv4 address has changed to 65.0.76.177. The Private IP address remains 172.31.40.55. Other fields like VPC ID and Public DNS remain the same.

You can see that the new Public IP Address (65.0.76.177) is assigned to the instance. Private IP remains the same not changed.

If you try to access the instance with old Public IP (15.206.28.115) you will get an error shown below.



With the new IP address (65.0.76.177) you will be able to access the instance and the IIS Server installed.



Instance Lifecycle Status	Public IPv4 Address	Private IPv4 Address	Software Installed
Running	65.0.76.177	172.31.40.55	IIS running

## STEP D: Restarting / Rebooting instance

Let us see the effect of Restarting the instance.

Before Reboot this is this the Instance Details:

Instance Lifecycle Status	Public IPv4 Address	Private IPv4 Address	Software Installed
Running	65.0.76.177	172.31.40.55	IIS running

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with navigation links like New EC2 Experience, EC2 Dashboard, Events, Tags, Limits, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Images, and Elastic Block Store. The main area shows one instance named 'IIS Server' with the ID 'i-080821739d9cef79c'. The instance is listed as 'Running' with an 't2.micro' instance type. The 'Actions' dropdown menu is open, with 'Reboot instance' highlighted. Below the instance list, the 'Details' tab of the instance summary is selected, showing the Instance ID, Public IPv4 address (65.0.76.177), and Private IPv4 address (172.31.40.55).

To Restart an instance, Select the instance, Click on Actions, Click Instance State and the Click on Reboot instance.

It will ask you for a confirmation click on Reboot.

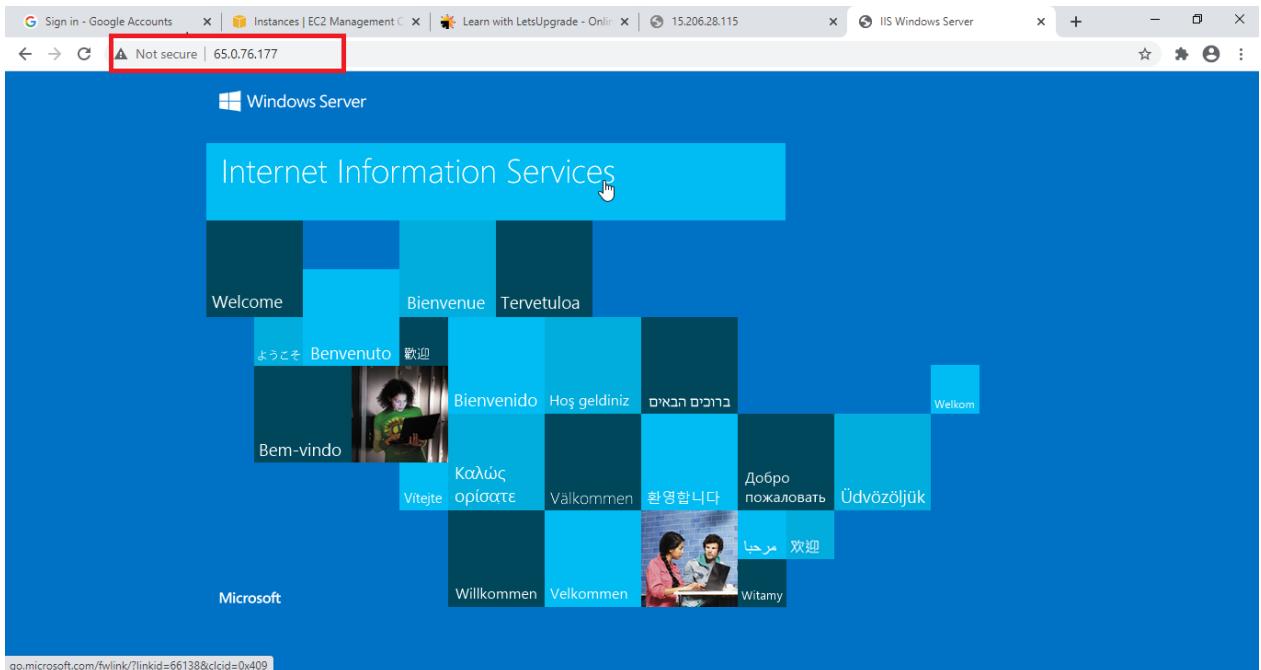
The screenshot shows the AWS EC2 Instances page. A modal dialog box is open, asking for confirmation to reboot the instance. The instance ID 'i-080821739d9cef79c (IIS Server)' is selected. The 'Reboot' button is highlighted with a red box.

Now once the instance is Rebooted you can check the instance details.

The screenshot shows the AWS EC2 Instances page after a successful reboot. A green success message at the top states 'Successfully rebooted i-080821739d9cef79c'. The instance details table shows the instance is now 'Running'. The Public IPv4 address (65.0.76.177) and Private IPv4 address (172.31.40.55) are highlighted with red boxes.

Instance Lifecycle Status	Public IPv4 Address	Private IPv4 Address	Software Installed
Running	65.0.76.177	172.31.40.55	IIS running

Here the Public IP Address, Private IP Address have not changed.



Even the IIS Server installed on the Server is running.

## STEP E: Terminate EC2 Instance

Before termination this are the instance details:

Instance Lifecycle Status	Public IPv4 Address	Private IPv4 Address	Software Installed
Running	65.0.76.177	172.31.40.55	IIS running

For Terminating an instance do the following steps:

Name	Instance ID	Instance state	Instance type	Status
IIS Server	i-080821739d9cef79c	Running	t2.micro	2/2 checks ...

