

Case Study

Problem Statement:

You work for XYZ Corporation. Your corporation is working on an application and they require secured web servers on Linux to launch the application.

Tasks To Be Performed:

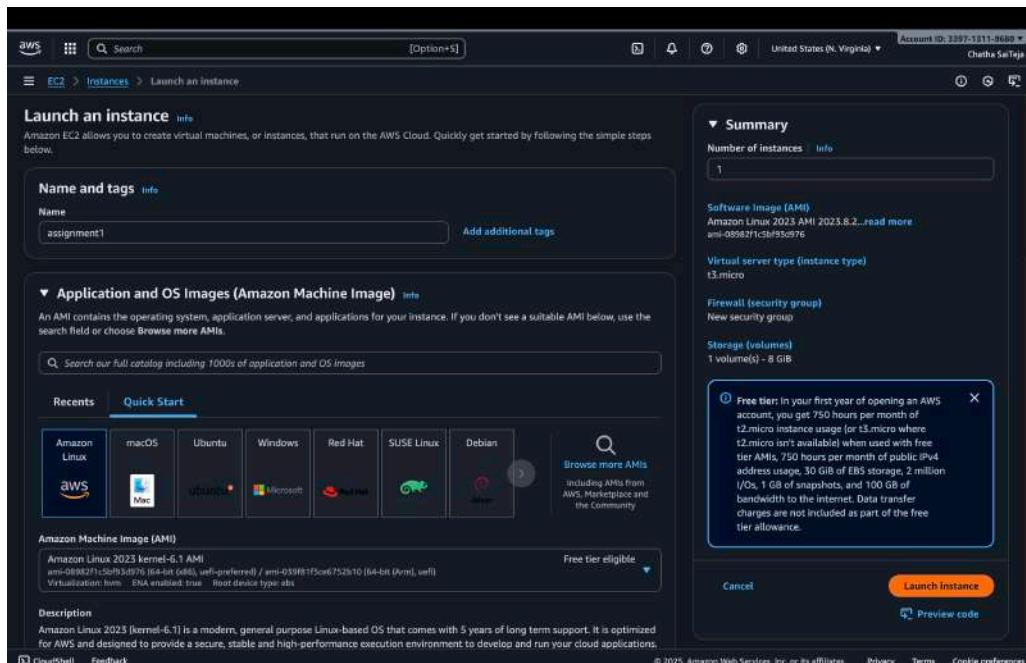
1. Create an instance in the US-East-1 (N. Virginia) region with Linux OS and manage the requirement of web servers of your company using AMI.
2. Replicate the instance in the US-West-2 (Oregon) region.
3. Build two EBS volumes and attach them to the instance in the US-East-1 (N. Virginia) region.
4. Delete one volume after detaching it and extend the size of the other volume.
5. Take backup of this EBS volume

Step-by-Step Procedure:-

Step 1:- Open AWS console and sign in with root user, In home search For EC2 service.

Step 2:- As you open Ec2 change the region to US-East-1 (N. Virginia) region

Step 3:- click on launch an Instance and select linux os as mention in the case study, and provide other related details like key pair, security groups and volumes etc..



Creating an Instance

Chatha Sai Teja (Assignment)

EC2 Instances

Instance summary for i-02aff2659fb337910 (assignment1)

Updated less than a minute ago

Instance ID	i-02aff2659fb337910	Public IPv4 address	98.84.169.80 open address
IPv6 address	-	Instance state	Running
Hostname type	IP name: ip-172-31-30-121.ec2.internal	Private IP DNS name (IPv4 only)	ip-172-31-30-121.ec2.internal
Answer private resource DNS name (IPv4 A)	-	Instance type	t3.micro
Auto-assigned IP address	98.84.169.80 [Public IP]	VPC ID	vpc-07c56690086316ef
IAM Role	-	Subnet ID	subnet-0ad0f5a6e1826e1
IMDSv2 Required	-	Instance ARN	arn:aws:ec2:us-east-1:1339713119680:instance/i-02aff2659fb337910
Operator	-	Managed	false

Details Status and alarms Monitoring Security Networking Storage Tags

Instance Summary

Step 4:- Select the Running instance and Go to “Actions” then click on the “Image&Templates” and click on “create Image”.

