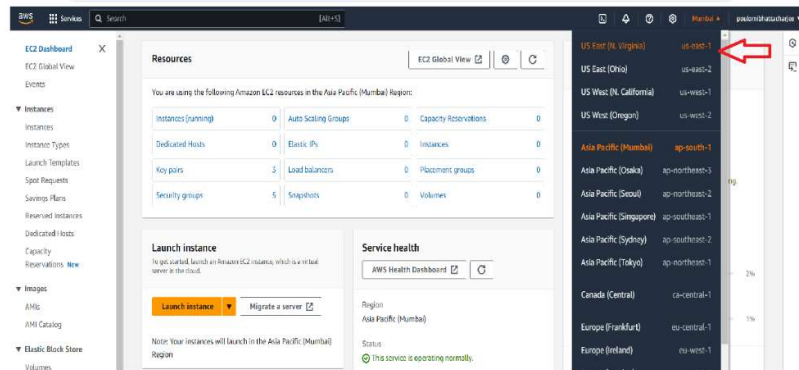


Tasks To Be Performed:

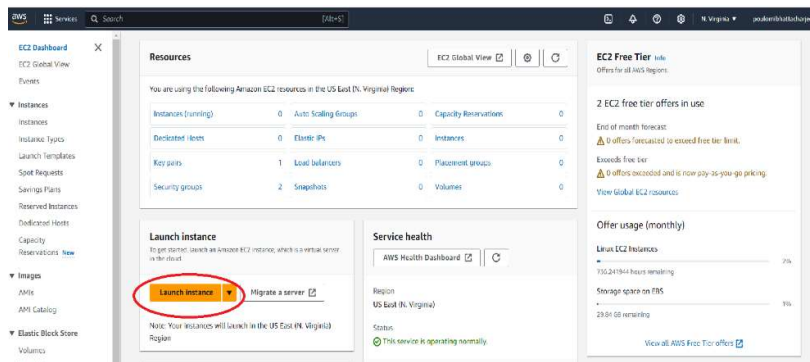
1. Create an instance in the US-East-1 (N. Virginia) region with Linux OS and manage the requirement of web servers of your company using AMI.
2. Replicate the instance in the US-West-2 (Oregon) region.
3. Build two EBS volumes and attach them to the instance in the US-East-1 (N. Virginia) region.
4.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

Solution:

- 1) Login to your AWS account and go to the EC2 console . Change the region to US-East-1 (N.Virginia) from the up right corner.



- 2) Click launch instance



- 3) Give a name and choose AMI amazon linux. Choose instance type and key pair login. Choose network settings , firewall security groups and configure storage. Cclick launch instance.

EC2 > ... > Launch an instance

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.

Search our full catalog including 7000s of application and OS images

Recents Quick Start

Amazon Linux macOS Ubuntu Windows Red Hat SUSE Li

Browse more AMIs including AMIs from AWS, the marketplace and the Community

Instance type info | [Get advice](#)

Instance type: **t2.micro** Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true

On-Demand Windows base pricing: 0.0162 USD per Hour

On-Demand SUSE base pricing: 0.0116 USD per Hour

On-Demand RHEL base pricing: 0.026 USD per Hour

On-Demand Linux base pricing: 0.0116 USD per Hour

[Compare instance types](#)

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: [Create new key pair](#)

Network settings info

Network: info vpc-03eada35fb0eac11

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

Auto-assign public IP: info Enable

Additional changes apply when outside of [VPC peer allowance](#)

Firewall (security group) 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

Common security groups info Select security groups

Launch wizard-1: sg-08c47e2fb08ff8e5 X

VPC: vpc-03eada35fb0eac11

Security groups that you add or remove here will be added to or removed from all your instance interfaces.

