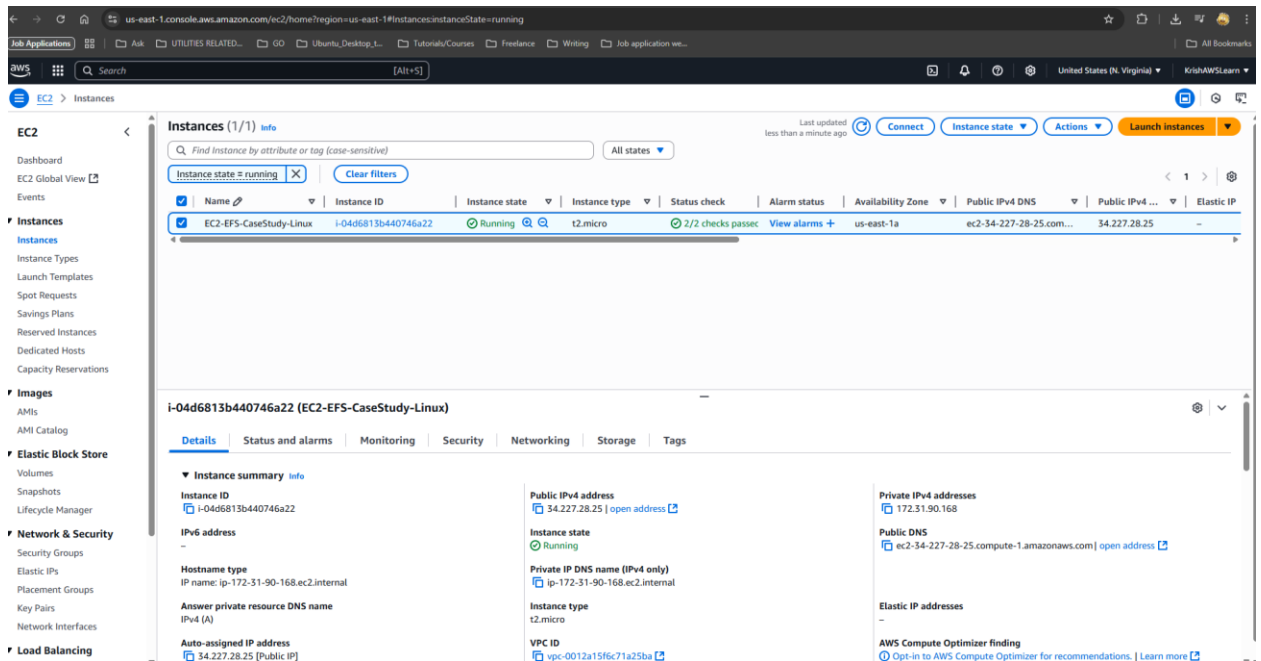
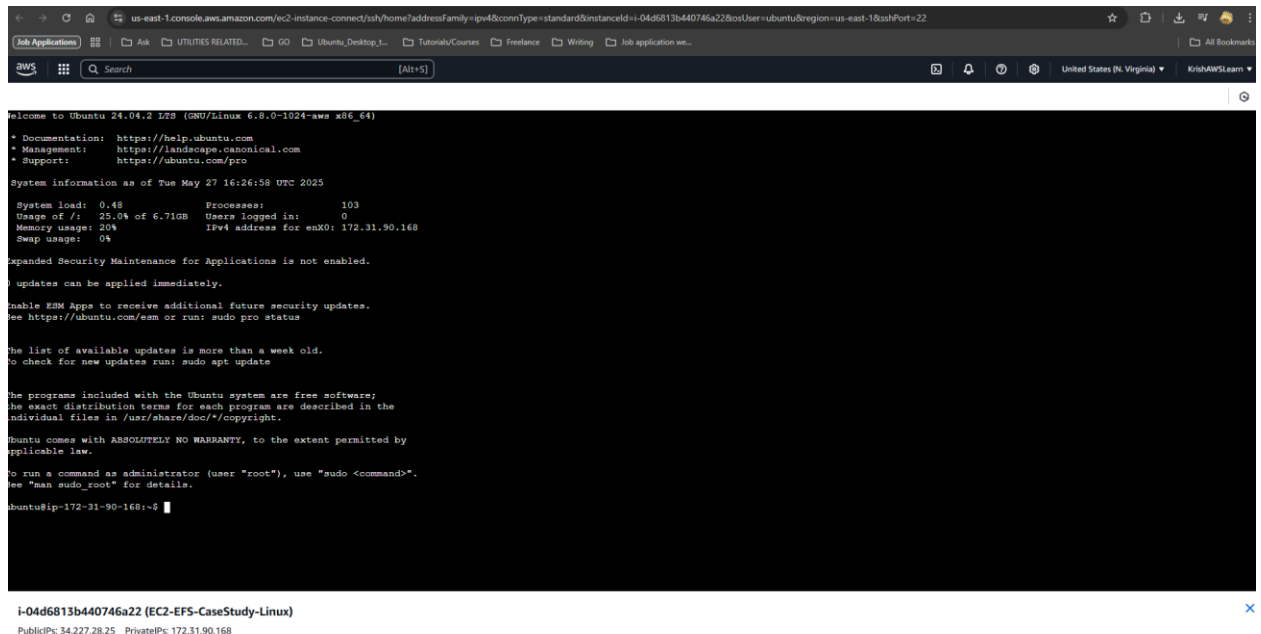