EC2 Instances

Instances (1/1)

Find Instance by attribute or tag (case-sensitive)

Name	Instance ID	Instance state	Instance type	Status check
assignment1	i-02aff2659fb337910	Running	t3.micro	Initializing

Actions ▾

- Create image
- Create template from instance
- Launch more like this

Launch instances ▾

Instance diagnostics

Instance settings

Networking

Security

Image and templates

Monitor and troubleshoot

i-02aff2659fb337910 (assignment1)

Details Status and alarms Monitoring Security Networking Storage Tags

Instance summary

Instance ID	i-02aff2659fb337910	Public IPv4 address	98.84.169.80 open address
IPv6 address	-	Instance state	Running
Hostname type	IP name: ip-172-31-30-121.ec2.internal	Private IP DNS name (IPv4 only)	ip-172-31-30-121.ec2.internal

Creating Ami

Step 5:- Enter Image (AMI) Details like image name, description here we can also add a volume ,click on create image

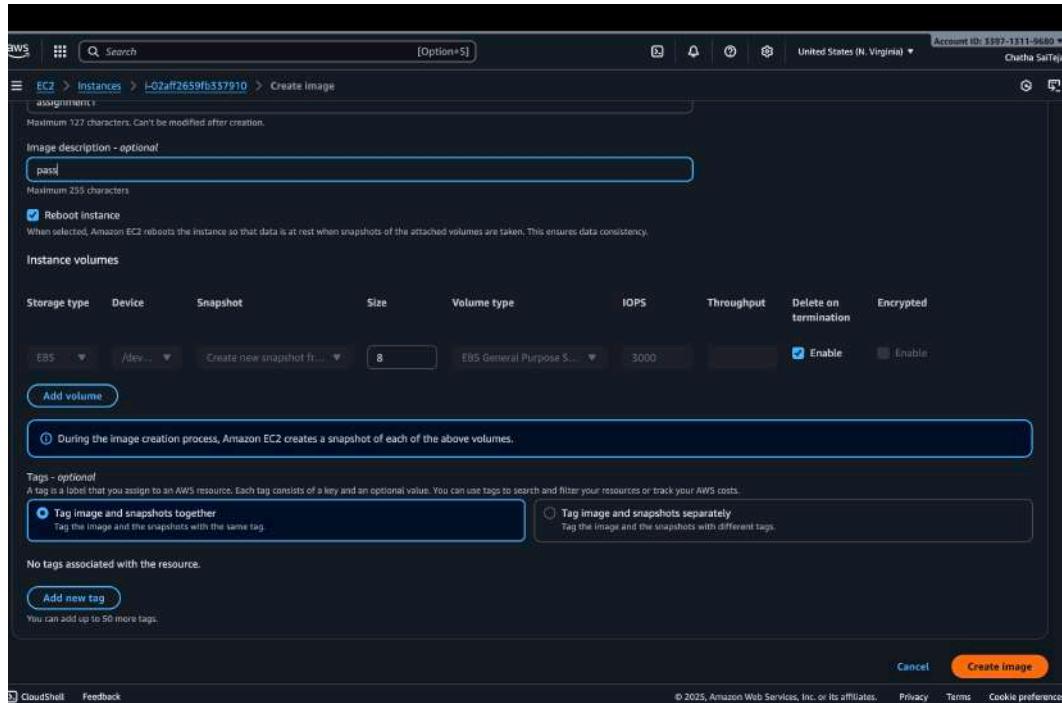
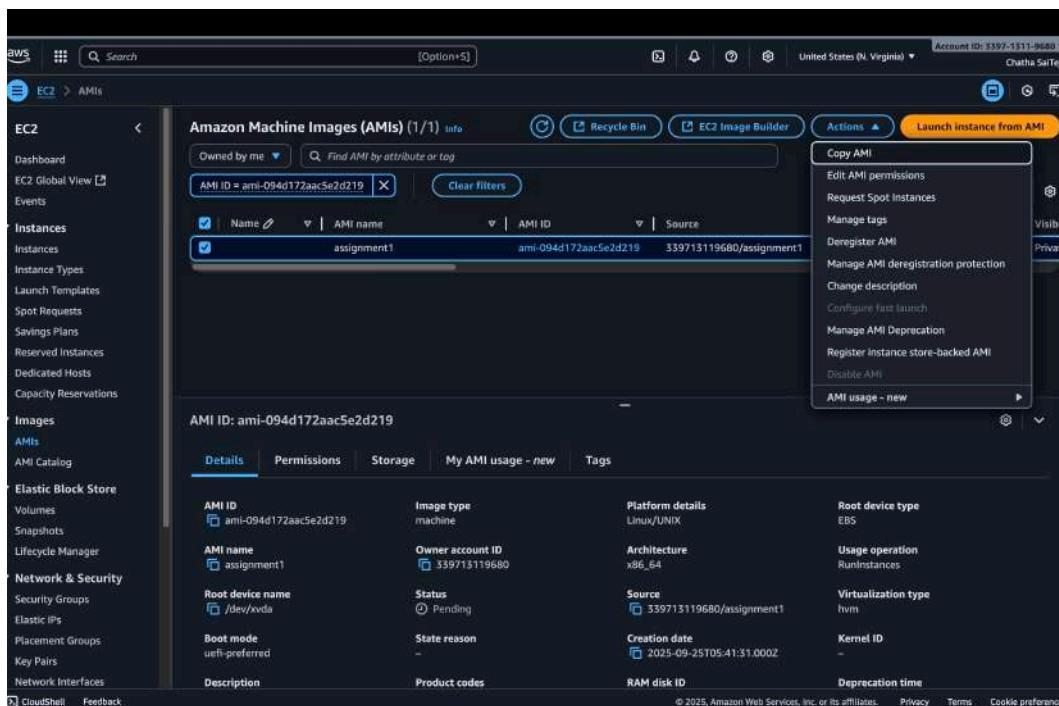