Configure storage info

1 x GiB Root volume: (Not encrypted)

[Advanced](#)

☒ Free tier eligible customers can get up to 30 GiB of EBS General Purpose (SSD) or Magnetic storage

Summary

Number of instances: info 1

Software Image (AMI) Amazon Linux 2023 AMI: 2023.6.2 - [read more](#) ami-0b621caaf8a0b8b6

Virtual server type (instance type) t2.micro

Firewall (security group) launch-wizard-1

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

[Preview code](#)

Free tier In your first year includes 750 hours of t2.micro (or t3.micro) in the Regions in which t2.micro is unavailable. Instance usage not free for AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million I/Os, 1 GiB of snapshots, and 100 GiB of bandwidth to the Internet.

4) An instance in the US-East-1 (N. Virginia) region with Linux OS is created.

AWS Services Search [All+5] N. Virginia paulombhattacharjee

EC2 Dashboard EC2 Global View Events

Instances (1/1) info

Find instance by attribute or tag (case-sensitive)

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public
My-linux	i-03b097fde2d78a314c	Running	t2.micro	2/2 checks passing	View alarms +	us-east-1a	ec2-3-90-152-98.comp...	3.90.1

5) To Replicate the instance in the US-West-2 (Oregon) region we need to create AMI of our instance. Select the instance, click actions – image & templates – create image.

AWS Services Search [All+5] N. Virginia paulombhattacharjee

EC2 Dashboard EC2 Global View Events

Instances (1/1) info

Find instance by attribute or tag (case-sensitive)

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public
My-linux	i-03b097fde2d78a314c	Running	t2.micro	2/2 checks passing	View alarms +	us-east-1a	ec2-3-90-152-98.comp...	3.90.1

Actions **Launch instances**

- View details
- Manage instance state
- Instance settings
- Networking
- Security
- Image and templates**
 - Monitor and troubleshoot

Create image

Create template from instance

Launch more like this

6) Give a name, choose other optional and then create image.

Create image

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.

Instance ID: **i-03676a2d18b311c** (My Linux)

Image name: **my-linux-image**

Image description: **optional**

☐ **Reboot instance**
When selected, Amazon EC2 reboots the instance so that data in all new snapshots of the attached volumes are faster. This ensures data consistency.

Instance volumes

Storage type	Device	Snapshot	Size	Volume type	IOPS	Throughput	Delete on termination	Encrypted
EBS	/dev/sda1	Create new snapshot	0	EBS General Purpose	3000		<input checked="" type="checkbox"/> Enable	<input type="checkbox"/> Enable

Add volume

During the image creation process, Amazon EC2 creates a snapshot of each of the above volumes.

Tags - optional
Assign a key-value tag to an AWS resource. Tagging provides a way to categorize and manage resources in your AWS account and filter your search results.

☒ **Tag image and snapshots together**
Tag the image and the snapshots with the same tag.

☐ **Tag image and snapshots separately**
Tag the image and the snapshots with different tags.

No tags associated with the resource.

Add new tag
You can add up to 50 new tags.

Create image

7) To check our image . click AMIs under images tab and we can see our EC2 image is available.

Amazon Machine Images (AMIs) (1/1)

Owned by me | Find AMI by attribute or tag

Name	AMI name	AMI ID	Source	Owner	Visibility	Status
<input type="checkbox"/>	my-linux-image	ami-0c8a774c6a6b211c	010526284257/my-linux-image	010526284257	Private	Available

Select an AMI

8) Select the AMI ,click actions and then copy AMI.

Amazon Machine Images (AMIs) (1/1)

Owned by me | Find AMI by attribute or tag

Name	AMI name	AMI ID	Source	Owner	Visibility	Status
<input checked="" type="checkbox"/>	my-linux-image	ami-0c8a774c6a6b211c	010526284257/my-linux-image	010526284257	Private	Available

Actions

- Launch instance from AMI
- Copy AMI**
- Edit AMI permissions
- Request Spot instances
- Manage tags
- Deregister AMI
- Manage AMI deprecation protection
- Change description
- Configure fast launch
- Manage AMI Documentation
- Register instance store-backed AMI
- Disable AMI

9) Give a name , choose the destination region , choose other parameters and click copy AMI.

