

AWS Internship Project – Practical Cloud Computing Experience

Introduction:

This internship project report presents the hands-on cloud computing experience I gained during my AWS summer internship program. The project was focused on building foundational knowledge and technical skills using Amazon Web Services (AWS), all within the AWS Free Tier limits. It includes real-time cloud tasks like setting up virtual servers, managing storage, securing infrastructure, hosting web applications, and understanding auto-scaling environments.

Key Learning Outcomes and Activities:

- Explored Core AWS Services
- EC2 Instance Deployment on Multiple OS
- Web Server Hosting with Apache
- Windows Server Hosting
- Creating and Using AMIs
- EBS Volume Management
- Snapshot Creation and Recovery
- Security and Access Control
- Auto Scaling Groups (ASG)
- Elastic Load Balancer (ELB)

Setting Up a Linux Server on AWS EC2

Introduction:

The AWS EC2 Linux Server Creation Guide provides step-by-step instructions for launching a virtual server in the cloud using Amazon Web Services. This guide helps users set up a secure and scalable Linux-based EC2 instance, ideal for hosting applications, websites, or development environments.

Step By Step Instructions:

Step 1:

- Search “AWS Management Console” on Google.
- Click on “AWS Console Sign In | Amazon Web Services” and the home screen of AWS website will open.

The screenshot shows the AWS Console Home page. On the left, there's a sidebar with 'Recently visited' services: EC2, EC2 Global View, and Billing and Cost Management. The main area is titled 'Applications (0)' with a 'Create application' button. A message says 'No applications' and 'Get started by creating an application.' At the bottom, there are links for 'View all services', 'CloudShell', and 'Feedback'.

Step 2:

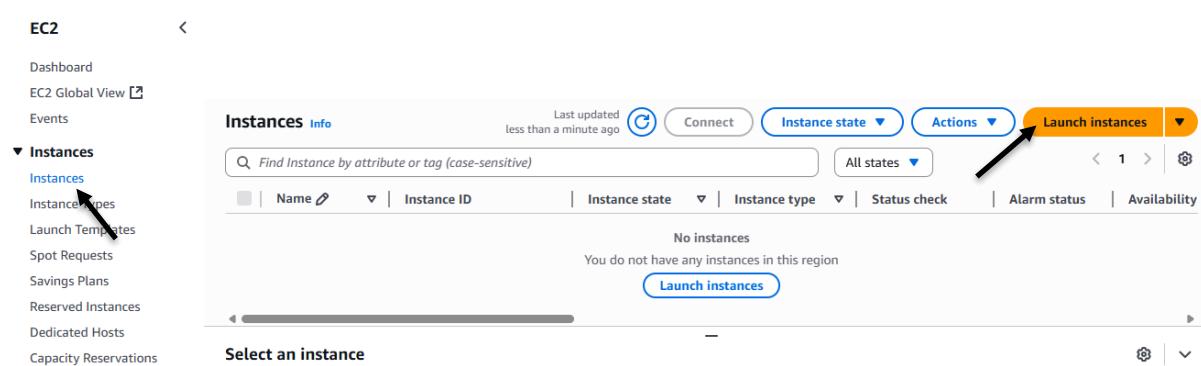
- Search for “EC2” and open it.
- Then select any region (e.g. Mumbai).

The screenshot shows the search results for 'EC2'. The top result is the 'EC2' service card, which includes a summary of 'Virtual Servers in the Cloud', 'Top features' like Dashboard, Launch templates, Instances, Spot Instance requests, and Savings plans, and a link to 'EC2 Image Builder'. Below it are cards for 'EC2 Image Builder' and 'EC2 Global View'. A sidebar on the left lists recent services: EC2, EC2 Global View, and Billing. A message at the bottom asks 'Were these results helpful?' with 'Yes' and 'No' buttons.

The screenshot shows the EC2 service page under the 'Compute' section. It features a large heading 'Amazon Elastic Compute Cloud (EC2)' and a sub-headline 'Create, manage, and monitor virtual servers in the cloud.'. Below that is a paragraph about the service's offerings. To the right, a sidebar lists regions grouped by continent: United States (N. Virginia, us-east-1; Ohio, us-east-2; N. California, us-west-1; Oregon, us-west-2), Asia Pacific (Mumbai, ap-south-1; Osaka, ap-northeast-3; Seoul, ap-northeast-2; Singapore, ap-southeast-1; Sydney, ap-southeast-2; Tokyo, ap-northeast-1), Canada (Central, ca-central-1), and Europe (London, eu-west-1). At the bottom of the sidebar are 'Manage Regions' and 'Manage Local Zones' buttons.

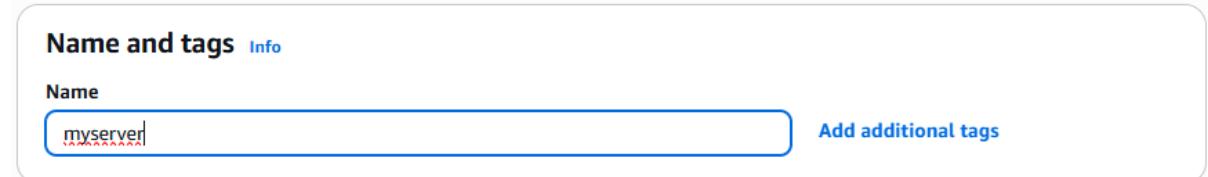
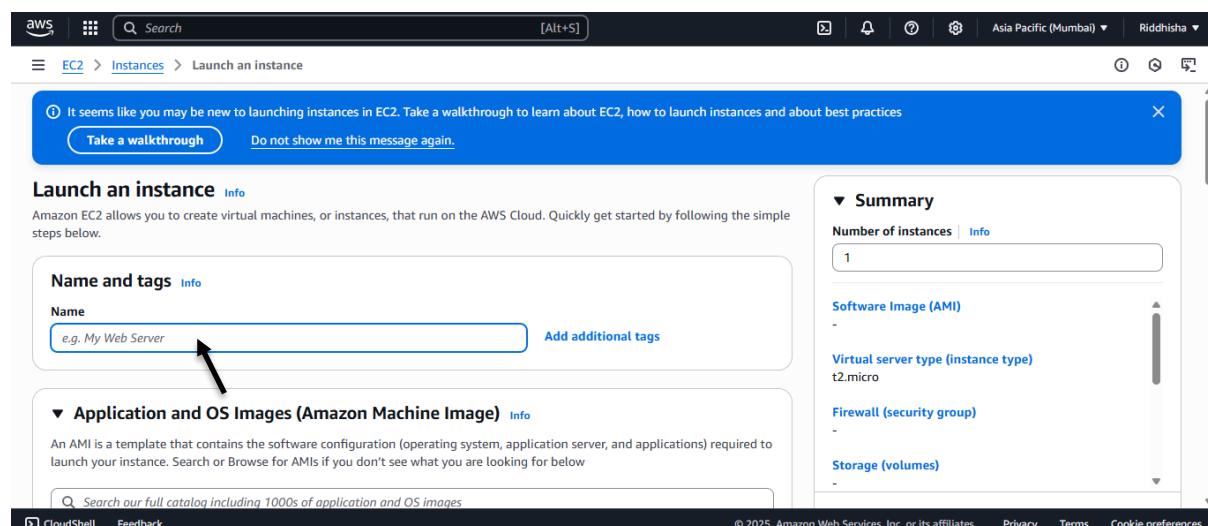
Step 3:

- Click on “Instances”.
- Click on “Launch instances”.



Step 4:

- Give a name to the server.



Step 5:

- In the “Application and OS Images (AMI)”, choose “Amazon Linux”.

The screenshot shows the AWS EC2 'Launch an instance' wizard. In the 'Application and OS Images (Amazon Machine Image)' section, the 'Amazon Linux' AMI is selected. Below it, the 't2.micro' instance type is chosen from the dropdown. On the right, the 'Summary' pane shows one instance being launched with the selected AMI and instance type.

Step 6:

- Select “t2.micro (free tier eligible)”.
- Select the instance type according to the need of CPU and RAM.

▼ Instance type [Info](#) | [Get advice](#)

Instance type

t2.micro
 Family: t2 1 vCPU 1 GiB Memory Current generation: true
 On-Demand Linux base pricing: 0.0124 USD per Hour
 On-Demand Windows base pricing: 0.017 USD per Hour
 On-Demand RHEL base pricing: 0.0268 USD per Hour
 On-Demand Ubuntu Pro base pricing: 0.0142 USD per Hour
 On-Demand SUSE base pricing: 0.0124 USD per Hour

Free tier eligible

All generations

[Compare instance types](#)

[Additional costs apply for AMIs with pre-installed software](#)

Step 7:

- In the “Key pair (login)”, either create a new key pair or use old key pairs.
- For creating a new key pair, click on “Create new key pair”.
- Enter the name of key pair (e.g. “key mumbai”).
- Choose key pair type as “RSA”.
- Choose private key file format as “.pem” (For use with OpenSSH).
- Click on “Create key pair”.

▼ Key pair (login) [Info](#)

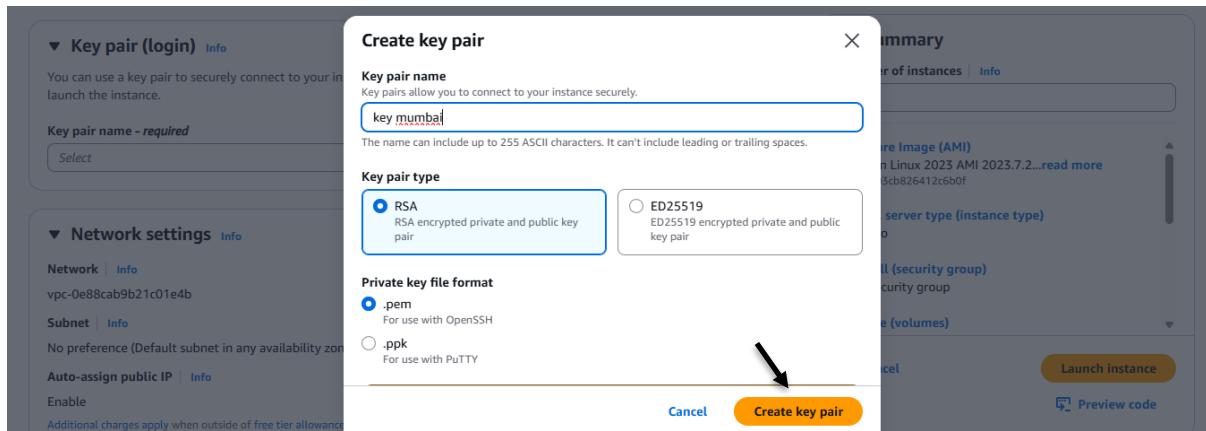
You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

Select

Create new key pair





Recent download history

key mumbai.pem
1,674 B • 9 minutes ago

Step 8:

- In “Network settings”, allow “HTTPS traffic from the internet” and “HTTP traffic from the internet”.

▼ Network settings

Network | Info
vpc-0e88cab9b21c01e4b

Subnet | Info
No preference (Default subnet in any availability zone)

Allow SSH traffic from
Helps you connect to your instance

Allow HTTPS traffic from the internet
To set up an endpoint, for example when creating a web server

Allow HTTP traffic from the internet
To set up an endpoint, for example when creating a web server

Anywhere
0.0.0.0/0

Step 9:

- In “Configure storage”, enter the root volume storage you want for your instance and select any type of GiB as per your preference.
- In “Summary”, enter the number of instances you want to launch (e.g. “1”),
- Then finally click on “Launch instance”.

Configure storage [Info](#) [Advanced](#)

1x GiB Root volume, 3000 IOPS, Not encrypted

[Add new volume](#)

Click refresh to view b
The tags that you assign to this instance will be used by any Lambda functions or CloudWatch Metrics that you publish to this instance. You can also use Lambda triggers and CloudWatch Metrics filters to trigger Lambda functions based on metrics from this instance.

0 x File systems

Advanced data [Edit](#)

▼ Summary

Number of instances [Info](#)

1

Software Image (AMI)

Amazon Linux 2023.7.2... [read more](#)
ami-0d03cb826412c6b0f

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

[Cancel](#)

Launch instance

- You can see that the instance you have created is running.

Instances (1/1) [Info](#) Last updated less than a minute ago [Connect](#) [Instance state](#) [Actions](#) [Launch instances](#)

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
<input checked="" type="checkbox"/> myserver	i-09d7fa210584eaedc	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1b

i-09d7fa210584eaedc (myserver)

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

Instance summary [Info](#)

Instance ID [i-09d7fa210584eaedc](#)

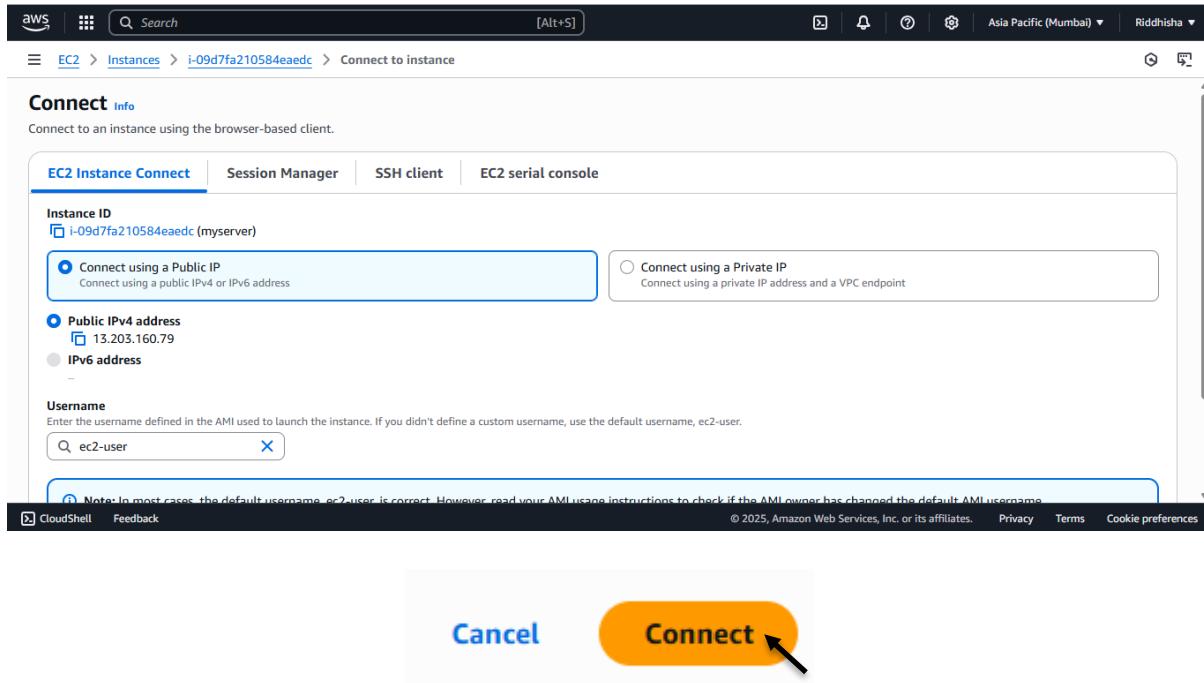
Public IPv4 address [13.203.160.79](#) | [open address](#)

Private IPv4 addresses [172.31.0.97](#)

Establishing the connection:

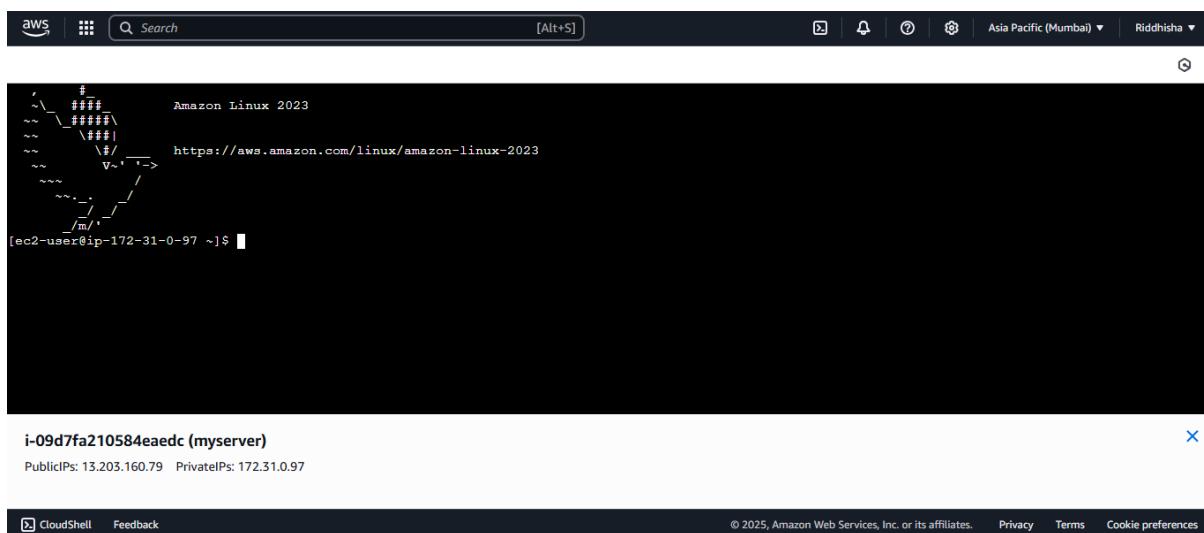
Step 1:

- Select the instance and click on “Connect”.
- In “EC2 Instance Connect”, select “Connect using a Public IP”.
- Scroll down and click on “Connect”.



Step 2:

- Connection is established with Amazon Linux.



- Convert the local user to root user by running the command “sudo su”.
- After that, for updating the server, run “yum update -y”.

- Then install httpd package by running “yum install httpd -y”.

```

      #
      #####
      ~\_\_###\_          Amazon Linux 2023
      ~~\_\#\#\#\|_
      ~~\#\#\#|
      ~~\#\#/\_--> https://aws.amazon.com/linux/amazon-linux-2023
      ~~V~' '-->
      ~~~\_/
      ~~\_.\_/
      _/ \_/
      _/m/'

[ec2-user@ip-172-31-0-97 ~]$ sudo su ←
[root@ip-172-31-0-97 ec2-user]# yum update -y ←
Amazon Linux 2023 Kernel Livepatch repository
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-0-97 ec2-user]# yum install httpd -y ←

```

- After the installation is complete, check the status of the server by running “systemctl status httpd” and you can see that the server is “inactive (dead)”.
- Start the server by running “systemctl start httpd”.
- Now run command “cd /” to change the directory to “C” drive.
- Run “ls” to show the list of files in “C” drive.
- Run “cd var” to change the directory to “var”.
- Run “ls” to show the list of files in “var”.
- Run “cd www” to change the directory to “www”.
- Run “ls” to show the list of files in “www”.
- Run “cd html” to change the directory to “html”.

OR

- You can also run all the above commands in one line i.e. “cd /var/www/html”.

```

[root@ip-172-31-0-97 ec2-user]# systemctl status httpd ←
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; preset: disabled)
   Active: inactive (dead)
     Docs: man:httpd.service(8)
[root@ip-172-31-0-97 ec2-user]# systemctl start httpd ←
[root@ip-172-31-0-97 ec2-user]# cd / ←
[root@ip-172-31-0-97 /]# ls ←
bin boot dev etc home lib lib64 local media mnt opt proc root run sbin srv sys tmp usr var
[root@ip-172-31-0-97 /]# cd var ←
[root@ip-172-31-0-97 var]# ls ←
account adm cache db empty ftp games kerberos lib local lock log mail nis opt preserve run spool tmp www yp
[root@ip-172-31-0-97 var]# cd www ←
[root@ip-172-31-0-97 www]# ls ←
cgi-bin html
[root@ip-172-31-0-97 www]# cd html ←
[root@ip-172-31-0-97 html]# 

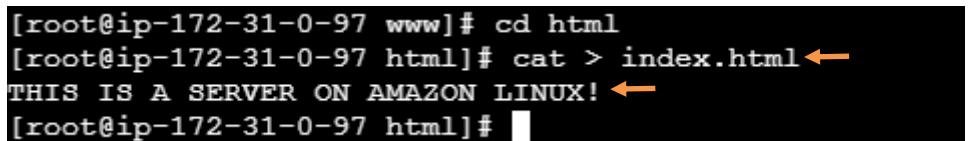
```

- Run command “cat > index.html”.
- Now write anything under this and it will show on the browser (e.g. “THIS IS A SERVER ON AMAZON LINUX”).
- Press “Enter” key and then select “Ctrl+D” to save changes.

```
[root@ip-172-31-0-97 www]# cd html
[root@ip-172-31-0-97 html]# cat > index.html
THIS IS A SERVER ON AMAZON LINUX!
[root@ip-172-31-0-97 html]#
```

Step 3:

- Go to “Instances” on the previous tab.
- Select the instance and copy the “Public IPv4 address” in “Details” section below.



The screenshot shows the AWS CloudWatch terminal interface. It displays a command-line session where the user has navigated to the 'html' directory and created a file named 'index.html' containing the text 'THIS IS A SERVER ON AMAZON LINUX!'. The terminal window includes a status bar at the bottom.

AWS CloudWatch Terminal Screenshot:

```
[root@ip-172-31-0-97 www]# cd html
[root@ip-172-31-0-97 html]# cat > index.html
THIS IS A SERVER ON AMAZON LINUX!
[root@ip-172-31-0-97 html]#
```

AWS Instances Overview:

The screenshot shows the AWS Instances page with one instance listed:

Name	Instance ID	State	Type	Status Checks	Alarm Status	Region
myserver	i-09d7fa210584eaedc	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1

Instance Details View:

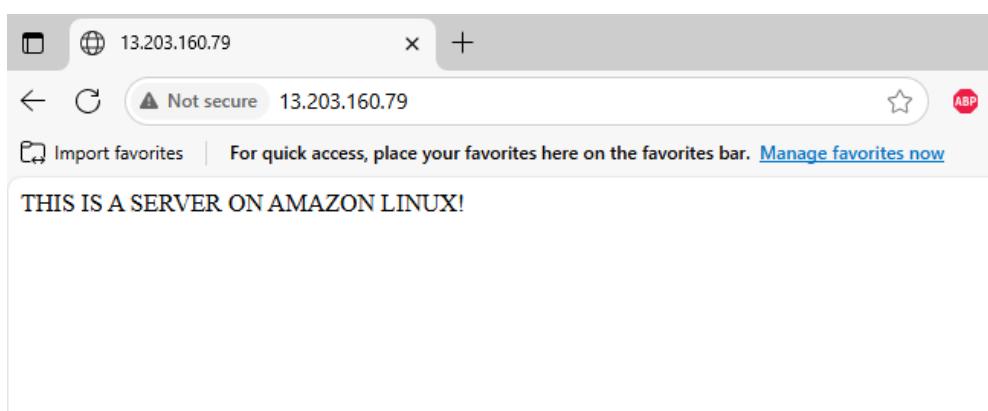
The screenshot shows the details for the selected instance (myserver). The Public IPv4 address is highlighted with a red arrow pointing to the 'Copy public IPv4 address to clipboard' button.

Public IPv4 address: 13.203.160.79 | [open address](#)

Private IPv4 addresses: 172.31.0.97

Step 4:

- Paste the IP address on new tab and search.
- The Amazon Linux server is hosted.



Step 5:

- Now go to “Instances” and select the server.
- Click on “Instance state”.
- Now terminate the instance by clicking on “Terminate (delete) instance”.
- Click on “Terminate (delete)”.

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with 'EC2' selected. The main area displays 'Instances (1/1) Info' with one instance listed: 'myserver' (Instance ID: i-09d7fa210584eaedc, State: Running, Type: t2.micro). A context menu is open over this instance, with the 'Terminate (delete) instance' option highlighted by a black arrow.

Terminate (delete) instance

⚠️ On an EBS-backed instance, the default action is for the root EBS volume to be deleted when the instance is terminated. Storage on any local drives will be lost.

Are you sure you want to terminate these instances?

Instance ID | Termination protection

i-09d7fa210584eaedc (myserver) Disabled

To confirm that you want to delete the instances, choose the terminate button below. Instances with termination protection enabled will not be terminated. Terminating the instance cannot be undone.

[Cancel](#)

[Terminate \(delete\)](#)

- Your server is now terminated.

The screenshot shows the AWS EC2 Instances page again. The instance 'myserver' is now listed with a status of 'Terminated'. A black arrow points to the 'Terminated' status indicator next to the instance ID.

Setting Up a Windows Server on AWS EC2

Introduction:

Amazon EC2 (Elastic Compute Cloud) is a service by AWS that lets you use virtual computers, called instances, on the internet (cloud). If you choose a Microsoft Windows operating system, you can run Windows servers from anywhere—just like using a regular computer.