Image Details

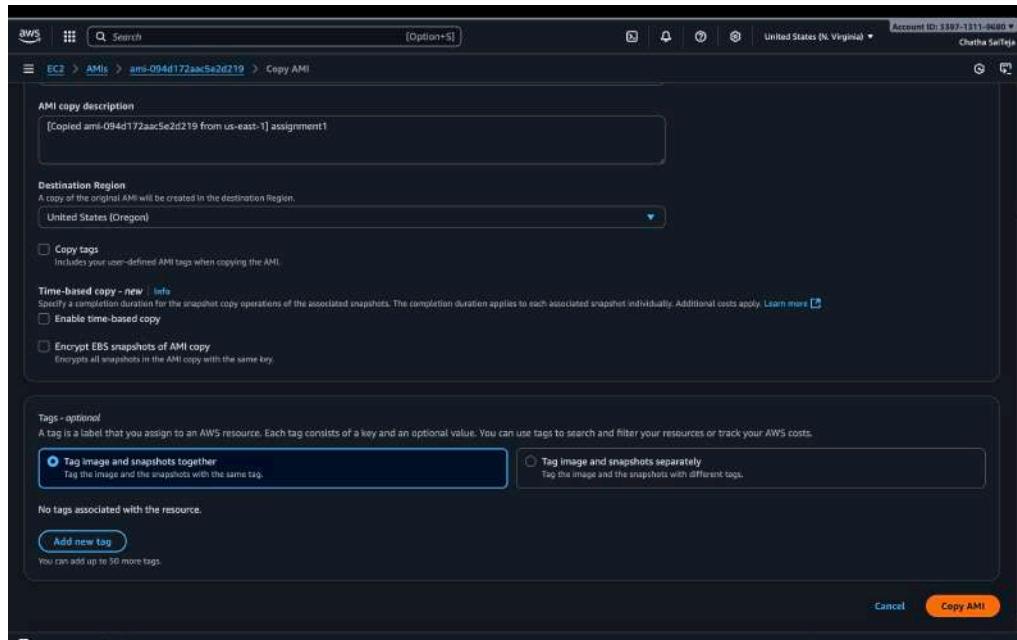
Step 6:- Now we have to Replicate the Instance that we created in US-East-1 (N. Virginia) region to US-West-2 (Oregon) region, so we have to copy the AMI (image). As we created the image N-V region in previous step.



Copy Ami

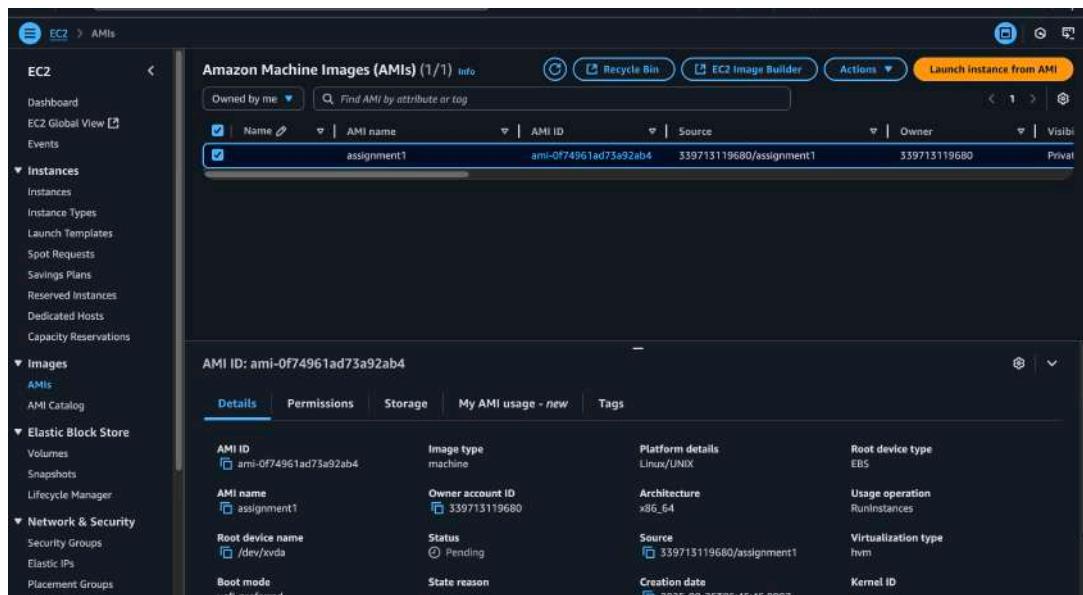
So we have to select the AMI(image) then Go to “Actions” ,click on ” Copy AMI”

Step 7:- After Clicking on Copy Ami we have to specify the destination region which is US-West-2 (Oregon) region.