Copy Amazon Machine Image (AMI)

Original AMI ID: **ami-0c8a774c6a6b211c**

AMI copy name: **my-linux-image-copy**

AMI copy description: **[Copied ami-0c8a774c6a6b211c from us-east-1] my-linux-image**

Destination Region: **US West (Oregon)**

☐ **Copy tags**
Includes your user-defined AMI tags when copying the AMI.

☐ **Encrypt with snapshots of AMI copy**
Performs all snapshots of the AMI copy with the same key.

Tags - optional
Assign a key-value tag to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your costs.

☒ **Tag image and snapshots together**
Tag the image and the snapshots with the same tag.

☐ **Tag image and snapshots separately**
Tag the image and the snapshots with different tags.

No tags associated with the resource.

Add new tag
You can add up to 50 new tags.

Copy AMI

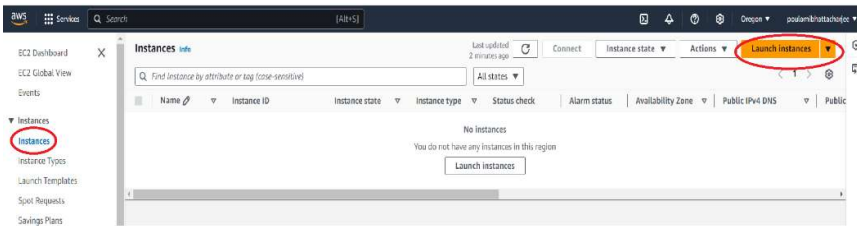
10) Change the region to US-West-2 (Oregon) region . click AMI and we can see our copy image.

Amazon Machine Images (AMIs) (1)

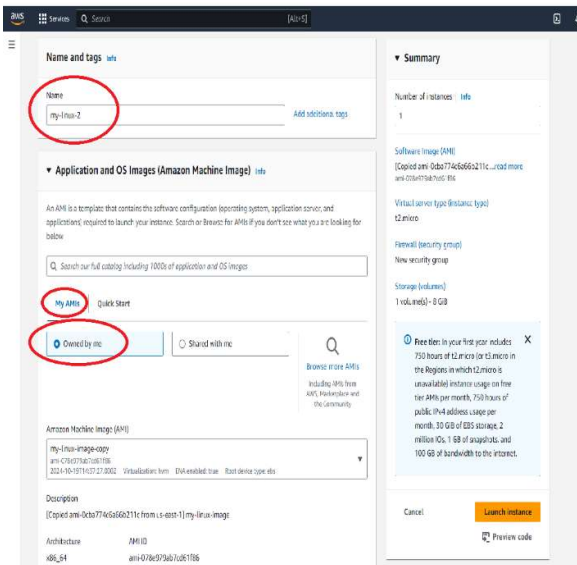
Owned by me | Find AMI by attribute or tag

Name	AMI name	AMI ID	Source	Owner	Visibility	Status
<input type="checkbox"/>	my-linux-image-copy	ami-078e979ab7cd61f86	010526284257/my-linux-image-copy	010526284257	Private	Available

11) Click instances and launch instance.

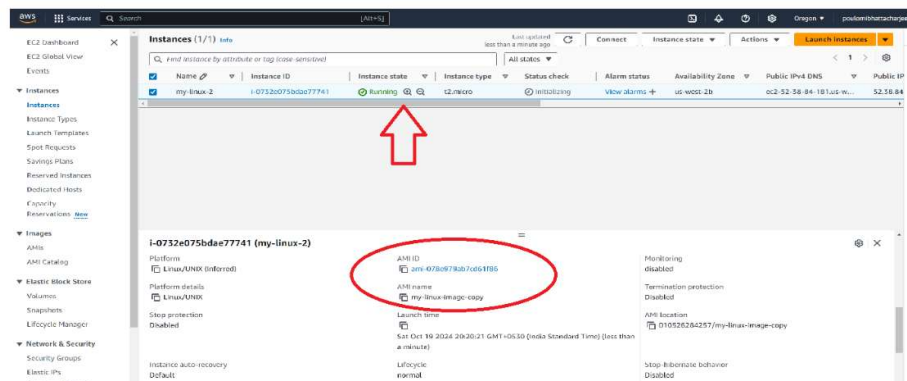


12) Give name, choose My AMIs and then owned by me. We can see the EC2 image with all the details.