EC2 and EFS Case Study

1. EC2 Linux Instance in US-East-1



Connected to the Instance



AMI from the Instance

The screenshot shows the AWS Management Console interface for Amazon Machine Images (AMIs). The left sidebar contains a navigation menu with the following sections:

- EC2
 - Dashboard
 - EC2 Global View
 - Events
- Instances
 - Instances
 - Instance Types
 - Launch Templates
 - Spot Requests
 - Savings Plans
 - Reserved Instances
 - Dedicated Hosts
 - Capacity Reservations
- Images
 - AMIs (selected)
 - AMI Catalog
- Elastic Block Store
 - Volumes
 - Snapshots
 - Lifecycle Manager
- Network & Security
 - Security Groups
 - Elastic IPs
 - Placement Groups

The main content area is titled "Amazon Machine Images (AMIs) (1)". It includes a search bar and a table of AMIs. The table has the following columns: Name, AMI name, AMI ID, Source, Owner, Visibility, Status, and Creation date. One AMI is listed:

Name	AMI name	AMI ID	Source	Owner	Visibility	Status	Creation date
<input type="checkbox"/>	EC2-EFS-CaseStudy-Linux-AMI	ami-068fc1fac38add40a	850995560756/EC2-EFS-CaseStudy-LI...	850995560756	Private	Available	2025/05/27 22:42 GMT+5:3

Below the table, there is a section titled "Select an AMI" with a search bar and a dropdown menu.

Web Server on the instance

The screenshot shows a web browser displaying the nginx welcome page. The page has a dark background with white text. The text reads:

Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

2.Replication of US-East-1 instance to US-West-2

Copied Image/AMI from US-East-1

The screenshot displays the AWS Management Console for the us-west-2 region, specifically the Amazon Machine Images (AMIs) page. The left sidebar shows the navigation menu with categories like EC2, Images, Elastic Block Store, and Network & Security. The main content area shows a list of AMIs owned by the user. One AMI, 'EC2-EFS-CaseStudy-Linux-AMI' with ID 'ami-0f77802ad15524db0', is highlighted. Below the list, the details for this AMI are shown, including its name, ID, owner account ID, root device name, boot mode, and source. The AMI is in an 'Available' state.