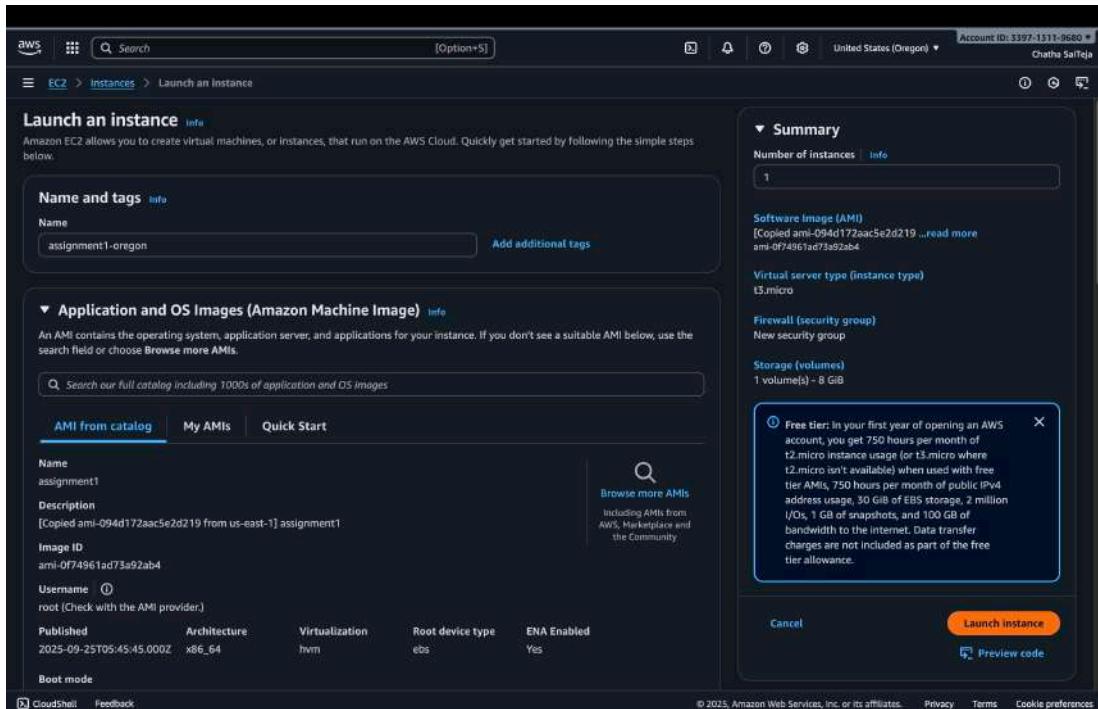
Providing the destination

Step 8:- it takes some minutes to copy ,After it we can go to US-West-2 (Oregon) region, click on AMI ,then we can able to see the Copied AMI from US-East-1 (N. Virginia) region