EC2 lets you:

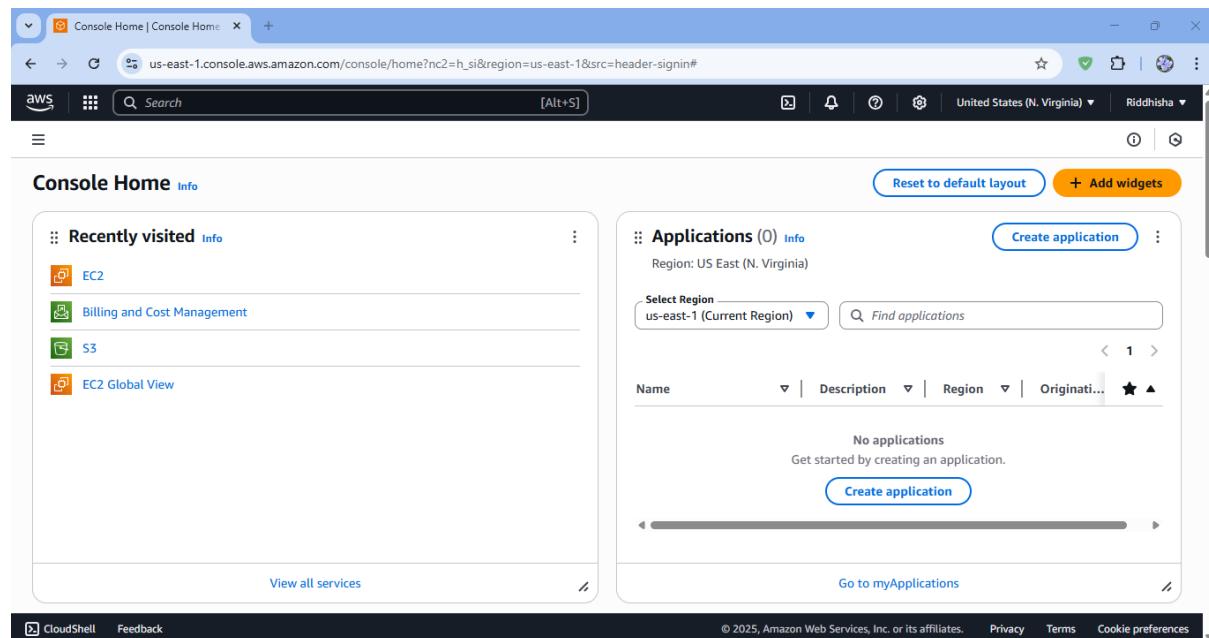
- Pick different types of virtual machines based on your speed needs and budget.
- Use RDP (Remote Desktop Protocol) to open your Windows EC2 like it's on your own desktop.
- Easily host websites, run apps, or do software testing and development.

It's secure, scalable, and cost-effective, which means you can increase or decrease the power as needed and only pay for what you use.

Step by Step Instructions:

Step 1:

- Search “AWS Management Console” on Google.
- Click on “AWS Console Sign In | Amazon Web Services” and the home screen of AWS website will open.



Step 2:

- Search for “EC2” and open it.
- Then select any region (e.g. Mumbai).

The screenshot shows the AWS EC2 home page. The left sidebar has a navigation menu with "Instances" selected. The main content area features the title "Amazon Elastic Compute Cloud (EC2)" and the subtitle "Create, manage, and monitor virtual servers in the cloud." Below this is a section titled "Benefits and features" with the sub-section "EC2 offers ultimate scalability and control". On the right side, there is a large table listing AWS regions and their corresponding endpoint URLs. The "Asia Pacific" section is expanded, showing regions like Mumbai (ap-south-1), Osaka, Seoul, Singapore, Sydney, Tokyo, and others. At the bottom right of the main content area are links for "Manage Regions" and "Manage Local Zones".

Step 3:

- Click on “Instances”.
- Click on “Launch instances”.

The screenshot shows the AWS EC2 Instances page. The left sidebar has "Instances" selected. The main content area is titled "Instances Info" and includes a search bar, filters for "Name", "Instance ID", "Instance state", "Instance type", "Status check", "Alarm status", and "Availability", and a "Launch instances" button. A red arrow points to the "Launch instances" button. Another red arrow points to the "Instances" link in the sidebar. The status message "No instances" is displayed, indicating "You do not have any instances in this region".

Step 4:

- Give a name to the server.
- Write “myserver”.

Step 5:

- In the “Application and OS Images (AMI)”, choose “Windows”.

▼ Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Amazon Machine Image (AMI)

Microsoft Windows Server 2025 Base ami-036940a1a7418c22f (64-bit (x86)) Virtualization: hvm ENA enabled: true Root device type: ebs	Free tier eligible
---	--------------------

Step 6:

- Select “t3.small”.
- Select the instance type according to the need of CPU and RAM.

▼ Instance type [Info](#) | [Get advice](#)

Instance type

The screenshot shows the AWS Instance Type selection interface. A search bar at the top contains the letter 'Q'. Below it, a list of instance types is shown:

- t3.small** (selected):
 - Family: t3 2 vCPU 2 GiB Memory Current generation: true
 - On-Demand SUSE base pricing: 0.0534 USD per Hour
 - On-Demand RHEL base pricing: 0.0512 USD per Hour
 - On-Demand Ubuntu Pro base pricing: 0.0259 USD per Hour
 - On-Demand Windows base pricing: 0.0408 USD per Hour
 - On-Demand Linux base pricing: 0.0224 USD per Hour
- t3.medium**:
 - Family: t3 2 vCPU 4 GiB Memory Current generation: true
 - On-Demand SUSE base pricing: 0.0534 USD per Hour
 - On-Demand RHEL base pricing: 0.0512 USD per Hour
 - On-Demand Ubuntu Pro base pricing: 0.0259 USD per Hour
 - On-Demand Windows base pricing: 0.0408 USD per Hour
 - On-Demand Linux base pricing: 0.0224 USD per Hour

On the right side, there are buttons for "All generations" and "Compare instance types". A note says "selected key pair before you launch the instance." and "Create new key pair" with a link to "password to connect to your instance."

Step 7:

- In the “Key pair (login)”, either create a new key pair or use old key pairs.
- Here, we will use an old key pair named “key mumbai” as the region we have selected is Mumbai.
- Every region has its own key pairs as we cannot use a single key pair in every region.
- Every region can have as many key pairs as we want but they can be used in that particular region only.

▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - **required**

key mumbai

[Create new key pair](#)

For Windows instances, you use a key pair to decrypt the administrator password. You then use the decrypted password to connect to your instance.

Step 8:

- In “Network settings”, allow “HTTPS traffic from the internet” and “HTTP traffic from the internet”.

Network settings

Network: vpc-0e88cab9b21c01e4b

Subnet: No preference (Default subnet in any availability zone)

Auto-assign public IP: Enable

Firewall (security groups): A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group (selected) or **Select existing security group**

We'll create a new security group called 'launch-wizard-1' with the following rules:

- Allow RDP traffic from Anywhere 0.0.0.0/0
- Allow HTTPS traffic from the internet To set up an endpoint, for example when creating a web server
- Allow HTTP traffic from the internet To set up an endpoint, for example when creating a web server

Step 9:

- In “Configure storage”, enter the root volume storage you want for your instance and select any type of GiB as per your preference.
- In “Summary”, enter the number of instances you want to launch (e.g. “1”).
- Then finally click on “Launch instance”.

Summary

Number of instances: 1

Software Image (AMI): Microsoft Windows Server 2025 ...read more

Virtual server type (instance type): t3.small

Storage (volumes): 1 volume(s) - 30 GiB

Launch instance

- You can see that the instance you have created is running.

Instances (1/1)

Last updated less than a minute ago

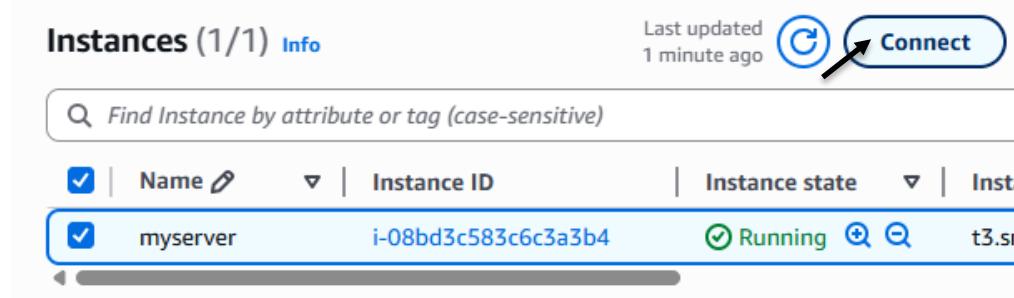
Actions: Connect, Instance state, Actions, Launch instances

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
myserver	i-08bd3c583c6c3a3b4	Running	t3.small	3/3 checks passed	View alarms +	ap-south-1

Establishing the connection:

Step 1:

- Select the instance and click on “Connect”.



Step 2:

- Go to “RDP client” and click on “Download remote desktop file”.
- The RDP file of the instance will be downloaded.
- In “Connection Type”, select “Connect using RDP client”.

aws Search [Alt+S] EC2 > Instances > i-08bd3c583c6c3a3b4 > Connect to instance

Connect Info
Connect to an instance using the browser-based client.

RDP client Session Manager EC2 serial console

Record RDP connections
You can now record RDP connections using AWS Systems Manager just-in-time node access. [Learn more](#) Try for free X

Instance ID
i-08bd3c583c6c3a3b4 (myserver)

Connection Type
 Connect using RDP client
Download a file to use with your RDP client and retrieve your password.

Connect using Fleet Manager
To connect to the instance using Fleet Manager Remote Desktop, the SSM Agent must be installed and running on the instance. For more information, see [Working with SSM Agent](#).

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 username and password:

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- Click on “Get password”.

Password **Get password**

- Click on “Upload private key file”.
- Choose the same key file of .pem extension which is used during the launch of instance.
- Click on “open”.

aws | Search [Alt+S]

EC2 > Instances > i-08bd3c583c6c3a3b4 > Get Windows password

Get Windows password Info

Use your private key to retrieve and decrypt the initial Windows administrator password for this instance.

Instance ID
i-08bd3c583c6c3a3b4 (myserver)

Key pair associated with this instance
key mumbai

Private key
Either upload your private key file or copy and paste its contents into the field below.

Upload private key file

Private key contents - optional

Private key contents

Open

Downloads

Name Date modified Type

key mumbai.pem 11-07-2025 00:31 PEM File

Organize New folder

Documents Music Videos Pictures Docs Screenshots

Yesterday

Earlier this week

Last week

File name: key mumbai.pem PEM File Open Cancel

Private key contents - optional

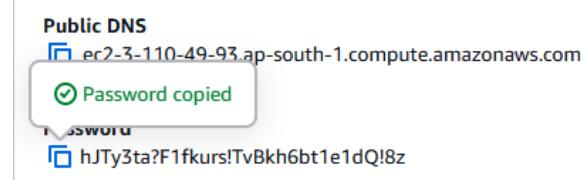
- Click on “Decrypt password”.
- Now copy the password that is generated.

Upload private key file
key mumbai.pem 1.674KB

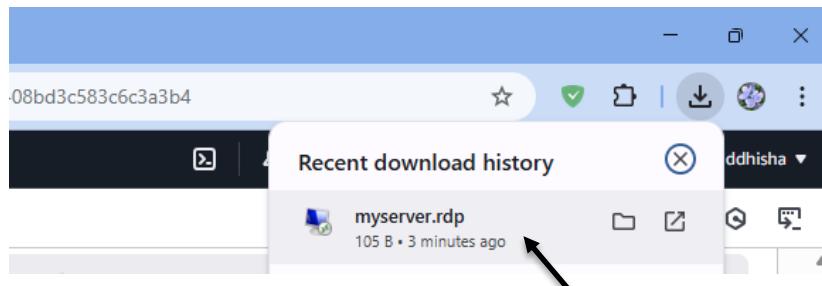
Private key contents - optional

```
-----BEGIN RSA PRIVATE KEY-----
MIIEowIBAAKCAQE4eW7bu0ZC6hhmeBkaP5G3kVFDvzFth6UQQvSi/EQ90lRKhM
WEWLmMsx01tgUWej2HArfrvc2J5iaZhaMuIuV-v+j7UDxnGdAUJMXYenGg0R10rFl
zg7QnG6CwV0Ykp/mgi8eNnQAL7vSPk9IN4K9QwX55xNvekeVa/cpJH10KqAuC
RYEaqy/DNxYs9+3f0sB4zDHT7JxUryzbafwsZG075S2AaQPrn6PeI1XJPHGeM
pL52r+SuDlqGw0L9rTMT1EkbxXn5cyz2REie53/lAgp8Cx5WfWTBspNMq1Y
L2pZer151NKPxQ5CY390V5tumYFOBKHyhpZwiDQAQAbelBAANonReybY9uleyV
506eT714+CLSw7UM5xXgNWOGOshQjhphTC00152Uk3Dgfhg/uWgWkHwFBJLnLLV/b
-----END RSA PRIVATE KEY-----
```

Cancel Decrypt password

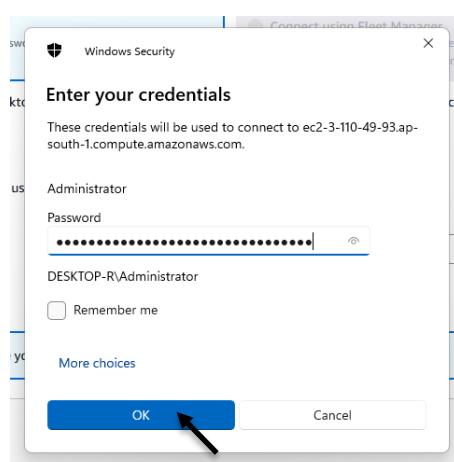
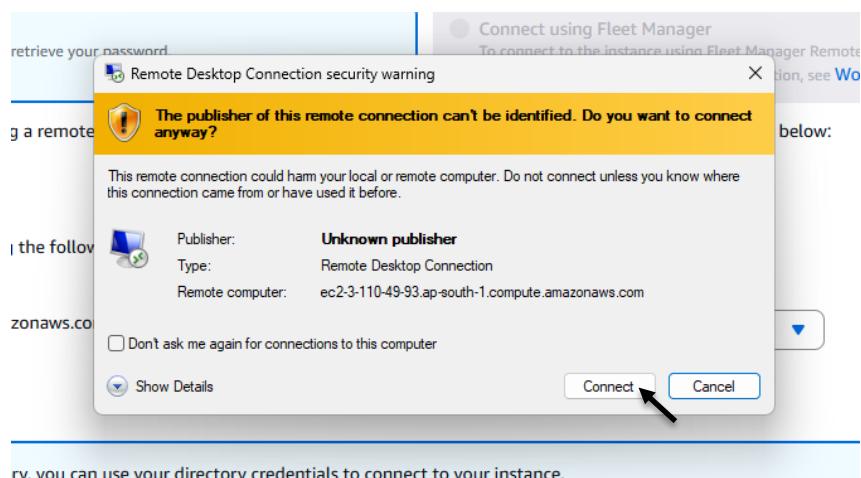


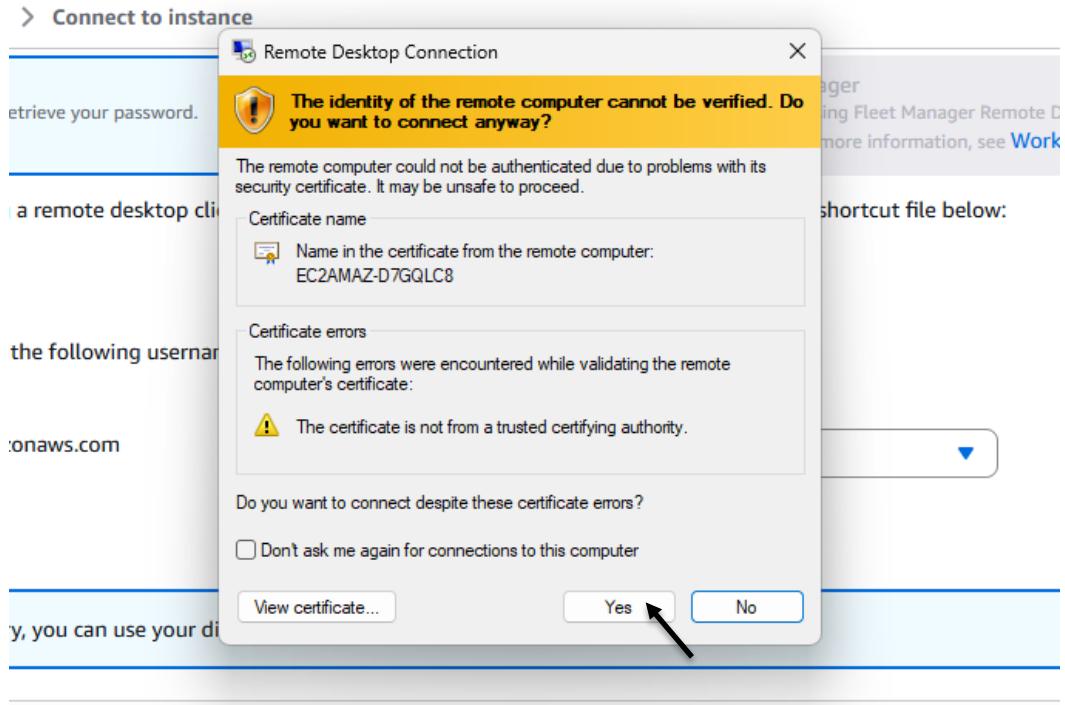
- Now open the RDP file that you have downloaded earlier.



Step 3:

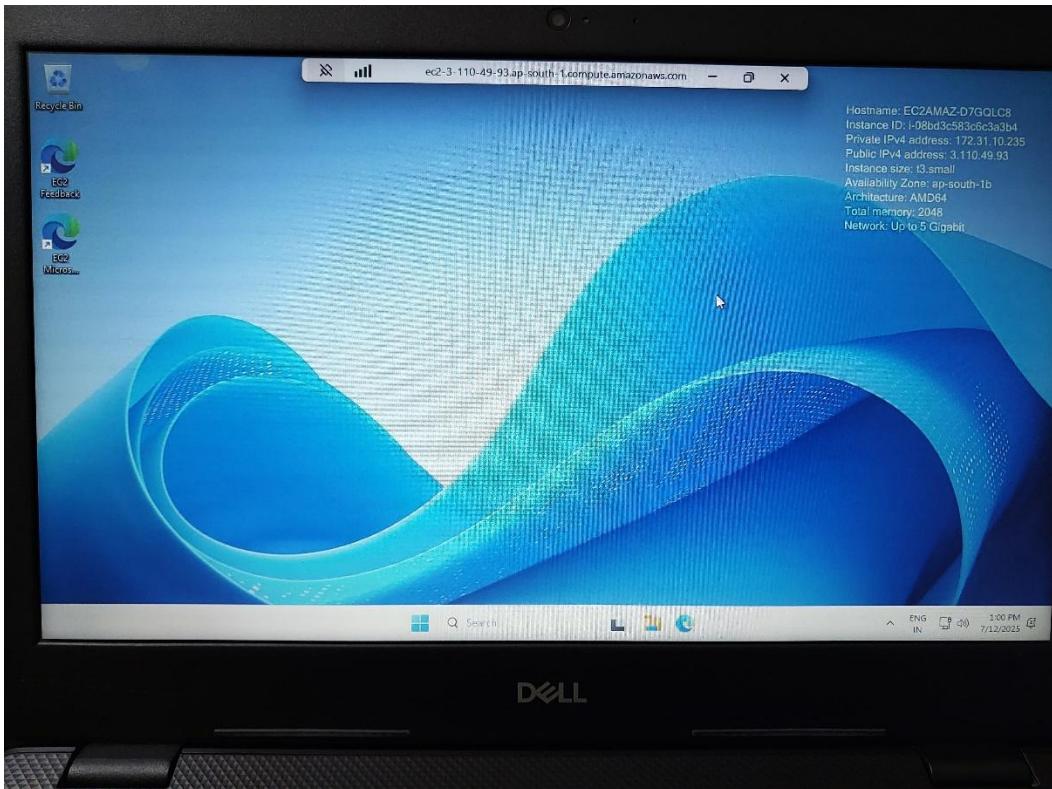
- Click on "Connect".
- Enter the copied password and click on "OK".
- After that click on "Yes".
- Wait for few seconds.



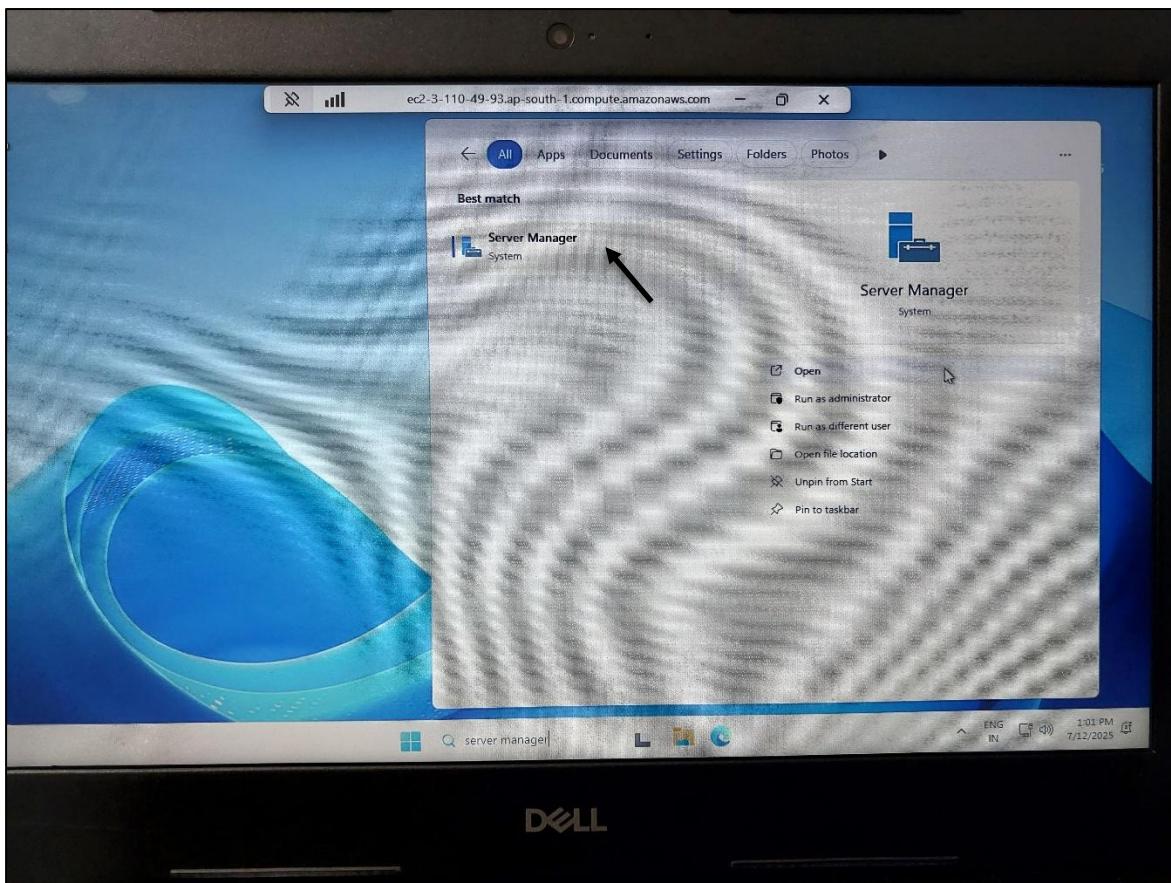


Step 4:

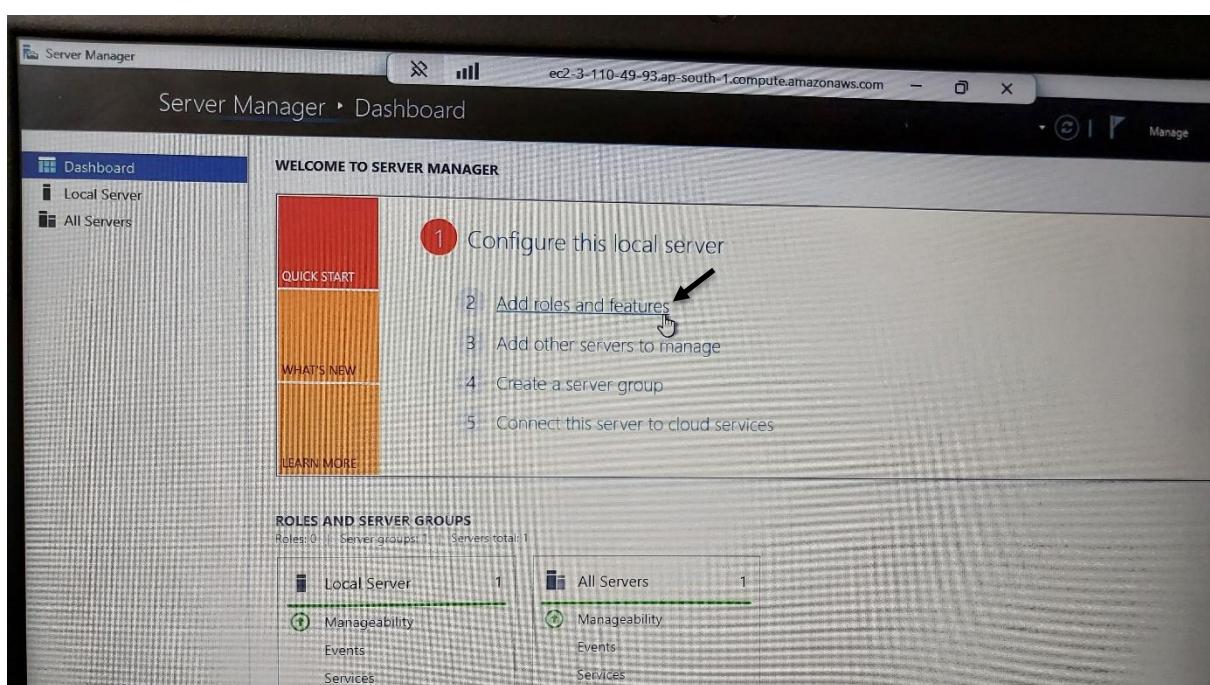
- A virtual Windows server will open.