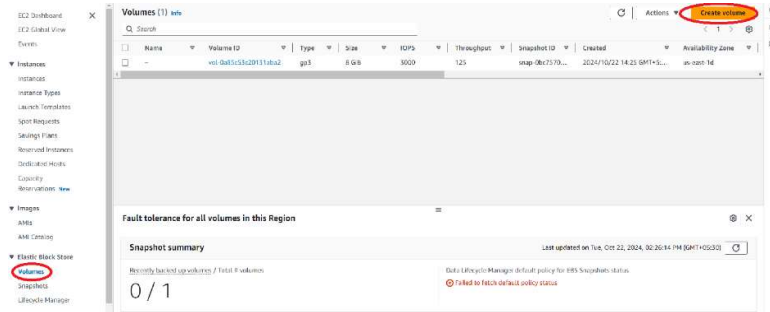
13) Choose instance type and key pair login.

Choose network settings , firewall security groups and configure storage. click launch instance. The instance is running and we can see the AMI . US-East-1 (N.Virginia) EC2 is replicated .

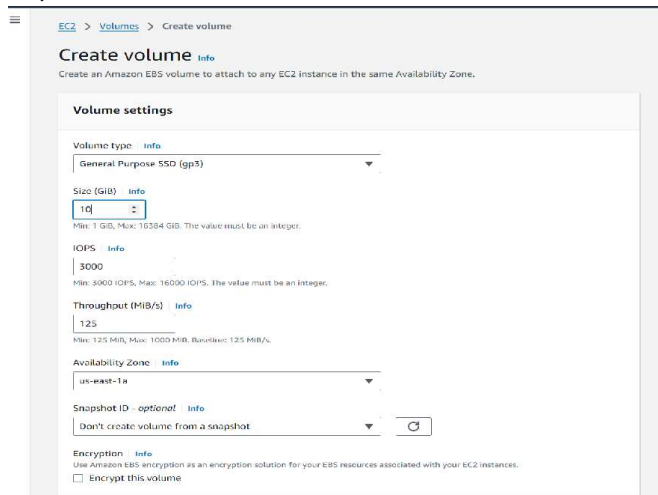


Build two EBS volumes and attach them to the instance in the US-East-1 (N. Virginia) region.

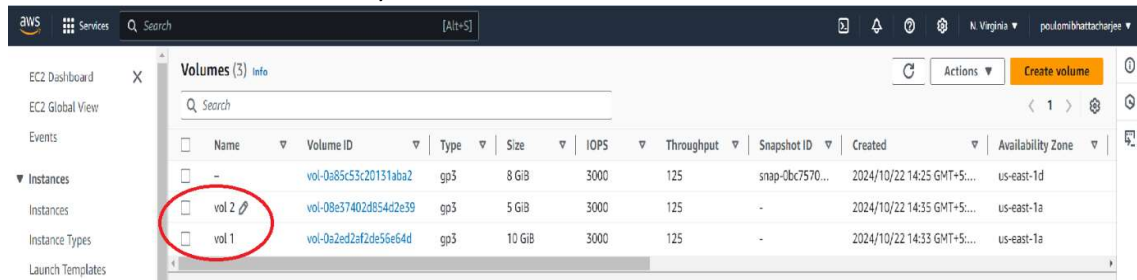
- 1) Click on volumes and then create volume.