Name	AMI name	AMI ID	Source	Owner	Visibility	Status	Creation date
<input checked="" type="checkbox"/>	EC2-EFS-CaseStudy-Linux-AMI	ami-0f77802ad15524db0	850995560756/EC2-EFS-CaseStudy-Li...	850995560756	Private	Available	2025/05/27 22:51 GMT+1

AMI ID: ami-0f77802ad15524db0

Details	Permissions	Storage	Tags
AMI ID ami-0f77802ad15524db0 AMI name EC2-EFS-CaseStudy-Linux-AMI Root device name /dev/sda1 Boot mode uefi-preferred Description	Image type machine Owner account ID 850995560756 Status Available State reason -- Product codes	Platform details Linux/UNIX Architecture x86_64 Source 850995560756/EC2-EFS-CaseStudy-Linux-AMI Creation date 2025-05-27T17:21:02.000Z RAM disk ID	Root device type EBS Usage operation RunInstances Virtualization type hvm Kernel ID -- Deoperation time

Launched Instance from Copied AMI

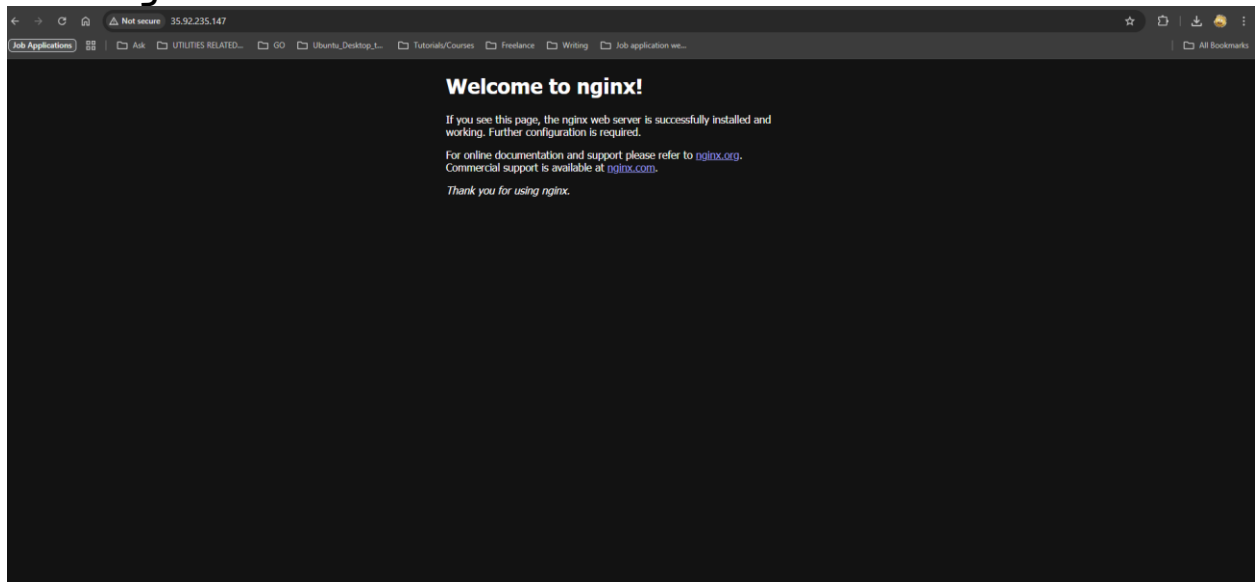
The screenshot displays the AWS Management Console for the us-west-2 region, specifically the Instances page. The left sidebar shows the navigation menu with categories like EC2, Images, Elastic Block Store, and Network & Security. The main content area shows a list of instances. One instance, 'EC2-EFS-CaseStudy-Linux-Copied-from-Virginia' with ID 'i-0db644cf47ad3b76', is highlighted. Below the list, the details for this instance are shown, including its name, ID, instance state, instance type, status check, alarm status, availability zone, public IP v4 DNS, and public IP v4.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP v4 DNS	Public IP v4	
<input checked="" type="checkbox"/>	EC2-EFS-CaseStudy-Linux-Copied-from-Virginia	i-0db644cf47ad3b76	Running	t2.micro	2/2 checks passed	View alarms +	us-west-2a	ec2-35-92-235-147.us-...	35.92.235.1

i-0db644cf47ad3b76 (EC2-EFS-CaseStudy-Linux-Copied-from-Virginia)