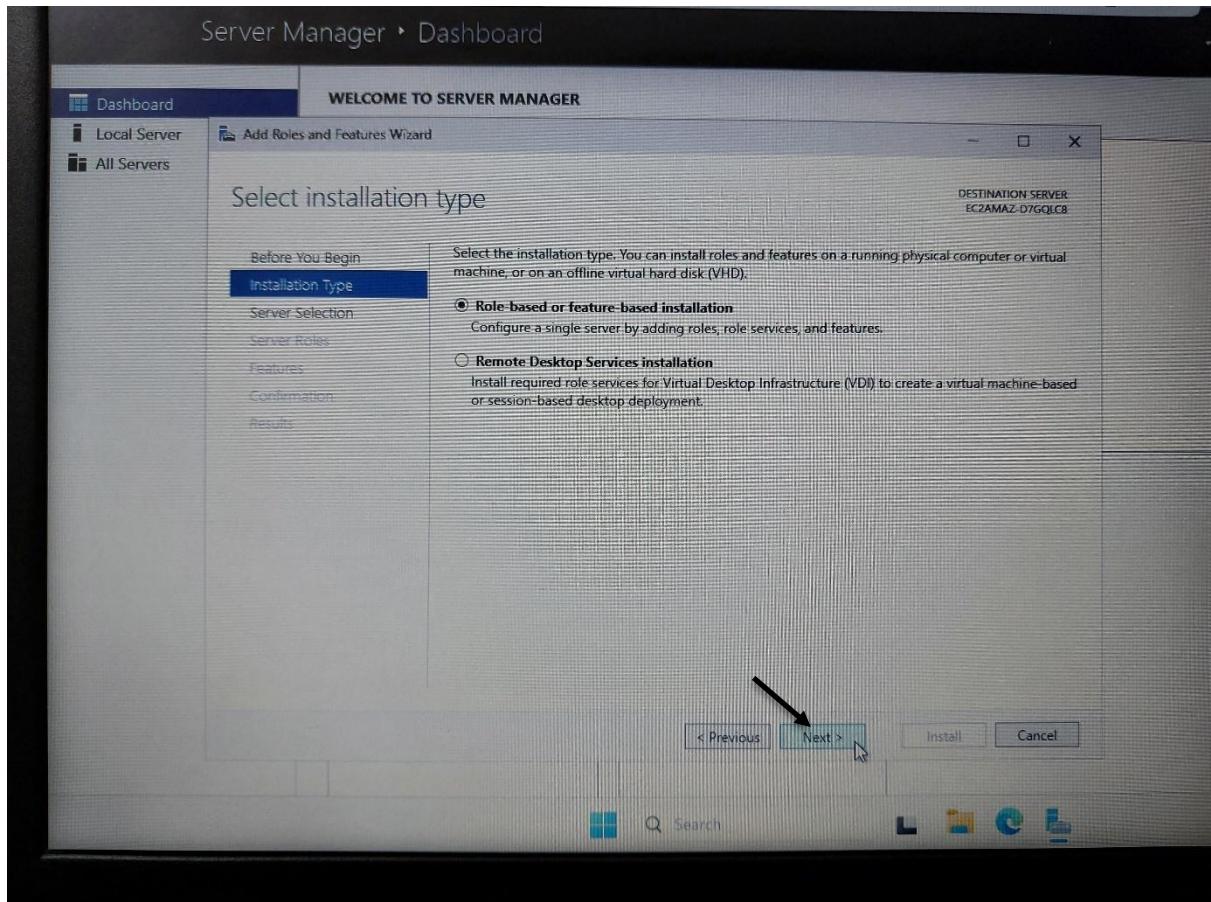
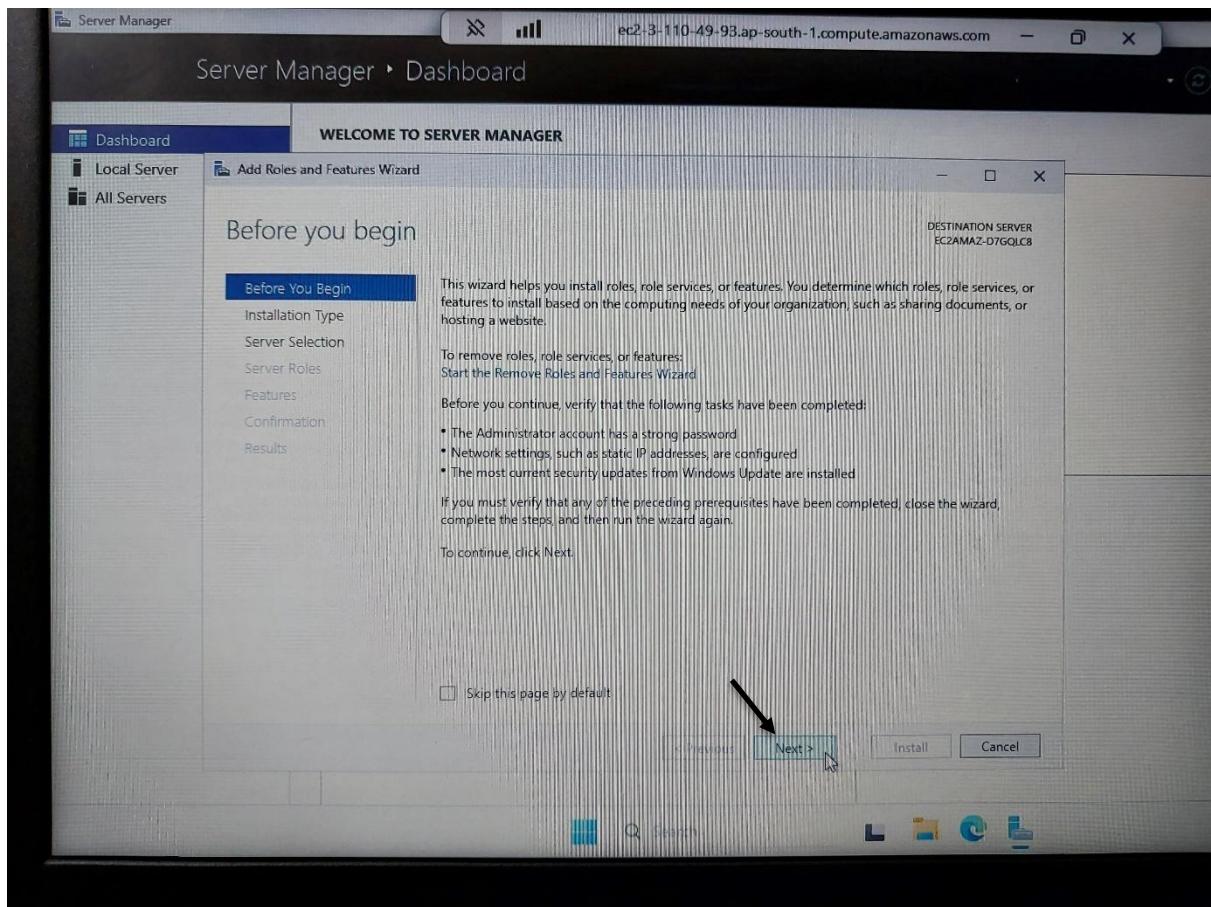


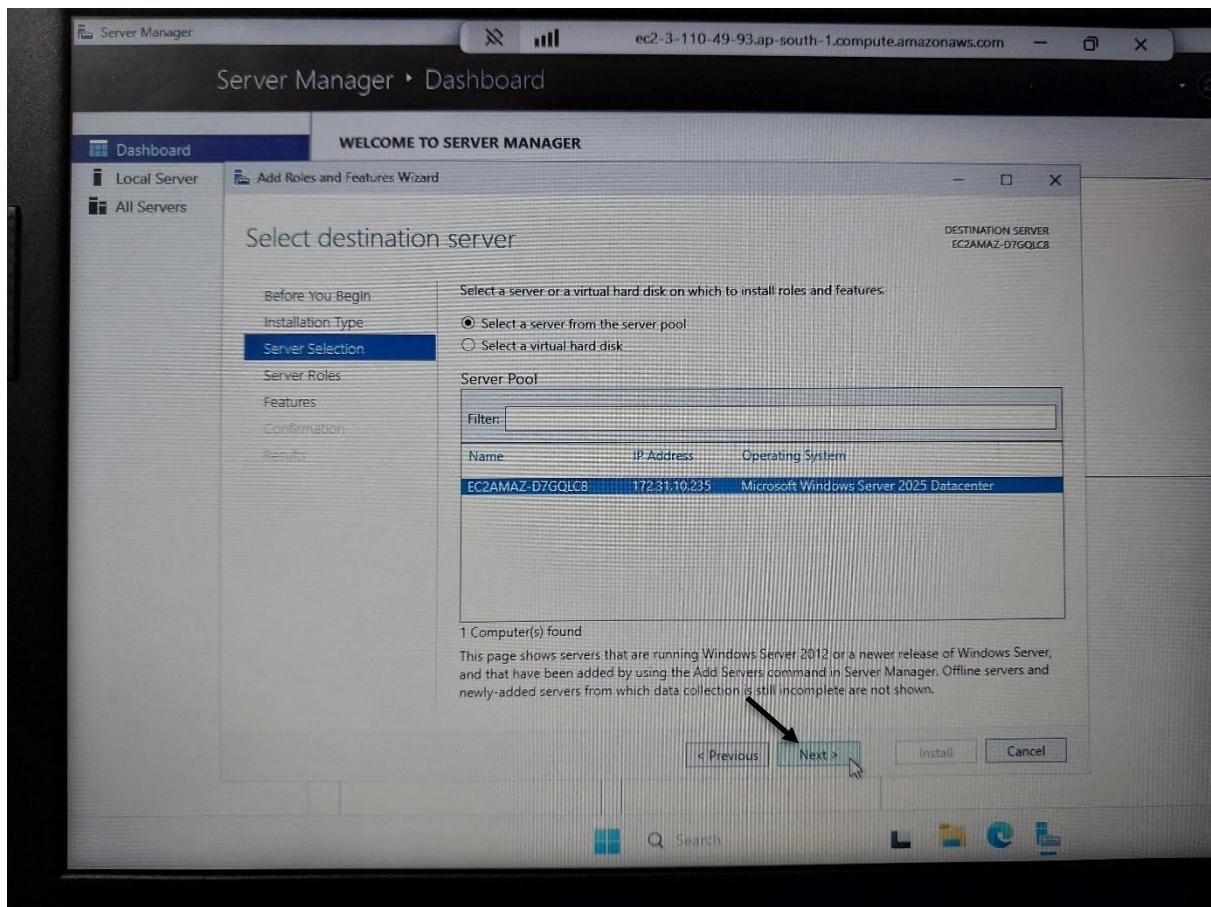
- Click on “Start” button.
- Search “Server Manager” and open it.



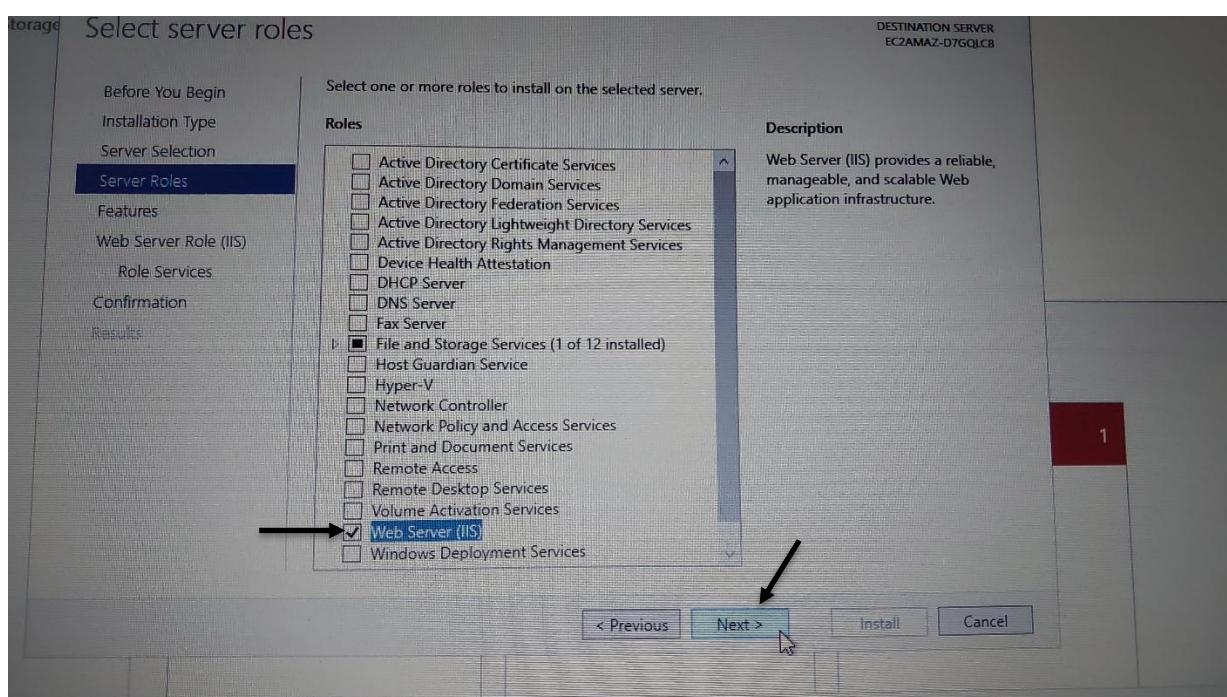
- Wait for few seconds.
- Now click on “Add roles and features”.
- In “Before You Begin”, click on “Next”.
- In “Installation Type”, click on “Next”.
- In “Server Selection”, click on “Next”.

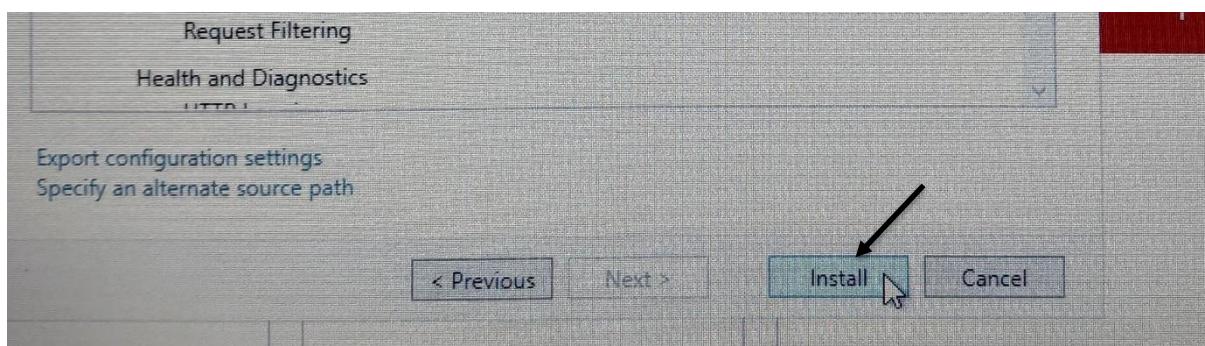
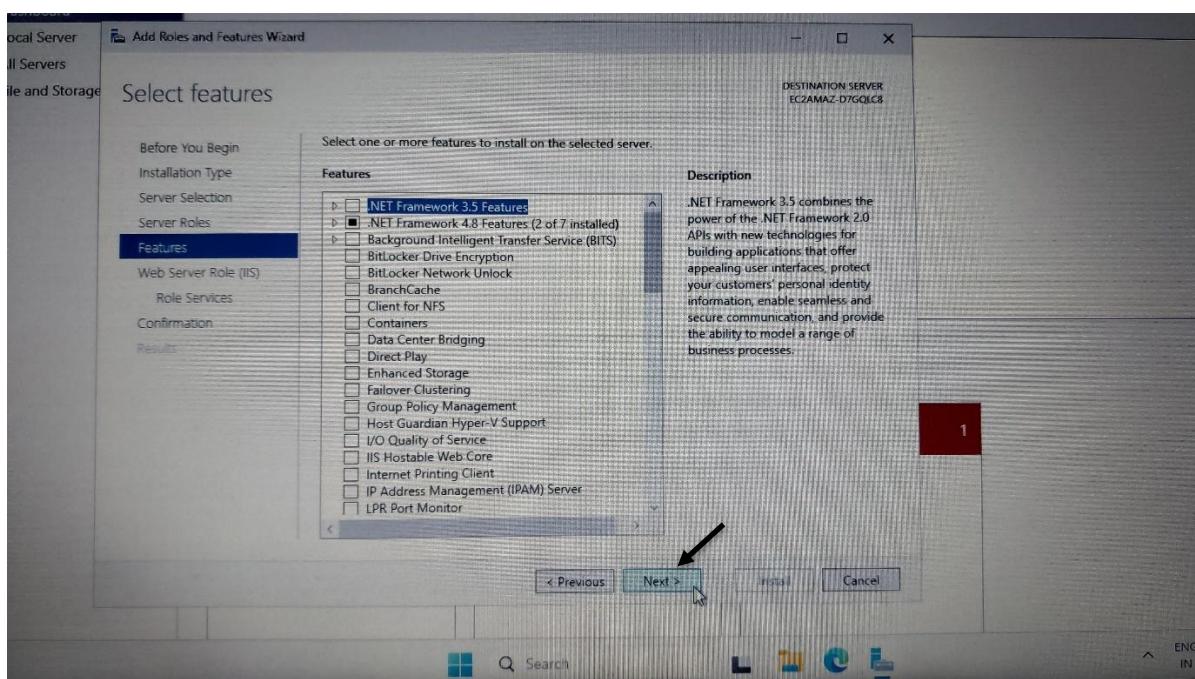
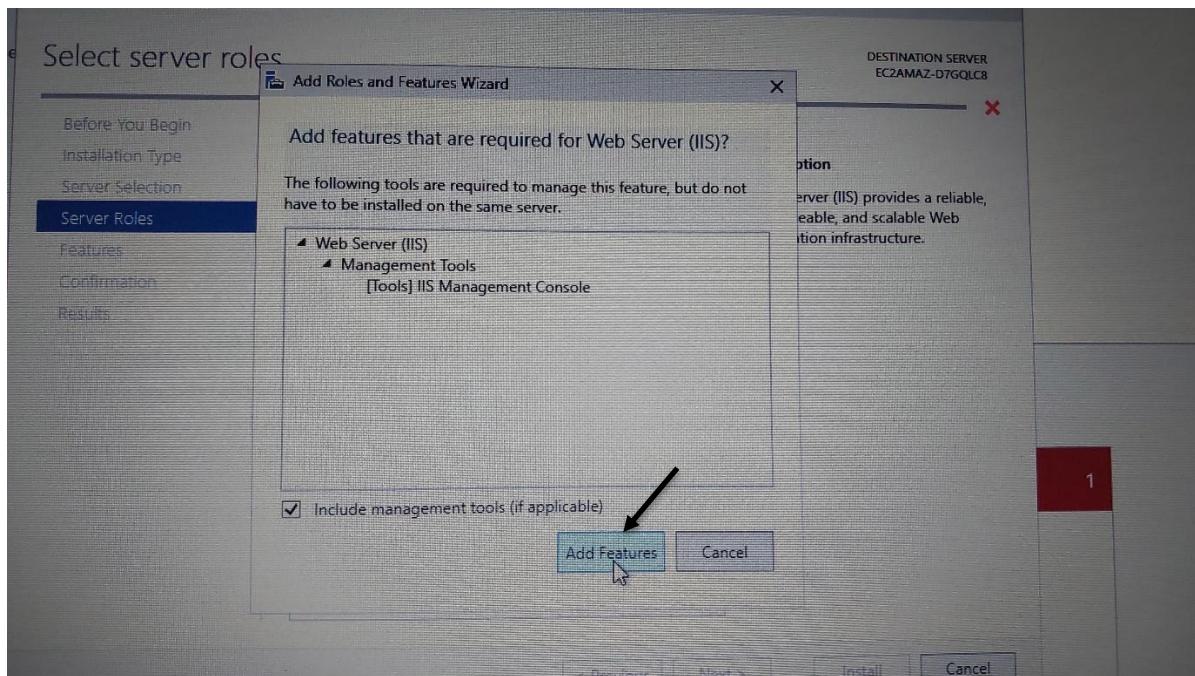




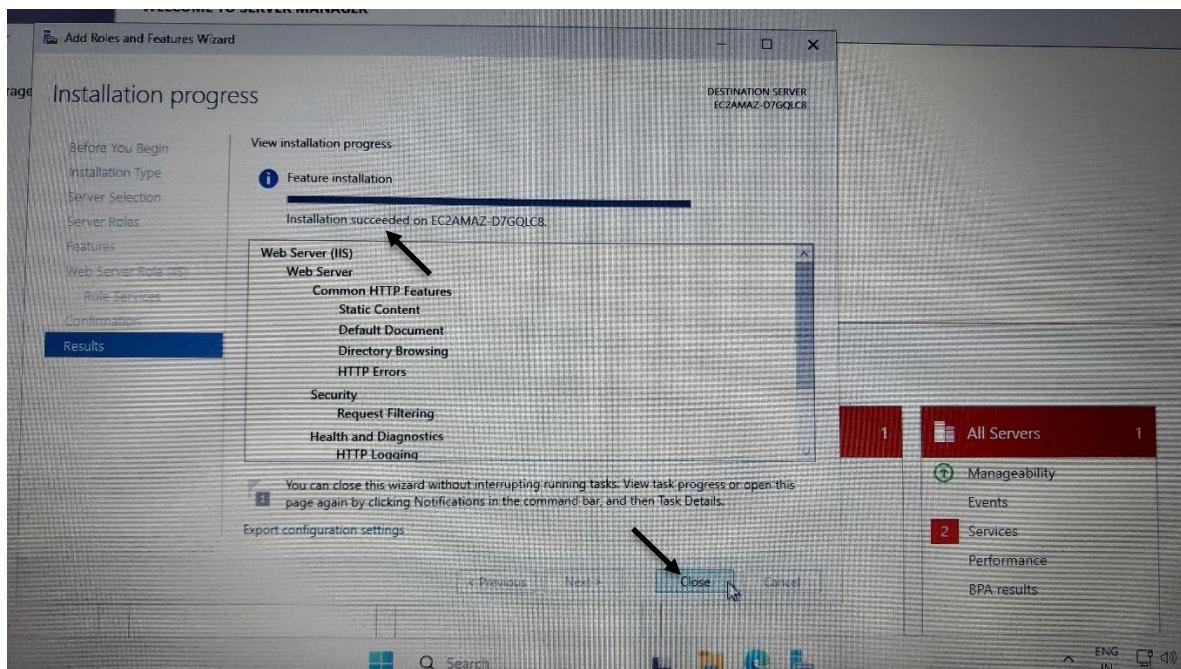


- In “Server Roles”, select “Web Server(IIS)” and click on “Next”.
- After that click on “Add Features” and then click on “Next” till the last.
- Finally, click on “Install”.