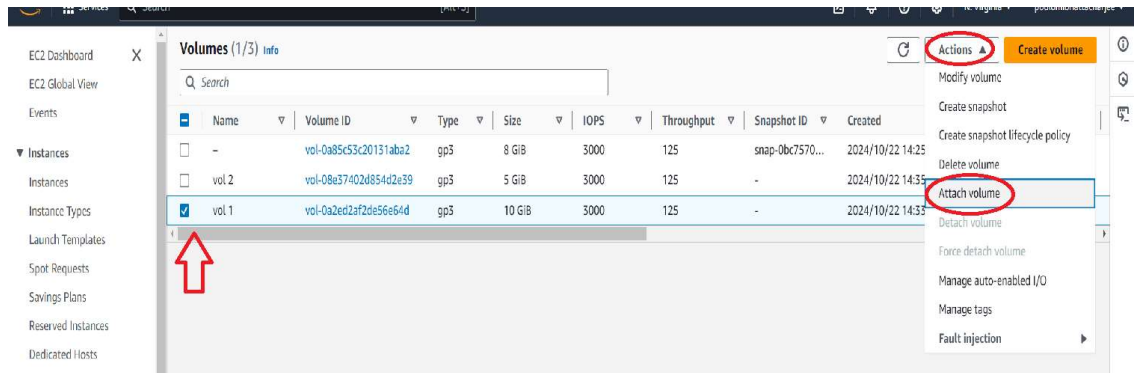
- 2) Choose volume type, size, IOPS, throughput, AZ, encryption etc according to the requirement and then click create.



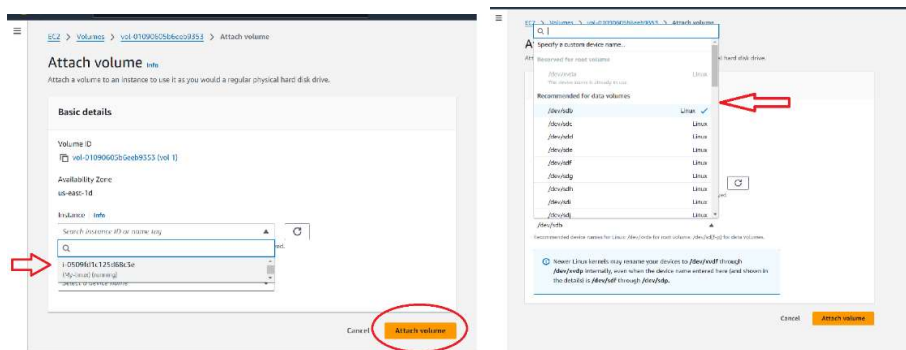
- 3) Create one more volume same steps as above.
- 4) Two volumes are created but they are not attached to our EC2.



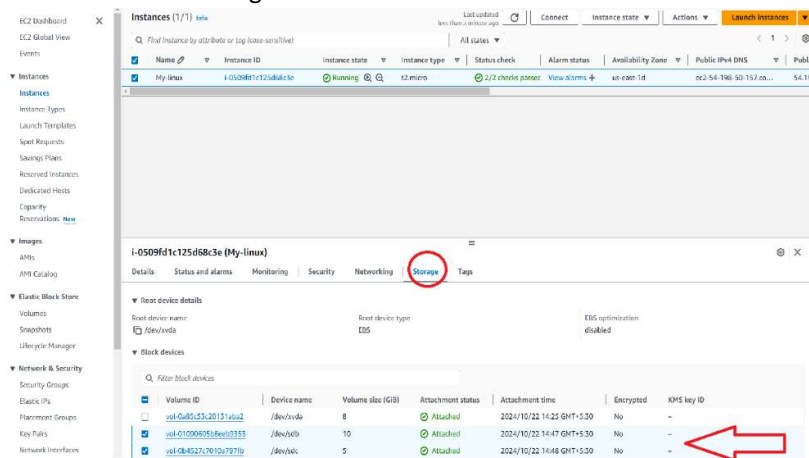
- 5) Select vol 1 and click actions and then attach volume.



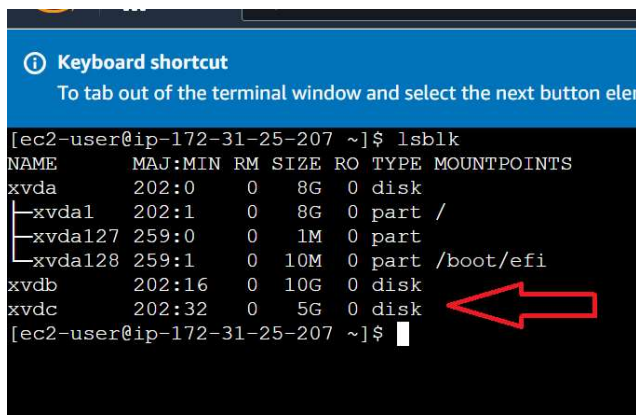
- 6) Choose the instance we want the volume to be attached, choose the device name and click attach.