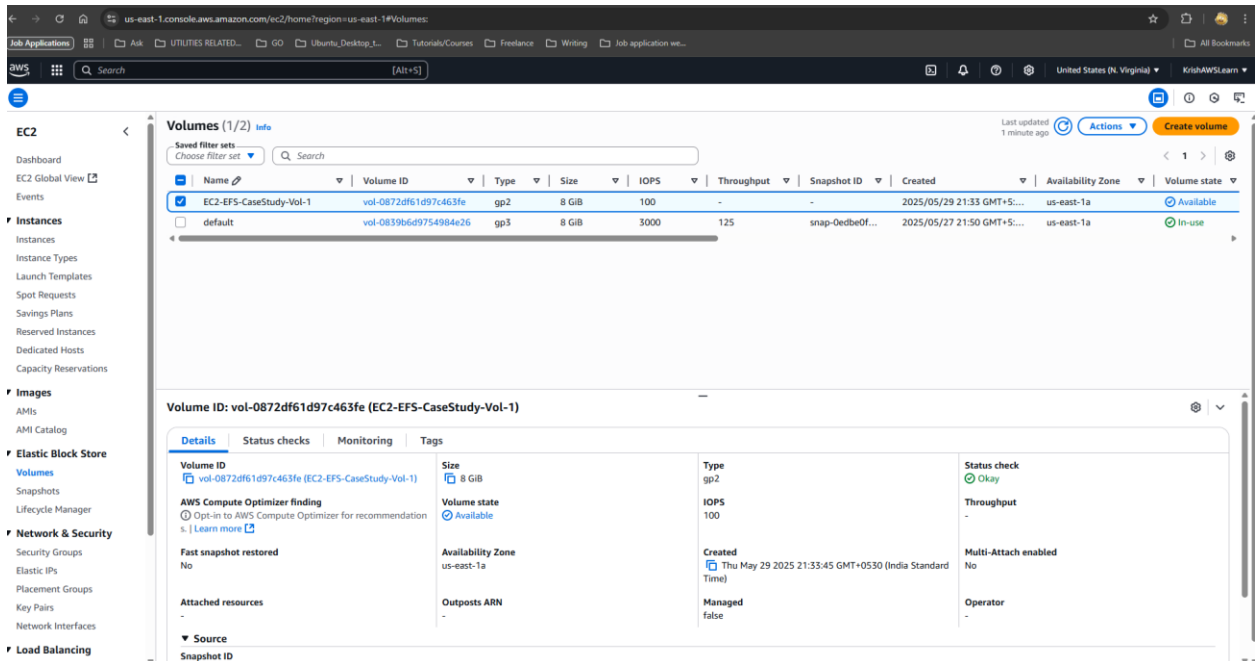
Details	Status and alarms	Monitoring	Security	Networking	Storage	Tags
Instance summary Instance ID i-0db644cf47ad3b76 IPv6 address -- Hostname type IP name: ip-172-31-34-15.us-west-2.compute.internal Answer private resource DNS name IPv4 (A) Auto-assigned IP address 35.92.235.147 (Public IP)	Public IP v4 address 35.92.235.147 open address Instance state Running Private IP DNS name (IPv4 only) ip-172-31-34-15.us-west-2.compute.internal Instance type t2.micro VPC ID vpc-007778939f2aa7616	Private IP v4 addresses 172.31.34.15 Public DNS ec2-35-92-235-147.us-west-2.compute.amazonaws.com open address Elastic IP addresses -- AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations. Learn more				