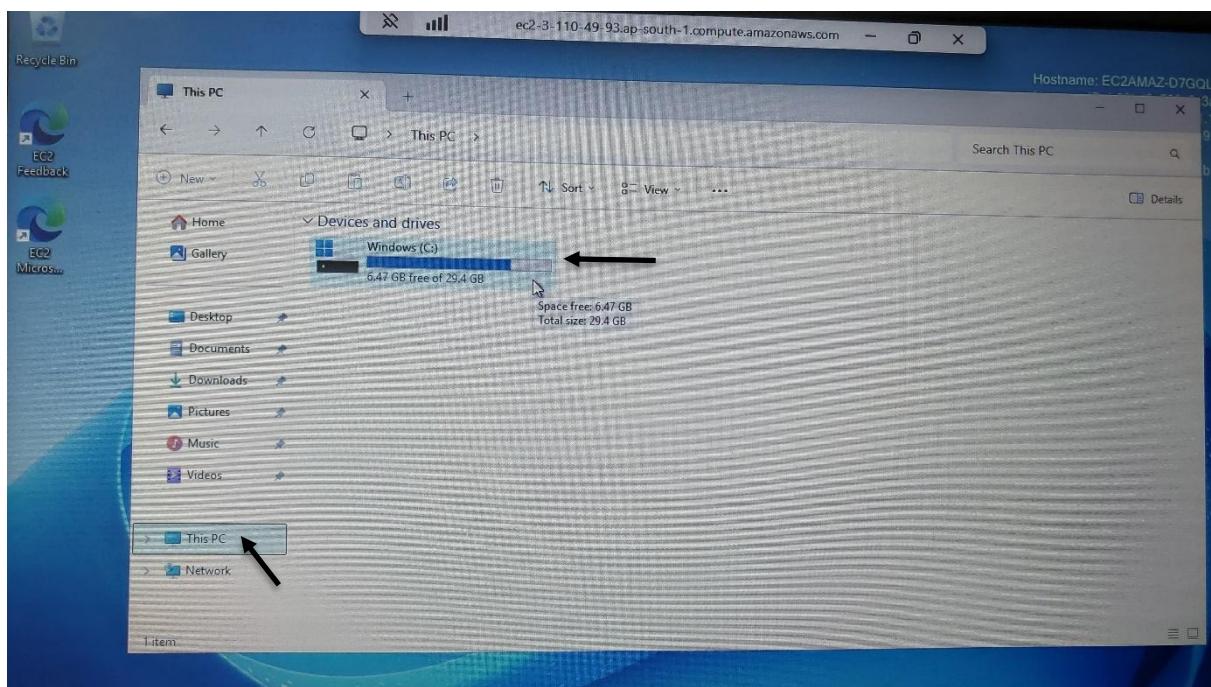




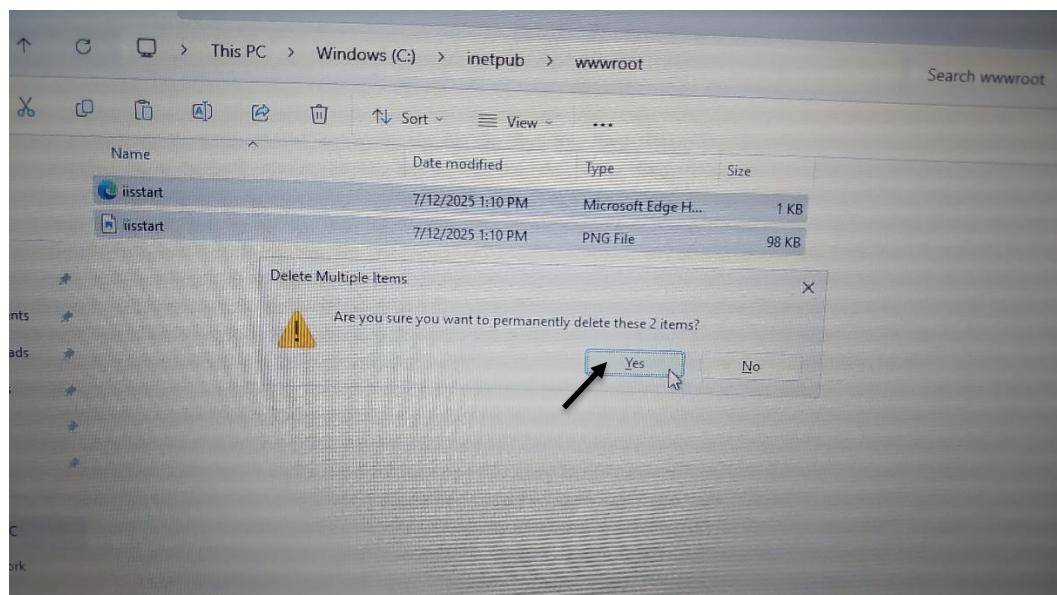
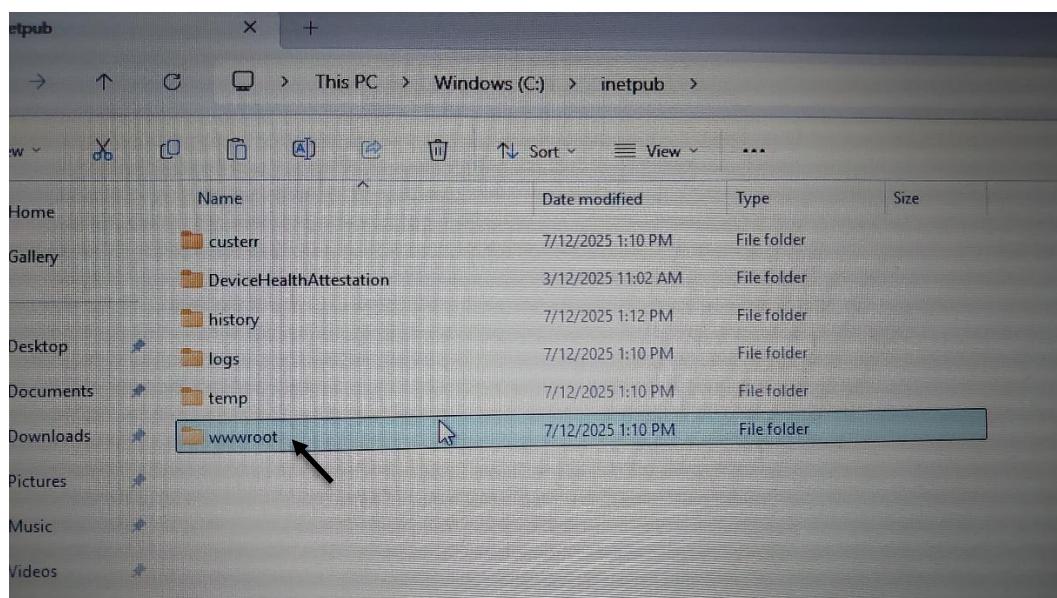
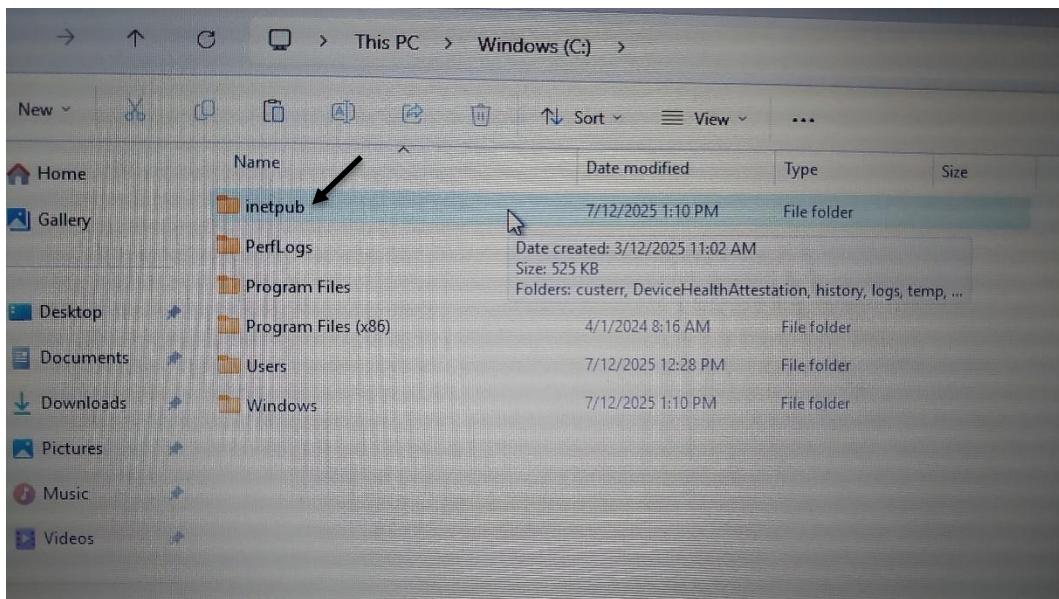
- Now the web server is getting installed.



- After the installation is completed, close the window.
- Go back to the home screen of virtual server.
- Open “File Explorer”.
- Open “This PC” and go to “C” drive.

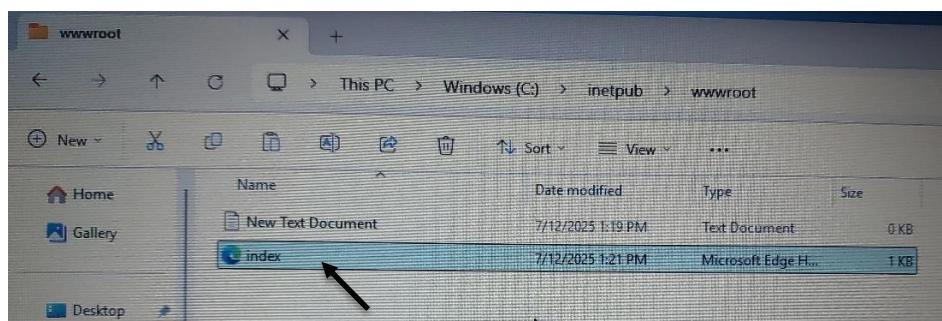
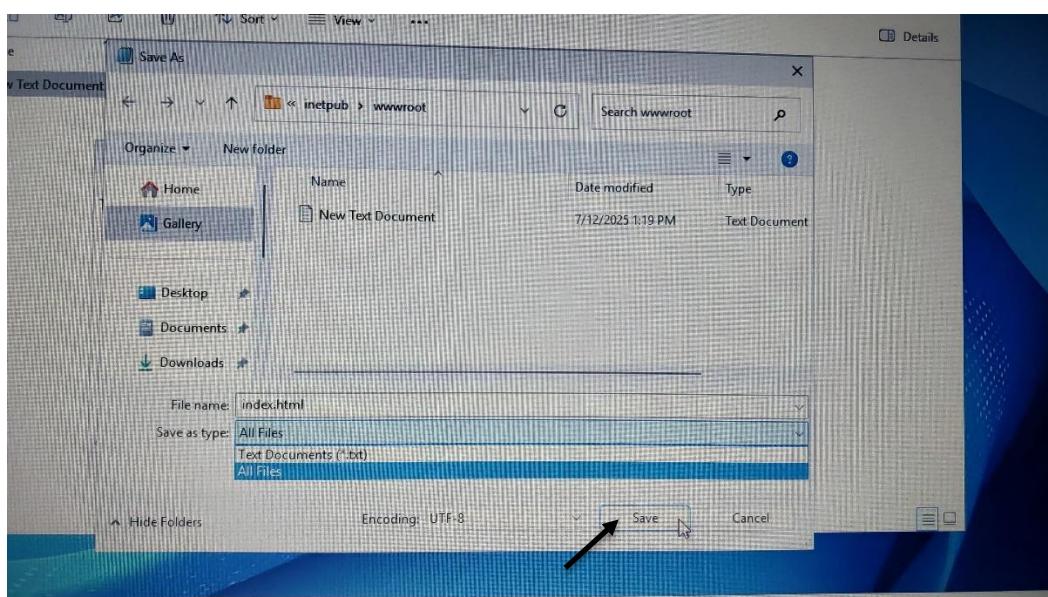
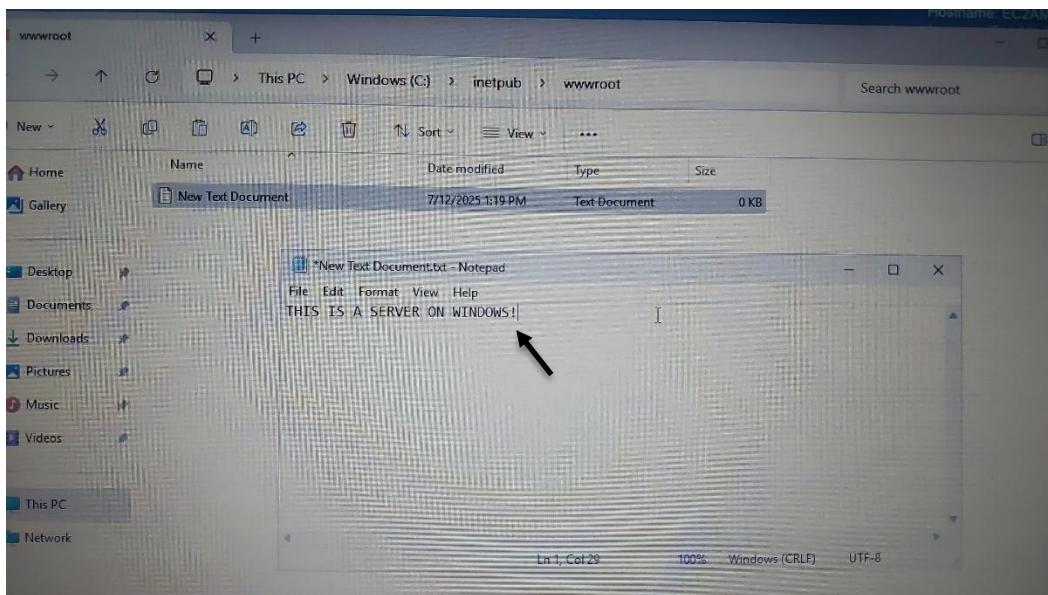


- Click on “inetpub”, then go to “wwwroot”.
- Select all the files that are by default present in the folder.
- “Ctrl + A” and then “Shift + Delete”.
- All the files will be permanently deleted.



Step 5:

- Create a new text document and write something in it (e.g. "THIS IS A SERVER ON WINDOWS!").
- Save the file as "index.html".
- Then minimize the virtual server.



Step 6:

- Go to “Instances” on the previous tab.
- Select the instance and copy the “Public IPv4 address” in “Details” section below.

The screenshot shows the AWS Instances page. At the top, it says "Instances (1/1)" and "Info". To the right are buttons for "Last updated 2 minutes ago", "Connect", and "Instances". Below this is a search bar with placeholder text "Find Instance by attribute or tag (case-sensitive)". Under the search bar are filters: "Name" (with a dropdown arrow), "Instance ID", "Instance state", and "Instance type". A row shows the selected instance: "myserver" (checkbox checked), "i-08bd3c583c6c3a3b4" (Instance ID), "Running" (status with a green checkmark), and "t3.small" (Instance type). A horizontal scrollbar is visible below the row.

i-08bd3c583c6c3a3b4 (myserver)

The screenshot shows the "Details" tab of the instance configuration. It includes tabs for "Status and alarms", "Monitoring", "Security", and "Networking". Under "Instance summary", there is an "Instance ID" field containing "i-08bd3c583c6c3a3b4" and an "IPv6 address" field with a minus sign. On the right, a vertical sidebar displays "Public IPv4 address" as "3.110.49.93" with a link to "open address". There is also a button to "Copy public IPv4 address to clipboard" and a status indicator showing "Running".

Step 7:

- Paste the IP address on new tab and search.
- The Windows server is hosted.

The screenshot shows a web browser window with the URL "3.110.49.93". The browser interface includes a back button, a refresh button, and a message "Not secure". Below the address bar, there are links for "Import favorites" and "Manage favorites now". The main content area displays the text "THIS IS A SERVER ON WINDOWS!".

Creating and Using AMIs in AWS EC2

Introduction:

An Amazon Machine Image (AMI) is a template that contains the software configuration required to launch an EC2 instance in AWS. Think of it as a snapshot of a virtual machine that includes:

- Operating system (e.g., Linux, Windows)
- Application server and installed applications
- Launch permissions (who can use it)
- Storage mappings (how volumes are attached)

Step by Step Instructions:

Step 1:

- Select the instance that you have created earlier.
- Go to “Actions”.
- Click on “Image and templates”.
- Click on “Create image”.

The screenshot shows the AWS EC2 Instances page. At the top, there is a header with 'Instances (1/1)' and a 'Info' link. Below the header, there is a search bar with placeholder text 'Find Instance by attribute or tag (case-sensitive)'. To the right of the search bar are filters for 'Name', 'Instance ID', 'Instance state', 'Instance type', and 'Status'. A single instance, 'myserver' (i-08bd3c583c6c3a3b4), is listed as 'Running'. On the far right of the instance row, there is an 'Actions' button with a dropdown arrow. The dropdown menu is open, showing several options: 'Create image', 'Create template from instance', and 'Launch more like this'. The 'Create image' option is highlighted with a black box and an arrow pointing to it from the left. Other options in the menu include 'Instance diagnostics', 'Instance settings', 'Networking', 'Security', and 'Monitor and troubleshoot'. The 'Image and templates' option is also visible in the list. At the bottom of the page, there is a navigation bar with tabs for 'Details', 'Status and alarms', 'Monitoring', 'Security', 'Networking', 'Storage', and 'Tags'. The 'Details' tab is currently selected. Below the navigation bar, there is a section titled 'Instance summary' with a 'Info' link.

Step 2:

- Write the name of the image (e.g. “image1”).
- Image description is optional.
- Uncheck “Reboot instance”.
- Then click on “Create image”.
- You can see that the image is being created.

EC2 > Instances > i-08bd3c583c6c3a3b4 > Create image

Create image Info

An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from the configuration of an existing instance.

Image details

Instance ID: i-08bd3c583c6c3a3b4 (myserver)

Image name: →

Maximum 127 characters. Can't be modified after creation.

Image description - optional: Maximum 255 characters

Reboot instance: When selected, Amazon EC2 reboots the instance so that data is at rest when snapshots of the attached volumes are taken. This ensures data consistency.

Instance volumes

→ → →

Create image

aws | Search [Alt+S] | Asia Pacific (Mumbai) | Riddhisha

EC2 > Instances

EC2

- Dashboard
- EC2 Global View
- Events
- Instances**
 - Instances
 - Instance Types
 - Launch Templates
 - Spot Requests
 - Savings Plans
 - Reserved Instances
 - Dedicated Hosts
 - Capacity Reservations
- Images**
 - AMIs
 - AMI Catalog

Instances (1/1) Info

Currently creating AMI ami-006203df30ae5da0e from instance i-08bd3c583c6c3a3b4. Check that the AMI status is 'Available' before deleting the instance or carrying out other actions related to this AMI.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
myserver	i-08bd3c583c6c3a3b4	Running	t3.small	3/3 checks passed	View alarms +	ap-south-1t

i-08bd3c583c6c3a3b4 (myserver)

Details Status and alarms Monitoring Security Networking Storage Tags

Instance summary Info

Instance ID	Public IPv4 address	Private IPv4 addresses
i-08bd3c583c6c3a3b4	13.126.4.155 open address	172.31.10.235

Step 3:

- Go to “AMIs” under “Images” section in EC2.
- There you will find the AMI that is created.
- Now select the AMI and check its status.
- If “Pending”, wait for few seconds until it becomes “Available”.

aws | Search [Alt+S] | Asia Pacific (Mumbai) | Riddhisha

EC2 > AMIs

Amazon Machine Images (AMIs) (1/1) Info

Actions →

Name	AMI ID	Source	Owner
image1	ami-006203df30ae5da0e	110007729643/image1	110007729643

Amazon Machine Images (AMIs) (1/1)					
Actions		Launch instance from AMI			
Owner	Visibility	Status	Creation date	Platform	
110007729643	Private	Pending	2025/07/12 19:03 GMT+5:30	Windows	

Amazon Machine Images (AMIs) (1/1)					
Actions		Launch instance from AMI			
Owner	Visibility	Status	Creation date	Platform	
110007729643	Private	Available	2025/07/12 19:03 GMT+5:30	Windows	

- Now you can either terminate the instance or let it be.

Step 4:

- Select the AMI and go to “Actions”.
- Click on “Copy AMI”.

Amazon Machine Images (AMIs) (1/1)

Actions ▾

Copy AMI

Edit AMI permissions

Request Spot Instances

Manage tags

Deregister AMI

Manage AMI deregistration protection

Change description

Configure fast launch

Manage AMI Deprecation

Register instance store-backed AMI

Disable AMI

AMI ID: ami-006203df30ae5da0e

Details Permissions Storage Tags

AMI ID Image type Platform details Root device type

CloudShell Feedback

- Under “Copy Amazon Machine Image (AMI)”, write the “AMI copy name” (e.g. “image1”).
- Leave the “AMI copy description” as it is.
- Now, change the “Destination Region” to “United States (Ohio)” or any other region where you want to copy your AMI.

Screenshot of the AWS EC2 Copy AMI page. The URL is [EC2 > AMIs > ami-006203df30ae5da0e > Copy AMI](#).

Copy AMI Info

Create a copy of an Amazon Machine Image in a Region.

Copy Amazon Machine Image (AMI)

Original AMI ID: ami-006203df30ae5da0e

AMI copy name: (highlighted with a red arrow)

AMI copy description: [Copied ami-006203df30ae5da0e from ap-south-1] image1

Destination Region: Mumbai (Asia Pacific) (highlighted with a red arrow)

Copy tags

CloudShell Feedback © 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Destination Region

A copy of the original AMI will be created in the destination Region.

United States (Ohio) (highlighted with a red arrow)

- Leave other settings as it is.
- Click on “Copy AMI”.
- The AMI is being copied to Ohio region.

Cancel **Copy AMI** (highlighted with a red arrow)

Screenshot of the AWS EC2 AMIs page showing the copied AMI.

Amazon Machine Images (AMIs) (1/1) Info

AMI copy operation for ami-006203df30ae5da0e initiated. It can take a few minutes for the AMI to be copied. You can check the progress of the operation in the AMI list in us-east-2. The AMI ID of the new AMI is ami-0a618dfc2c712abd.

Name	AMI ID	Source	Owner
image1	ami-006203df30ae5da0e	110007729643/image1	110007729643

Step 5:

- Change the region to where you have copied your AMI (i.e. “United States (Ohio)”).
- Now go to “AMIs” in Ohio region and there you will find the AMI that you have copied from Mumbai region.

Step 6:

- Now select the AMI and check its status.
- If “Pending”, wait for few seconds until it becomes “Available”.
- Then click on “Launch instance from AMI”.

Step 7:

- Enter the name of the server (e.g. “copyserver”).
- In “Application and OS Images (AMI)”, go to “My AMIs”.

Launch an instance Info

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags Info

Name Add additional tags

▼ Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

AMI from catalog **Recents** **My AMIs** **Quick Start**

Name
image1

Description
[Copied ami-006203df30ae5da0e from ap-south-1] image1

Image ID
ami-0a618dfc2c712abd8

Username
Administrator

Browse more AMIs
Including AMIs from AWS, Marketplace and the Community

AMI from catalog **Recents** **My AMIs** **Quick Start**

Owned by me Shared with me

Browse more AMIs
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

image1 ami-0a618dfc2c712abd8 2025-07-12T13:55:45.000Z Virtualization: hvm ENA enabled: true Root device type: ebs Boot mode: uefi	▲
<input type="text"/>	🔍
image1 ami-0a618dfc2c712abd8 2025-07-12T13:55:45.000Z Virtualization: hvm ENA enabled: true Root device type: ebs Boot mode: uefi	✓
x86_64	ami-0a618dfc2c712abd8

Step 8:

- Select “Instance type” according to your need (e.g. “t3.small”).

▼ Instance type [Info](#) | [Get advice](#)

Instance type

t3.small 

Family: t3 2 vCPU 2 GiB Memory Current generation: true
On-Demand RHEL base pricing: 0.0496 USD per Hour
On-Demand Ubuntu Pro base pricing: 0.0243 USD per Hour
On-Demand Windows base pricing: 0.0392 USD per Hour
On-Demand Linux base pricing: 0.0208 USD per Hour
On-Demand SUSE base pricing: 0.0518 USD per Hour

All generations 

[Compare instance types](#)

Additional costs apply for AMIs with pre-installed software

- In “Key pair (login)”, either create a new key pair or use old key pairs.
- For creating a new key pair, click on “Create new key pair”.

▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required

Select  Create new key pair 

For Windows instances, you use a key pair to decrypt the administrator password. You then use the decrypted password to connect to your instance.

- Enter the name of key pair (e.g. “key ohio”).
- Choose key pair type as “RSA”.
- Choose private key file format as “.pem” (For use with OpenSSH).
- Click on “Create key pair”.

Additional costs apply for AMIs with pre-installed software

▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required

Select For Windows instances, you use a key pair to decrypt the administrator password. You then use the decrypted password to connect to your instance.

▼ Network settings [Info](#)

Network [Info](#) vpc-05b24f0807a953c51
Subnet [Info](#) No preference (Default subnet in any availability zone)
Auto-assign public IP [Info](#) Enable

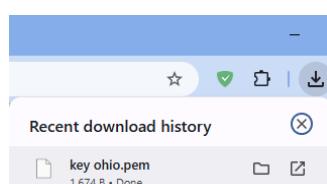
Create key pair

Key pair name Key pairs allow you to connect to your instance securely.
The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type RSA RSA encrypted private and public key pair ED25519 ED25519 encrypted private and public key pair (Not supported for Windows instances)

Private key file format .pem For use with OpenSSH .ppk For use with PuTTY

[Cancel](#) [Create key pair](#) 



Step 9:

- In “Network settings”, allow “HTTPS traffic from the internet” and “HTTP traffic from the internet”.