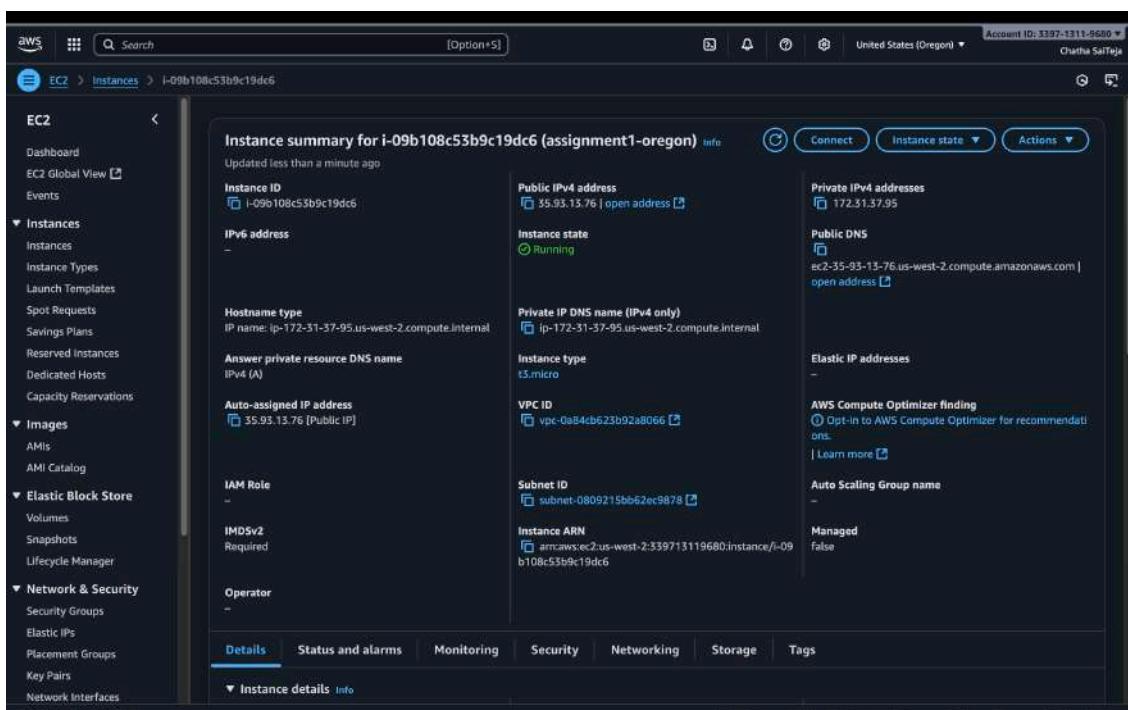


AMI in Oregon region

Step 9:- Click on “Launch Instance from AMI” in Oregon region

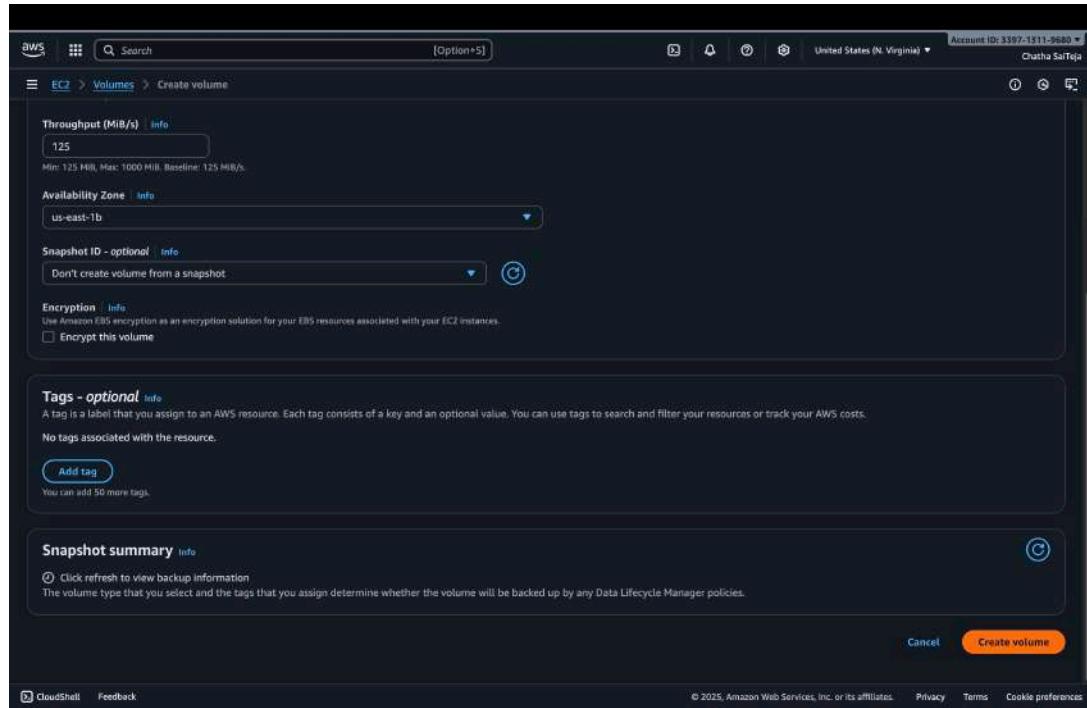


Launching Instance From AMI

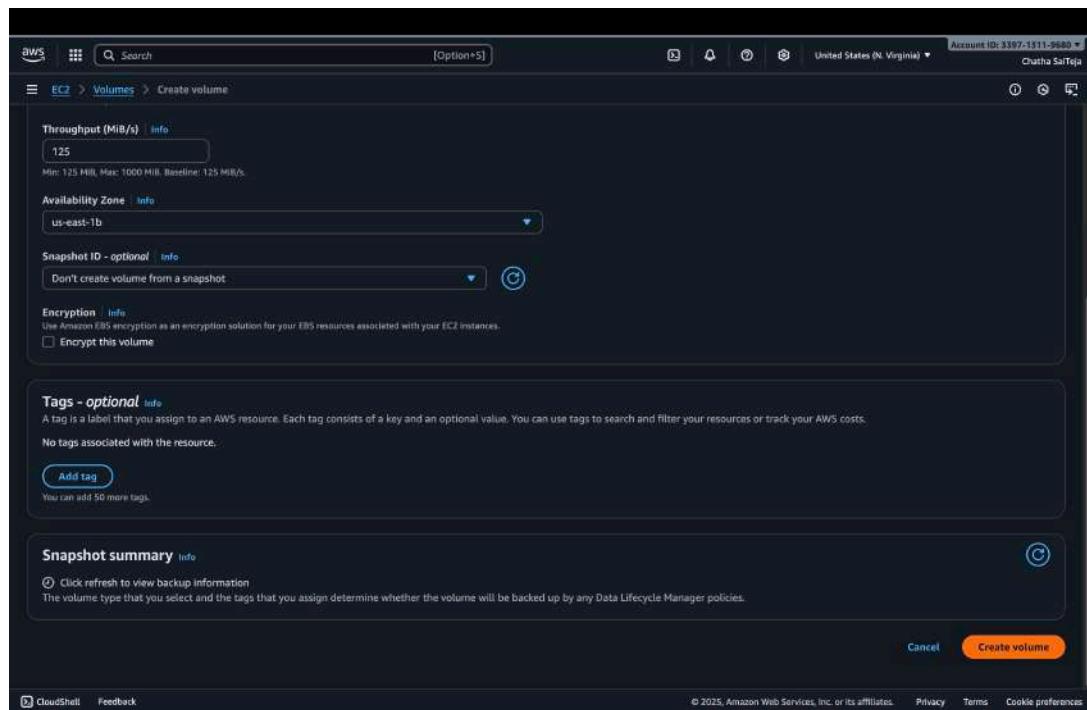


Instance Summary

Step 10:- Now we have to change the region to US-East-1 (N. Virginia) ,In that Go to “EBS Volumes” ,we have to create two volumes, So click on create a volume.



Creating a volume1 with size 10 GiB



Volume 2 with 10 GiB

Step 11:- Attach the volume 1 to the running instance by selecting the volume1 then click on “Actions” and Click on “Attach Volume”

The screenshot shows the AWS EC2 Volumes page. On the left, there's a sidebar with options like Dashboard, Instances, Images, and Elastic Block Store. The main area displays a table of volumes:

Name	Volume ID	Type	Size	IOPS	Throughput
volume1	vol-0f99b76d3d64ba938	gp3	10 GiB	3000	125
volume2	vol-00b068ce12dd66abd	gp3	10 GiB	3000	125
volume3	vol-09e566fbfbfd1b88b	gp3	8 GiB	3000	125

A context menu is open over the volume1 row, with "Attach volume" highlighted.

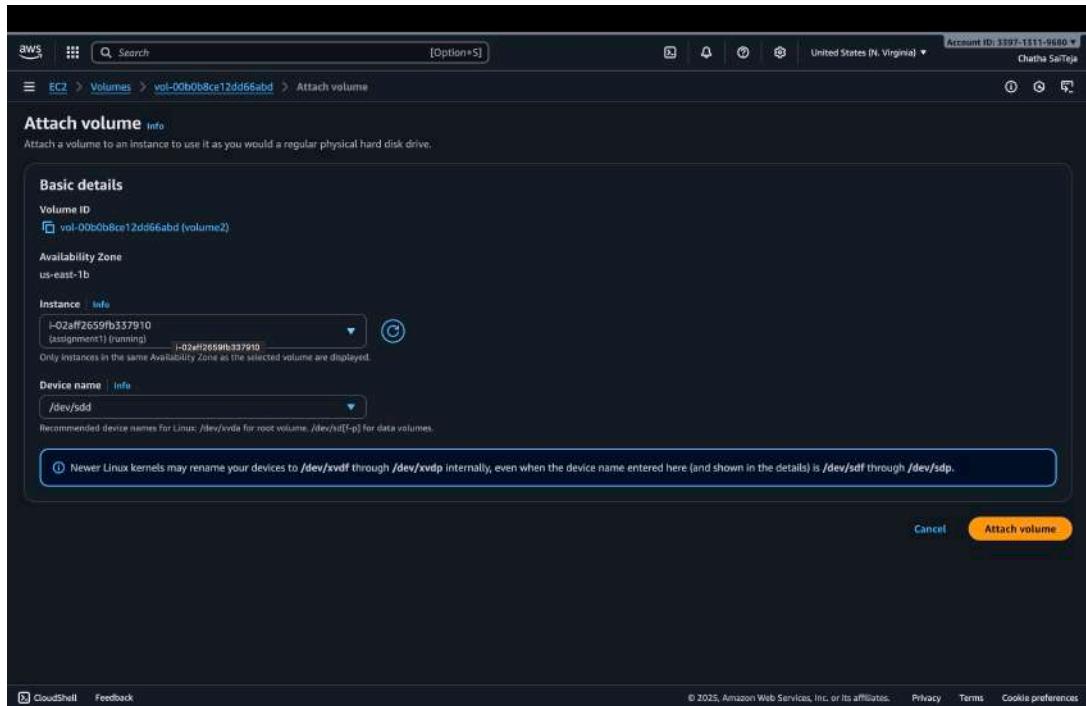
Attach Volume1 to Instance

The screenshot shows the "Attach volume" configuration page for volume1. It includes fields for:

- Basic details:** Volume ID (vol-0f99b76d3d64ba938), Availability Zone (us-east-1b), Instance (i-02aff2659fb337910), Device name (/dev/sdc).
- Notes:** A note about Linux kernel device renaming.
- Buttons:** Cancel, Attach volume (highlighted in orange).