Running Web Server in US-West-2



3. Build Two EBS volume attach them to US-East-1

EBS vol-1



Vol-1 Attach and mounted

```

root@ip-172-31-90-168: /home X + v
ubuntu@ip-172-31-90-168:~$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0        7:0      0  26.3M  1 loop /snap/amazon-ssm-agent/9881
loop1        7:1      0  73.9M  1 loop /snap/core22/1748
loop2        7:2      0  44.4M  1 loop /snap/snapd/23545
loop3        7:3      0  50.9M  1 loop /snap/snapd/24505
loop4        7:4      0  73.9M  1 loop /snap/core22/1963
loop5        7:5      0  27.2M  1 loop /snap/amazon-ssm-agent/11320
xvda         202:0     0    8G  0 disk
├─xvda1      202:1     0    7G  0 part /
├─xvda14     202:14    0    4M  0 part
├─xvda15     202:15    0   106M  0 part /boot/efi
└─xvda16     259:0     0   913M  0 part /boot
xvdf         202:80    0    8G  0 disk
ubuntu@ip-172-31-90-168:~$ mkdir
mkdir: missing operand
Try 'mkdir --help' for more information.
ubuntu@ip-172-31-90-168:~$ mkdir vol1
ubuntu@ip-172-31-90-168:~$ mkfs -t ext4 /dev/xvdf
mke2fs 1.47.0 (5-Feb-2023)
mkfs.ext4: Permission denied while trying to determine filesystem size
ubuntu@ip-172-31-90-168:~$ sudo su
root@ip-172-31-90-168:/home/ubuntu# mkfs -t ext4 /dev/xvdf
mke2fs 1.47.0 (5-Feb-2023)
Creating filesystem with 2097152 4k blocks and 524288 inodes
Filesystem UUID: 1ed316f8-978a-4139-a9ca-e917af878139
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

root@ip-172-31-90-168:/home/ubuntu# mount /dev/xvdf vol1
root@ip-172-31-90-168:/home/ubuntu# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0        7:0      0  26.3M  1 loop /snap/amazon-ssm-agent/9881
loop1        7:1      0  73.9M  1 loop /snap/core22/1748
loop2        7:2      0  44.4M  1 loop /snap/snapd/23545
loop3        7:3      0  50.9M  1 loop /snap/snapd/24505
loop4        7:4      0  73.9M  1 loop /snap/core22/1963
loop5        7:5      0  27.2M  1 loop /snap/amazon-ssm-agent/11320
xvda         202:0     0    8G  0 disk
├─xvda1      202:1     0    7G  0 part /
├─xvda14     202:14    0    4M  0 part
├─xvda15     202:15    0   106M  0 part /boot/efi
└─xvda16     259:0     0   913M  0 part /boot
xvdf         202:80    0    8G  0 disk /home/ubuntu/vol1
root@ip-172-31-90-168:/home/ubuntu#

```

Vol-2

Successfully created volume vol-0da27b33c756a5fa6

Volumes (1/3) info

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created	Availability Zone	Volume state
EC2-EFS-CaseStudy-Vol-2	vol-0da27b33c756a5fa6	gp2	10 GiB	100	-	-	2025/05/29 21:46 GMT+5...	us-east-1a	Creating
EC2-EFS-CaseStudy-Vol-1	vol-0872df61d97c463fe	gp2	8 GiB	100	-	-	2025/05/29 21:33 GMT+5...	us-east-1a	In-use
default	vol-08396d9754984e26	gp3	8 GiB	3000	125	snap-0edbe0f...	2025/05/27 21:50 GMT+5...	us-east-1a	In-use

Volume ID: vol-0da27b33c756a5fa6 (EC2-EFS-CaseStudy-Vol-2)

Details	Status checks	Monitoring	Tags
Volume ID vol-0da27b33c756a5fa6 (EC2-EFS-CaseStudy-Vol-2)	Size 10 GiB	Type gp2	Status check Okay
AWS Compute Optimizer Finding Opt-in to AWS Compute Optimizer for recommendation < Learn more	Volume state Creating	IOPS 100	Throughput -
Fast snapshot restored No	Availability Zone us-east-1a	Created Thu May 29 2025 21:46:49 GMT+0530 (India Standard Time)	Multi-Attach enabled No
Attached resources -	Outposts ARN -	Managed false	Operator -
Source Snapshot ID			