☰ EC2 > Instances > Launch an instance

▼ Network settings [Info](#) [Edit](#)

Network | [Info](#)
vpc-05b24f0807a953c51

Subnet | [Info](#)
No preference (Default subnet in any availability zone)

Auto-assign public IP | [Info](#)
Enable
Additional charges apply when outside of free tier allowance

Firewall (security groups) | [Info](#)
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.
 Create security group Select existing security group

We'll create a new security group called 'launch-wizard-3' with the following rules:

Allow RDP traffic from Anywhere
Helps you connect to your instance
0.0.0.0/0

Allow HTTPS traffic from the internet
To set up an endpoint, for example when creating a web server

Allow HTTP traffic from the internet
To set up an endpoint, for example when creating a web server

Step 10:

- In “Configure storage”, enter the root volume storage you want for your instance and select any type of GiB as per your preference.
- In “Summary”, enter the number of instances you want to launch (e.g. “1”).
- Then finally click on “Launch instance”.

aws Search [Alt+S] United States (Ohio) Riddhisha

☰ EC2 > Instances > Launch an instance

▼ Configure storage [Info](#) Advanced
1x GiB gp3 Root volume, 3000 IOPS, Not encrypted
Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Add new volume
The selected AMI contains instance store volumes, however the instance does not allow any instance store volumes. None of the instance store volumes from the AMI will be accessible from the instance

Click refresh to view backup information
The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems [Edit](#)

► Advanced details [Info](#)

▼ Summary
Number of instances [Info](#)

Software Image (AMI)
Copied ami-006203df730ae5da0e ...[read more](#)

Virtual server type (instance type)
t3.small

Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 30 GiB

[Cancel](#) [Launch instance](#) [Preview code](#)

The screenshot shows the AWS EC2 "Launch an instance" success page. At the top, there's a green success message: "Success Successfully initiated launch of instance (i-0366aaf0844665d80)". Below it, a "Next Steps" section contains a search bar with placeholder text "What would you like to do next with this instance, for example "create alarm" or "create backup"" and a navigation bar with pages 1 through 6.

- You can see that the instance you have created is running.

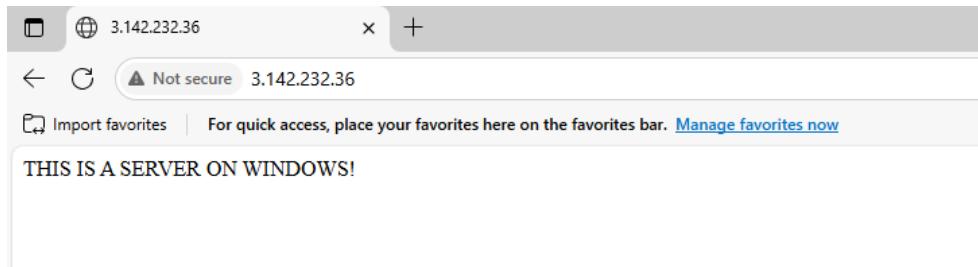
The screenshot shows the AWS EC2 "Instances" page. It lists one instance: "copyserver" (i-0366aaf0844665d80), which is currently "Running". An arrow points to the "Running" status indicator for the instance.

Step 11:

- Select the instance and copy the “Public IPv4 address” in “Details” section below.

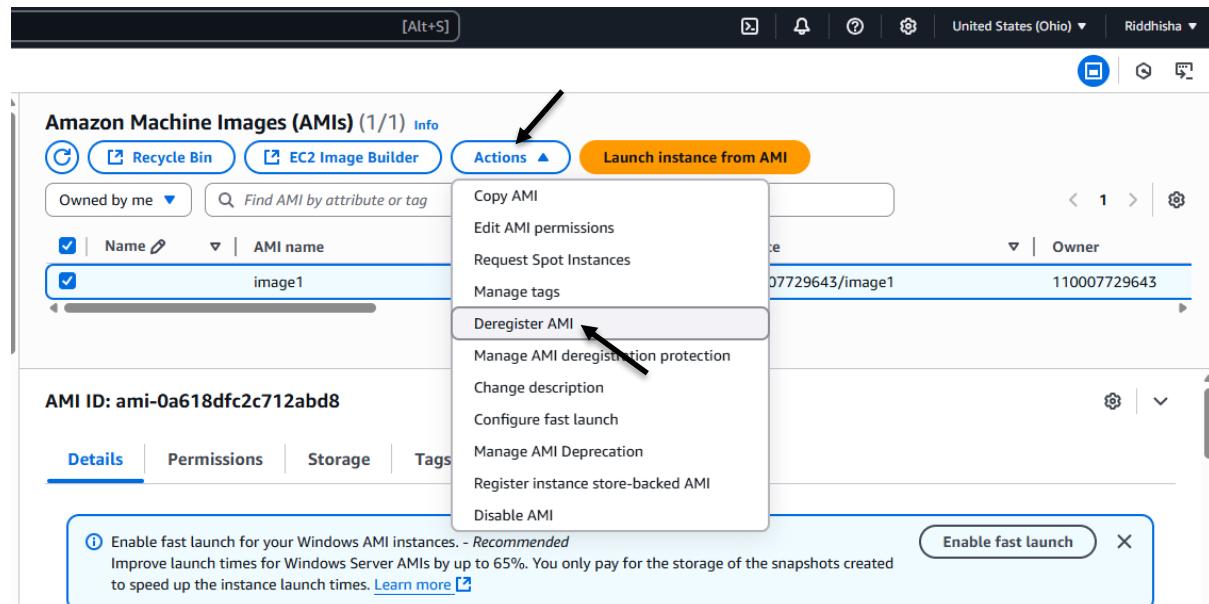
The screenshot shows the AWS EC2 instance details page for "copyserver" (i-0366aaf0844665d80). In the "Details" tab, under the "Instance summary" section, the "Public IPv4 address" is listed as "3.142.232.36". A callout bubble highlights this address, and an arrow points to the "Public IPv4 address" link. To the right, "Private IPv4 addresses" are listed as "172.31.36.54".

- Paste the IP address on new tab and search.
- The data of the instance is displayed whose AMI was created.



Step 12:

- Now, if you want to delete the AMI then select the AMI.
- Go to “Actions” and click on “Deregister AMI”.



- Check “Delete associated snapshots”.
- Click on “Deregister AMI”.
- AMI is deregistered.

Deregister AMI

X

After you deregister an AMI, you can't use it to launch new instances.

Are you sure that you want to deregister these AMIs?

ami-0a618dfc2c712abd8

Delete associated snapshots

▶ Associated snapshots (1)

Cancel

Deregister AMI

EBS Volume Management in AWS EC2

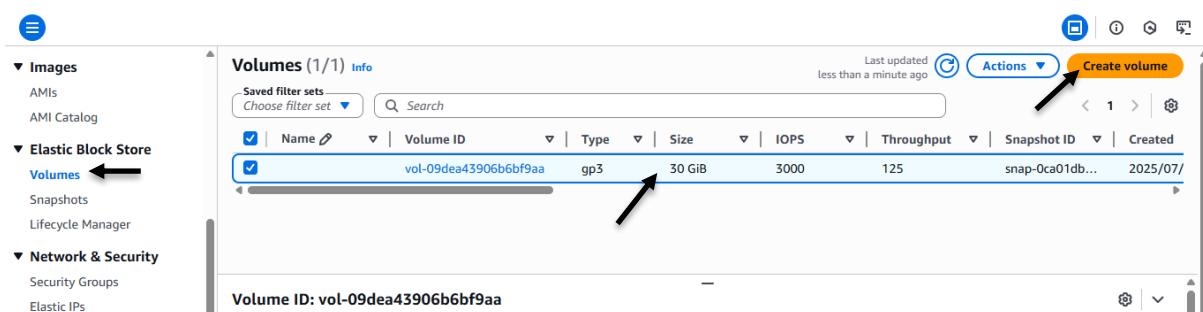
Introduction:

In AWS EC2, Elastic Block Store (EBS) volume management refers to the process of provisioning, attaching, configuring, and maintaining block-level storage volumes that are used with EC2 instances. EBS volumes act like virtual hard drives, storing persistent data that remains even after an instance is stopped or terminated. You can scale storage, change volume types for performance optimization, take snapshots for backup, and detach or reattach volumes across instances—all while tailoring capacity and IOPS to suit your application needs. This flexibility makes EBS ideal for workloads like databases, file systems, and enterprise applications that demand durable and high-performance storage.

Step by Step Instructions:

Step 1:

- We already have a server running in Mumbai region.
- Now go to “Elastic Block Store” in EC2.
- Click on “Volumes”.
- There is already a 30 GiB volume present in “Volumes”. This is the root volume which is created at the time of instance creation.
- Now click on “Create Volume”.



Step 2:

- Select any “Volume type” (e.g. Magnetic (standard)).
- Enter the “Size (GiB)” (e.g. “5”).
- Minimum and maximum size range is given.

The screenshot shows the 'Create volume' page in the AWS EC2 console. Under 'Volume settings', the 'Volume type' is set to 'General Purpose SSD (gp3)'. The 'Size (GiB)' is set to 100. The 'IOPS' is set to 3000. The 'Throughput (MiB/s)' is set to 125. The 'Availability Zone' dropdown is set to 'Magnetic (standard)'. Arrows point to the 'Volume type' dropdown and the 'Size (GiB)' input field.

Volume settings

Volume type | Info

Magnetic (standard)

General Purpose SSD (gp3)

General Purpose SSD (gp2)

Provisioned IOPS SSD (io1)

Provisioned IOPS SSD (io2)

Cold HDD (sc1)

Throughput Optimized HDD (st1)

Magnetic (standard)

Size (GiB) | Info

5

Min: 1 GiB, Max: 1024 GiB.

- Now check the “Availability Zone” of the instance and set the “Availability Zone” of the volume according to it.
- Click on “Create volume”.

The screenshot shows the 'Instances' page in the AWS EC2 console. There is 1 instance listed, which is running and of type t3.small. It has 3/3 checks passed and is in the 'ap-south-1b' availability zone. Arrows point to the 'Availability Zone' column header and the 'ap-south-1b' entry.

Availability Zone | Info

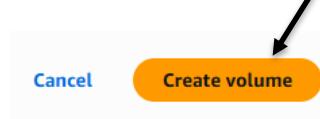
ap-south-1b



ap-south-1a

ap-south-1b

ap-south-1c



- A volume of 5 GiB is created.

Volumes (1/2) [Info](#)

Last updated less than a minute ago [Actions](#) [Create volume](#)

Choose filter set [Search](#)

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created
<input checked="" type="checkbox"/>	vol-05f87a9bb5480d099	standard	5 GiB	-	-	-	2025/07/
<input type="checkbox"/>	vol-09dea43906b6bf9aa	gp3	30 GiB	3000	125	snap-0ca01db...	2025/07/

Step 3:

- Check the state of created volume.
- If it is in “Available” state, then select the volume.
- Go to “Actions”.
- Click on “Attach volume”.

Volumes (1/2) [Info](#)

Choose filter set [Search](#)

Availability Zone | Volume state

ap-south-1b	<input checked="" type="checkbox"/> Available
ap-south-1b	<input checked="" type="checkbox"/> In-use

Volumes (1/2) [Info](#)

Choose filter set [Search](#)

Availability Zone | Volume state | Alarm status | Attached resources

ap-south-1b	<input checked="" type="checkbox"/> Available	No alarms	+ -
ap-south-1b	<input checked="" type="checkbox"/> In-use	No alarms	+ i-052a96258fb738c30

Volume ID: vol-05f87a9bb5480d099

[Details](#) | [Status checks](#) | [Monitoring](#) | [Tags](#)

Last updated 1 minute ago [Actions](#)

Modify volume
Create snapshot
Create snapshot lifecycle policy
Delete volume
Attach volume ← ←
Detach volume
Force detach volume
Manage auto-enabled I/O
Manage tags
Fault injection

Step 4:

- In “Instance”, select the instance that you have created earlier.
- Select any device name for Windows (e.g. “xvdc”).
- Then click on “Attach volume”.
- Now you can see that the volume is attached to the server and is “In-use”.

Attach volume [Info](#)

Attach a volume to an instance to use it as you would a regular physical hard disk drive.

Basic details

Volume ID
vol-05f87a9bb5480d099

Availability Zone
ap-south-1b

Instance | [Info](#)
i-052a96258fb738c30
(myserver) (running)

Only instances in the same Availability Zone as the selected volume are displayed.

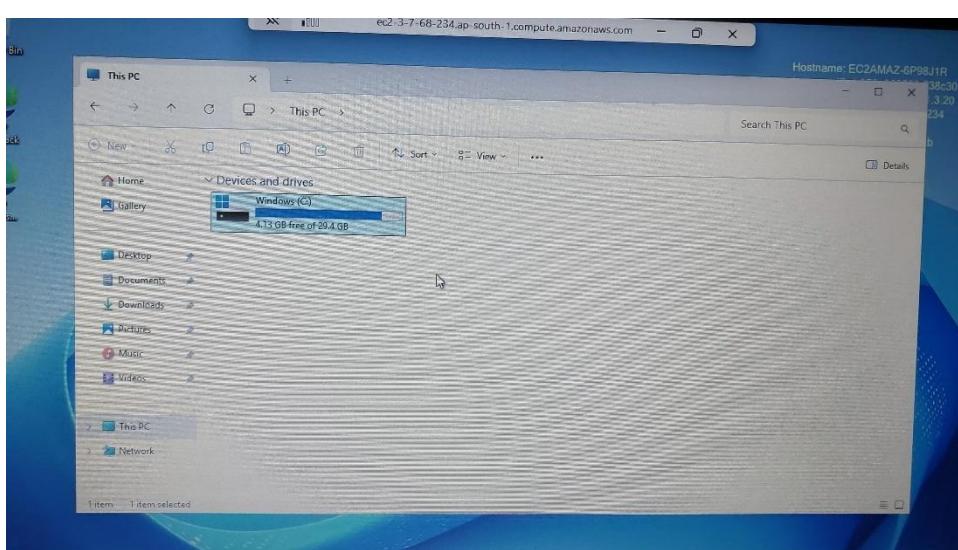
Device name | [Info](#)
xvdc

Recommended device names for Windows: /dev/sda1 for root volume. xvdf[f-p] for data volumes.

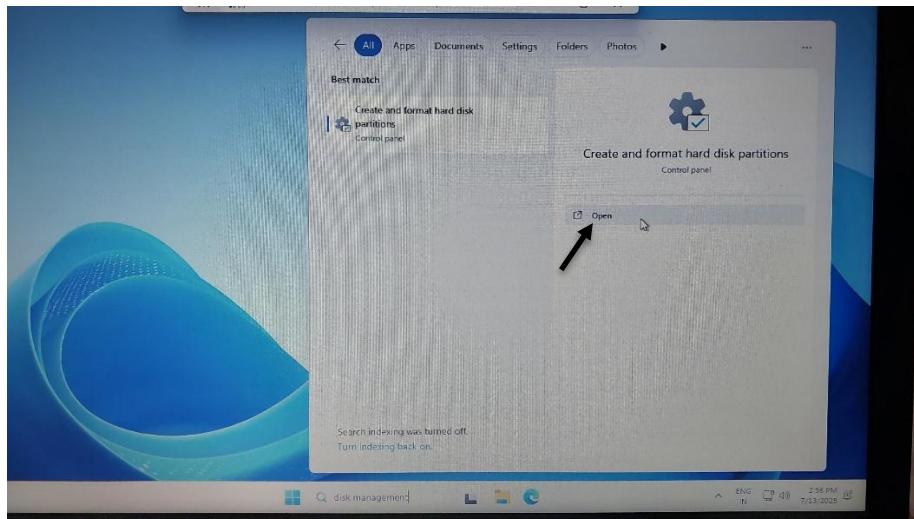
A screenshot of the AWS Lambda Attach volume interface. It shows the basic details of the volume, its availability zone, and the selected instance (i-052a96258fb738c30). The device name dropdown is set to 'xvdc'. Below this, a list of recommended device names for Windows is shown, with 'xvdc' selected. An arrow points from the 'xvdc' selection in the dropdown to the 'Attach volume' button at the bottom right. Another arrow points directly at the 'Attach volume' button.

Step 5:

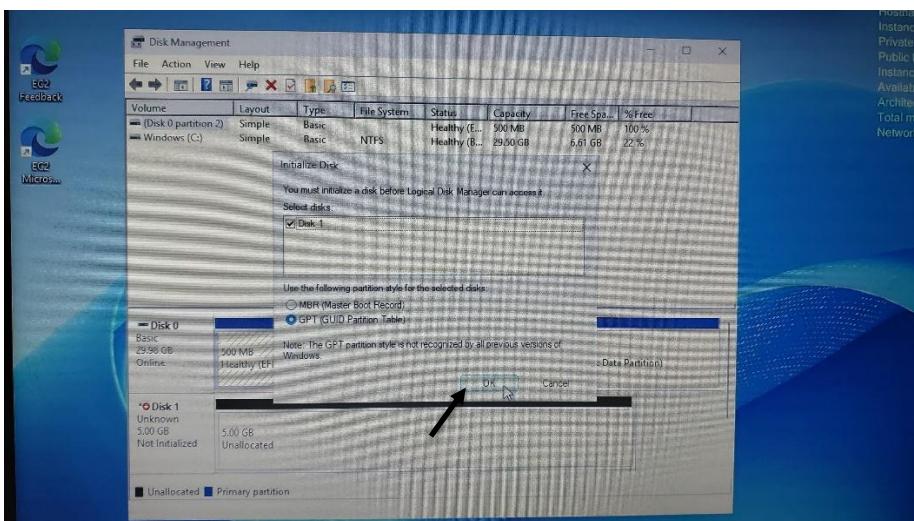
- In the virtual server, we can see that there is only C drive present.



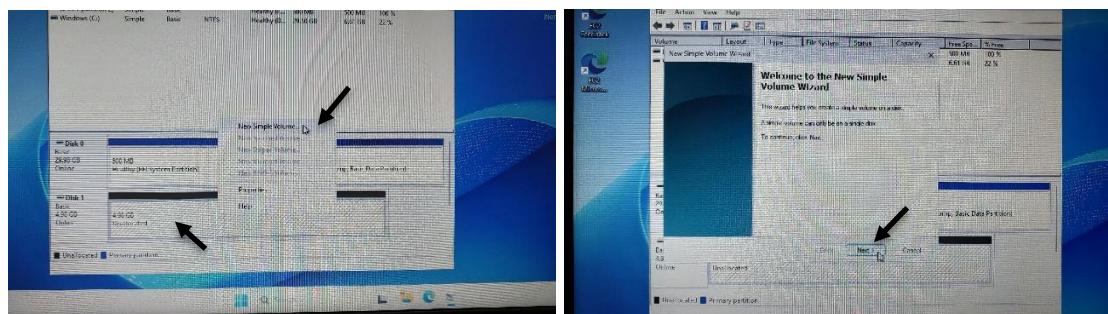
- Search “disk management” and open it.



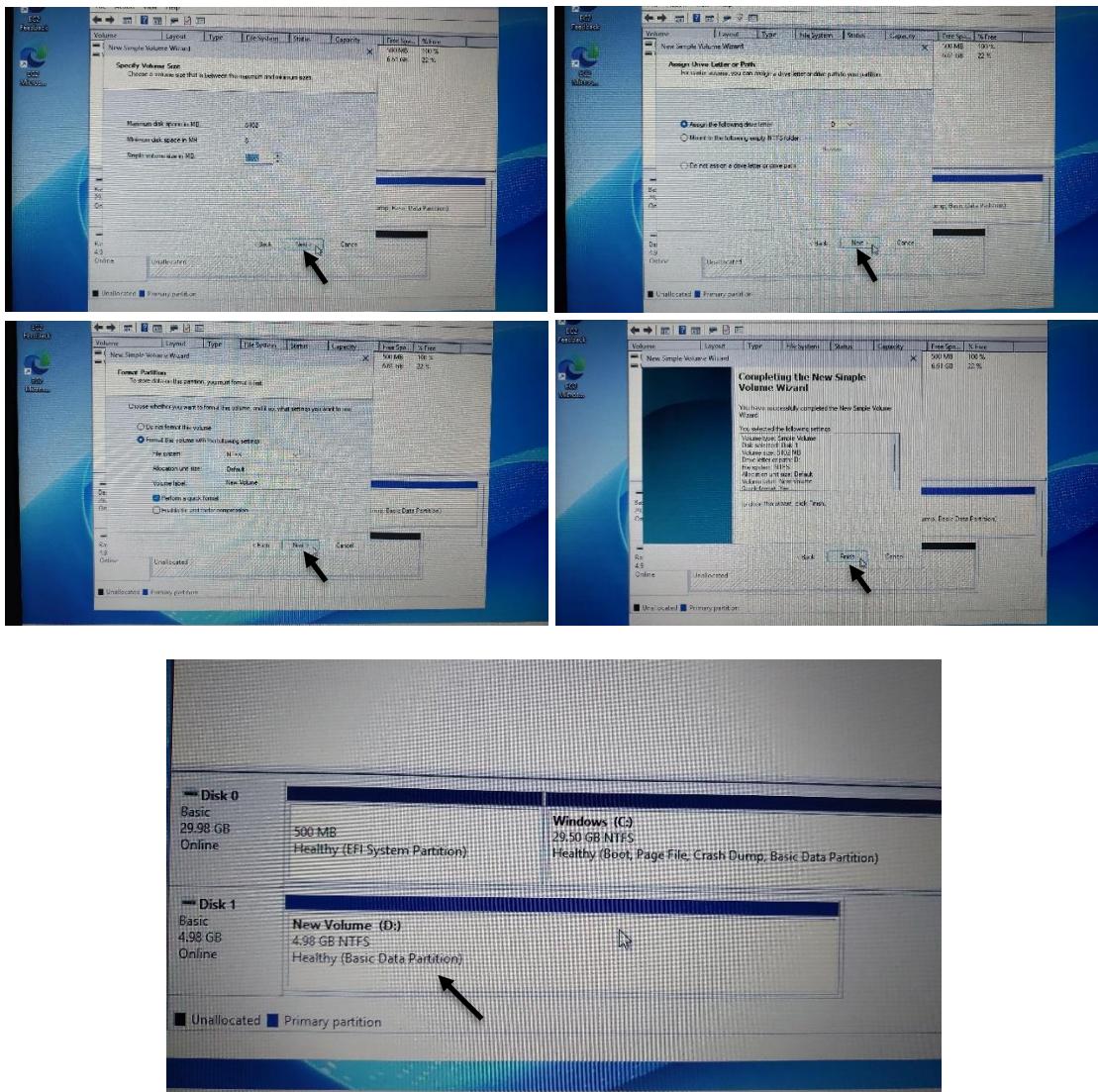
- Disk 1 is not initialized and unallocated.
- Click on “OK” and initialize Disk 1.



- Right click on “Unallocated” (right side block).
- Click on “New Simple Volume...”, then click on “Next”.

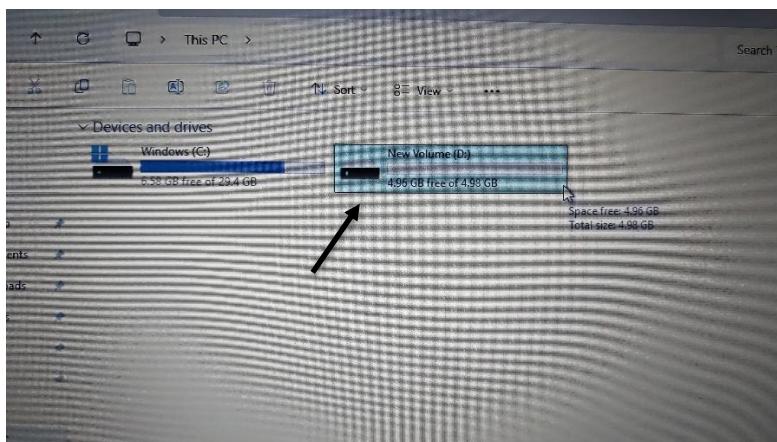


- Now click on “Next” till the last option.
- At last, click on “Finish”.
- Now, Disk 1 is Online, Healthy and ready for use.



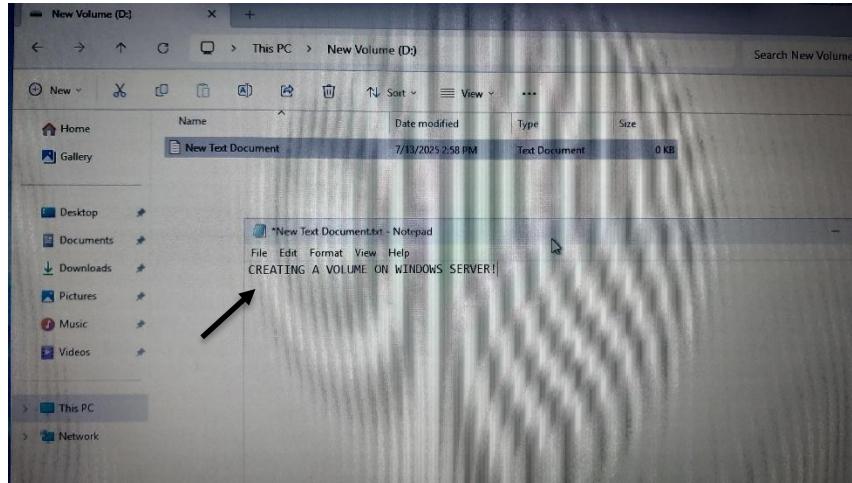
Step 6:

- Go to “File Explorer” and then go to “This PC”.
- There you will find the volume that you have attached.