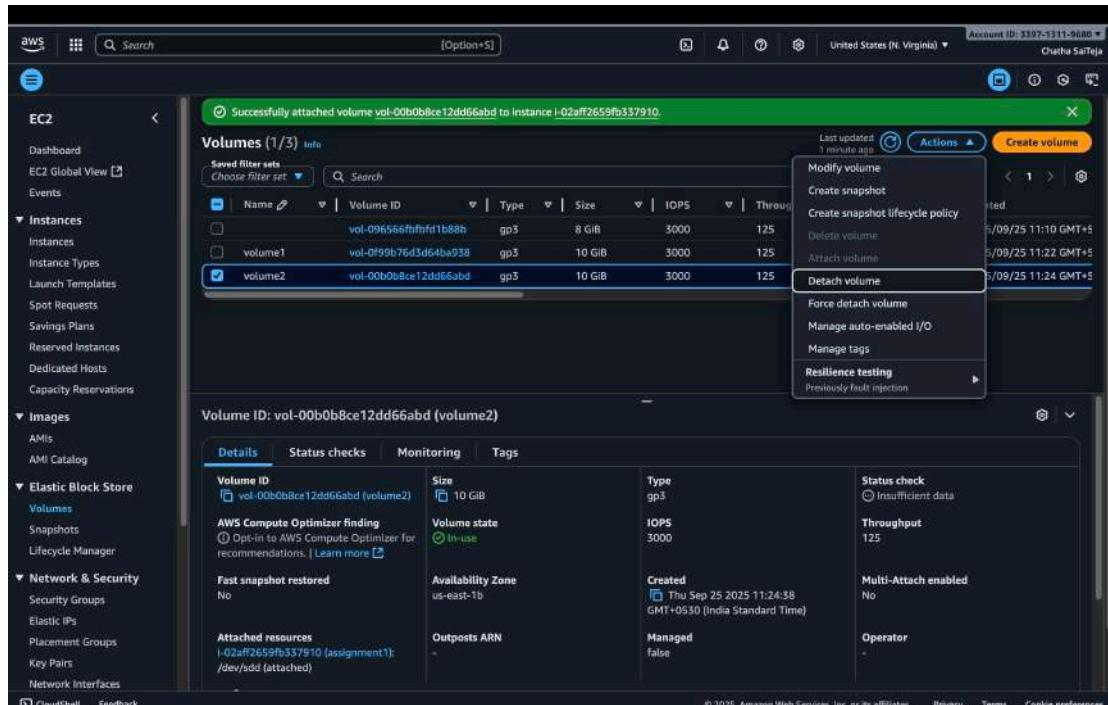
Details to Attach

Step 12:- Attach the volume 2 to the running instance by selecting the volume2 then click on “Actions” and Click on “Attach Volume”



Details to attach to the Volume

Step 13:- Now we have to delete one volume(volume2) after detaching it to the Instance



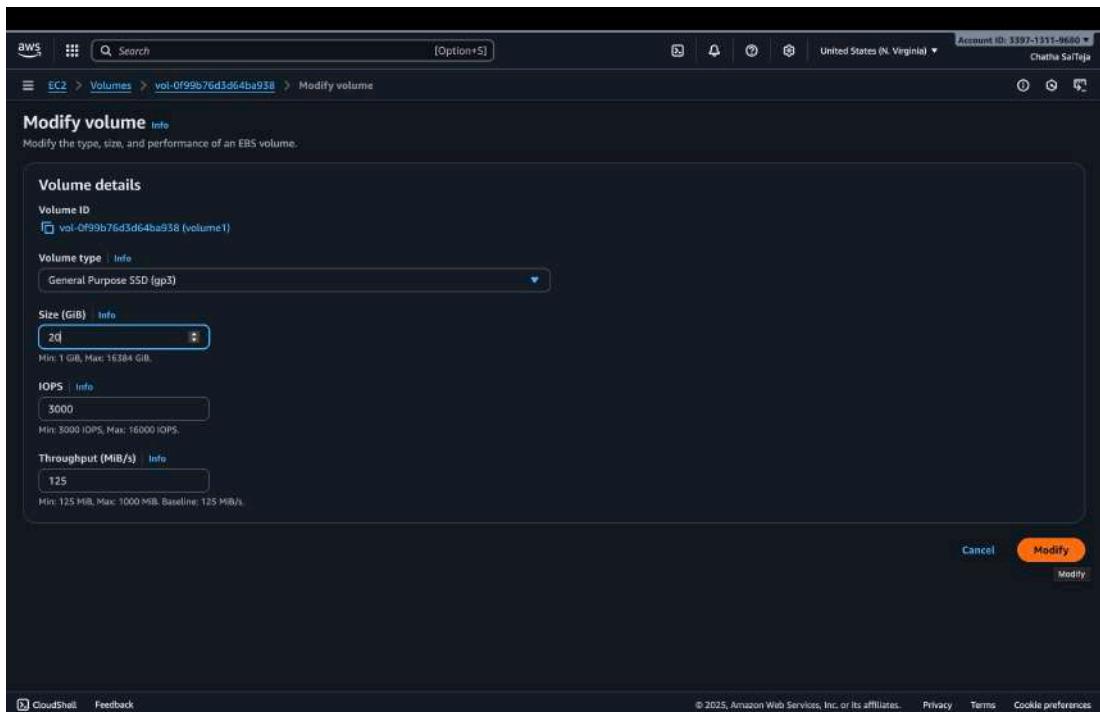
The screenshot shows the AWS EC2 Volumes page. On the left is a navigation sidebar with various EC2-related options like Instances, Images, and Elastic Block Store. The main area displays a table of volumes. Volume 1 has a yellow warning icon. Volume 2 is selected and has a blue checkmark. A context menu is open over Volume 2, with 'Delete volume' highlighted in red. Other options in the menu include Create snapshot, Create snapshot lifecycle policy, Attach volume, Detach volume, Force detach volume, Manage auto-enabled I/O, Manage tags, and Resilience testing.