Vol-2 attach and mount

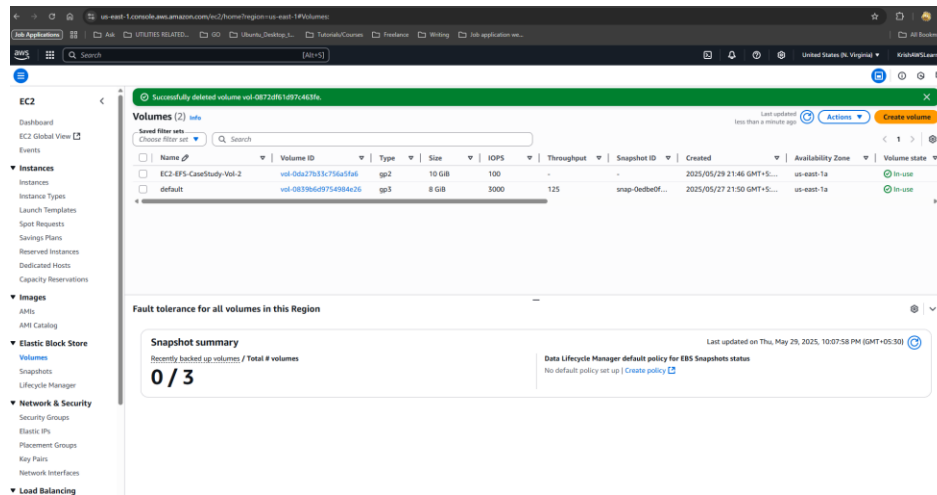
```
root@ip-172-31-98-168: /home/ubuntu# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0       7:0      0  26.3M  1 loop /snap/amazon-ssm-agent/9881
loop1       7:1      0  73.9M  1 loop /snap/core22/1748
loop2       7:2      0  44.4M  1 loop /snap/snapd/23545
loop3       7:3      0  50.9M  1 loop /snap/snapd/24505
loop4       7:4      0  73.9M  1 loop /snap/core22/1963
loop5       7:5      0  27.2M  1 loop /snap/amazon-ssm-agent/11320
xvda        202:0      0    8G  0 disk
|xvda1      202:1      0    7G  0 part /
|xvda14     202:14     0    4M  0 part
|xvda15     202:15     0   106M  0 part /boot/efi
|xvda16     202:16     0   913M  0 part /boot
xvde        202:64     0    10G  0 disk /home/ubuntu/vol2
xvdf        202:80     0    8G  0 disk /home/ubuntu/vol1

root@ip-172-31-98-168: /home/ubuntu# mount /dev/xvde vol2
root@ip-172-31-98-168: /home/ubuntu# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0       7:0      0  26.3M  1 loop /snap/amazon-ssm-agent/9881
loop1       7:1      0  73.9M  1 loop /snap/core22/1748
loop2       7:2      0  44.4M  1 loop /snap/snapd/23545
loop3       7:3      0  50.9M  1 loop /snap/snapd/24505
loop4       7:4      0  73.9M  1 loop /snap/core22/1963
loop5       7:5      0  27.2M  1 loop /snap/amazon-ssm-agent/11320
xvda        202:0      0    8G  0 disk
|xvda1      202:1      0    7G  0 part /
|xvda14     202:14     0    4M  0 part
|xvda15     202:15     0   106M  0 part /boot/efi
|xvda16     202:16     0   913M  0 part /boot
xvde        202:64     0   10G  0 disk /home/ubuntu/vol2
xvdf        202:80     0    8G  0 disk /home/ubuntu/vol1

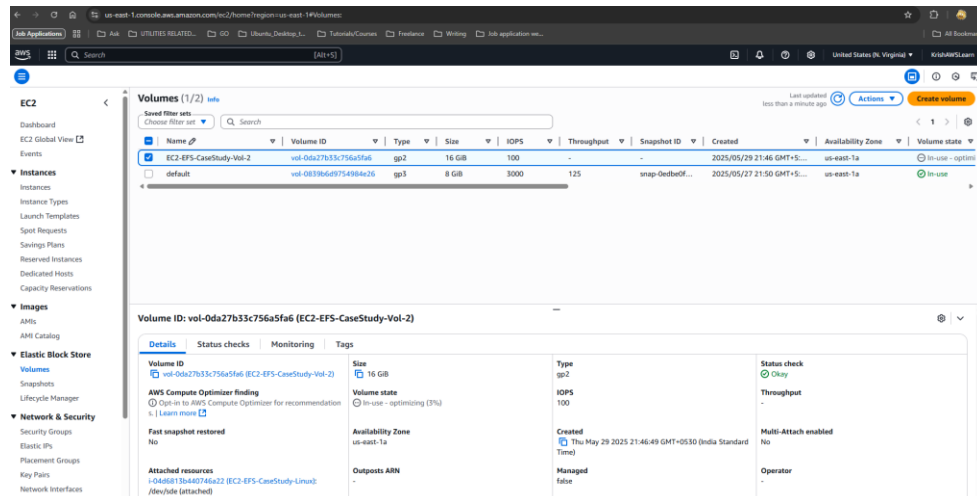
root@ip-172-31-98-168: /home/ubuntu#
```