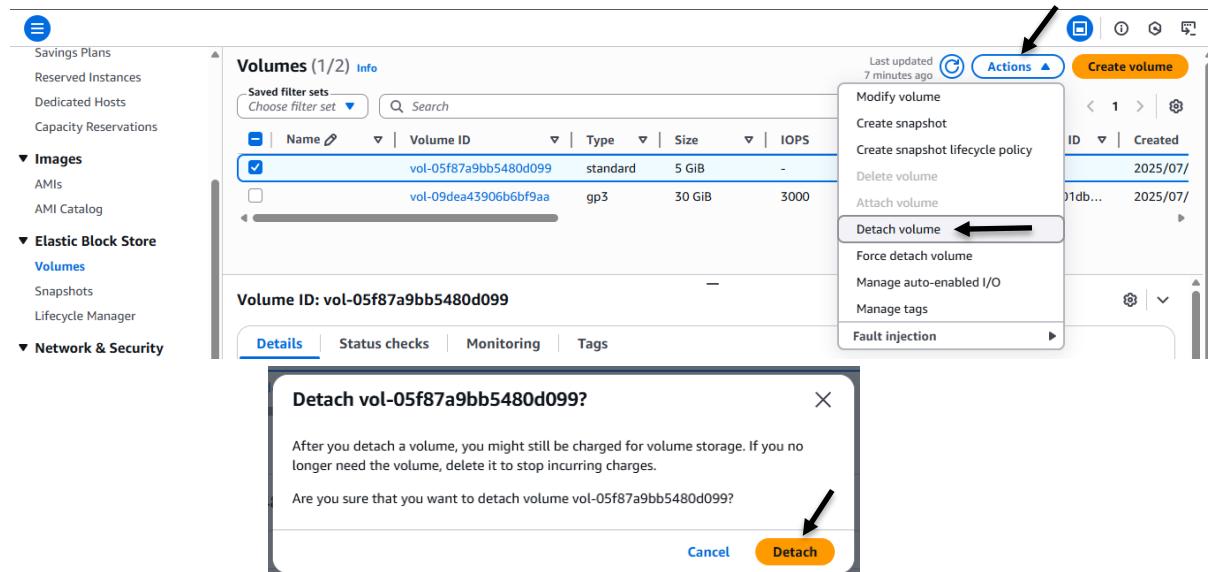
- Click on “D drive”.

- Create any text file and write something in it or copy-paste any file from the local desktop to virtual desktop's "D drive".
- Save the file and minimize the virtual server.



Step 7:

- Now go back to "Volumes".
- Select the volume that you have created.
- Go to "Actions" and click on "Detach volume".
- Click on "Detach".



- Volume is detached from the virtual server and the status becomes "Available".
- Now, terminate the previous instance and run a new instance.
- The data that we have entered in the volume is saved and can be attached to another server in the same zone.

The screenshot shows two overlapping AWS EC2 management console pages. The top page is titled 'Volumes (2) Info' and displays a table of volumes. The second volume, with ID 'snap-0ca01db...', is highlighted with a red box and has an arrow pointing to its 'Available' status. The bottom page is titled 'Instances (1/2) Info' and displays a table of instances. The first instance, 'newserver' (ID 'i-057e272b99a5bbb79'), is selected and highlighted with a red box, while the second instance, 'myserver' (ID 'i-052a96258fb738c30'), is unselected. Both instances are in the 'Running' state.

Step 8:

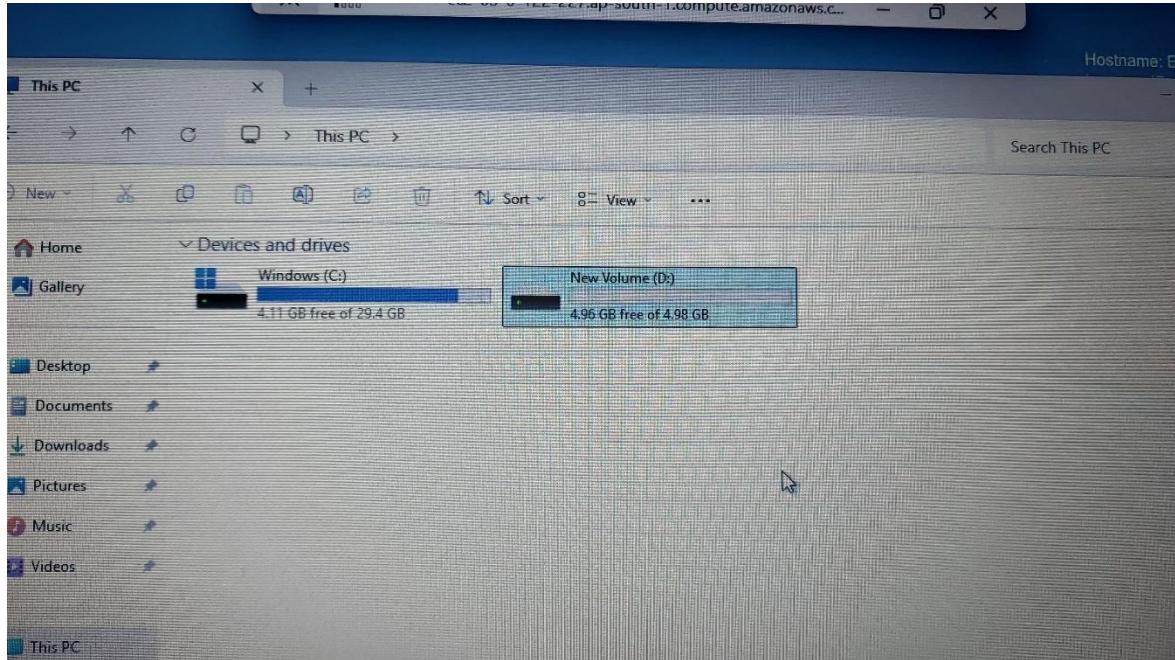
- In “Volumes”, select the volume that you have created.
- Go to “Actions”.
- Click on “Attach volume” and attach it to the new instance (“newserver”) created.

The screenshot shows the 'Attach volume' configuration page. At the top, the breadcrumb navigation shows: EC2 > Volumes > vol-05f87a9bb5480d099 > Attach volume. The main section is titled 'Attach volume' with a sub-section 'Basic details'. It shows the Volume ID 'vol-05f87a9bb5480d099' and the Availability Zone 'ap-south-1b'. Under 'Instance | Info', the instance 'i-057e272b99a5bbb79 (newserver) (running)' is selected. An arrow points from the left towards this selection. Under 'Device name | Info', the device name 'xvdc' is listed. An arrow points from the left towards the 'Device name' input field. At the bottom, there is a search bar and a list of instances, with 'i-057e272b99a5bbb79 (newserver) (running)' selected again, indicated by a checkmark.

Step 9:

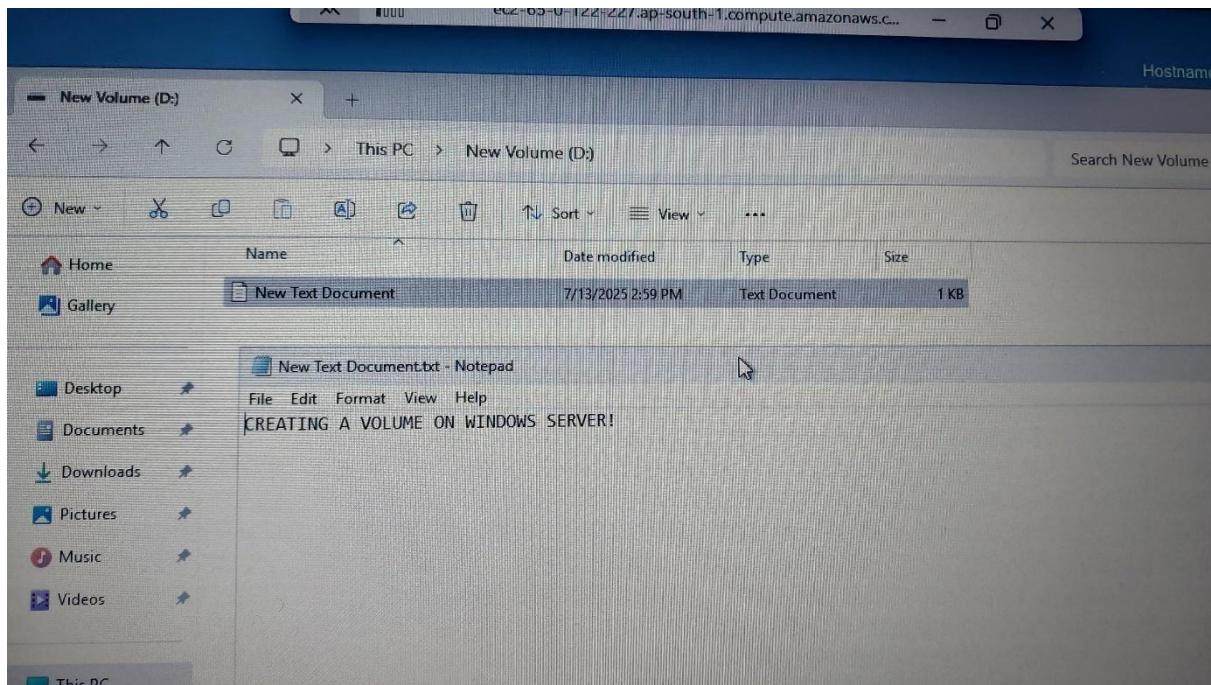
- Connect the newly created instance and open “File Explorer”.
- Then go to “This PC”.

- There you will find two volumes – one is root volume and the other is the one we have attached just now.
- This time, there is no need to mount the disk.



Step 10:

- Open the D drive.
- The data that we entered before is preserved.



Snapshot Creation and Recovery in AWS EC2

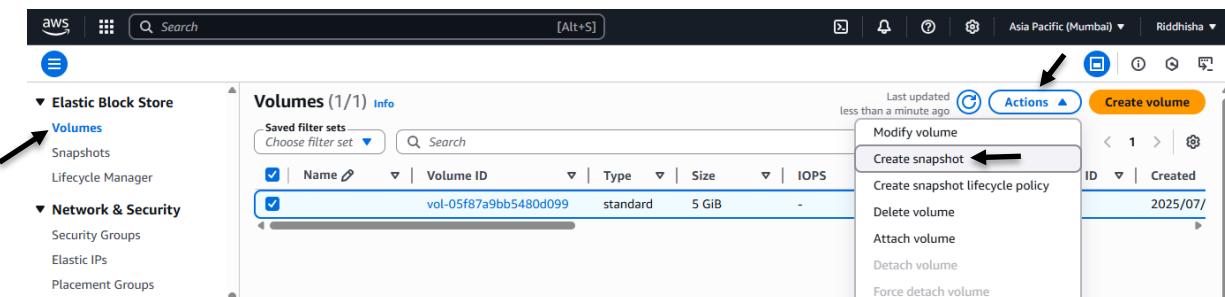
Introduction:

In AWS EC2, snapshot creation and recovery involve creating point-in-time backups of EBS volumes to Amazon S3, enabling data protection and disaster recovery. Snapshots capture the volume's state and can be used to restore data or even create new volumes for scaling or replication across regions. They're incremental, meaning only changes since the last snapshot are saved—making them storage-efficient. Recovery is as simple as launching a new volume from a snapshot, helping you rebuild systems quickly and securely with minimal downtime.

Step by Step Instructions:

Step 1:

- After detaching the volume from previous instance and terminating the server, go to “Volumes” and select the volume.
- Now we will create a snapshot of the volume.
- Go to “Actions”.
- Click on “Create snapshot”.



Step 2:

- The “Volume ID” and “Availability Zone” are already mentioned.
- Give a “Description” to the snapshot (e.g. “snap1”).
- Click on “Create snapshot”.

EC2 > Volumes > vol-05f87a9bb5480d099 > Create snapshot

Create snapshot Info

Create a point-in-time snapshot to back up the data on an Amazon EBS volume to Amazon S3.

Source volume	Availability Zone
Volume ID vol-05f87a9bb5480d099	ap-south-1b

Snapshot details

Description
Add a description for your snapshot

Encryption Info
Not encrypted

Create snapshot

- The snapshot is created.
- Go to “Snapshots” under EBS and there you can see all the snapshots.

Snapshots (1) Info

Last updated less than a minute ago

Recycle Bin Actions **Create snapshot**

Owned by me

Name Snapshot ID Full snapshot size Volume size Description Storage tier

snap-03e669424f48dc372 20.5 MiB 5 GiB snap1 Standard

Step 3:

- Once the snapshot is created, there is no need of the volume.
- Go to “Actions” and click on “Delete volume”.
- Click on “Delete”.

Volumes (1/1) Info

Last updated less than a minute ago

Actions **Create volume**

Choose filter set

Name Volume ID Type Size IOPS

vol-05f87a9bb5480d099 standard -

Delete volume

Modify volume Create snapshot Create snapshot lifecycle policy Attach volume Detach volume

ID Created

2025/07/

Delete vol-05f87a9bb5480d099?

⚠ After you delete a volume, its data is permanently deleted and the volume can no longer be attached to an instance.

Are you sure that you want to delete vol-05f87a9bb5480d099?

To confirm deletion, type **delete** in the field.

Cancel Delete

Step 4:

- Go to “Snapshots” and select the snapshot.
- Go to “Actions” and click on “Copy snapshot”.

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

Last updated less than a minute ago

[Recycle Bin](#) [Actions ▾](#)

Name	Snapshot ID	Full snapshot size	Volume size
<input checked="" type="checkbox"/> snap-03e669424f48dc372	snap-03e669424f48dc372	20.5 MiB	5 GiB

Create volume from snapshot
Create image from snapshot
Copy snapshot ←
Launch copy duration calculator
Delete snapshot
Manage tags
Snapshot settings ▾
Archiving ▾

- Choose the “Destination Region” as “us-east-2” i.e., Ohio.
- Click on “Copy snapshot”.
- Snapshot is copied to Ohio region.

[EC2](#) > [Snapshots](#) > [snap-03e669424f48dc372](#) > Copy snapshot

Copy snapshot [Info](#)

Copy a snapshot from one AWS Region to another, or within the same Region.

Source snapshot
The original snapshot that is to be copied.

Snapshot ID [snap-03e669424f48dc372](#)

Region ap-south-1

Snapshot copy details

Description
A description for the snapshot copy.
[Copied snap-03e669424f48dc372 from ap-south-1] snap1
255 characters maximum.

Destination Region
The Region in which to create the snapshot copy.
ap-south-1

Destination Region
The Region in which to create the snapshot copy.
us-east-2

us-east-2

Copy snapshot

Successfully created snapshot copy snap-09ff2539ef954421c in us-east-2.

Snapshots (1) [Info](#)

Last updated less than a minute ago

[Recycle Bin](#) [Actions ▾](#) [Create snapshot](#)

Name	Snapshot ID	Full snapshot size	Volume size	Description	Storage tier
<input checked="" type="checkbox"/>	snap-03e669424f48dc372	20.5 MiB	5 GiB	snap1	Standard

Step 5:

- Change the region to Ohio where we have copied the snapshot.
- Go to “Snapshots” and there you will find the copied snapshot.

The screenshot shows the AWS EBS Snapshots page. In the top navigation bar, the region is set to "Asia Pacific (Mumbai)". A dropdown menu for "Region" is open, showing "Ohio" highlighted with an orange arrow. Below the dropdown, the main table lists a single snapshot: "snap-03e669424f48dc372" with a size of "20.5 MiB" and "5 GiB". The "Actions" button for this snapshot is highlighted with a black arrow.

- Now launch a new instance in Ohio region.
- Check its “Availability Zone” for further use.

The screenshot shows the AWS Instances page. The instance "ohioserver" (with ID i-02f870d31d9f6c5f5) is listed as "Running" in the "us-east-2c" Availability Zone. An arrow points to the instance name, and another arrow points to the "Availability Zone" column.

- Now go to “Snapshots” and select the snapshot.
- Click on “Actions”.
- Select “Create volume from snapshot”.

The screenshot shows the AWS Snapshots page. The same copied snapshot is selected. The "Actions" menu is open, and the "Create volume from snapshot" option is highlighted with a black arrow. Other options in the menu include "Create image from snapshot", "Copy snapshot", "Launch copy duration calculator", "Delete snapshot", "Manage tags", and "Snapshot settings".

Step 6:

- Select any “Volume type” (e.g. “Magnetic (standard)”).
- Then select the “Availability Zone” same as the instance created earlier.
- Click on “Create volume”.

≡ EC2 > Snapshots > snap-09ff2539ef954421c > Create volume

Create volume Info

Create an Amazon EBS volume to attach to any EC2 instance in the same Availability Zone.

Volume settings

Snapshot ID
snap-09ff2539ef954421c

Volume type Info
General Purpose SSD (gp3)

Size (GiB) Info
5
Min: 1 GiB, Max: 16384 GiB.

IOPS Info
3000
Min: 3000 IOPS, Max: 16000 IOPS.

Throughput (MiB/s) Info
125

Volume type Info
Magnetic (standard) 

Size (GiB) Info
5
Min: 1 GiB, Max: 1024 GiB.

IOPS Info
Not applicable

Throughput (MiB/s) Info
Not applicable

Availability Zone Info
us-east-2c 

Create volume 

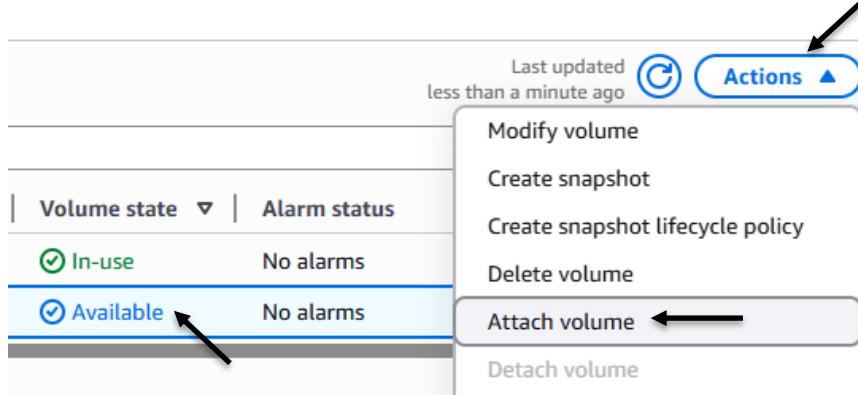
- The volume is successfully created from the snapshot.

Volumes (1/2) <small>Info</small>									
Last updated  less than a minute ago									
Actions 									
#	Name 	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created	
1	vol-0c6821f41fdf78877	gp3	30 GiB	3000	125	-	snap-06d3870...	2025/07/	
2	vol-0dfb3052b3115015a	standard	5 GiB	-	-	-	snap-09ff253...	2025/07/	

Step 7:

- Now check the state of the volume.
- If it is “Available”, then select the volume and go to “Actions”.

- Click on “Attach volume”.



Step 8:

- Similarly, attach the volume just like before.
- Select the “Instance” and “Device name”.
- Click on “Attach volume”.

Basic details

Volume ID
vol-0dfb3052b3115015a

Availability Zone
us-east-2c

Instance | Info
i-02f870d31d9f6c5f5
(ohioserver) (running)

Device name | Info
xvdc

Cancel Attach volume

- The volume is successfully attached to the server and is in “In-use” state.

Successfully attached volume vol-0dfb3052b3115015a to instance i-02f870d31d9f6c5f5.

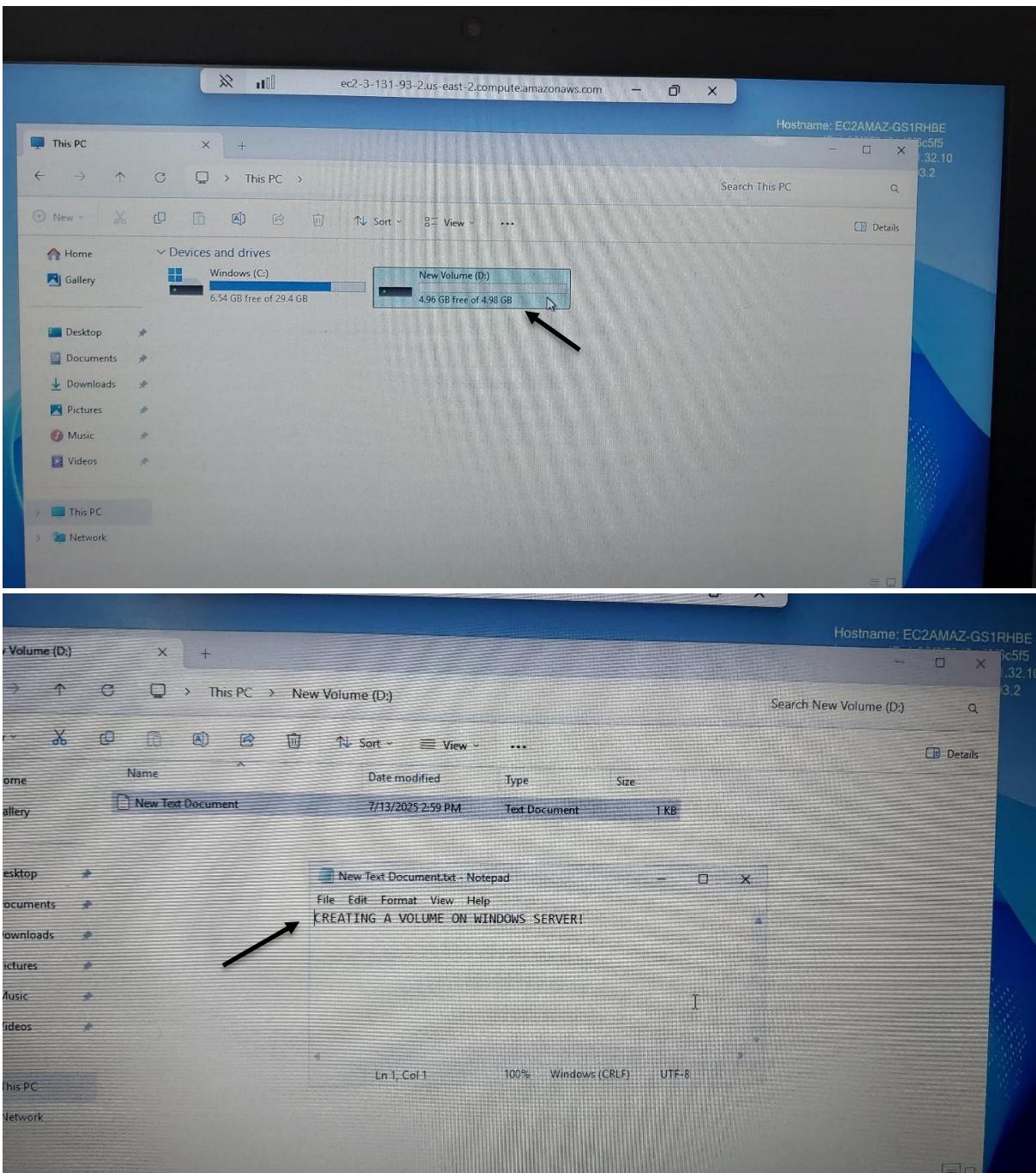
Volumes (2) info

Snapshot ID	Created	Availability Zone	Volume state	Alarm status	Attached resources
snap-06d3870...	2025/07/13 21:22 GMT+5:...	us-east-2c	In-use	No alarms	+ i-02f870d31d9f6c5f5 (ohioserver)
snap-09ff253...	2025/07/13 21:40 GMT+5:...	us-east-2c	In-use	No alarms	+ i-02f870d31d9f6c5f5 (ohioserver)

Step 9:

- Now, connect the instance of Ohio region and open the desktop.
- Go to “File Explorer” and click on “This PC”.
- There you will find the volume that we have attached just now.
- Click on “D drive”.

- The data that you entered in this volume is preserved and healthy.



Step 10:

- Now, minimize the virtual server and go to “Snapshots”.
- Select the snapshot.
- Go to “Actions” and click on “Delete snapshot”.
- Type “delete” and then click on “Delete”.

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

Last updated less than a minute ago

[Recycle Bin](#) [Actions ▾](#)

Owned by me	Name	Snapshot ID	Full snapshot size	Volume size
<input checked="" type="checkbox"/>	ohioserver	snap-09ff2539ef954421c	20.5 MiB	5 GiB

Delete snap-09ff2539ef954421c?