- 7) Same steps follow for vol 2 attachment.
8) We can check in storage tab that both the volumes are attached to the instance.



- 9) Connect to the EC2 using instance connect. While using lsblk command we cant see the volumes . The root is xvda and both the volumes are xvdb and xvdc which are not mounted.



- 10) We have to mount the volumes. First create a file system .ext4 with the vol name. command : `sudo mkfs.ext4 /dev/xvdb`.

```
[ec2-user@ip-172-31-25-207 ~]$ sudo mkfs.ext4 /dev/xvdb
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 2621440 4k blocks and 655360 inodes
Filesystem UUID: 9c3b24df-489d-4c37-9410-87a076e1f652
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done

[ec2-user@ip-172-31-25-207 ~]$
```

- 11) Make a new dir where the volume will be mounted. Command: `sudo mkdir /newvol`.

```
Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done

[ec2-user@ip-172-31-25-207 ~]$ ^C
[ec2-user@ip-172-31-25-207 ~]$ sudo mkdir /newvol
[ec2-user@ip-172-31-25-207 ~]$
```

- 12) Now we can mount the vol . command : `sudo mount /dev/xvdb /newvol`.

```
Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done

[ec2-user@ip-172-31-25-207 ~]$ ^C
[ec2-user@ip-172-31-25-207 ~]$ sudo mkdir /newvol
[ec2-user@ip-172-31-25-207 ~]$ ^C
[ec2-user@ip-172-31-25-207 ~]$ sudo mount /dev/xvdb /newvol
[ec2-user@ip-172-31-25-207 ~]$
```

- 13) Check using `lsblk` command.

```
[ec2-user@ip-172-31-25-207 ~]$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
xvda         202:0    0   8G  0 disk
├─xvda1      202:1    0   8G  0 part /
├─xvda127    259:0    0   1M  0 part
└─xvda128    259:1    0  10M  0 part /boot/efi
xvdb         202:16   0  10G  0 disk /newvol
xvdc         202:32   0   5G  0 disk
```

- 14) Same steps to be followed for mounting /dev/xvdc. We can see both the volumes are mounted.

```
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
xvda         202:0    0   8G  0 disk
├─xvda1      202:1    0   8G  0 part /
├─xvda127    259:0    0   1M  0 part
└─xvda128    259:1    0  10M  0 part /boot/efi
xvdb         202:16   0  10G  0 disk /newvol
xvdc         202:32   0   5G  0 disk /newvol2
```

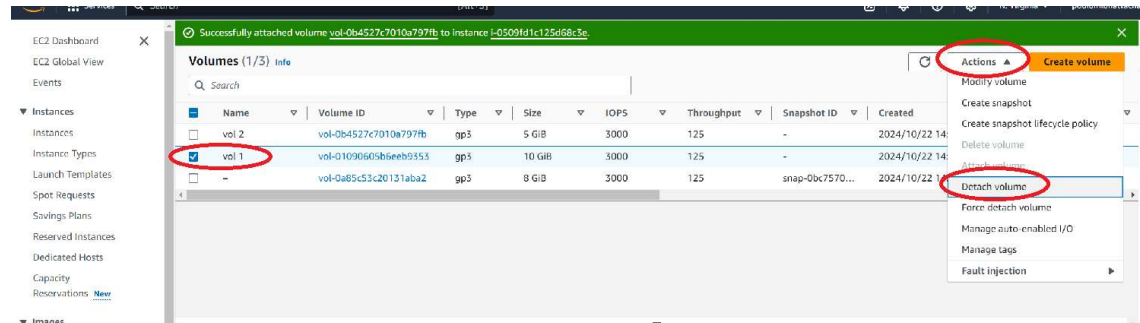
Delete one volume after detaching it and extend the size of the other volume. Take backup of this EBS volume.