Deleting the Volume 2

Step 14:- Now we have to modify the volume1 as it has to extend by clicking on modify the volume.

This screenshot is similar to the previous one but shows Volume 1 instead of Volume 2. The context menu for Volume 1 is open, with 'Modify volume' highlighted in red. The other menu items are the same as in the previous screenshot.

Modifying the Volume



Size extended to 20 GiB

Here we extended the size of vol1 from 10 GiB to 20 GiB

The screenshot shows the AWS EC2 Volumes page for volume1. The volume details are as follows:

- Volume ID:** vol-0f99b76d3d64ba938 (volume1)
- Size:** 20 GiB
- Type:** gp3
- Volume state:** In-use
- AWS Compute Optimizer finding:** Opt-in to AWS Compute Optimizer for recommendations.
- Fast snapshot restored:** No
- Availability Zone:** us-east-1b
- Created:** Thu Sep 25 2025 11:22:52 GMT+0530 (India Standard Time)
- Attached resources:** /dev/sdc (attached)
- Outposts ARN:** -
- Managed:** false
- Status check:** Okay
- Throughput:** 125
- Multi-Attach enabled:** No
- Operator:** -

Volume 1 Summary

Step 15:- Take the Backup of EBS Volume(volume1) i.e we have to create a snapshot for Volume 1. So select the volume and Go to “Actions” then Click On Create Snapshot

The screenshot shows the AWS EC2 Volumes page. A context menu is open over a selected volume named 'volume1'. The 'Create snapshot' option is highlighted in the menu. The main pane displays details for 'Volume ID: vol-0f99b76d3d64ba938 (volume1)'.

Details	Status checks	Monitoring	Tags
Volume ID: vol-0f99b76d3d64ba938 (volume1) AWS Compute Optimizer finding: Opt-in to AWS Compute Optimizer for recommendations.	Size: 20 GiB Volume state: In-use IOPS: 3000 Fast snapshot restored: No Attached resources: i-02aff2659fb357910 (assignment1); /dev/sdc (attached)	Type: gp3 Availability Zone: us-east-1b Created: Thu Sep 25 2025 11:22:52 GMT+05:30 (India Standard Time) Outposts ARN: -	Status check: Okay Throughput: 125 Multi-Attach enabled: No Operator: -

Creating a Snapshot

The screenshot shows the 'Create snapshot' wizard. The 'Source volume' section shows the selected volume 'vol-0f99b76d3d64ba938 (volume1)' and its availability zone 'us-east-1b'. The 'Snapshot details' section includes a 'Description' field containing 'snapshot for volume1'. The 'Tags' section indicates 'No tags associated with the resource'.

Details of snapshot

The screenshot shows the AWS EC2 console with the 'Solutions' tab selected. The main view displays a single snapshot named 'snap-0951bd34aef61a447'. The 'Details' section provides the following information:

- Snapshot ID:** snap-0951bd34aef61a447
- Owner:** 339713119680
- Started:** Thu Sep 25 2025 11:32:14 GMT+0530 (India Standard Time)
- Full snapshot size:** 0 B
- Progress:** 100%
- Product codes:** -
- Snapshot status:** Completed
- Description:** snapshot for volume1
- Source volume:** Volume ID: vol-0f99b76d3d64ba938, Volume size: 20 GiB
- Encryption:** Encryption: Not encrypted, KMS key ID: -, KMS key alias: -, KMS key ARN: -

The 'Snapshot settings' tab is active, showing:

- Snapshot Lock:** new
- Lock mode:** Not locked

The 'Share permissions' section indicates the snapshot is Private.

Snapshot summary