Are you sure that you want to delete snap-09ff2539ef954421c?

To confirm deletion, type **delete** in the field.

delete

[Cancel](#) [Delete](#)

Step 11:

- We can see that even if the snapshot is deleted, the volume is still present.
- Now, detach the volume from the server.
- Go to “Actions” and click on “Detach volume”.
- Click on “Detach”.

Volumes (1/2) [Info](#)

Last updated 3 minutes ago

[Actions ▾](#)

Created	Availability Zone	Volume state	Alarm status
2025/07/13 21:22 GMT+5:...	us-east-2c	In-use	No alarms
2025/07/13 21:40 GMT+5:...	us-east-2c	In-use	No alarms

Detach vol-0dfb3052b3115015a?

After you detach a volume, you might still be charged for volume storage. If you no longer need the volume, delete it to stop incurring charges.

Are you sure that you want to detach volume vol-0dfb3052b3115015a?

[Cancel](#) [Detach](#)

Step 12:

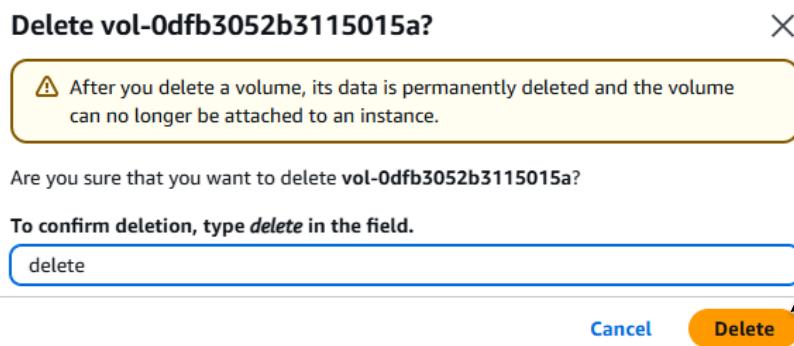
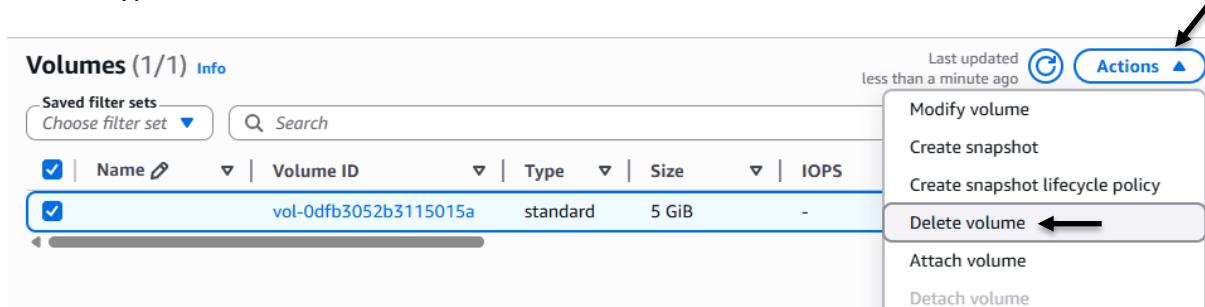
- Terminate the Ohio server.

[Name](#) [Instance ID](#) [Instance state](#)

<input checked="" type="checkbox"/>	ohioserver	i-02f870d31d9f6c5f5	Terminated Q Q
-------------------------------------	------------	---------------------	--

Step 13:

- Now, to delete the volume, go to “Volumes”.
- Select the volume and go to “Actions”.
- Click on “Delete volume”.
- Type “delete” and click on “Delete”.



- The volume is successfully deleted and hence, the data is also deleted.

Auto Scaling Groups (ASGs)

Introduction:

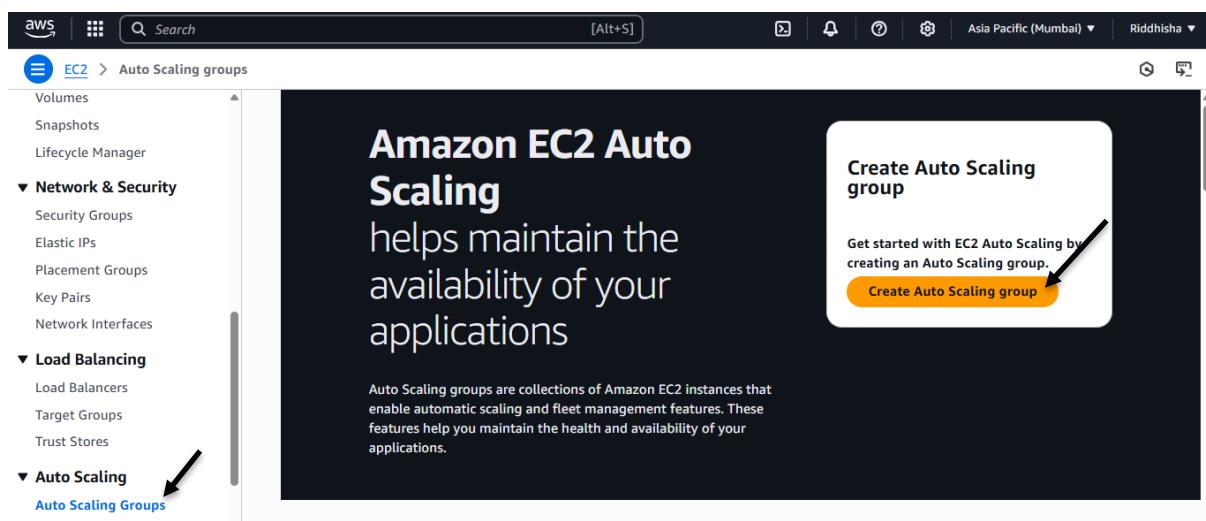
An Auto Scaling Group (ASG) in AWS is like a smart manager for your EC2 servers. It automatically increases or decreases the number of servers based on how busy your app is. When there is a lot of traffic, it adds more servers to handle the load. When things are quiet, it removes the extra ones to save money.

You just set the rules for the minimum and maximum number of servers, and AWS takes care of the rest. If any server becomes unhealthy or stops working, ASG will replace it with a new one to keep your app running smoothly.

Step by Step Instructions:

Step 1:

- Go to the "Auto Scaling" section in EC2.
- Click on "Auto Scaling Groups" from the left-hand menu.
- Then, click on the "Create Auto Scaling Group" button.
- You will now go through 7 setup steps to create the group.
- In Step 1: "Choose Launch Template", give a name to your Auto Scaling Group (e.g. "ASG1").



The screenshot shows the 'Choose launch template' step of the 'Create Auto Scaling group' wizard. On the left, a sidebar lists steps from 1 to 7. Step 1 is selected. The main area shows a 'Name' section with a text input field containing 'ASG1'. A note below says 'Must be unique to this account in the current Region and no more than 255 characters.' To the right is a 'Launch template' section with a note about accounts created after May 31, 2023.

Step 2:

- In the “Launch template” section, click on “Create a launch template” if you don’t have one already.
- If a template already exists, choose that one.
- If you are creating a new one, type a name in the “Launch template name (required)” field (e.g. “MyTemplate1”).

Launch template Info

i For accounts created after May 31, 2023, the EC2 console only supports creating Auto Scaling groups with launch templates. Creating Auto Scaling groups with launch configurations is not recommended but still available via the CLI and API until December 31, 2023.

Launch template

Choose a launch template that contains the instance-level settings, such as the Amazon Machine Image (AMI), instance type, key pair, and security groups.

Select a launch template



Create a launch template

The screenshot shows the 'Create launch template' wizard. It includes sections for 'Launch template name and description' (name: 'MyTemplate1'), 'Template version description' (description: 'A prod webserver for MyApp'), 'Auto Scaling guidance' (checkbox checked for 'Provide guidance to help me set up a template that I can use with EC2 Auto Scaling'), and a summary section on the right. A note about the free tier is displayed in the summary.

- Choose the "Application and OS images (required)" based on what you want to run.

▼ Application and OS Images (Amazon Machine Image) - required [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

Recents	Quick Start				
Amazon Linux 	macOS 	Ubuntu 	Windows 	Red Hat 	SUSE Linux Enterprise Server 

🔍 [Browse more AMIs](#)
 Including AMIs from AWS, Marketplace and the Community

- Pick the "Instance type" that suits your performance needs.

▼ Instance type [Info](#) | [Get advice](#) [Advanced](#)

Instance type

t2.micro Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true
 On-Demand Windows base pricing: 0.017 USD per Hour
 On-Demand RHEL base pricing: 0.0268 USD per Hour
 On-Demand Linux base pricing: 0.0124 USD per Hour
 On-Demand Ubuntu Pro base pricing: 0.0142 USD per Hour
 On-Demand SUSE base pricing: 0.0124 USD per Hour

All generations
[Compare instance types](#)

Additional costs apply for AMIs with pre-installed software

- Choose an existing "Key pair" or create a new one for secure access.

▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name

key mumbai



[Create new key pair](#)

- Select 2 to 3 "Security groups" to control traffic to your instance.

Firewall (security groups) | Info
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow instance.

Select existing security group Create security group

Security groups | Info

Select security groups

Search input field

Specify a custom value...

default	sg-0b9b92f40dafa226e
launch-wizard-2	sg-087031e17841fb954
launch-wizard-1	sg-0250d156ae24cc27d

- Click on "Create launch template".
- Your template is now created.

EC2 > Launch templates > Create launch template

Storage (volumes) [Info](#)

EBS Volumes [Hide details](#)

Volume 1 (AMI Root) : 8 GiB, EBS, General purpose SSD (gp3), 3000 IOPS
AMI Volumes are not included in the template unless modified

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage [X](#)

[Add new volume](#)

Resource tags [Info](#)

No resource tags are currently included in this template. Add a resource tag to include it in the launch template.

Summary

Software Image (AMI)
Amazon Linux 2023 AMI 2023.8.2... [read more](#)
ami-0a1235697f4afaf8a4

Virtual server type (instance type)
t2.micro

Firewall (security group)
3 security groups

Storage (volumes)
1 volume(s) - 8 GiB

[Cancel](#) [Create launch template](#)

Launch Templates (1/1) [Info](#)

[Actions](#) [Create launch template](#)

Search input field

Launch Template ID	Launch Template Name	Default Version	Latest Version	Create Ti
lt-097c67099e93184fa	MyTemplate1	1	1	2025-07-

Step 3:

- Return to the "Auto Scaling Group" setup where you left off.
- Select the "Launch Template" you just created.

- Click on "Next".

Launch template [Info](#)

For accounts created after May 31, 2025, the EC2 console only supports creating Auto Scaling groups with launch templates. Creating Auto Scaling groups with launch configurations is not recommended but still available via the CLI and API until December 31, 2025.

Launch template
Choose a launch template that contains the instance-level settings, such as the Amazon Machine Image (AMI), instance type, key pair, and security groups.

MyTemplate1 

[Create a launch template](#)  

Version
Default (1)  

[Create a launch template version](#)

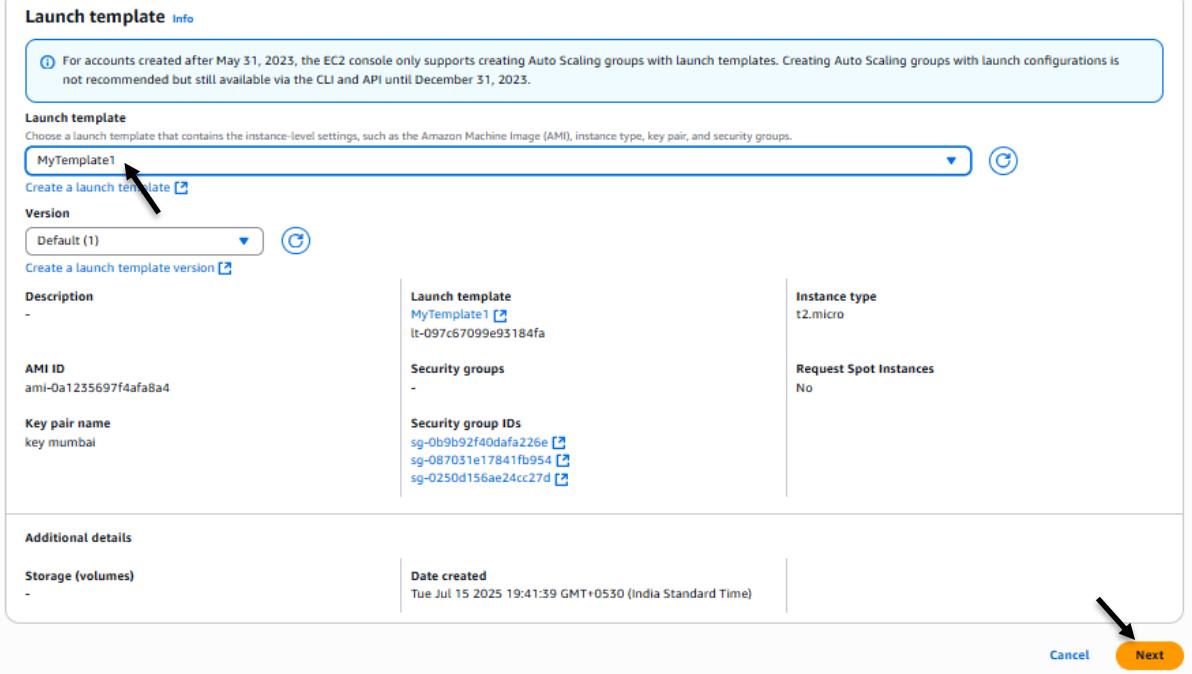
Description -	Launch template MyTemplate1  lt-097c67099e93184fa	Instance type t2.micro
AMI ID ami-0a1235697f4afab4	Security groups -	Request Spot Instances No
Key pair name key mumbai	Security group IDs sg-0b9b92f40dfa226e  sg-087031e17841fb954  sg-0250d156ae24cc27d 	

Additional details

Storage (volumes)
-

Date created
Tue Jul 15 2025 19:41:39 GMT+0530 (India Standard Time)

[Cancel](#) 



- You will now be on Step 2, "Choose Instance Launch Option".
- Select all the "Availability Zones and Subnets" where you want your instances to run.

[EC2](#) > [Auto Scaling groups](#) > Create Auto Scaling group

Step 1
 Choose launch template
 Step 2
 Choose instance launch options
 Step 3 - optional
 Integrate with other services
 Step 4 - optional
 Configure group size and scaling
 Step 5 - optional
 Add notifications
 Step 6 - optional
 Add tags
 Step 7
 Review

Choose instance launch options [Info](#)

Choose the VPC network environment that your instances are launched into, and customize the instance types and purchase options.

Launch template MyTemplate1  lt-097c67099e93184fa	Version Default	Description -
--	---------------------------	-------------------------

Instance type requirements [Info](#)

You can keep the same instance attributes or instance type from your launch template, or you can choose to override the launch template by specifying different instance attributes or manually adding instance types.

Instance type
t2.micro

Network [Info](#)

For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.

VPC
Choose the VPC that defines the virtual network for your Auto Scaling group.

vpc-0e88cab9b21c01e4b
172.31.0.0/16 Default  

Availability Zones and subnets
Define which Availability Zones and subnets your Auto Scaling group can use in the chosen VPC.

Select Availability Zones and subnets  

aps1-az1 (ap-south-1a) | subnet-0caa2c449b9f93910
172.31.32.0/20 Default 

aps1-az2 (ap-south-1c) | subnet-0f35191c87830d061
172.31.16.0/20 Default 

aps1-az3 (ap-south-1b) | subnet-00e3110f08fc2d3dd
172.31.0.0/20 Default 

Create a subnet 

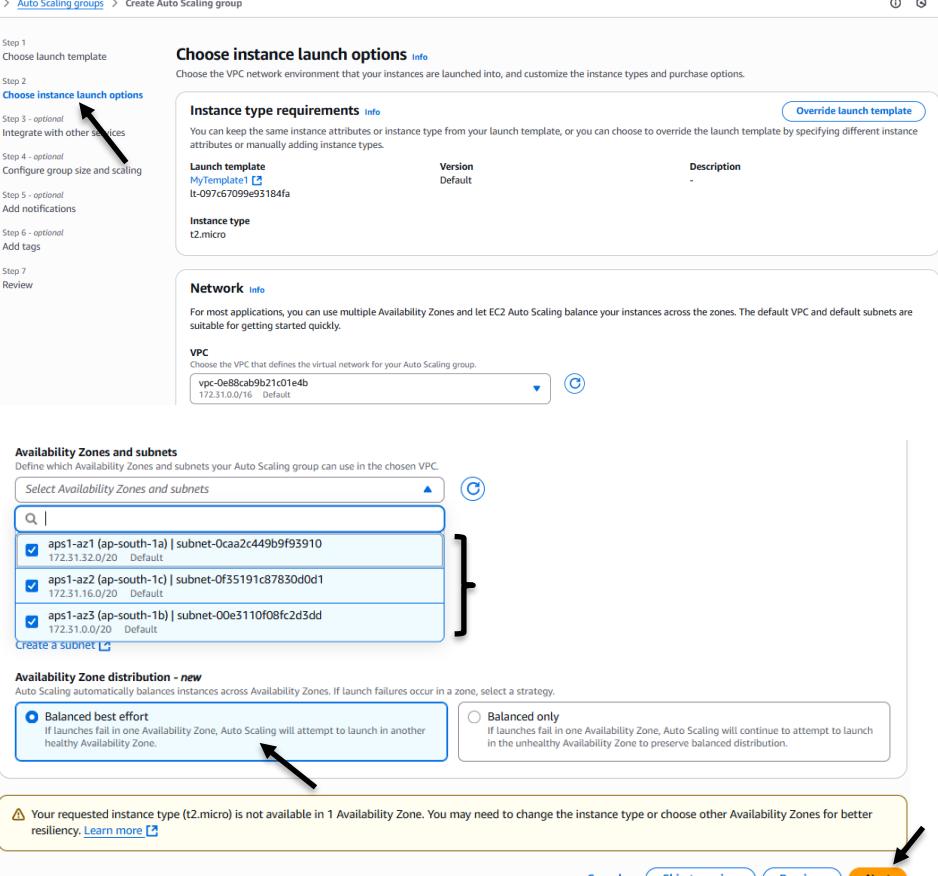
Availability Zone distribution - new
Auto Scaling automatically balances instances across Availability Zones. If launch failures occur in a zone, select a strategy.

Balanced best effort
If launches fail in one Availability Zone, Auto Scaling will attempt to launch in another healthy Availability Zone. 

Balanced only
If launches fail in one Availability Zone, Auto Scaling will continue to attempt to launch in the unhealthy Availability Zone to preserve balanced distribution. 

 Your requested instance type (t2.micro) is not available in 1 Availability Zone. You may need to change the instance type or choose other Availability Zones for better resiliency. [Learn more](#) 

[Cancel](#) [Skip to review](#) [Previous](#) 



- In the "Availability Zone Distribution" section, choose the option according to your needs.
- Click on "Next" to continue.

Step 4:

- Step 3: Go to "Integrate with other services (optional)".
- If there is an existing load balancer, attach it if needed.
- You can also choose the option "Attach to a new load balancer" if you want to create a new one.
- If a load balancer is not required, select "No load balancer".

The screenshot shows the AWS Auto Scaling 'Create Auto Scaling group' wizard at Step 4: Integrate with other services (optional). The left sidebar lists steps from 1 to 7. The current step, 'Integrate with other services', is highlighted with a blue circle and has an arrow pointing to it from the text above. The 'Load balancing' section contains three options: 'No load balancer' (selected), 'Attach to an existing load balancer', and 'Attach to a new load balancer'. The 'VPC Lattice integration options' section also has three options: 'No VPC Lattice service' (selected) and 'Attach to VPC Lattice service'.

- Check the option "Enable zonal shift" based on your need or preference.
- In the "Health check grace period", the default value is "300 sec". This gives an instance time to start and become stable before health checks begin. Reduce the time to "30 sec".
- Click on "Next".

Application Recovery Controller (ARC) zonal shift - new [Info](#)

During an Availability Zone impairment, target instance launches towards other healthy Availability Zones.

Enable zonal shift
New instance launches will be retargeted towards healthy Availability Zones until the zonal shift is canceled.

Health checks
Health checks increase availability by replacing unhealthy instances. When you use multiple health checks, all are evaluated, and if at least one fails, instance replacement occurs.

EC2 health checks
 [Always enabled](#)

Additional health check types - optional [Info](#)

- Turn on Elastic Load Balancing health checks
Elastic Load Balancing monitors whether instances are available to handle requests. When it reports an unhealthy instance, EC2 Auto Scaling can replace it on its next periodic check.
- Turn on VPC Lattice health checks
VPC Lattice can monitor whether instances are available to handle requests. If it considers a target as failed a health check, EC2 Auto Scaling replaces it after its next periodic check.
- Turn on Amazon EBS health checks
EBS monitors whether an instance's root volume or attached volume stalls. When it reports an unhealthy volume, EC2 Auto Scaling can replace the instance on its next periodic health check.

Health check grace period [Info](#)
This time period delays the first health check until your instances finish initializing. It doesn't prevent an instance from terminating when placed into a non-running state.

30 seconds

[Cancel](#) [Skip to review](#) [Previous](#) [Next](#)

Step 5:

- Step 4: Go to "Configure group size and scaling (optional)".
- Enter the "Desired Capacity". This is the number of EC2 instances the group will try to keep running at all times (e.g. "2").
- The "Minimum and Maximum Desired Capacity" set the range of how many EC2 instances the group can scale up or down (e.g. min "1" and max "2").

Step 1 Choose launch template
Step 2 Choose instance launch options
Step 3 - optional
Step 4 - optional
Configure group size and scaling
Step 5 - optional
Step 6 - optional
Add notifications
Add tags
Step 7
Review

Configure group size and scaling - optional [Info](#)
Define your group's desired capacity and scaling limits. You can optionally add automatic scaling to adjust the size of your group.

Group size [Info](#)
Set the initial size of the Auto Scaling group. After creating the group, you can change its size to meet demand, either manually or by using automatic scaling.

Desired capacity type
Choose the unit of measurement for the desired capacity value. vCPUs and Memory(GiB) are only supported for mixed instances groups configured with a set of instance attributes.

Units (number of instances)

Desired capacity
Specify your group size.
2

Scaling [Info](#)
You can resize your Auto Scaling group manually or automatically to meet changes in demand.

Scaling limits
Set limits on how much your desired capacity can be increased or decreased.

Min desired capacity	Max desired capacity
1	2

Equal or less than desired capacity Equal or greater than desired capacity

- In the "Automatic scaling" section, choose the option "Target tracking scaling policy".
- In the "Metric type" dropdown, select "Average CPU utilization".

- Set the "Target value" as "70". This means when CPU usage goes above 70%, Auto Scaling will add more instances.
- In the "Instance warmup" field, enter "30" seconds.

Automatic scaling - optional

Choose whether to use a target tracking policy | [Info](#)

You can set up other metric-based scaling policies and scheduled scaling after creating your Auto Scaling group.

No scaling policies
Your Auto Scaling group will remain at its initial size and will not dynamically resize to meet demand.

Target tracking scaling policy
Choose a CloudWatch metric and target value and let the scaling policy adjust the desired capacity in proportion to the metric's value.

Scaling policy name

Metric type | [Info](#)
Monitored metric that determines if resource utilization is too low or high. If using EC2 metrics, consider enabling detailed monitoring for better scaling performance.

Average CPU utilization ▾

Target value

Instance warmup | [Info](#)
 seconds

Disable scale in to create only a scale-out policy

- In the "Maintenance Policy" section, choose "No Policy".
- Leave the other steps as it is.
- Click on "Next".

Instance maintenance policy [Info](#)

Control your Auto Scaling group's availability during instance replacement events. This includes health checks, instance refreshes, maximum instance lifetime features and events that happen automatically to keep your group balanced, called rebalancing events.

Choose a replacement behavior depending on your availability requirements

Mixed behavior

No policy
For rebalancing events, new instances will launch before terminating others. For all other events, instances terminate and launch at the same time.

Prioritize availability

Launch before terminating
Launch new instances and wait for them to be ready before terminating others. This allows you to go above your desired capacity by a given percentage and may temporarily increase costs.

Control costs

Terminate and launch
Terminate and launch instances at the same time. This allows you to go below your desired capacity by a given percentage and may temporarily reduce availability.

Flexible

Custom behavior
Set custom values for the minimum and maximum amount of available capacity. This gives you greater flexibility in setting how far below and over your desired capacity EC2 Auto Scaling goes when replacing instances.

[Cancel](#) [Skip to review](#) [Previous](#) **Next**

Step 6:

- Step 5: In "Add notifications", click on "Next" if you don't want to set any notifications.

Add notifications - optional Info

Send notifications to SNS topics whenever Amazon EC2 Auto Scaling launches or terminates the EC2 instances in your Auto Scaling group.