- 1) Detach one volume by unmounting it first.

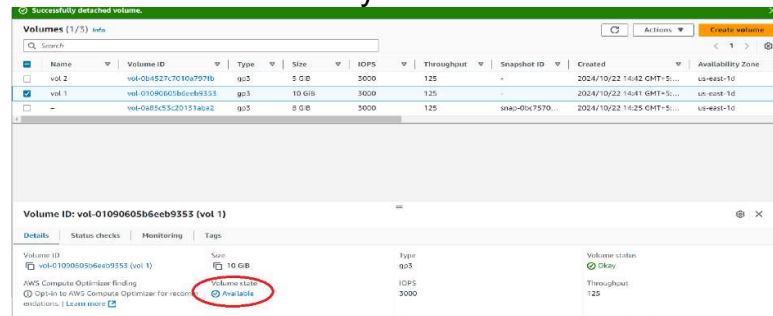
Command : `sudo umount /newvol`. Check with `lsblk` command. We can see the volume is unmounted.

```
[ec2-user@ip-172-31-25-207 ~]$ sudo umount /newvol
[ec2-user@ip-172-31-25-207 ~]$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
xvda        202:0    0   8G  0 disk
├─xvda1     202:1    0   8G  0 part /
├─xvda127   259:0    0   1M  0 part
├─xvda128   259:1    0  10M  0 part /boot/efi
└─xvdb      202:16   0  10G  0 disk
xvdc        202:32   0   5G  0 disk /newvol2
[ec2-user@ip-172-31-25-207 ~]$
```

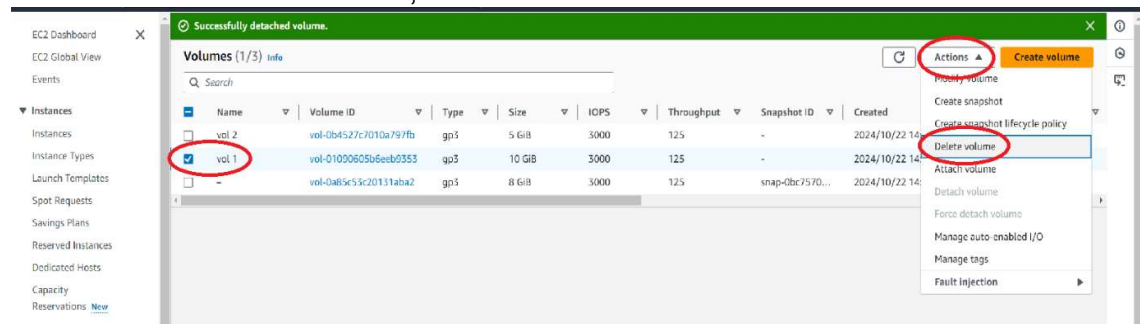
- 2) Go to the management console . select the volume, click actions and detach volume.



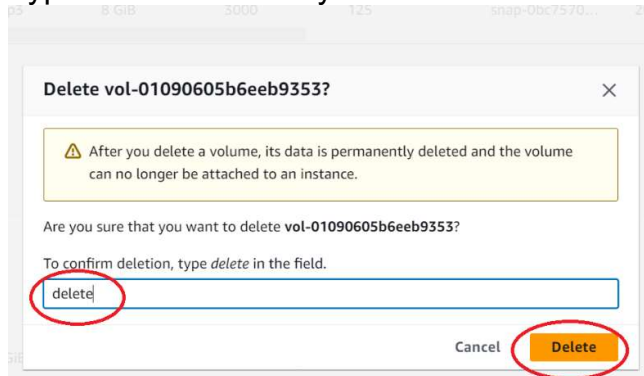
- 3) To check, select the volume detached and we can see its state is available. Its successfully detached.