**Instance: i-080821739d9cef79c (IIS Server)**

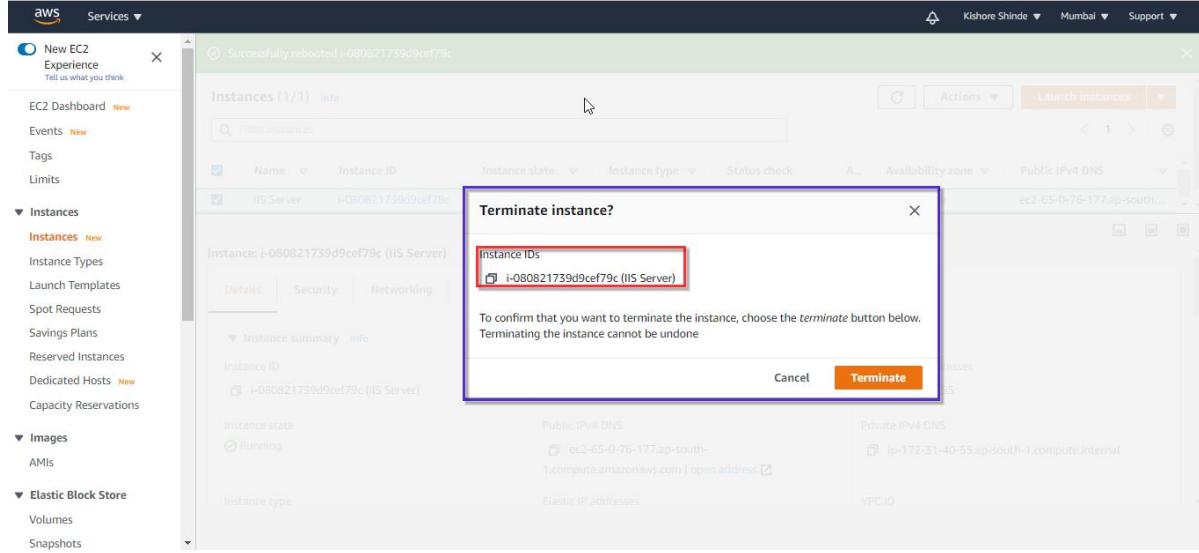
**Details** | Security | Networking | Storage | Status Checks | Monitoring | Tags

**Instance summary**

- Instance ID: i-080821739d9cef79c (IIS Server)
- Public IPv4 address: 65.0.76.177 | [open address](#)
- Private IPv4 addresses: 172.31.40.55
- Instance state: Running
- Public IPv4 DNS: ec2-65-0-76-177.ap-south-1.compute.amazonaws.com | [open address](#)
- Elastic IP addresses
- VPC ID

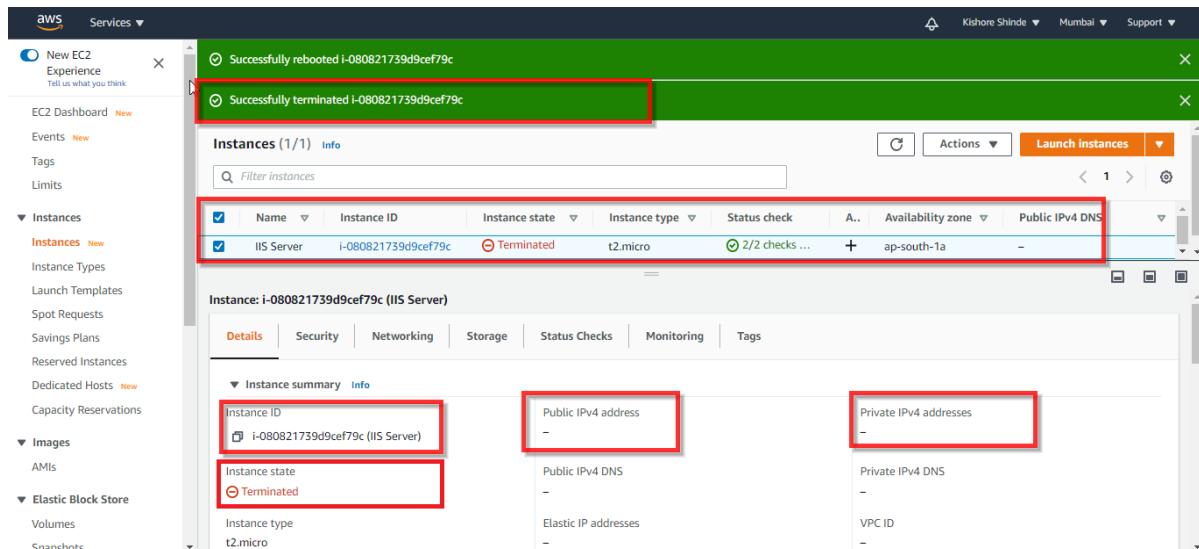
Select the instance to be terminated. Click on **Actions**, then Click on **Instance State** and then Click on **Terminate Instance**.

It will ask you for the confirmation.



Click on **Terminate**.

When the instance is terminated check the instance details below:



Once the instance is terminated the Public IP, Private IP are removed/released to the Shared Pool, the IIS is also not running.

Instance Lifecycle Status	Public IPv4 Address	Private IPv4 Address	Software Installed
Terminated	-	-	Not running

Project Lifecycle Effects on Instance completed.