[Add notification](#)

Cancel Skip to review Previous **Next**

- Step 1 Choose launch template
- Step 2 Choose instance launch options
- Step 3 - optional Integrate with other services
- Step 4 - optional Configure group size and scaling
- Step 5 - optional Add notifications**
- Step 6 - optional Add tags
- Step 7 Review

- Step 6: In "Add tags", click on "Next" to continue.

Add tags - optional Info

Add tags to help you search, filter, and track your Auto Scaling group across AWS. You can also choose to automatically add these tags to instances when they are launched.

ⓘ You can optionally choose to add tags to instances (and their attached EBS volumes) by specifying tags in your launch template. We recommend caution, however, because the tag values for instances from your launch template will be overridden if there are any duplicate keys specified for the Auto Scaling group.

Tags (0)

[Add tag](#)

50 remaining

Cancel Previous **Next**

- Step 1 Choose launch template
- Step 2 Choose instance launch options
- Step 3 - optional Integrate with other services
- Step 4 - optional Configure group size and scaling
- Step 5 - optional Add notifications**
- Step 6 - optional Add tags**
- Step 7 Review

- Step 7: In "Review", go through all the settings you have configured.

Review Info

Step 1: Choose launch template

Group details

Auto Scaling group name
ASG1

Launch template

Launch template	Version	Description
MyTemplate1	Default	

Step 2: Choose instance launch options

Network

VPC
vpc-0e8cab9b21c01e4b

Availability Zones and subnets

Availability Zone	Subnet	Subnet CIDR range
-------------------	--------	-------------------

Cancel Previous **Create Auto Scaling group**

- Step 1 Choose launch template
- Step 2 Choose instance launch options
- Step 3 - optional Integrate with other services
- Step 4 - optional Configure group size and scaling
- Step 5 - optional Add notifications
- Step 6 - optional Add tags
- Step 7 Review**

- Finally, click on "Create Auto Scaling group" to complete the setup.

[Cancel](#) [Previous](#) **Create Auto Scaling group**

Step 7:

- The "Auto Scaling Group" is now created.
- I entered "2" in the "Desired Capacity" therefore, 2 instances will be launched automatically.

- If any instance becomes unhealthy or gets terminated, a new instance will be created automatically to replace it.

The screenshot shows two related pages from the AWS Management Console:

- Auto Scaling groups (1/1) Info**: This page lists a single Auto Scaling Group named "ASG1". The "Launch template/configuration" is "MyTemplate1 | Version Default". The "Desired capacity" is set to 2. An arrow points to the "Desired capacity" value of 2.
- Instances (2/2) Info**: This page lists the two instances associated with "ASG1". Both instances are "Running" and have a status of "2/2 checks passed". They are both in the "t2.micro" instance type and located in the "ap-south-1b" availability zone.

Step 8:

- If you want to make any changes to the "Auto Scaling Group", there is an "Edit" option available under "Actions". There you can edit the desired capacity and every other setting that you want to change.
- To delete the "Auto Scaling Group", first select the ASG you want to remove.
- Go to "Actions", click on "Delete".

This screenshot shows the "Auto Scaling groups (1/1) Info" page again. The "ASG1" row is selected. In the "Actions" dropdown menu, the "Delete" option is highlighted with a mouse cursor, indicated by an arrow.

- Type "delete" to confirm and then click on "Delete" again.

This screenshot shows the "Delete Auto Scaling group" confirmation dialog box. It contains the following text:

Delete the following Auto Scaling groups:

- ASG1

⚠️ Auto Scaling group contains running instances
Deleting these Auto Scaling groups will terminate all instances in each group. This action cannot be undone.

To confirm deletion, type **delete** in the field.

A text input field contains the word "delete". A large orange "Delete" button is at the bottom right, with an arrow pointing towards it.

- The ASG is now deleted.

- All the instances that were created by the ASG will also be automatically terminated.

The screenshot shows the AWS EC2 Instances page with two instances listed as terminated. The 'Actions' button for the second instance is highlighted with a black arrow.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
	i-0c41fbafec1fde3e3	Terminated	t2.micro	-	View alarms	ap-south-1b	-
	i-06ae957a33e6f6996	Terminated	t2.micro	-	View alarms	ap-south-1a	-

Step 9:

- Now there is no use of template and hence, you can delete it also.
- Under “Launch Templates”, select the template and go to “Actions”.
- Click on “Delete template”.

The screenshot shows the AWS Launch Templates page with a single template named 'MyTemplate1'. The 'Actions' button is highlighted with a black arrow, and the 'Delete template' option in the dropdown menu is also highlighted with a black arrow.

Launch Template ID	Launch Template Name	Default Version
lt-097c67099e93184fa	MyTemplate1	1

- Type “Delete” and click on “Delete” button.

Delete Launch Template



You can't undo this action. Any Auto Scaling groups or Spot Fleet requests currently using this launch template might be affected.

Are you sure you want to delete MyTemplate1 (lt-097c67099e93184fa) and all its versions?

To confirm deletion, type **Delete** in the field

► CLI commands

[Cancel](#)

[Delete](#)

- The template is deleted.

Elastic Load Balancer (ELB)

Introduction:

A "Load Balancer" in AWS is like a smart traffic manager for your application. When users send requests to your app, the Load Balancer distributes those requests across several "EC2 instances" (virtual servers). This helps make sure no single server gets too much traffic, which keeps everything running smoothly and prevents slowdowns or crashes.

The Load Balancer constantly checks if each server is healthy. If it finds that one server is not working properly, it automatically stops sending traffic to that server and reroutes it to healthy ones instead. This keeps your app available and responsive, even if one or more servers fail.

You can also use a Load Balancer to send traffic across multiple "Availability Zones", which are separate data centers in AWS. This adds another layer of protection and helps your app stay online even if one zone has an issue.

Step by Step Instructions:

Step 1:

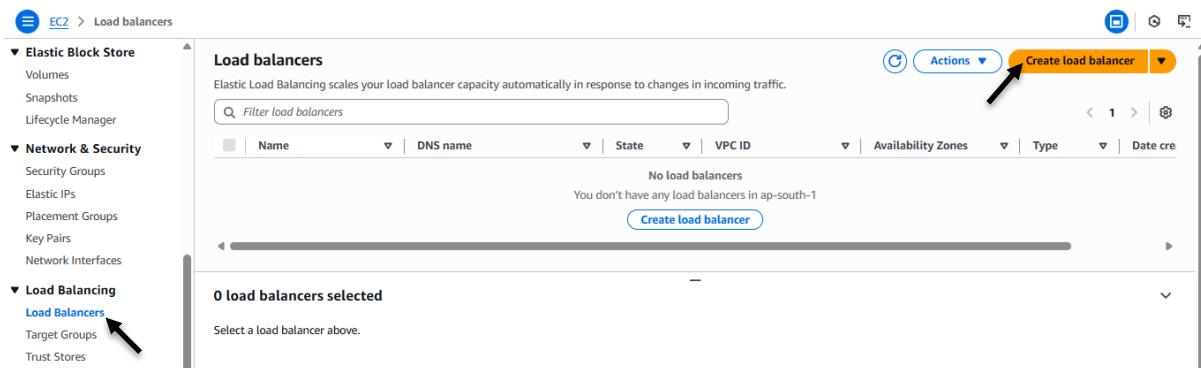
- First, create "3 to 4" or more EC2 instances of any OS and connect to them.
- In the "Launch an Instance" page, go to the "Summary" section on the right side.
- In the "Number of Instances" field, enter the number of instances you want to launch (e.g. "3").
- Click on "Launch Instance".

The screenshot shows the "Launch an instance" page in the AWS Management Console. On the left, there's a "Name and tags" section with a "Name" input field containing "myserver" and a "Search our full catalog including 1000s of application and OS images" search bar. Below that is a "Application and OS Images (Amazon Machine Image)" section with a "Recent" tab and a "Quick Start" tab. Under "Recent", there are icons for Amazon Linux (aws), macOS, Ubuntu, Windows, Red Hat, SUSE Linux, and Debian. To the right of these is a "Browse more AMIs" link. On the right side of the page, under the "Summary" section, the "Number of instances" dropdown is set to "3". A callout arrow points to this dropdown. Below it, the "Software Image (AMI)" section shows "Amazon Linux 2023 AMI 2023.8.2...read more" and the AMI ID "ami-0a1235697f4fa8a4". The "Virtual server type (instance type)" is set to "t2.micro". The "Firewall (security group)" is set to "New security group". The "Storage (volumes)" section shows "1 volume(s) - 8 GiB". At the bottom right, there are "Cancel", "Launch instance" (which is highlighted with a yellow arrow), and "Preview code" buttons.

Step 2:

- Go to the "Load Balancing" section in the AWS Management Console and click on "Load Balancers".

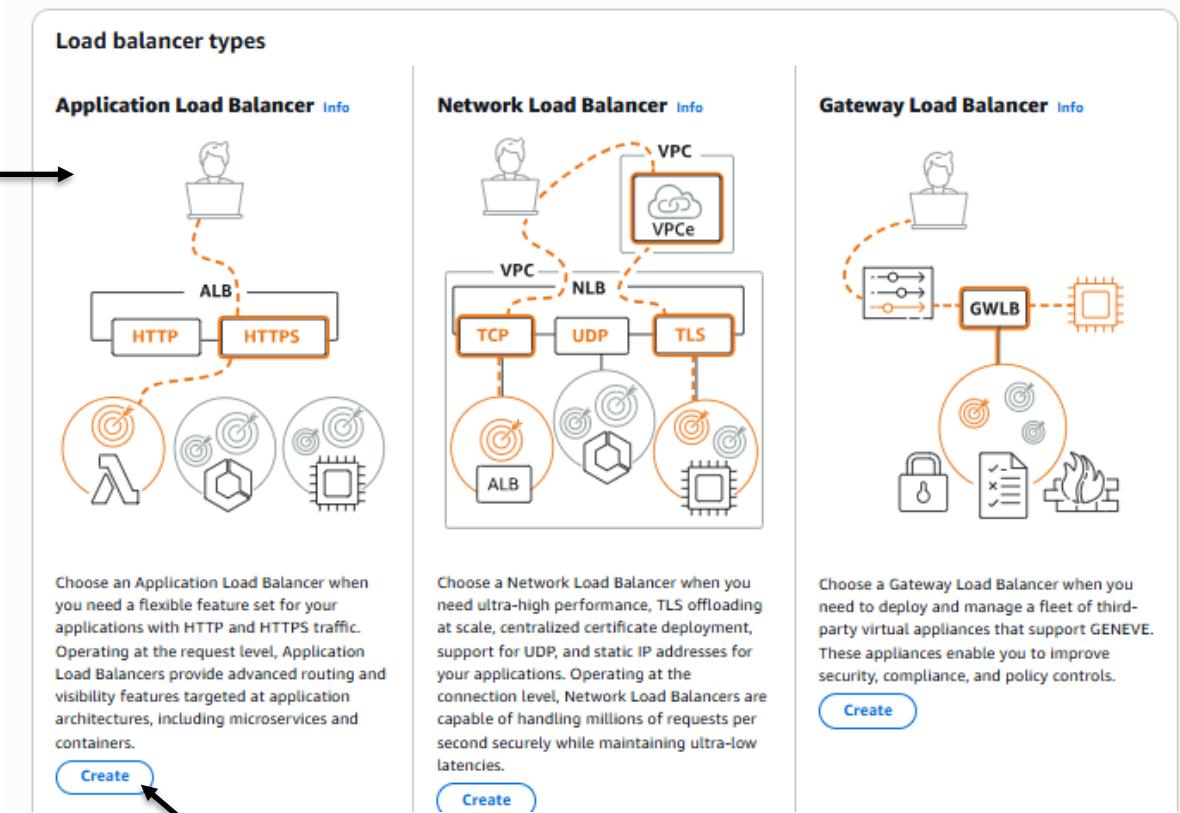
- Click on "Create Load Balancer".



- Choose the option "Application Load Balancer".
- Then click on "Create" to start the setup.

Compare and select load balancer type

A complete feature-by-feature comparison along with detailed highlights is also available. [Learn more](#)



Step 3:

- Enter the "Load Balancer Name" (e.g. "LoadBalancer1").
- Select the "Scheme" based on your requirement (e.g. "Internet-facing" if you want the load balancer to be publicly accessible).
- In the "Network Mapping" section, select all three "Availability Zones and Subnets" to ensure high availability.

Create Application Load Balancer Info

The Application Load Balancer distributes incoming HTTP and HTTPS traffic across multiple targets such as Amazon EC2 instances, microservices, and containers, based on request attributes. When the load balancer receives a connection request, it evaluates the listener rules in priority order to determine which rule to apply, and if applicable, it selects a target from the target group for the rule action.

► How Application Load Balancers work

Basic configuration

Load balancer name

Name must be unique within your AWS account and can't be changed after the load balancer is created.

LoadBalancer1

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Scheme Info

Scheme can't be changed after the load balancer is created.

Internet-facing

- Serves internet-facing traffic.
- Has public IP addresses.
- DNS name resolves to public IPs.
- Requires a public subnet.

Internal

- Serves internal traffic.
- Has private IP addresses.
- DNS name resolves to private IPs.
- Compatible with the IPv4 and Dualstack IP address types.

Load balancer IP address type Info

Select the front-end IP address type to assign to the load balancer. The VPC and subnets mapped to this load balancer must include the selected IP address types. Public IPv4 addresses have an additional cost.

IPv4

Include auto IPv6 addresses

Network mapping Info

The load balancer routes traffic to targets in the selected subnets, and in accordance with your IP address settings.

VPC Info

The load balancer will exist and scale within the selected VPC. The selected VPC is also where the load balancer targets must be hosted ↗ [create a VPC](#).

vpc-0e88cab9b21c01e4b
IPv4 VPC CIDR: 172.31.0.0/16

IP pools - new Info

You can optionally choose to configure an IPAM pool as the preferred source for your load balancer's IP addresses. Create or view Pools ↗

Use IPAM pool for public IPv4 addresses

The IPAM pool you choose will be the preferred source of public IPv4 addresses. If the pool is depleted IPv4 addresses will be assigned from the VPC's CIDR range.

Availability Zones and subnets Info

Select at least two Availability Zones and a subnet for each zone. A load balancer node will be placed in each selected zone and will automatically fail over between them.

ap-south-1a (aps1-az1)

Subnet

Only CIDR blocks corresponding to the load balancer IP address type are used. At least 8 available IP addresses are required for your subnet.

subnet-0caa2c449b9f93910
IPv4 subnet CIDR: 172.31.32.0/20

ap-south-1b (aps1-az3)

Subnet

Only CIDR blocks corresponding to the load balancer IP address type are used. At least 8 available IP addresses are required for your subnet.

subnet-00e3110f08fc2d3dd
IPv4 subnet CIDR: 172.31.0.0/20

ap-south-1c (aps1-az2)

Subnet

Only CIDR blocks corresponding to the load balancer IP address type are used. At least 8 available IP addresses are required for your subnet.

subnet-0f35191c87830d0d1
IPv4 subnet CIDR: 172.31.16.0/20

- In the "Security Groups" section, select the latest 2 to 3 groups.

Security groups Info

A security group is a set of firewall rules that control the traffic to your load balancer. Select an existing security group, or you can [create a new security group](#).

Security groups

Select up to 5 security groups



launch-wizard-1

sg-00766de9b58899b9b VPC: vpc-0e88cab9b21c01e4b

default

sg-0b9b92f40dafa226e VPC: vpc-0e88cab9b21c01e4b

- In the "Listeners and Routing" section, click on "Create Target Group".

Listeners and routing Info

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

Protocol: HTTP | Port: 80 | Default action: Forward to: Select a target group | Create target group [+]

Listener tags - optional
Consider adding tags to your listener. Tags enable you to categorize your AWS resources so you can more easily manage them.

Add listener tag
You can add up to 50 more tags.

Add listener

Step 4:

- Step 1 is "Specify Group Details".
- For the "Target Type", choose "Instances".

Step 1 Specify group details

Your load balancer routes requests to the targets in a target group and performs health checks on the targets.

Basic configuration
Settings in this section can't be changed after the target group is created.

Choose a target type

Instances

- Supports load balancing to Instances within a specific VPC.
- Facilitates the use of [Amazon EC2 Auto Scaling](#) to manage and scale your EC2 capacity.

IP addresses

- Supports load balancing to VPC and on-premises resources.
- Facilitates routing to multiple IP addresses and network interfaces on the same instance.
- Offers flexibility with microservice based architectures, simplifying inter-application communication.
- Supports IPv6 targets, enabling end-to-end IPv6 communication, and IPv4-to-IPv6 NAT.

Lambda function

- Facilitates routing to a single Lambda function.
- Accessible to Application Load Balancers only.

- Enter a name in the "Target Group Name" field (e.g. "TG1").
- Leave other setting as it is.
- Click on "Next" to continue.

Target group name

TG1

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Cancel **Next**

- In Step 2, go to "Register Target".
- Select the "Available Instances" that you want to connect with the Load Balancer.
- Click on "Include as pending below" to add the selected instances.

Step 1
Specify group details
Step 2
Register targets

Register targets
This is an optional step to create a target group. However, to ensure that your load balancer routes traffic to this target group you must register your targets.

Available instances (3/3)

Instance ID	Name	State	Security groups	Zone	Private IPv4
i-0cf6d3fd4ac896804	myserver	Running	launch-wizard-1	ap-south-1b	172.31.10.1
i-0de367252ec671a9d	myserver	Running	launch-wizard-1	ap-south-1b	172.31.9.17
i-081c06f8d7cb86a06	myserver	Running	launch-wizard-1	ap-south-1b	172.31.2.18

3 selected

Ports for the selected instances
Ports for routing traffic to the selected instances.
80
1-65535 (separate multiple ports with commas)

Include as pending below

- Then click on "Create Target Group".

Review targets

Targets (3)

Instance ID	Name	Port	State	Security groups	Zone	Private IPv4 address	Subnet ID	Launch time
i-0cf6d3fd4ac896804	myserver	80	Running	launch-wizard-1	ap-south-1b	172.31.10.10	subnet-00e3110f08fc2d3dd	July 15, 2025, 21:24 (
i-0de367252ec671a9d	myserver	80	Running	launch-wizard-1	ap-south-1b	172.31.9.179	subnet-00e3110f08fc2d3dd	July 15, 2025, 21:24 (
i-081c06f8d7cb86a06	myserver	80	Running	launch-wizard-1	ap-south-1b	172.31.2.180	subnet-00e3110f08fc2d3dd	July 15, 2025, 21:24 (

3 pending

Create target group

- The target group named "TG1" is now successfully created.

Target groups (1/1) Info

Name	ARN	Port	Protocol	Target type	Load balancer
TG1	arn:aws:elasticloadbalancin...	80	HTTP	Instance	None associa...

Step 5:

- Return to the "Listeners and Routing" section.
- Under "Default action", choose the target group you just created i.e. "TG1".

Listeners and routing Info

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how registered targets.

Listener HTTP:80

Protocol	Port	Default action
HTTP	80	Forward to TG1 Target type: Instance, IPv4

Listener tags - optional
Consider adding tags to your listener. Tags enable you to categorize your AWS resources so

- Click on "Create Load Balancer".



- The Load Balancer is now successfully created.

A screenshot of the AWS Lambda console showing the details of a newly created Load Balancer named "LoadBalancer1". The "Details" section shows the following information:

Load balancer type Application	Status Provisioning	VPC vpc-0e88cab9b21c01e4b	Load balancer IP address type IPv4
Scheme Internet-facing	Hosted zone ZP97RAFLXTNZK	Availability Zones subnet-00e3110f08fc2d3dd ap-south-1b (aps1-az3) subnet-0caa2c449b9f93910 ap-south-1a (aps1-az1) subnet-0f35191c87830d0d1 ap-south-1c (aps1-az2)	Date created July 15, 2025, 22:06 (UTC+05:30)

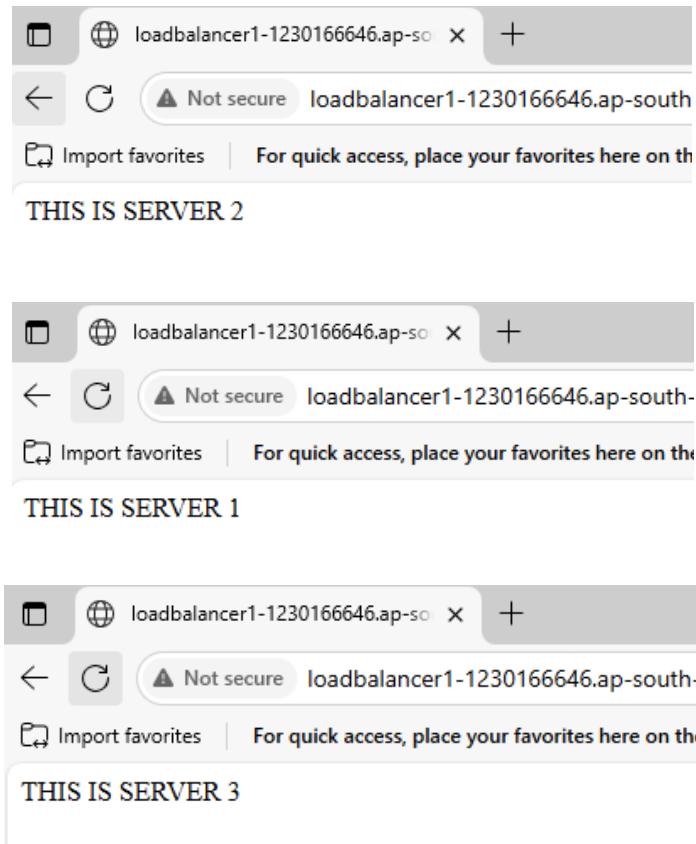
Step 6:

- Check the state of the Load Balancer.
- If the state is "Provisioning", wait for a few seconds.
- When it changes to "Active", copy the "DNS Name" shown beside the name.

A screenshot of the AWS Lambda console showing the "Load balancers" list. It displays one item: "LoadBalancer1" which is in the "Active" state. An arrow points to the "Active" status indicator.

A screenshot of the AWS Lambda console showing the "Load balancers" list. A tooltip "DNS name copied" appears over the "DNS name" column for "LoadBalancer1". An arrow points to the tooltip.

- Paste the "DNS Name" into your browser and press enter.
- You will see the Load Balancer in action. It sends requests to different servers, so you might see different results depending on which server responds. This is called "Load Balancing Behavior".



Step 7:

- Now go back to the "Load Balancers" section and click on "Actions".
- Click on "Delete Load Balancer".

Name	DNS name	State	VPC ID
LoadBalancer1	LoadBalancer1-123016664...	Active	vpc-0e88cab9b2

Load balancer: LoadBalancer1

- Enter "confirm" when asked.
- At last, click on "Delete".

Delete load balancer

X

Delete load balancer **LoadBalancer1** permanently? This action can't be undone.

⚠️ Proceeding with this action deletes the load balancer and its listeners. Target groups associated to this load balancer will become available for association to another load balancer and their registered targets remain unaffected.

To avoid accidental deletion we ask you to provide additional written consent.

Type **confirm** to agree.

confirm|

Cancel

Delete



- The Load Balancer is now deleted.

⌚ Successfully deleted load balancer: arn:aws:elasticloadbalancing:ap-south-1:110007729643:loadbalancer/app/LoadBalancer1/486a753c19ee6801. X

Load balancers

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Filter load balancers < 1 > ⚙️

Name	DNS name	State	VPC ID	Availability Zones	Type
No load balancers					

C Actions Create load balancer

Step 8:

- Go to the "Target Group" section.
- Select the target group you want to delete.
- Go to "Actions" and click on "Delete".

⌚ Target groups (1/1) Info

Filter target groups < 1 > ⚙️

Name	ARN	Port
TG1	arn:aws:elasticloadbalancin...	80

Actions

Delete ←

Register targets
Edit health check settings
Edit target group attributes
Manage tags
Associate with a new load balancer
Associate with an existing load balancer

Create target group

Load balancer None associa

- Click on "Delete" again to confirm.

Delete target group

X

Permanently delete **1 target group**. You can't undo this action.

- TG1

i Deleting a target group deletes the group; the individual resources registered to the target group don't get deleted as a result of this action.

Cancel

Delete



- The target group is successfully deleted.

Successfully deleted target group: TG1.

Target groups		Info	Actions	Create target group
Filter target groups				
Name	ARN	Port	Protocol	Target type
No target groups				

Step 9:

- Now terminate all the instances.

Instances (3/3)		Info	Last updated	Connect	Instance state	Actions	Launch instances
Find Instance by attribute or tag (case-sensitive)		less than a minute ago		All states			
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
myserver	i-0cf6d3fd4ac896804	Terminated	t2.micro	-	View alarms +	ap-south-1b	-
myserver	i-0de367252ec671a9d	Terminated	t2.micro	-	View alarms +	ap-south-1b	-
myserver	i-081c06f8d7cb86a06	Terminated	t2.micro	-	View alarms +	ap-south-1b	-