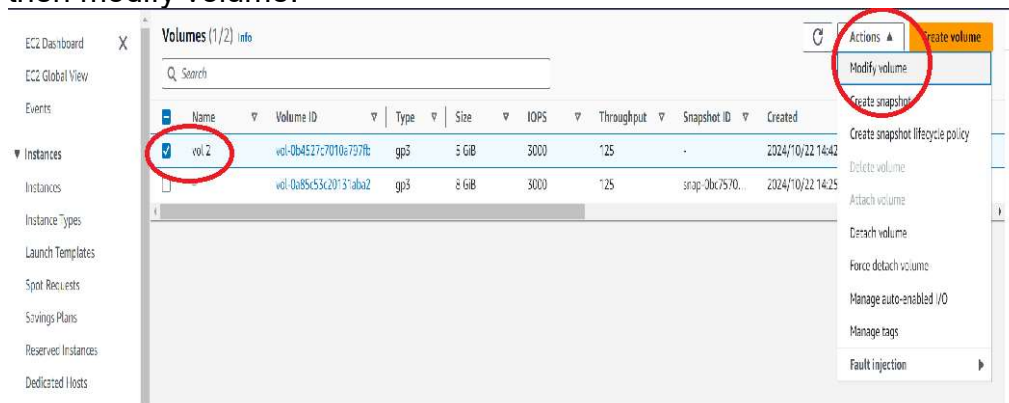
- 4) To delete select the volume, click actions and delete volume.



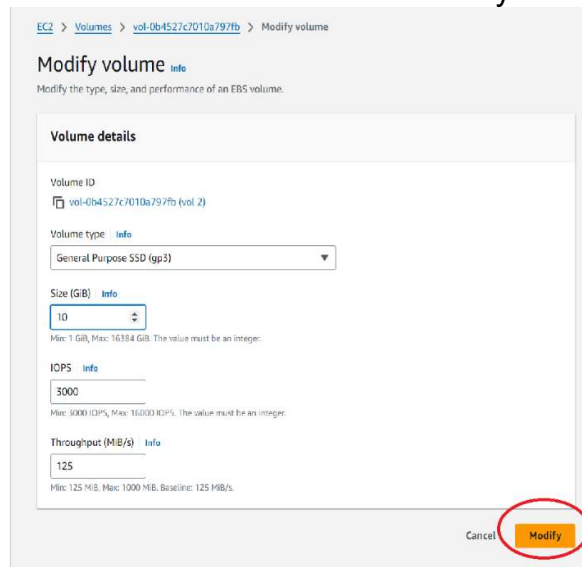
5) Type delete and finally vol is deleted.



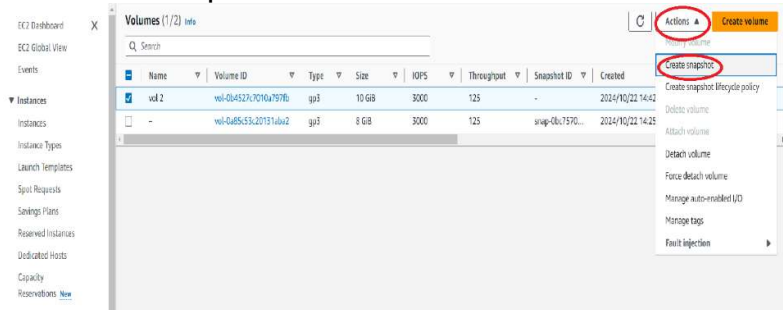
6) To extend the size of other volume. Select the volume, click actions and then modify volume.



7) Extend the volume and click modify.



8) To take backup . select the volume click actions and create snapshot.



9) Add description , tags and click create snapshot.

The screenshot shows the 'Create snapshot' form. The 'Source volume' section shows 'Volume ID: vol-0b4327c7010a797fb' and 'Availability Zone: us-east-1d'. The 'Snapshot details' section has a 'Description' field with the text 'vol 2 copy' and an 'Encryption' section set to 'Not encrypted'. The 'Tags' section shows 'No tags associated with the resource.' and an 'Add tag' button. At the bottom, there are 'Cancel' and 'Create snapshot' buttons.

10) To check, go to snapshots and we can see the backup of or volume.