4. Delete one volume and increase one vol-1

Vol-1 deleted



vol-2 increased



```
root@ip-172-31-90-168: /home/ubun...  
root@ip-172-31-90-168:/home/ubun...# lsblk  
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS  
loop0       7:0      0  26.3M  1 loop /snap/amazon-ssm-agent/9881  
loop1       7:1      0  73.9M  1 loop /snap/core22/1748  
loop2       7:2      0  44.4M  1 loop /snap/snapd/23545  
loop3       7:3      0  50.9M  1 loop /snap/snapd/24505  
loop4       7:4      0  73.9M  1 loop /snap/core22/1963  
loop5       7:5      0  27.2M  1 loop /snap/amazon-ssm-agent/11320  
xvda        202:0    0    8G    0 disk  
├─xvda1     202:1    0    7G    0 part /  
├─xvda14    202:14   0    4M    0 part  
├─xvda15    202:15   0   106M  0 part /boot/efi  
└─xvda16    259:0    0   913M  0 part /boot  
xvde        202:64   0    16G   0 disk /home/ubuntu/vol2  
root@ip-172-31-90-168:/home/ubun...#
```

5. Backup of EBS(snapshot)

The screenshot shows the AWS Management Console interface for EBS snapshots. The left sidebar contains navigation links for EC2, Instances, Images, Elastic Block Store, Network & Security, and Load Balancing. The main content area displays a table of snapshots, with one selected for detailed information.

Snapshots (1/3)

Owned by me	Search	Name	Snapshot ID	Full snapshot size	Vol...	Description	Storage tier	Snapshot status	Started	Progress
<input type="checkbox"/>			snap-075fd485bb0cdd...	8 GiB	8 GiB	Created by CreateImage(i-04d6813b440746a22) f...	Standard	Completed	2025/05/27 22:02 GMT+5:...	100%
<input type="checkbox"/>			snap-0c6360b3427b9e...	8 GiB	8 GiB	Created by CreateImage(i-04d6813b440746a22) f...	Standard	Completed	2025/05/27 22:44 GMT+5:...	100%
<input checked="" type="checkbox"/>			snap-0713728946149...	235 MiB	16 GiB	EC2-EFS-CaseStudy-Vol-2-snapshot-10:20 PM	Standard	Completed	2025/05/29 22:19 GMT+5:...	100%

Snapshot ID: snap-07137289461498c1f

Snapshot ID	Full snapshot size	Progress	Snapshot status
snap-07137289461498c1f	235 MiB	100%	Completed

Owner
850995560756

Started
Thu May 29 2025 22:19:10 GMT+0530 (India Standard Time)

Description
EC2-EFS-CaseStudy-Vol-2-snapshot-10:20 PM

Source volume

Volume ID	Volume size
vol-0da27b33c756a5fa6	16 GiB

Encryption
Not encrypted

KMS key ID
-

KMS key alias
-

KMS key ARN
-

Product codes
-

Fast snapshot restore
-